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BEADS, BULLETS, AND BROKERAGE: EXPLORING ECONOMIC AGENCY IN EIGHTEENTH-CENTURY WEST FLORIDA

A dissertation submitted in partial satisfaction
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

ANTHROPOLOGY

by

Danielle Lynn Dadiego

December 2020

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2020

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Beads, Bullets, and Brokerage: Exploring Economic Agency in Eighteenth-Century West Florida

Abstract

Danielle Lynn Dadiego

This dissertation explores the effectiveness of Spanish economic institutions in a borderland region. Recent studies have illuminated the diverse actions that native groups enacted in response to Spanish colonialism ranging from allying with the Spanish for military support to cleaving out a wedge in the market economy. Current work has considered issues of transculturation, indigenous agency, persistence, and autonomy; however, these examinations focus on the scale of the household or local economy, and do not situate native agents within a larger economic network, nor do they consider the agency of Spanish and other European actors in the context of a colonial economy. Colonial Pensacola, Florida provides an ideal stage to witness where monolithic trade policies meet economic reality, but this context is not unique. All over the world, past and present, individuals, groups, and institutions innovate and improvise within and against the global market and capitalistic trade policies. Understanding how this process played out in the past can lead to a better understanding of how people in local contexts navigate their daily lives within a globally connected economy.

Methods include archival research, traditional artifact analysis, and chemical composition and isotopic analysis of glass beads and lead shot using Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) and acid dissolution to study the role that both colonial and native people played in disrupting or

contributing to colonial economic institutions in eighteenth-century Pensacola, Florida. Although broadly recovered from sites, lead shot and monochrome glass beads lack diagnostic physical or stylistic characteristics that would facilitate interpretations of production, distribution, and use patterns. The chemical methods are used in conjunction with a close examination of historical documents to provide evidence of how goods moved through colonial and indigenous communities, foregrounding the importance of economic agency among settlers and natives, even when these practices challenged idealized models of mercantilism and colonial government regulations. Results from analysis of the three datasets illuminate both legal and illicit exchange among the Spanish, French, British, Apalachee, Yamasee, and Upper Creek. Historical correspondences document illicit trade, and the chemical analysis of the glass bead and lead bullets corroborates and supplements historical data.

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Of my committee, Judith Habicht-Mauche of UCSC and John E. Worth of the University of West Florida provided essential guidance and support during all stages of my research. Judith and John have over twenty years of experience in their fields

(isotopic analysis and Spanish paleography respectively), and I would not have been able to complete this work without them. Along the way several family members and close friends provided emotional support even when they had absolutely no idea what I was talking about. Lastly, I would like to acknowledge my very first mentor in archaeology, Nathan D. Hamilton of the University of Southern Maine, for getting me hooked on archaeology and encouraging me to never stop moving forward and never stop learning. It has been a long journey since 2003 and with this accomplishment behind me I hope to practice archaeology for decades to come!

Chapter 1: Theoretical Frameworks and Economic Agency

Evening vespers were quieter than usual the night of the gruesome attack and only a handful of Apalachee residents of San Joseph de Escambe were prepared for what was to come. That fateful night of April 9, 1761 marked the fitful demise of the Spanish Florida mission system; an outmoded institution already caught in the death throes of Spain's imperial control over Florida. The events that led to this precipitous point in history are worth telling because it is a familiar story that repeats itself all over the globe time and time again. On its surface it is a result of colonialism and capitalism, but underneath these monolithic structures lurk the real complexities of the constant interplay and struggle of power, agency, and dependency. Living in a capitalist arena with a globally connected economy makes it easy to forget the birth of this system in North America. A birth that was more akin to a battle over land, materials, people, and even the human soul. Eighteenth-century Florida represents a slice in time when the colonial economy and capitalism was beginning to take hold; it represents a place where the ideals of imperial mercantilist polices clashed not only with Native political economies, but also with the economic realities of frontier colonialism and the self-interest of Spanish subjects far removed from their homeland. This dissertation explores the effectiveness of Spanish economic institutions in a borderland region and the role that both colonial and Native people played in disrupting or contributing to those economic institutions by expressing

varying degrees of economic agency. Specifically, this research highlights the economic agency of not only the Apalachee, Yamasee, and Creek, but also that of the Spanish officials and settlers, and French and English merchants; an economic agency that dismantled and reconstituted European and Indigenous political economies into something novel. Eighteenth-century North America marked the final transition into a full-fledged market economy with the abandonment of many imperial and indigenous economic policies and the adoption of a system that is still prevalent nearly three centuries later.

Earlier approaches to the study of colonialism used a top-down method where colonialism was considered a monolithic hegemony imposed upon indigenous communities. In this context, Native peoples can only respond in reactionary ways like extinction, assimilation, adaptation, and resistance. Even in recent works where the indigenous communities are ascribed agency and creativity in the face of colonialism, the concept of cause and effect or action and reaction is still at play. Human interaction should not be understood in terms of physics (action/reaction), but rather in terms of creation and reconstruction. It is true that people and groups react to an infinite number of outside circumstances and effectors, but the reality is much more complicated than that. Researchers keep envisioning identities as bounded forms of energy that interact by diffusion, dissipation, or replacement. In actuality, human identities and interactions break the laws of physics by creating, reforming and blending in ways that produce something new and sometimes diagnostically indivisible. In other words, we cannot understand interaction and identity construction

unless we approach it from both a top-down and bottom-up perspective (Lightfoot 1995; Hill 1998; Stein 1998:907).

Moreover, rarely is it considered that colonialism is both a European and an Indigenous endeavor, or that colonists are just as capable of adapting, resisting, or assimilating to indigenous traditions, practices, and ideologies. This thinking in no way dismisses the severity and trauma of European colonization in the Americas, but instead it brings to light that our current perceptions of Native American and other indigenous groups are perpetuated from colonial paradigms of identity and ethnicity: from a hegemonic and essentialist mindset that measures indigeneity on static traditions and passive acquiescence. Past cultures often represent the heritage of living peoples, and studies of culture contact and interaction therefore have many ramifications (Cusick 1998:135; Panich 2013; Panich and Schneider 2014).

Recent studies have illuminated the diverse actions that Native groups enacted in response to Spanish colonialism ranging from allying with the Spanish for military support, to the formation of military slaving societies to gain political power, to cleaving out a wedge in the market economy, to transcending the lineage requirements that restricted commoners from the elite realm (Worth 2002; Ethridge 2006; Galloway 2009; Marcoux 2010). Current work has considered issues of transculturation, indigenous agency, persistence, and autonomy; however, these examinations focus on the scale of the household or local economy, and do not situate Native agents within a larger economic network, nor do they consider the agency of Spanish and other European actors in the context of a colonial economy. Thus, the

study of formal and informal economies encompasses many scales of analysis and several methods for determining the motivations behind the production, distribution, and consumption of certain goods by certain groups.

Archaeologists have currently begun asking questions about the ways that domestic and local economies intersect with broader imperial economic systems (Hauser 2008:68). However, the archaeological investigation of social and economic linkages among communities and institutions on a regional scale during the colonial period is not well developed. Such a perspective not only would highlight the ways in which surpluses were extracted and goods moved through developing commodity chains, but also would facilitate the examination of interactions between indigenous groups (Van Buren 2010:175). This trajectory can even shed light on the overall effectiveness of European economic institutions established in borderland or frontier regions, far from the watchful eye of the metropole and where sophisticated and extensive indigenous systems of exchange already existed for centuries.

The analysis of political economy through archaeology has demonstrated the need to enfold production, exchange, and consumption within political systems and relationships of power (Hauser 2008:68). Moreover, interest in the varied ways in which people negotiated their involvement in the colonial order also typifies work on the economic implications of Spanish imperialism (Van Buren 2010:167). Control over land, availability of labor, evasion of taxes, and the existence of market opportunities were among the key variables that conditioned individual strategies for negotiating the colonial economy (Van Buren 2010:169). In Florida, the Native elite

from polities like the Apalachee incorporated European trade goods into a preexisting symbolic system used to legitimize authority (Saunders 1998:403). Native groups implemented very different tactics for negotiating with colonial parties depending largely on extant political relationships within the broader indigenous landscape and the perceived advantages that forging alliances with the Spanish might provide local Native communities and leaders regarding access to trade goods, protection from enemies, and competition among political factions (Lightfoot 2014:206). Colonists found themselves entangled amid preexisting and dynamically changing local, regional, and inter-regional rivalries and alliances that conditioned the choices Native peoples made (DeCoster 2013:377). Colonists also had to adjust to and find a balance between the imperial economic structures they were sent to impose and the benefits of engaging with Native economies, especially when their own economic institutions were faulty and insufficient.

The nature of political power for Southeastern chiefdoms was tied to alliance and subordination within paramount cities, so any act of subordination to the Spanish Crown or submission to the Catholic church was a strategic move to increase their standing within their own local and regional polities (John E. Worth 2020, pers. comm.). Nothing in the documentary record suggests that the *caciques* (chiefs) of the Southeast were intimidated by the technological superiority or the religious grandeur of the Spanish (Saunders 1998:413). Usually, these peoples exhibited highly selective preferences in the goods they were willing both to accept and to give in exchanges with colonial agents, or they sometimes refused to interact at all (Dietler 1998:300).

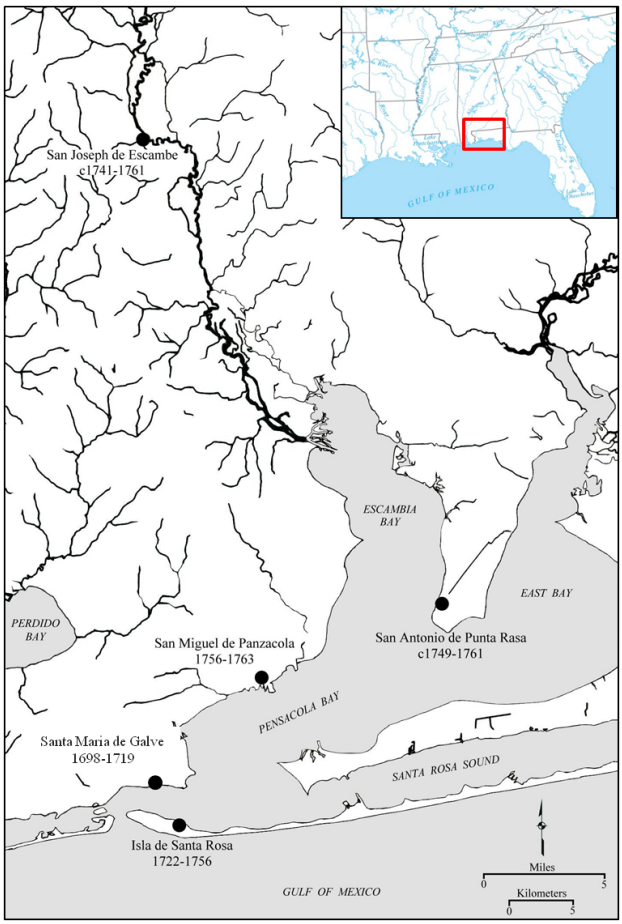
Overall, there has been a movement away from acculturation theory in favor of new models that foreground social agency and reinterpret the colonial situation as a syncretic process in which multiple active agents created new cultural forms (Voss 2008:865). Missions are no longer just seen as places of colonial subjugation but also as places that Natives (both commoners and elites) used for their own purposes; whether to profit from the colonial economy, to adopt new religious symbols and practices into a matrix of old beliefs or preserve or rebuild their communities in the face of over two centuries of internal political and territorial warfare, European influenced destruction, relocation, migration, and consolidation via slave raiding, missionization, capitalistic trade, and disease (Weber 2000:6). Native groups like the Apalachee, Yamasee and Creek became social, political, and economic intermediaries, cultural and economic brokers in a tumultuous colonial context. However, Native groups were not the only actors in these borderland regions. In order to fully understand the complexities of living in these areas during the colonial era, we must also look at the multiple European actors and how they navigated imperial economic and political structures. Looking at all aspects and actors within a borderland allows us to understand the level of entanglement, reconstitution, resistance, and negotiation taking place on the ground.

Borderlands are defined as places that were politically within the sphere of the Spanish empire but were constantly influenced and manipulated by peoples and economies operating both outside their borders and from within (Cusick 2011:138). In general, economic activities at presidios and missions were highly variable simply

because these communities were located on the fringes of the empire and received little support from the Crown (Van Buren 2010:170). Presidio and mission residents often had recourse to economic sources outside those sanctioned by the state. Especially interesting are the presidios and missions located at the intersection of the Spanish, French, and later British colonies in the Southeast (Van Buren 2010:170). Economic transactions in the margins create their own pressures on colonial forms of knowledge, which, in turn, help to define and redefine what is perceived as legal or illegal (Hauser 2008:7). Archaeological examination of things produced, sold, and exchanged through this economy provides a mechanism by which we can examine how people actively used local economies to transform their lives and create social networks in response to highly structured colonial life (Hauser 2008:3).

Florida was settled both to serve as a barrier outpost against French and British encroachment and to protect the treasure fleets returning to Spain. However, these colonies were largely ignored by the Spanish empire because, unlike New Spain and the Caribbean Islands, they produced no lucrative exports. Over the course of a century, three presidios (fortified towns) were constructed by the Spanish in Pensacola to house and protect soldiers, and by the 1740s, two missions were established for the Spanish-allied Apalachee and Yamasee (Figure 1.1). The Spanish missions of San Antonio de Punta Rasa and San Joseph de Escambe were both peripheral to direct Spanish control and proximal to French and British settlements. Their locations would have allowed them to act as trading hubs that moved supplies into presidios via access to Upper and Lower Creek trade networks. By identifying

how goods moved through these landscapes, we can foreground the importance of economic agency among settlers and these specific Native groups, even when these practices challenge idealized models of mercantilism and colonial government regulations (Hauser 2008). The movement of goods and supplies from missions to presidios contributed to the maintenance of these settlements, provided the Spanish indirect (illicit) access to other European powers, and allowed the Yamasee and Apalachee to retain or establish exchange networks with interior Native groups like the Creek.



FIGUE 1.1. Map of Pensacola Bay, Florida with archaeological sites.

Through the combined use of archival research, traditional artifact analysis, chemical composition glass beads, using Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS), and the isotopic analysis of lead shot, using acid dissolution with ICP-MS, the reconstruction of the economic landscape of eighteenth-century Pensacola becomes possible. Glass beads are ubiquitous on colonial period sites, common trade items for Europeans, and, more importantly, socially charged items within Native thought-worlds. Lead shot is equally ubiquitous; however, it is considered a mundanely functional item. Although broadly recovered from sites, lead shot and monochrome glass beads lack diagnostic physical or stylistic characteristics that would facilitate interpretations of production, distribution, and use patterns. Innovations in methodological techniques, including LA-ICP-MS, allow the use of formerly ignored artifact categories to trace the distribution of goods across the landscape through various Native and European exchange networks.

Paleography

On the one hand, documents often represent only a subset of the population--the literate and higher status individuals. On the other hand, archaeology is not as communicative as documentary sources (Graham et al. 1989:1254). Fortunately, a plethora of original documents exist that pertain to colonial Spanish Pensacola. The documentary record for First Spanish Period of Pensacola (1698–1763) contains many thousands of sources that are available in several different languages, formats, and mediums. It is necessary to discern which types of documents provide the most useful information regarding any specific research question. A will, for example, would not be as useful as a presidio supply list for acquiring specific evidence of

trade and exchange. Moreover, “the deeper the research, the more the light of evidence must converge from sources of many different kinds” (Bloch 1953:67). Therefore, it is important to review several kinds of documents and assess their validity and relevance to the research questions. In this sense, documents must be assessed from two perspectives. They require an external criticism that assesses the authenticity or validity of the document and an internal criticism that evaluates the credibility of the author’s statements and intentions. It is vitally important to understand the “author’s temporal proximity to the event, the purpose of the document and its intended audience, and how the document relates to the prevailing ideology of the period of its composition” (Stahl 1993:247).

Some of the most detailed information pertinent to supply and trade is included in documents on the local scale. Correspondences, supply lists, and permits that directly relate to the presidios and missions are the most relevant. They are relevant because of the details concerning material culture and social interactions. Although these document types provide specific information about eighteenth-century Pensacola, it is necessary to place the settlement in a broader context. In order to understand how the economy of the Spanish empire mapped onto indigenous ones, we need to understand how each works. This will shed light on colonial economies that encompasses all scales (local, regional, and global). Local trade and regional economies are much more global than we originally thought. And the Spanish worked with indigenous economic systems more than generally acknowledged.

Therefore, it is important to analyze documents that discuss regional events. Orders from the governor of the presidio, or correspondences from the Viceroy of New Spain provide details on expenditures, supply shipments, and other economic data. Most available documents fall under this regional category. Letters that mentioned other Native American towns in the area, like Tuquipache, Tawasa, Punta Rasa, and Ymuclasa, are useful for providing information on socioeconomic interaction with different Native American groups like the Upper and Lower Creek. While discussing the broader context of Pensacola's role in Spanish Florida's economic system, it is impossible not to address the region's influence on the global economy. Political motivations are intertwined with economic aspirations, as they have always been since Spain expanded to the Americas. Port cities like Havana, Veracruz, and St. Augustine have important documentation concerning commerce during the eighteenth century and were integral to the success of the Spanish administration in West Florida.

Records are available in the United States in various formats, including microfilm, photocopies, and digital copies of original documents obtained from the *Archivo General de Indias* (AGI), the *Archivo General de la Nacion* (AGN), and other archives from around the world. The AGI, presently located in Seville, Spain, accumulated many types of documents sent from the New World. It is the repository of archival documents illustrating the history of the Spanish empire in the Americas and the Western Pacific. The AGN, located in Mexico City, contains many documents that relate to internal matters within New Spain, basically, any

documentation that relates to internal administrative matters in colonial times. Viceregal documents and Native American affairs are some of the more important topics that relate to the Pensacola presidios and missions.

Several documents relating to Pensacola during the eighteenth century have already been transcribed and translated by John Hann, John Clune, John Worth, Wayne Childers, William Coker, and others. These documents are available in two places at the University of West Florida: The University Archives and West Florida History Center at John C. Pace Library, and the Documents Library of the Division of Archaeology and Anthropology. A portion of the documents acquired from the AGN, AGI, P.K. Yonge Library of Florida History (Gainesville, Florida), the *Biblioteca Nacional* (National Library, Madrid, Spain), and other archives are available on microfilm. Overall, most of the historical data comes from secondary reviews of original documents, but the most detailed information about the people of Pensacola comes from selected primary documents that are referenced in this chapter and presented in Appendix A. Patrick Johnson (2012) from the University of West Florida traveled to the AGN, and reviewed documents including many from the *Marina* and *Historia* sections for his thesis on Creek and French interactions. Several key documents pertaining to illicit trade, contraband, and/or smuggling are juxtaposed with supply, shipping, and warehouse records to paint a detailed landscape of not only the movements of goods and their legality, but also the many hidden motivations and agendas behind these economic actions; written evidence of economic agency in the making.

By understanding where these goods came from and how they were circulated we can demonstrate how these materials moved between different colonial regions and settlements. The primary goal of this dissertation is to explore the economic landscape of eighteenth-century Pensacola by examining evidence of illicit trade in historical documents, glass bead variability, and lead ammunition distribution. Although not all questions were answered fully, some understanding was gained pertaining to the core questions of this research: What was the nature of economic interactions between Spanish settlers, mission inhabitants, and interior Native groups with British and French alliances? The results of the integrated documentary and chemical analyses presented in this dissertation suggest a scenario that was even more complicated and more interesting than any of the proposed hypotheses in the subsequent sections.

The remainder of this chapter outlines the various theoretical frameworks that guide this entire project as well as introduces two main research themes influenced by the concept of economic agency. This chapter also presents guiding research questions in addition to three hypothesized answers or outcomes of those questions. Chapter 2 provides a broad contextual background to eighteenth century Florida while detailing specific economic imperial and colonial economic, political, and religious institutions, colonial and indigenous settlements, and most importantly, colonial and indigenous economic agents. Furthermore, this chapter presents old and new documentary evidence of illicit or informal economic actions and interactions. Chapter 3 discusses the five archaeological sites central to the research and examines

the presence of imported artifacts, whether supplied though legal networks or obtained via trade through illegal networks. Artifacts such as tin enameled earthenwares and other easily provenanced objects are juxtaposed with carefully evaluated historical documentation of legal and illegal trade periods in order to illuminate economic implications beyond the mere presence/absence of the said artifacts. Chapters 4 and 5 represent the main body of novel data driving the research; thus, holding the greatest relevance for testing the hypotheses. Chapter 4 details the chemical analysis of 400 glass beads (predominately monochrome drawn beads) sampled from three of the five archaeological sites. This chapter also provides a background to morphometric studies of glass beads, including glass bead production, as well as a thorough background on chemical analysis of glass in general. Methods, sampling strategies, and results of the analysis are also presented. Chapter 5 follows a similar trajectory as Chapter 4 but deviates on the analytical technique. Where elements in the glass beads are of primary relevance, the isotopic composition is of major importance in the analysis of the lead shot. The lead isotope ratios of 150 lead shot (primarily bird and buck shot) from three of the five archaeological sites are presented along with an analysis of their possible production origins based on a known provenance dataset. Chapter 6 is the final chapter and summarizes the totality of the work as well as potential future research and analyses that are currently beyond the scope of this dissertation.

Political Economy

In order to fully appreciate the varied responses to, negotiations with, and outright rejection of a monolithic imperial economic structure imposed on a colonial

context, we must first understand that structure, and the many structures it is supposed to replace. It is necessary to understand the political economy of the metropole, its colonies, and that of the numerous indigenous polities already in place. In its simplest form, political economy is the study of structural relationships that defined the means of controlling wealth and creating inequality in a state-level society (Hirth 1996:205). This definition fits well with the model of Spanish imperial rule which predicts an absolutist, centralist, and extractive presence connecting its colonies to its center. In reality, the Spanish political economy resembled a conglomerate of relatively independent territorial units that were financed, not directly from the metropole, but rather through "a network of interdependent treasury districts related in a large and complicated web of intracolonial transfers" (Grafe and Irgoin 2012:612). Revenue collection was even more decentralized and fragmented, spread out among a large number of tax-collecting jurisdictions. Within these territorial units and districts, the same process of governing the differential control of and access to resources plays out only at a smaller scale. Political organization, consumption patterns, and social development are all influenced by how these individuals control their regional economies (Hirth 1996:204). In this sense it is impossible to isolate a single imperial economy or resource strategy (Morrison and Sinopoli 1992:335). On closer inspection this unified nation-state is economically splintered, organized on a regional level, and in most cases, integrated with non-imperial institutions.

Much work has focused on the political economy of pre-state and pre-industrial societies, but far less effort has been made to examine how these structures of indigenous populations may have contributed to or disrupted colonial economic structures (Lightfoot et al. 2013:89). Central to political economies of indigenous societies were polity size, polity structure, and landscape management practices. These dimensions all influenced the various forms of exchange and access to certain material goods. Systems of periodic and regularized tribute and the acquisition of prestige goods were important aspects of pre-state political economies. Prestige goods were essential to the process of social reproduction, and indigenous societies actively redefined what exactly those goods were (Stein 1998:24). Polity size was an important factor when indigenous groups were faced with deciding whether to directly confront, negotiate, or simply ignore colonial interlopers (Lightfoot et al. 2013:91). The political structure of a Native society was an equally important factor that affected how colonial administrators would approach local groups for trade goods and foodstuff, and how they would approach leaders to obtain vassals and converts for labor. Although there is a contrast between the multicentered exchange systems of relatively indigenous economies and a money-dominant market (Nash 1965), they also share similar features that facilitate an overlap and initial coexistence of the two structures.

The concept of unequal access to wealth and status and the processes of production, exchange or redistribution, and consumption share similar definitions between imperial and indigenous political economies. There is a direct link between

the attempts of elites to influence groups outside their direct political control via economic manipulation to the emergence of large-scale mercantile networks (Hirth 1996:219). Elites or upper-class colonial agents were involved in the complex interconnection between producers, consumers, merchants, and rulers within the network of exchange whether directly or indirectly (Hirth 1996:224; Morrison and Sinopoli 1992:344). Production and exchange are actually two sides of the "same political coin" and are utilized concurrently by elites to accumulate resources (Hirth 1996:207). In Spanish colonial economies the market was the locus of exchange, the trade was the actual exchange, and currency was the means for exchange (Polanyi et al. 1971:254–255). In indigenous exchange systems, goods were exchanged for goods (barter) and followed the ideals of reciprocity. Trading agents were on equal footing and the exchange carried more meaning than the reciprocity of goods. Items traded were more like items given and alliances were built on this exchange. Wesson (2010:63–64) identifies this as a moral economy; an economy not separate from the indigenous political economy, but the part of it that is governed by cultural beliefs, values, and practices regarding obligations and principles of reciprocity. The Spanish recognized this system of reciprocity, tribute, and gifting and adapted their economic structure to follow suit (Mallios 2004). What emerged were different types of trading that incorporated both political economies; gift trading (ceremonial and political), administered trading (trade through government or elite controlled channels), and market trade (bartering or currency-based).

One of the major objectives of archaeologists concerned with political economy is the source of material correlates of inequality, ideology, and agency. Commonly overlooked are the facts that exchange is motivated by the intentional actions of individuals and groups (Cobb 1993:61). External exchange is accompanied by intra-societal competition, and the development of social inequality at the local level. Distribution, exchange, and consumption are controlled in some aspect by individual and group agency: "what goods were favored, what degree of control existed, spatial extent, value, organization, and measure of success" (Muller 1997:358). Even Spanish colonials acted in self-interest and against imperial economic institutions by avoiding taxes, evasion, or smuggling. Actions like these were so common that they were considered rational responses to overcoming the heavy-handedness of the metropole.

Consumption and Consumer Agency

Production, exchange, distribution, and consumption are spokes in the economic wheel. Production and distribution will be discussed in greater detail in subsequent chapters as historical and archaeological evidence is presented. In order to properly contextualize those systems it is important to discuss the theory behind consumerism, especially when it pertains to how preference, taste, and/or choice both influences, and is influenced by modes of production and confining structures of distribution (i.e., access, availability, and surplus). It is called supply and demand for a reason. However, demand is never an automatic response to the availability of goods; it is much more complex and is further complicated in colonial contexts (Dietler 2010:67). This tension between widespread structural influences and

consumer agency is a central element uniting a vast range of archaeological studies that can be couched under an archaeology of consumption (Mullins 2011:135). Many forms of consumption can be studied including the use of natural resources, acquisition though trade and exchange, and market transactions of commodities for currency (Silliman and Witt 2010:49). Additionally, consumption can fall beyond a strictly economic realm into the social realm where identity construction and performance interact with ethnicity, gender, class, and age. Considerable differences exist between the public meanings of material culture and the private meaning ascribed by individuals or groups (Cook et al. 1996:54). In this sense, consumer choice is embedded in social practices that influence how individuals produce and reproduce their daily lives based on social relations that can either enable or constrain what they consume (Wurst and McGuire 1999).

Consumption embodies tangible and observable consequences in the types and quantities of goods acquired, but it also manifests the choices people made as individual participants in a broader economic structure (Silliman and Witt 2010). Evidence of consumption in the archaeological record is commonly interpreted as reflecting patterns of availability of goods, but rarely is the reason why consumers choose one thing over another considered (Cook et al. 1996:51). Other common assumptions within the context of colonial economies are that European traders are envisioned as a negative influence and indigenous groups are rarely considered active participants in Europe's market economy (Sleeper-Smith 2009). Moreover, European commodities have been viewed as mechanisms of colonial domination and

assimilation of indigenous economies. These depictions of European intrusion have mistakenly removed indigenous people from playing significant roles in the emerging Atlantic economy and researchers have failed to appreciate the agency of the indigenous consumer (Sleeper-Smith 2009). Scholars are now abandoning assumptions of monolithic behavior of empirical economic structures and their acculturative influence on indigenous consumers, and are acknowledging the indigenous influence on colonizers by stressing the socially, historically, and culturally specific contexts that shape consumption (van Dantzig and Bosman 1974; Rodriguez-Alegria 2010:52; Mullins 2011:136). The focus has now shifted to how indigenous consumers interacted with, influenced, and changed the very nature of a bourgeoning colonial market economy, which in turn shaped the broader global market.

The study of Native American participation in the market economies of the eighteenth century has only begun to mature. During this entire century, indigenous demand for specific types of finished goods influenced the goods that were being produced for shipment to North America; a fact that has been underappreciated until now. Within the market economy, indigenous groups confronted the larger apparatus of colonialism, "a system that involves global relations of production and distribution, increasing alienation between producers and consumers, currency based transactions, credit and indebtedness, and a mode of economic and social engagement framed by particular kinds of consumption" (Silliman and Witt 2010:46). In this system, the market economy can become a context for social and economy agency, rather than a

hegemonic force of assimilation. Native Americans can be studied as workers, consumers, producers, sellers, brokers, and distributers. The patterns of consumption among indigenous groups can reflect differential access to both Spanish and indigenous goods, but they also reveal how foreign goods were integrated into indigenous strategies of displaying and challenging status (Rodriguez-Alegria 2010:51). Both intercultural and cross-cultural consumption of objects and practices were actively constructed processes of appropriation, transformation, and manipulation played out by individuals and groups with competing interests (Dietler 2010). Economic agents adopted strategies of action embedded in local political relations and cultural perceptions.

It is important to remember that consumer choice, preference, and demand all worked within certain overarching constraints of the market system. Economic and geographic constrained demand and accessibility, while sumptuary laws and mercantile policy constrained distribution and exchange practices more broadly. Restrictions on the import and export of goods sometimes severely disrupted local economies forcing them to make a choice between the meager subsidies from the metropole or alternative strategies of survival via illicit, informal, or illegal networks. Moreover, mercantilist policies were virtually impossible to implement when what was legal one year was smuggling the next (Choquette 2002:196). Despite these restrictions and constraints, examples of economic agency (especially among indigenous groups) abound. Natives were not new to the intricacies of exchange. Evidence shows that indigenous people were highly selective with the European

goods they chose to consume or appropriate and sometimes they downright refused certain offered goods. Early on, Timucuans began to exploit the French in their trading, demanding exorbitant rates on the rare occasions they agreed to trade at all (DeCoster 2013:384). Through both display and exchange, Southeastern elites were able to appropriate certain European items as prestige goods to enhance their social status (Wesson 1997:115). They even adopted Spanish dress and titles to emphasize their powerful status and right to rule. Elite preferences forced Spanish colonizers to manage the empire though existing political hierarchies which included giving tribute and gifts to secure alliances with indigenous elites (Rodriguez-Alegria 2010:54).

The fur trade in North America presents another important example of indigenous ingenuity and agency. Native Americans were shrewd consumers who knew how to take full advantage of the economic opportunities afforded to them. In the eyes of the Native Americans it was the deficiency in Europe's natural resources that pushed Europeans westward. Thus, European rivalries produced a seller's market which encouraged indigenous consumers to get what they wanted by playing one country against another (Sleeper-Smith 2009). They would barter their furs at the most favorable rates of exchange that competitive conditions afforded (Ray 2009:336). In return they wanted high-quality, durable goods. Europeans were not initially prepared for the Native's well-trained eye to assess the quality of trade goods, or well-defined demands and shrewd bargaining abilities. Because of this, Europeans were forced to make better trade goods to out-compete their European rivals. Subsequently, this drove technological advancements in Europe to satisfy

North American demand (Ray 2009:337). You only need to look to Venice and the glass bead industry to find the quintessential example of the effects of indigenous consumption on the global market. Indigenous values dictated the adoption of foreign goods, and demand for items that could be infused into their ideological worldview were important to the Europeans as well. Many argue that glass beads only held significant value to indigenous consumers, but Venice and other beadmaking regions owe their economic success, and ultimately, their inclusion in such a successful global market to Native consumption. With the general framework of the two core political economies (i.e. European and Indigenous) laid out, and the mechanisms of those systems explained, it is time to turn to how they interacted. How well did the Spanish imperial political economy function in its colonies? What role did Indigenous political economies play in influencing the restructuring or reformation of what was intended to be a metropole clone economy in those places labeled peripheries, frontiers, and borderlands?

Peripheries, Frontiers, and Borderlands

Often the concepts of periphery, frontier, hinterland, and borderland are used interchangeably and sometimes inaccurately. There are indeed subtle differences between these terms that require a more nuanced explanation. Although there is overlap between the analytical categories of periphery, frontier, and borderland, there are spatial distinctions that in turn, affect the outcomes of social, political, and economic interactions within these areas. It is best to start with the most theoretically defined concept of periphery as it is born from a dichotomous mechanism within the popular World Systems Theory.

A variety of center-periphery models provide archaeologists with useful frameworks for structuring investigations of long-distance economic exchange, changes in social and political institutions, and transformations of the periphery itself (Rice 1998:44-45). World systems or core/periphery was first developed by economic historians in the 1960s and had a large influence on anthropologists in the 1970s (Dietler 2010:48). According to Wallerstein's (1974) original formulation, the capitalist world system evolved in Europe during the late fifteenth and early sixteenth centuries as a consequence of changes in labor relations and political organization (Rice 1998:45). His work provoked a healthy shift away from viewing indigenous or rural communities as pristine, isolated societies, and a move toward understanding the economic and political history of these groups (i.e. Wolf 2010). His world systems theory was transformative at the time of its postulation by answering questions of global connections and the emergence of capitalism, even though it is problematic now. Briefly, the world systems model suggests that the economic growth of complex societies can be best understood by looking at large-scale interregional exchange networks (Stein 1998:904). As a world system expands, it becomes differentiated into two distinct zones: the core and periphery. Cores have tended to be the traditional focus of interest for historians and archaeologists, irrespective of whether or not they are working specifically within a world system model, theory, paradigm, or perspective. Demographically, politically, militarily, and economically advantaged cores systematically exploit smaller, less politically complex, and poorer peripheral societies (Schortman and Urban 1998:103). A world system model relies on three

assumptions: core dominance, core control over an asymmetric exchange system, and the causal primacy of long-distance interaction in structuring the political economy of the periphery (Stein 1998:904). These assumptions eliminate or minimize the roles of groups in the periphery, local production and local exchange, local agency, and internal dynamics of developmental change.

Even recently modified versions of the world systems model continue to minimize the roles of agency and internal dynamics in peripheries since the cause of change is always situated somewhere on the outside (Stein 1998:904–905). Researchers saw the frontier as representing an impoverished, backwater and lesser version of the homeland. Colonies were only fragments of the home culture (Rice 1998:52). As soon as we call some regions "core areas" and others "peripheries," we have already structured the discourse and our models of expected political and economic relations between these two areas into an inherently unequal relationship where the former controls or influences the latter (Stein 1998:903–904). Critiques expose world system theory's tendency to dichotomize core versus peripheral zones and their relations, with cores seen as active, coercive agents while peripheries are merely passive victims of exploitation (Rice 1998:46). History is thus determined at the core and peripheries merely react. Core and periphery then become dangerous analytical concepts that “meld the physical and metaphysical into a reified landscape of hierarchical binary difference;” a difference that always places Europe at the center (Dietler 2010:49). There needs to be a move away from representing colonialism in terms of a relationship between binary categories to find a better way of situating

peripheries or local economies within global processes. Economic, social, and political processes playing out within colonial contexts transform all parties engaged; therefore, analysis should focus on local people, colonists, and distant metropole equally (Dietlier 2010:50). Under a more localized lens of analysis cores can become peripheries and peripheries can transform into centers of economic and political activity.

Small satellite centers develop independently in peripheral regions and may grow or decline in response to events taking place within the periphery or without (Rice 1998:47). This view rectifies Eric Wolf's (2010) critique of how the top-down view of a core-periphery model privileges historical developments at the core while marginalizing those at the periphery. A peripheral area may have one or more of its own centers and comprise hierarchies of settlements depending on their size and on the kind and intensity of interactions with exterior areas and cores. The Spanish metropole of Castile can be considered a core with New Spain becoming its periphery and major mechanism of resource exportation. Subsequently, the Viceroyalty of New Spain was one of many, and shifted to a center in its own respect, relying on peripheral colonies along the Gulf and in the Caribbean. Spanish imperial policy organized its colonies into *audencias* or appeals court districts; regional centers that supervised cases within four districts governed by New Spain. This further distorts core/periphery analogies. There is even the concept of internal and external peripheries to consider. Internal peripheries are relatively close to core geographically, and as such manifest a high level of central control. External

peripheries, however, are relatively distance and loosely connected to the core that bears administrative responsibility for them (Bushnell 2002:19). Therefore, external peripheries enjoyed a lower level of control and a higher level of autonomy. Autonomous peripheries with enough economic independence overtime are able to transform into a center.

Cuba represents a good example of core/periphery transformation. In the early sixteenth century Cuba had a brief gold bloom. It was the economic center of the Spanish empire of the Western Hemisphere. After sources were exhausted, the Spanish emigrated to Mexico and Cuba was relegated to a peripheral region with an economy based on cattle raising, hide export to Spain, and beef jerky sales to the *galeones* which had a mandatory stop in Havana before heading to Spain (Tepaske 2002:38). The tides shifted back to Cuba as Spain's inability to supply its own colonies reached an all-time high during the eighteenth century. Cuba was turned into an entrepot for inter-American trade and even became a redistribution center for military subsidies bound for Florida. The manipulation of the *situado* by Havana merchants is discussed further in the next chapter. It is clear that the relationship between a core and a periphery is defined by both geographic distance and economic dependency. The issue then is how to accurately situate the Florida colonies within this framework. Under a traditional definition Spanish Florida was peripheral, both geographically and economically, to New Spain, to Castile, and to the emergent capitalist economies of western Europe (Lycett 2005). But this definition relies solely on a global and systemic understanding of colonialism, and again it naturalizes and

reifies the economic power and agency of cores, relegating distant regions with low economic output as passive peripheries.

While consideration of larger-scale exogenous social, political, and economic processes is important, the formation of colonial peripheries is not simply a matter of the imposition of external imperatives (Lycett 2005). Peripheries are materially and symbolically constructed on indigenous landscapes and local forces and agents are crucial elements to shaping larger colonial outcomes. Perhaps envisioning Spanish Florida as simply a peripheral colony is too restricting and does not account for the complex economic construction forming and reshaping within its borders. I believe this is where the term frontier becomes a useful analytical tool. Frontier is a complicated concept that can be applied to several different scenarios, similar to its parent concept periphery. However, frontier implies more than just a physical distance from a center or even a periphery. It represents a space detached from the comforts and confines of imperial structures; a place unknown (at least to European colonists). These spaces can be viewed as margins of a colonial empire, but it is precisely on the margins that local agency, strategy, and practice have the most influence on not only the construction of the frontier economy, but also the broader colonial economy. From the colonists' perspective, independent Native groups occupied the frontiers of Spain's New World empire; yet from the perspective of those same Natives, it was the Spanish colonists that occupied the frontiers of Indigenous controlled lands and the territory beyond (Weber 2002:79). In this sense frontiers represent territorial markers that delineate colonial territories from outlying

hinterlands of indigenous peoples, or vice versa. The definition of frontier should be revised to include not just boundaries, but fluid spaces of inter- and cross-cultural interaction (Lightfoot and Martinez 1995).

Spatial categories such as colonial settlements, proximal zones, frontiers, and the interspaces of colonial regimes are useful for understanding the spatial dimension of colonial entanglements, but they pose problems when applied to the contextual examination of Native autonomy (Panich and Schneider 2015:50). The frontier's original incarnation was born from Frederick Jackson Turner (1893) in his work on the significance of the frontier in American history. Frontier in this sense was American achievement akin to manifest destiny; it was a space where European colonists departed from their origins and created a truly American identity. We have significantly departed from this original meaning as it centralizes Anglo culture at the expense of all non-Anglo cultures (Hurtado 2013). Through recent rehabilitation of the concept one now imagines that much of the population near the frontiers could see the positional advantage in being culturally fluid and stepping to one side or the other depending on the circumstances (Scott 2009:126). Even at times of war, crop failure, famine, crushing taxation, economic contraction, or military conquest, the advantages of a social existence outside the reach of the state were far more alluring (Scott 2009:129). We envision these spatial zones not simply as representing immutable and dichotomous categories of Native or colonizer, but rather as porous and often fleeting social spaces in which people of diverse backgrounds actively engaged in processes of accommodation and negotiation (Panich and Schneider 2015:51).

A colonial frontier may be seen from a pericentric perspective as an ideal source for innovations: the hybrid nature of interactions and negotiated agency among colonists, indigenous peoples, and a new environment stimulates creative solutions or problems, as well as a demand for new products (Rice 1998:52). Focusing on dynamism within indigenous strategies or resistance, survival, and appropriation helps recover agency, and sheds light on how local forms of economic organization are defined and redefined by that agency (Lycett 2005:101–102). There are many reasons why some people in frontier situations would actively participate in the adoption, manipulation, or creation of new economic and social constructs. For example, hinterland Native factions that chose to initiate alliances with colonial groups sought new opportunities for upward mobility or the acquisition of prestige goods (Lightfoot and Martinez 1995:486). Even missions can be considered as places used by indigenous for their own purposes: "to preserve or reconstitute their communities in the face of colonialism or to profit from the colonial economy" (Weber 2000:6). Frontiers were places that were politically and culturally within the sphere of the Spanish empire, but constantly under the influence of peoples and economies just "outside" their borders. It is in this space that the concept of borderlands becomes the most relevant analytical tool.

If a frontier is an area beyond the periphery of a state or empire, then a borderland is a region that is adjacent to a zone of transition; a place where people and institutions are shaped by natural and human forces (Cusick 2011:138). Again, the origins of the "Spanish Borderland" stem from early twentieth century pioneer

work from Herbert Eugene Bolton (1921). A student of Turner, Bolton diverged greatly from his mentor's academic trajectory. His view of the American Southwest was less of a frontier for Americans, but more of an inclusive space where Spanish and Native cultures met with Anglo colonists. Bolton's traditional concept of borderlands includes Spanish and Native actors, but he puts missionaries on a pedestal and equates them to the "white savior" of the Indian culture. Historians have certainly rehabilitated Bolton's Spanish borderlands but have imbued a much more inclusive and nuanced meaning. Borderland communities survive by ignoring regulations, circumventing them, or translating them into acceptable daily border intercourse. Being removed from the heartland and in close contact with different societies fostered new alliances and concepts of loyalty that were expressed in informal economic strategies. Overall, the economic policies of the metropole, motherland, core, center are diluted the further the distance to their colonies, peripheries, frontiers, and borderlands. This dilution led to the disruption, breakdown, or complete disregard of imperial economic institutions. Just as imperial support systems broke down the greater distance they traveled from the metropole, so too did the fear of reprisal or repercussions of not following the law. Unable to subjugate many of the indigenous groups on its frontiers and borderlands, Spain had to experiment with new strategies for co-existing with them. Yet even the streamlined bureaucracy of Spain did not so much create "Indian" policy as negotiate it with different groups as local circumstances demanded (Weber 2005:50).

The Spanish colony at Pensacola, Florida encompasses all three concepts of periphery, frontier, and borderland and is thus a place uniquely suited for the study of breakdown of imperial economic institutions, where the economic agency of colonist and indigenous groups alike contribute to its breakdown. Within Spanish Pensacola, the Native mission towns represented trade hubs that were situated at strategic locations within the borderlands. The missions were places where barter was negotiated between peoples with different systems of value, different customs, different languages (Dietler 2010:154). These sites were primarily gateway sites that acted as middlemen moving and drawing goods to/from the interior and the Spanish officials were taking advantage of the missions' connections to external trade networks. For example, from Acadia to Louisiana the frontiers and borderlands of New France were more likely to frustrate metropolitan designs that fulfill them (Choquette 2002:200). Mercantilism was a motivation for colonization, but it was stymied on the periphery by frontier and borderland conditions. The eighteenth-century Southeast promulgated a world system in which minor agents, allies, and even subjects at the periphery often guided the course of empires (Choquette 2002).

One more discussion of a common theoretical trope is required to understand the human aspect of and interaction with the economic institutions and mechanisms discussed thus far. The paradigm of power has many implications when considering how colonists and indigenous groups alike dealt with the political and economic structures imposed on them. The analytical framework of dominance and resistance is the most used, but other concepts including negotiation, dependency, persistence, and

agency are more nuanced for understanding local manifestations of the relationship between economy, power, and choice, whether it is proactive or reactive. In particular, the paradigm of negotiation examines mechanisms other than force (power) that deliver a balance to relationships and keep disparate communities in equilibrium in terms of agency (Bushnell 2002:16).

Paradigms of Power, Dependency, and Agency

Many Southeastern U.S. historical archaeologists have turned their attention towards questions of American cultural identity, gender, race, and the historical roles of non-European peoples in contact, and varieties of resistance to European hegemony (Deagan 1998, 2011; Jamieson 2000; Voss 2008; Boyer 2014; Panich and Schneider 2015). A popular way of viewing colonial and indigenous encounters is through the framework of dominance and resistance, looking for instances in which material and spaces deviate from an assumed dominant colonial presence (Lightfoot and Martinez 1995:483; Schneider 2015:696). In this sense, the concept of colonialism is a dual process of attempted domination by a colonial/settler population based on perceptions and actions of inequality, racism, oppression, labor control, economic marginalization, and dispossession and of resistance, acquiescence, and survival of the indigenous people (Silliman 2005:59).

The binding power of colonial narratives of dominance continues to affect the cultural heritage as well as the political and economic status, of indigenous groups around the world (Schneider and Panich 2014:20). This perspective implies a dominant culture either exterminating, marginalizing, controlling, or assimilating a subordinate (passive) culture. Power and politics are clearly important interpretive

frameworks, but a strict dominance/resistance framework foregrounds Euro-American agency at the expense of indigenous populations (Schneider and Panich 2014:10–11). A dominance/resistance model is based on the assumption that indigenous groups can only react to colonial situations. For example, in mission contexts, duel themes of dominance and resistance reflect a deeply ingrained notion that these spaces were highly structured and left little room for Native agency except for revolt, sabotage, and delinquency (Schneider and Panich 2014:10). Research over the past twenty years has focused primarily on identifying forms of Native resistance in the archaeological record.

Resistance is a conscious decision to oppose the imposition of ideas, practices, or beliefs by a dominant entity (Deagan 2011:45). Words that archaeologists use synonymously with resistance include subversion and defiance. Resistance is an ever-present theme, often treated implicitly, but increasingly addressed explicitly despite operational difficulties (Deagan 1998:32). Archaeologists look for the degree to which mandates were embraced, accommodated, altered, and rejected in daily practice (Deagan 2011:43). Several examples of passive and active resistance emerge from the literature including choice of burial goods, revolt, fleeing missions, refusing Christianity, and even indifference. Studies that examined how Natives responded to dominant colonial structures through various forms of resistance, ranging from outright rebellions to covert acts of noncompliance and fugitivism (Lightfoot 2014:195). Slave resistance took many forms from organized insurrection to individual acts of feigning sickness, lying, stealing, insolence, insubordination, or

feigned laziness (Singleton 1998:179). The Jesuits attempted conversions in Florida from 1568-1572, but violent Native resistance caused them to abandon the mission field (Deagan 2011:50). Residues of daily practice often indicate mission neophytes engaged in passive forms of resistance behind closed doors or beyond direct colonial control (Schneider and Panich 2014:11). However varied and frequent examples of resistance are, there are several problems with using the binary model of action and reaction to discuss cultural interaction and change.

While resistance by many Native American groups to colonization clearly took place, viewing the experience though such a lens denies and reduces the complexity and variety of the experience of indigenous people during the colonial period (Boyer 2014:41). This perspective also shortchanges the causal role that Native groups played in structuring the processes and outcomes of colonial encounters (Lightfoot 2014:195). The decision to oppose a hegemonic force cannot be equated to either survival or resistance; both of which were actively present in colonial situations. Moreover, passive acts of resistance mentioned above have few material correlates; therefore, uncovering and interpreting archaeological evidence of hidden transcripts present a challenge (Singleton 1998:179). On the other hand, one of the most visible examples of resistance within Native groups was the refusal to conform to mercantilist prohibitions against trade with multiple colonial powers (Deagan 2011:56). Overall, dominance and resistance ideologies filter through later studies of colonialism, especially concerning the effect contact and colonialism had on indigenous populations indicated through material remains. Archaeology in the

Spanish American arena has begun to deconstruct the dominance ideology represented in earlier research and reconstruct the colonial arena (Deagan 1998:26). Moving beyond thinking of resistance as simply a reaction to an inescapable oppressive social situation allows for the disentanglement of indigenous histories from narratives of colonial domination and indigenous dependency (Schneider 2015:697).

A bottom-up understanding of colonialism emphasizes the agency of local actors and the varied consequences of European expansion. This approach reframes the issue of culture change in terms of the mutually constitutive interaction of human actors and social structures, particularly with regard to the often-strategic production of new identities (Van Buren 2010:151–152). It also neutralizes the favoring of understanding colonialism through the mechanisms of the colonizers by placing an emphasis on how Natives viewed, negotiated and manipulated this empirical process (Ritcher 2001; Shannon 2003). When applied to the archaeology of colonialism, an examination of agency also de-centers static, trait-based approaches to Native cultures and the concomitant scholarly focus on externally imposed change (Panich and Schneider 2015:49).

Agency is considered the interested action of individuals and groups, derived from existing cultural values and mediated by the ever-shifting constraints and opportunities of the material and social world (Schneider and Panich 2014:7). It grants society's least powerful members a modicum of control over their individual and collective fates (Bushnell 2002:17). Terms like autonomy, resilience, and

persistence are used analogously with agency when discussing Native responses to colonialism. Persistence refers to a continuation of existence in the face of opposition. Persistence acknowledges the physical and symbolic violence of colonialism but also allows for "a continuum of processes that encapsulates various forms of perseverance" (Panich 2013:107). In this sense Native peoples in the colonial period carried with them cultural dispositions attuned to precontact lifeways, while at the same time they were negotiating new cultural structures. This concept has gained major traction in recent studies of indigenous groups living in Europe, colonial California, and Southeastern studies as well (Galloway 1994; Wolf 2010; Arkush 2011; Schneider and Panich 2014; Lightfoot 2015).

In the Southeast and middle Mississippi River Valley multiple chiefdoms were forged around monumental civic-ceremonial centers that were interconnected by long-distance exchange networks that focused mostly on prestige items for elites. The tiered settlement structure of these hierarchical societies also included lesser towns and community centers, satellite villages and farmsteads (Hull 2009:5). Throughout initial contact with Spanish explorers these post-Mississippian groups maintained a level of sovereignty and autonomy. In other words, aspects of their cultural structures were able to persist despite devastating demographic collapse from the violence of subsequent colonialism and introduced pathogens. Native societies like the Apalachee maintained self-governance in the face of European expansion in many cases for centuries after initial contact (Jordan 2013:30). Native Americans possessed the power to be effective actors, capable of accomplishing their goals and affecting the

results of encounters despite European actions. The Apalachee for example were not interchangeable automatons simply reacting according to internal or external forces, they were individuals whose goals and perceptions varied (Scarry 2010:23–25). The Spanish colonial system not only reinforced the economic sources of chiefly power, but it also satisfied the additional preexisting need for ostentatious public display and for external military backing (Worth 2002:46).

The Apalachee learned about Spanish behavior from the early Narvaez encounter (1527) and applied that knowledge to the de Soto expedition (1539). They confronted the de Soto expedition with armed resistance; a conscious decision with motivated actions directed by Apalachee political leaders. Apalachee came to understand the Spaniards as people whose goals and behaviors could be comprehended, manipulated, and to some extent, controlled (Scarry 2010:31). The Apalachee intensified their use of Spanish sources of authority by adopting Spanish names and titles as well as using their knowledge of Spanish practice to work within Spanish institutions. Literate Apalachee chiefs wrote letters to Spanish authorities, citing precedents and regulations, showing considerable understanding of the Spanish colonial and legal systems (Scarry 2010:32). In the subsequent chapter, the correspondences of the Yamasee chief of the eighteenth-century mission in Pensacola are discussed in greater detail. Even two centuries after first Spanish contact, the hereditary leaders of Southeastern Chiefdoms still exercised real political power (Worth 2002).

Native people living in the Spanish mission era exercised a considerable degree of control over their organization and use of space at different locales on the landscape (Panich and Schneider 2015:48). In Florida, the Native elite initially accepted the Spanish as equals and incorporated European trade goods into a preexisting symbolic system used to legitimize authority (Saunders 1998:403). In fact, eventual acceptance of missions was a gambit by the elite to maintain rather than relinquish authority (Saunders 1998:403). For example, in 1607, some Apalachee leaders invited Spanish missionaries into their province in order to gain additional sources of chiefly authority (Scarry 2010:31). Decisions about whether to ally with the Spanish were carefully weighed with respect to the strategic advantages that such alliances could provide in pushing back various challenges from rival, competing factions, and warring polities (Lightfoot 2014:199). Native groups implemented very different tactics for negotiating with colonial parties depending largely on extant political relationships within the broader indigenous landscape and perceived advantages that forging alliances with the Spanish might provide local Indian communities and leaders in regards to access to trade goods, protection from enemies, and one-upping competing political factions (Lightfoot 2014:206).

Spanish missions in the New World provide archaeologists with one of the best contexts within which to study agency (Saunders 1998:402). Researchers of Spanish missions now seek to understand the mission experience as a process of negotiation, or the use of conference, discussion, and compromise between individuals or groups to bring about the settlement of some matter (Boyer 2014:42).

The colonial entanglements that missionization set in motion unfolded in distinct ways across the landscape and over the course of the colonial period and its aftermath. Across the landscape, Native people adapted their settlement patterns and economic activities to accommodate, co-opt, or resist efforts at missionization (Panich and Schneider 2015:50). The historical record suggests that the decision to accept, or even request, missionization was often made not simply out of the desire to convert to Christianity or Euro-American lifeways but, rather, to strengthen the position of one's own group in relation to other neighboring chiefdoms (Worth 1998; Milanich 1999; Schneider and Panich 2014:12).

Another way to look at indigenous agency, persistence, and resistance is to acknowledge that Native groups and individuals were acquiring knowledge and intelligence about Spanish cultural structures; they were not just resisting or acculturating. It is an oversimplification to view the colonial encounter as European agency driving indigenous responses, but it is also misguided to essentialize indigenous action in terms of categorical forms of action (Scarry 2010:40). Southeastern Natives were actors, but each group or faction within groups had differing understandings, motivations, and abilities that were historically situated. Although contemporary archaeologists have a tendency to depict Spanish policy as homogeneous and entirely coincident with practice, these cases underscore the importance of agency with regard to the colonizers as well as the colonized (Van Buren 2010:178). Several studies are now considering the varieties of Spanish adjustments to contact in the context of equal varieties of adjustments made by Native

groups (Deagan 1998:31). After initial attempts by the Spaniards to overwhelm the Natives militarily all met with failure, their strategy changed to a more accommodating approach (Ewen 2013:281; Worth 2013a). Across the North American borderlands, important differences existed between how Spanish missionaries dealt with mobile hunter-gathers versus sedentary agriculturalists, suggesting that indigenous political economies were a key structuring principle in the process of missionization (Worth 1998; Panich and Schneider 2015:50). In La Florida, Franciscan padres usually ignored outlying hamlets and instead channeled their energy into erecting missions within principal towns (Panich and Schneider 2015:50).

In places like La Florida, where external supplies were unreliable and the local environment did not sustain most European animals and plants, Elizabeth Reitz (1992) argues that the colonists altered their foodways to survive. Some research in La Florida and Hispaniola suggests that the incorporation of local goods into colonial households was primarily a result of labor regimes (Voss 2008:867). The new laws of the Indies promulgated in 1542 ultimately led to the Franciscan mission system that came to depend upon the local populations to provide food and labor to support Spanish efforts to protect the coast from other European invasion (Ewen 2013:281). Some current research reveals both a materialist and Euro-centric bias in its suggestion that the mission communities were mere "satellites" of St. Augustine, "heavily dependent" on help and assistance from the colonial capital (Boyer 2014:54). On the contrary, the archaeological and historical evidence quite clearly demonstrates

that the mission communities produced most of the food and provided most of the labor that allowed the "colonial capital" to survive, that the leaders of the Native American communities were quite aware of the important role they played in the capital's survival, and that they were aware of their own power and systems of belief, even at the height of missionization (Bushnell 1994; Worth 1998; Boyer 2014:54).

Research Theme: Illegal, Illicit, and Informal, Economies

The market system, as an institutional form, was at the nexus of the global and the local (Stein 1998; Hauser 2008:40; Roberts-Thompson 2012). By understanding the complexity of the system and delineating its many facets, tensions are revealed that point to the different scales peoples engaged in the local economies (Hauser 2008:41). Equally important are the political struggles embedded within the operation of these local economies. They were a mix of both formal and informal market activity taking place in multiple venues, and are not defined in terms of legality because that would place barriers on economic interactions that were necessarily fluid and had the potential of extending beyond colonial boundaries (Hauser 2008:52). This trajectory can even shed light on the various ways that European economic systems mapped onto or adapted to pre-existing indigenous systems of exchange.

An informal economy is typically defined as "consisting of all accounts related to the illegal production, commerce, and/or transportation of goods that fall outside the formal economic systems" (Roberts-Thompson 2012:56). Informal economies can develop in response to limited access to or the shortage of goods, as well as the need for increased economic mobility. Economic mobility describes the degree to which individuals had the authority, money, and the ability to interact and

create trade relationships with foreign individuals so that economic exchange could take place (Roberts-Thompson 2012:57). Economic mobility also applies to the endeavors of piracy by illegal or illicit means. Informal economies operate simultaneously on multiple scales that enable us a better understanding of the imperfect fit between local economic demands and the broader colonial landscape, especially within the realm of politics (Hauser 2008:53).

There is no easy way to elicit which archaeological materials were purchased through formal and which through informal means (Hauser 2008:91). Archaeologically, the primary problem faced in studying black markets is using material culture to define the muddy and ambiguous distinction between informal and formal (Hauser 2008:6). Informal economies by their very nature are archaeologically ephemeral, especially if we rely on a definition that emphasizes the transgressive potential of the interaction in relation to a larger economic landscape with symbolic and structural manifestations (Hauser 2008:6). Rather we as archaeologists have to focus on the end results of these informal economies in the distribution of artifacts where they should not be. We can also look at the archaeological distribution of items and their positions as trade items or commodities.

A critical problem with the formal/informal dichotomy is that it tends to force markets into categories of black and white when the vast majority of transactions occur in a politically gray zone (Harnett and Dawdy 2013:39). The circumvention of mercantilist and other state policies, and particularly the role of contraband in local economies, is receiving more attention by archaeologists (Van Buren 2010:171). The

concepts of illicit and contraband are utilized in the space of informal economy. Illicit meaning against social norm and contraband referring either to the activities of illicit economic exchange or the exchanged goods themselves. The question of contraband "explicitly juxtaposes well-documented legal economic mandates at a government-administrative scale with illicit efforts to circumvent those mandates at the local community scale" (Deagan 2007:98). While popular attention has emphasized the treasure fleets of the Spanish main and the pirates that preyed on them, (Skowronek 1992; Anderson 1995; Mackie 2005) historical work has shown that Spain's colonial economic policies also rendered illicit commerce a normal part of people's daily life in the Americas.

Beginning as early as the sixteenth century, Spain was unable to produce all the merchandise required by her colonies, and therefore, the Spanish Crown would buy goods from France and other countries and then sell them in the Spanish colonies at a sizeable profit (Gregory et al. 2004:66). But in order to maximize their profit, the Spanish Crown would not allow the French to trade directly with the Spanish colonies (Gregory et al. 2004:66). Regimentation of trade through treaties and legal statues governed all levels of economic interaction, at least in theory (Hauser 2008:40). Mercantilism governed Spain's imperial economic system and commerce was strictly regulated by a trade monopoly (Deagan 2007:99). These strict commercial policies were responsible, at least in part, for the shortages of imported Spanish goods in the colonies attested to by both historical and archaeological data (Myers et al. 1992:139). Residents of Spanish America turned to illicit trade with foreigners to

survive. By default, Spanish colonials had to procure essential goods from enterprising British, Dutch, French, or American merchants, goods that were "cheaper, better, and greater variety than those sold by the infrequent Spanish *flota* or *registros*" (Tepaske 1984:515). Prior to the Bourbon reforms in the eighteenth century when the Crown attempted to control economic activity in the colonies and directly provision settlements along the northern frontiers, the quantity and quality of goods provided by the *situado* and caravans supplying New Mexico were notoriously poor (Van Buren 2010:169). Colonists were left to develop several kinds of local solutions to coping with the conundrum of an essential but illegal economic mechanism (Deagan 2007:99). The subsequent chapter will discuss the failure Spain economic institutions and the complete breakdown of its mercantilist policies.

Research Theme: Brokerage and the Middleman

Another research theme relevant to this research is the concept of brokerage. Taken from social network theory brokerage encompasses the economic realm of social interaction. There is a long history of research in the social sciences focused on how social relations can enhance or diminish the ability of an individual or group to obtain power, influence, or other advantages (Peeples and Haas 2013:232). A person's actions are shaped, redirected, and constrained by numerous social contexts, including norms, interpersonal trust, social networks, and social organization (Coleman 1988:96). These contexts are important in the function of the economy as well as society. Here social capital is considered a resource sought out by individual actors and groups and adheres to the structure of relations between and among actors and groups (Coleman 1988). The social capital metaphor is that people who do better

are somehow better connected and actors and groups that are better connected, in turn, have a competitive advantage in pursuing their ends, enjoying higher returns (Burt 2001:32). Brokerage refers to the process through which an actor or group in a network mediates interactions among other actors that would otherwise not be connected. Burt (2001) refers to this connection as a structural hole. In this argument, social capital is created by a network in which people can broker connections between disconnected segments.

Structural holes create opportunities for brokers to control the flow of information and objects between people as well as control the actions that bring people together from opposite sides of the hole (Burt 2001:35). Brokerage is an extremely useful analytical tool when looking at the structure and interaction of economic networks, but more importantly, it allows us to see how individuals and groups navigate, strengthen, and influence those economic networks. Economic agency is expressed in brokerage, and can be applied to an individual, group, community, or place (archaeological site). Brokers are considered to be more in control of their surroundings; they have the best information on available goods, sellers, buyers, and prices. Brokers can tailor solutions to exchanges being coordinated based on local economic processes, replacing the boilerplate solutions of formal bureaucracy (Burt 2001:36–37). Individuals acting as brokers are in this position because of the weaker connections (holes) between groups in the social structure of the market. With a foot in two worlds, brokers span structural holes giving them access to diverse sets of information and resources across that network

(Peeples and Haas 2013:234). They have the ability to accrue added value through their structural position which prevents other actors from spanning that same gap. Additionally, access to this middle ground depended on the inability of either side to have formal diplomatic relations (White 1991:52).

Communities and sites considered as middlemen or gateway communities were also active brokers in the colonial landscape. Gateway communities were typically located along important boundaries and physical barriers of transportation. The positioning at these strategic intermediate points facilitated the delivery of resources across that network (Peeples and Haas 2013:235). Individuals and groups living in these communities were able to influence both directly and indirectly the production, accumulation, and flow of resources to disconnected groups (Hirth 1996:224). More importantly, strong relationships among brokers and their contacts essentially created a closed loop that provided more reliable communication channels and protected them, to some extent, from exploitation (Burt 2001:38). The mission communities living in Pensacola Florida during the eighteenth century are quintessential examples of brokers and gateway communities.

Conclusion and Significance

With the above frameworks and arguments in mind, several questions emerge. What was the nature of economic interactions between Spanish settlers, mission inhabitants, and interior Native groups with British and French alliances? To what degree did these economic interactions disrupt or maintain the imperially sanctioned mercantile system. What was the degree of access to illicit or unsanctioned trade goods at both presidios and missions? Answers to these questions arise when we look

at documentary and archaeological evidence of the movement of goods, access to goods, and the variability in the types and even the chemical composition of goods. Additionally, we need to understand the supply chains and exchange networks established for both presidios and missions in Pensacola. Several possible outcomes present themselves based on available data.

If the missions and presidios relied solely on Spanish supply networks, then items mentioned in presidio warehouse records and other supply inventories would be represented in the archaeological record at both presidios and missions. Warehouses would have a limited variability in types of artifacts. Subsequently, there would be more easily defined chemical composition groups among beads and lead shot because they would be coming from specific sources initially. For example, the lead shot recovered from the sites would be predominantly from Mexican or Spanish mines/production areas. If the same degree of variability (in types and chemical composition) is recovered from mission contexts, then the missions were most likely supplied mainly by the presidios and not engaging in intensive exchange with interior Native groups with access to French and British goods. Similar chemical "batches" identified between missions and presidios would further strengthen this claim. This data would suggest that the Spanish mercantile system was highly effective in a borderland region and was largely undisrupted by illicit or informal economic activity that was known to be occurring via historical testimony.

Alternatively, and more likely, items mentioned in warehouse records and other supply inventories would be found in lower than expected proportions in the

archaeological record, supplemented or even replaced by other items not documented as official supplies. Conversely, documents pertaining to illicit or informal exchange activities will correlate with artifacts found on sites. For example, lead shot from the Spanish mission proximal to French-allied Native groups will reflect influences from Spanish supply *and* from French trade interaction. This, in turn, would have facilitated the movement of French goods into Spanish territories in direct contradiction to legal trading policies formulated and regulated by Spanish officials.

Non-Spanish, European goods could have entered presidios in a variety of ways, including (1) mission inhabitants were moving goods they acquired from interior Native groups or undocumented European traders/merchants into presidios; (2) interior Creek groups were trading directly with inhabitants of the presidios; (3) French, British, and other European exports were brought in legally via Havana or Veracruz ports that were supplied with multi-European sourced goods in Seville; or (4) Spanish officials in presidios were directly (informally and discretely) trading with French for supplies to supplement the *situado* that was perpetually lacking. Chemical composition of certain artifacts like lead shot or glass beads coupled with documentary evidence would facilitate in discerning which of these scenarios were most likely. Any scenario other than (3) would demonstrate that the mercantile system was not very effective in this borderland region, and inhabitants were participating in economic activities that either disrupted or undermined the Spanish economic institutions.

At the other extreme, items mentioned in presidio warehouse records and other supply inventories would be represented in the archaeological record at presidios, but to a much lesser extent at missions. There would be more easily defined chemical composition groups among beads and lead shot within the presidios because they would be coming from more limited sources. Conversely, mission contexts would have much greater variability of types and chemical composition of those types because they were obtaining them from non-Spanish economic networks. There should be more limited evidence of chemical groupings among bead assemblages both between missions and presidios *and* within missions due to the nature of bead trade among Native groups that surpass European alliances and trade regulations.

The same can be said for the lead shot. Data would suggest that the Spanish mercantile system was effective in a borderland region, but only within contexts predominantly populated by Spanish officials. Presidios were less disrupted by illicit or informal economic activity that was known to be occurring within mission contexts. Historical documents would discuss illicit or informal trading activities occurring at the missions and less so within the presidio context. This argument raises an interesting concern about how Spanish settlers, officials, priests, etc. were punished (or not) for illicit economic activity versus how Native groups were treated. Was there a difference, and how was each illicit action addressed? Were such actions addressed locally (internally), or were complaints of abuses sent to the Viceroy of New Spain, or even further up the chain of command to the Crown? Importantly, support of this argument would need to come from additional chemical analysis of

glass beads and led shot from contemporary Creek sites, as well as English and French fortifications or trading posts in the vicinity.

A focus on exchange systems and economic institutions gives an artifact multiple meanings and sheds light on the complexities of interaction beyond cause and effect or action and reaction. There are many different vantages that researchers can shift to in order to understand the complex processes within colonial contexts. Not all communities were dominated and not all indigenous reactions were oppositional resistance. Archaeologists are encouraged to adjust the temporal, spatial, and analytical structures they use to study colonial encounters (Schneider 2015:708). A balanced approach to the study of colonialism emphasizes the creativity, practices, and resiliency of indigenous people and the "severity of colonial rule, labor requirements, economic inequality, and religious persecution " (Silliman 2005:64). We need multi-scalar approaches that enable us to address not only macro-scale issues in archaeology such as world systems, technological development, social evolution, and ecological adaptation, but also the micro-scale issues of individual intentionality and social action, cultural construction of gender, and other ideologies (Lightfoot and Martinez 1995:477).

This research contributes to a bottom-up examination of how Native Americans and Spanish colonists effectively manipulated, negotiated and subverted the Spanish mercantile system. Examining the distribution of certain goods via Spanish supply and indigenous exchange networks transforms perspectives of colonial economic interactions, the degree of economic agency enacted daily, and

demonstrates how these concepts are enmeshed within illicit economies. Moreover, the colonial economy was not just trade regulations and governmental ideals, but a conglomeration of survival tactics that relied on different economic strategies. Just as the Europeans had diverse reasons for interacting with and influencing Native groups, those groups had equally valid motives behind, engaging, negotiating, resisting, or outright opposing European aims and attempts. Colonial Pensacola provides an ideal stage to witness where monolithic trade policies met economic reality, but this context is not unique. All over the world, past and present, individuals, groups, and institutions innovate and improvise within and against the global market and capitalistic trade policies. Understanding how this process played out in the past can lead to a better understanding of how people in local contexts navigate their daily lives within a globally connected economy.

Chapter 2: Historical Context and Documentary Evidence of Illicit Trade

This chapter develops a nuanced understanding of West Florida's local colonial economy and its influence on the regional economic landscape. The main goal of this chapter is to outline Spain's interest in North America, its reasoning for colonizing the Atlantic and Gulf coasts of the Southeastern U.S., the economic institutions and structures emplaced to manage those colonies, and ultimately, how the failure of those systems led to the adoption of alternate economic practices, specifically those illicit or contraband in nature. Not only is there evidence of rampant and unchecked illicit trade from the inception of Spain's Florida colonies, but documentary evidence also reveals the actors behind this informal economy. Granted, smugglers and contraband traders do not leave a clear paper trail (that would defeat its purpose). This does present difficulties for the historical study of illegal trading and informal economies, but other hints are evidenced in the multitudes of available and yet untapped documentary sources.

Types of Documents

Cartographic documents represent an extremely useful data set as they relay spatial representations, geopolitical relations, demographics, social networks, and ethnographies. Maps from Spanish, French, British, and American sources are all useful for interpreting place names, territorial boundaries, commerce networks, and important landmarks and structures. Trails, rivers, and other smaller waterways

connected villages and major cities, and this information is available in cartographic documents from the First Spanish Period onward.

Administrative orders from the viceroy or governor, and informal orders from a mayor or high-ranking officer, respectively, can provide a wealth of information regarding the political or economic state of a region. More often than not, it is impossible to separate geopolitical motivations from the economic realm for the sole reason that each informs the other. Other government related documents include *residencias* and *autos*, which are similar manuscripts that contain investigations with testimonies and court proceedings and inquisition records, respectively. One great example is the 1761 investigation of the corrupt governor of San Miguel de Panzacola, Miguel Román (Ortíz Parilla 1762). In combination with the 1761 declaration are a bundle of letters by Escambe's acting ensign, Pedro Ximeno which includes letters from the Yamasee *cacique* of Punta Rasa, Andrés Escudero, complaining about Román's abuse of trade. This declaration goes into extensive detail about the illicit economic activities of the governor and his close associates. Orders and instructions were often given to supply or exchange with Native American groups to secure their political position within the region.

Treasury and warehouse accounts can provide evidence of what materials were received, bartered, and sold as well as their relative values over time. Pensacola was allotted a *situado*, or stipend of expenditure for each year that it could use to order supplies and provisions for the survival of the presidios (Coker 1979:6; Bushnell 1994:44). Several UWF master's theses (Wilson 2000; Greene 2009;

Eschbach 2007; Furlong 2008; Roberts 2009; Holmes 2012; McMahon 2018) and unpublished works focus on Pensacola's presidios and the *situado*. Expenditures also included gifts for the Native Americans, and specific goods that were only used for trading with the Native Americans, like glass beads and iron tools. These records, in addition to *juntas* (meetings), and other official activities or orders from the governor, were usually stored locally. The governor, paymaster, and quartermaster all had their own books for keeping records. The paymaster or treasurer managed money and controlled all finances, while the quarter-master maintained books on supplies and everything that went into and out of the royal warehouse. The quartermaster had two books: the first was a general book with a single-entry list of equipment and supplies, the second a list of rations that were dispersed from the warehouse. Unfortunately, the internal records of the paymaster and treasurer from Pensacola did not survive, but the warehouse records for Santa Rosa were recently discovered at the AGN, but due to its degraded condition it will take time beyond the scope of this dissertation to fully make use of the document. Another document lists the entire contents of the Warehouse at San Miguel in 1763 that the Spanish gave to the English (Ortíz Parilla 1763).

In some instances, supply lists and trading lists were recorded separately from account records, and contained greater detail concerning the types of goods and their values. Supply lists for incoming shipments also included quantities of goods, and presidio records documented garrison requests for rations and ammunition (Graesch 2001:265–267). Supply and trading lists provide some of the most direct evidence of

what items were traded or gifted. Similarly, documents like *licencias*, *permisos*, and *peticiones* provide evidence for other forms of exchange beyond rations and gifts. Spanish ports were full of merchants, and inside the city wall, even more shops and stores were engaged in bartering. Spanish administration required licenses or permits to sell goods, and there were specific rules and regulations governing all transactions. These documents are useful for this project because they demonstrate the socioeconomic relationships present in networks at local and regional scales. One *licencia* in particular is of great importance because it mentions the governor Román permitting the Yamasee *cacique* Escudero permission to establish a shop in his own house to the inhabitants (Native and Spanish) at Punta Rasa (Román de Castilla y Lugo 1759a:366).

Relaciones, *informes*, *memoriales*, and *cartas* comprise both formal informal correspondences between caciques, governors, soldiers, and others. These documents are perhaps the most useful because details about everyday life and economics relationships are abundant. Letters issuing complaints about the poor state of a village, or how people are being poorly treated, also shed light on political organization. The relationships between colonists and the many hierarchical levels of Spanish administration were always in conflict. *Informes* are particularly useful because they are formal reports and are generally very detailed and contain very specific information. Correspondences between Román and Escudero shed light on the social and political climate of the time including the origins of the war that led to the destruction of the missions as well as all the peace treaties, trade abuses, and

strategic town relocations that led up to the war (Escudero 1757a, 1757b, 1758a, 1758b). Additionally, these letters also provide information about the sources and origins of "everyday" supplies and trade goods that may be overlooked in more official or notarial records and inventories, as well as ethnic customs and items that are completely absent in the archaeological record. It would take many lifetimes to sort through all the available and relevant documents (thousands still await rediscovery in archives), but what is discussed here will undoubtedly provide a nuanced view of economic agency against the contextual backdrop of Spanish Pensacola during the eighteenth century. In order to properly contextualize eighteenth century Pensacola and its economic landscape it is necessary to understand Spain's original investment and interest in Florida during the age of exploration, and how empirical economic institutions were formulated, employed, and undermined.

The Iberian Experiment

The discovery of the New World in 1492 saw a wide array of administrative and economic strategies that, above all else, focused on maximizing trade between these newly discovered lands and the Kingdom of Spain (Stevens-Arroyo 1993). Spain's interest in the Americas was fueled, in part, by the mercantile policy that prevailed in Spain and throughout Europe. This policy, in which the economic interests of the metropolis were more important than those of its individual parts, placed great value on the accumulation of precious metals (Hoffman 1997:24). Continued discoveries in the latter part of the fifteenth and early part of the sixteenth centuries fueled the conquest of the circum-Caribbean region, resulting in the continued growth of the empire and its wealth (Lugo-Fernández et al. 2007:25). In

order to manage, regulate and protect its economic growth and overseas investments, Spain established certain internal and external economic institutions that were ultimately structured (and hindered) by its mercantile policy.

Spain's mercantilist nature was similar to other competing European nations. Through this competition of rival mercantilism, a period of warfare over empire and trade was born, especially between the Dutch, Spanish, Portuguese, English, and French (Koot 2013:3). All of these European powers pursued mercantilist policies to secure power and protect their investments by restricting trade thereby cutting out foreign competition. Every transaction between English and foreign merchants was subject to strict state control assuring that the treasury received appropriate duties and guaranteeing that no money escaped country borders (Rubin 1989:27). The rules of France's mercantilism fluctuated from year to year during the eighteenth century, but in general, France's policies towards its colonies were more restrictive than those of Great Britain, but far less restrictive than those of Spain (Dawdy 2008:103). Generally, a fully-fledged mercantile system was a policy of protectionism to stimulate the growth of the empire through New World exports (Rubin 1989:31). In order to implement its mercantile policy in its overseas colonies, Spain established a monopoly on shipping that restricted colonies to importing or exporting from/to Spain alone (Deagan 1987:19–20). The design of the policy was meant to work to the advantage of Sevillian merchants, but proved neither efficient nor advantageous for the colonies.

In 1503 the Crown established the *Casa de Contratación* (house of trade) to regulate import and export trade with the New World. The affairs of the house of trade were under supervision of the Council of the Indies (Hamilton 1929:441). The *Casa de Contratación* was a maritime council located in Seville that licensed and administered all colonial trade, shipping, and navigation to and from the New World. To maintain control over this closed trading system, Spain permitted commercial vessels to call at a select few ports in the New World (Weber 2009:132).

By 1510, the magnitude of trade between Spain and the New World, along with expanding geographical extent of the empire, overwhelmed the Spanish Crown. The increase in wealth created more problems than solutions for Spain's economy. Saturated with gold and silver from the Americas Spain's economy spiraled into over-inflation subsequently raising the cost of Spanish manufacturers. This, in turn, made them uncompetitive and allowed more inexpensive foreign goods to flood the market (Weber 2009). Spain became dependent on foreign imports, especially when wars increased, and treasure fleets decreased. Spain was unable to supply its own needs, much less those of its colonies. The restrictions on trade to the colonies only exacerbated food and supply shortages for the colonies.

To relieve this growing pressure, the Crown turned to private individuals and enterprises to help manage the trade (Lugo-Fernández et al. 2007:26). By the end of the mid-sixteenth century, trans-Atlantic shipping had been organized into two yearly convoys or *flotas* that supplied European goods to the colonies and transported precious metals from New Spain and Central and South America back to Spain

(Haring 1947; Myers et al. 1992:139). These treasure fleets, and subsequent merchant convoys became central targets for foreign privateers lying-in-wait in the Greater Antilles, and later in all areas of the circum-Caribbean. While the *Casa de Contratación* was primarily concerned with regulating trade and preventing smuggling, this government entity also focused on the protection of that trade from privateers, pirates, corsairs, and other foreign interlopers with the *flota*.

Over the next century, the *flota* system slowly began to decline, as a result of Spain's weakened leadership, enormous debts to foreign countries, irregularity in scheduling the convoys, continuous privateer attacks on shipping, hurricanes, colonization of the Caribbean by other European countries, a multitude of taxes and duties on shipped goods, and a reduction in the extraction of precious metals from colonial mines (Deagan 1987; Lugo-Fernández et al. 2007:28). Consequently, warships were constructed to actively protect seaborne trade and to destroy predators' vessels, (Anderson 1995:185). These war vessels, fitted out of the proceeds of the *avería* (a special convoy tax levied on goods carried to and from the Indies), were essentially used to police the waters around Andalusia, as well as certain parts of the Indies, where caravels were particularly susceptible to attack (Hamilton 1929:445–446). In addition to the *flota* system, several strategic ports and coastal settlements were fortified. In the late sixteenth and early seventeenth centuries, the fleets approaching Havana bore the brunt of privateer attacks (Weddle 1985:374). Measures were taken to decrease the places where ships could port unprotected, and fleets and individual merchant ships were required to sail together (defense in numbers).

However, ports not on this Royal Convoy route suffered greatly and faded into a marginal existence (Ewen 1990:3). Protecting Spanish fleets moving across the Gulf and Atlantic carrying gold and silver and establishing a settlement on the lower Atlantic coast ultimately became the primary objective. La Florida, with access to the Gulf of Mexico and Atlantic coasts was the logical choice to explore and secure. New colonies established in La Florida could provide an extra safety measure for the fleets returning to Spain.

Early Colonization and Economic Support Systems in La Florida

La Florida was a Spanish colony for just over 230 years (1565–1821) with the exception of 1763–1783 when it belonged to the British (Milanich 1995a:6). The Spanish conception of the geographic extent of the region known as La Florida during the sixteenth century extended northward from the Florida Keys to an ill-defined point north of the Chesapeake Bay and westward from the Atlantic Ocean to at least the Mississippi River (Deagan 2013:349) (Figure 2.1). To the untrained eyes of the Spanish and French mariners the Southeast appeared to be almost an unbroken sea of trees from Chesapeake Bay to eastern Texas (Hoffman 2002:3). On closer inspection, the Southeast encompasses diverse landscapes including mountains and low-lying seacoasts (Germillion 2004:53). Overall, the terrain would prove difficult to settle and navigate by Spanish explorers and its inhabitants would be a constant threat and hindrance. However, Pensacola Bay ultimately proved to be a particularly suitable location for military defenses and natural resource acquisition (Figure 2.2). Timber was readily available, and the bay's deep port and barrier islands made it an ideal location during the colonial period (Bense 2003a). However, the bay was extremely

susceptible to severe hurricanes and attacks from hostile Native groups, making it an arduous task to explore and settle.



FIGURE 2.1. Extent of La Florida (Milanich 1999:2).



FIGURE 2.2. 1780 map of Pensacola Bay (Courtesy of Normand B. Leventhal Map and Education Center).

For almost 100 years Spain maintained a commercial and territorial monopoly in the Americas (Hoffman 1997:24). In 1519, Hernan Cortés conquered the Aztec state and this achievement inspired Spanish adventurers to look for other states to conquer. In nearly every instance the Native population was swept aside before the "ruthlessness and avaricious conquistadors" (Ewen 1990:3). By 1542 and 1543 new laws were issued that resulted in a wholly different approach to interacting with Native groups, and ruthlessness became for the exception than the rule (John E. Worth 2020, pers. comm.).

Hernando de Soto was a seasoned veteran of the Pizarro conquest of the Incas in 1531 and using the information he gathered from Cabeça de Vaca's account, Soto

sailed for Florida in 1539 (McEwan 2000:62–63; Worth 2013a:192). When de Soto's army marched into Apalachee Province, the Spaniards entered a fertile region with a large population and numerous settlements (Figure 2.3) (Milanich and Hudson 1992). After nearly four years of exploring the interior southeast from South Carolina to Texas, de Soto failed to find wealth to rival that of Mexico and Peru, coming away with only geographic information and the enmity of Native Americans (Ewen 1990:3). At this point, Florida still held no immediate monetary value to the Spanish Crown, as there were no identified sources of gold or silver. In addition, the Native population density was small in comparison to the Aztec or Inca (Ewen 1996; Worth 2013a:192–193). However, Florida was strategically valuable in protecting these New World treasure fleets from pirate attacks (Worth 2013a:192–193). An increasing fear of French settlement on the Gulf revitalized Spain's interest in Florida in the 1550s (Clune et al. 2006:21–22).

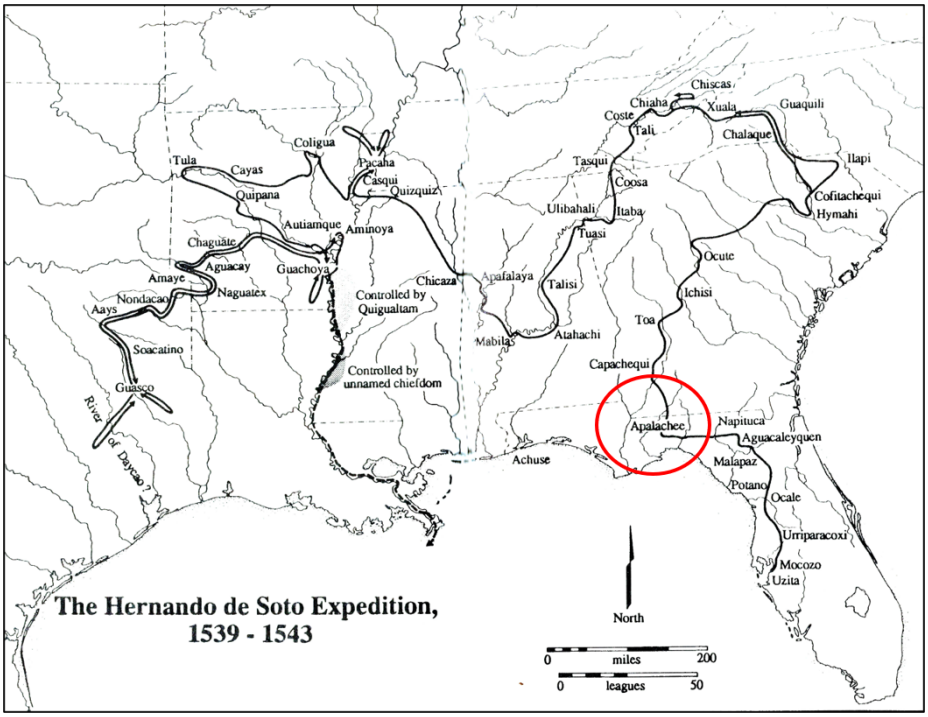


FIGURE 2.3. Map of the de Soto expedition (Milanich and Hudson 1992:234).

During the sixteenth century, several attempts to settle and colonize North America failed; however, one expedition made a small step in the right direction. King Phillip II funded an expedition to keep the French out of Florida's Atlantic coast, and the Viceroy took this opportunity to also find an overland route to Santa Elena using Pensacola Bay as an entry point (John E. Worth 2020, pers. comm.). In 1559, Tristán de Luna y Arellano led an expedition to Pensacola Bay, sailing from Veracruz with some 1,500 people, livestock, craftsmen, and a year's worth of supplies. He was charged with establishing an overland route to the lower Atlantic coast of South Carolina (Luna y Arellano 1561; Hudson et al. 1989; Priestly 2009; Worth 2018a). Only one month after they arrived, the colony was struck by a massive hurricane, sinking many of their ships and devastating their food supplies. To survive

the colonists hastily moved further inland in search for food, but it would be almost two years before they were rescued by Spanish ships and returned to Mexico (Worth 2016). Consequently, all the attempts to colonize Florida up to 1561 had failed to secure a long-term, defensible settlement and ended in the death of the Spanish leaders listed in Table 2.1.

TABLE 2.1. Early Spanish Expeditions in Florida

Spanish Expedition Leader	Date
Juan Ponce de León	1513
Pedro de Salazar	ca. 1514-1516
Diego Miruelo	ca. 1516
Alonso Alvarez de Pineda	1519
Juan Ponce de León	1521
Pedro de Quejos	1521, 1525
Lúcas Vázquez de Ayllón	1526
Pánfilo de Narváez	1528
Hernando de Soto	1539-1543
Luis Cancer	1549
Tristán de Luna y Arellano	1559-1561
Juan Pardo	1566-1568

Sixteenth & Seventeenth Century Florida

From the sixteenth through the eighteenth centuries, Florida was an outpost on the northern frontier that protected Spain's fleets traveling from Mexico and Havana back to Spain (Worth 2013a; Dadiego 2014). Some of the great European empires were vying for the most strategic and lucrative areas in North America, which was also a motivation for Spain to colonize more territory. Maritime presidios protected shipping lanes and harbors against pirates and European navies, in addition to pacification of local natives (Bushnell 1994; Bense 2004:3). In general, presidios

were fortified settlements with an assigned military contingent. St. Augustine was established in 1565 as part of this fortification plan.

France's attempts to establish settlements in the Southeast at Charlesfort and Fort Caroline between 1562 and 1565 again prodded the Spanish to look for a defendable location, this time on the Atlantic coast. In 1565, Spanish admiral Pedro Menéndez de Avilés captured the French Fort Caroline and massacred its inhabitants (Worth 2009:182). That same year Menéndez de Avilés also founded the first enduring European settlement in La Florida at St. Augustine and over the next five years Menendez ordered the construction of 15 more fortified garrisons along the Atlantic coast and inland to the Appalachian Mountains (Deagan 1985, 2013:359; Hoffman 2002). By 1568 more garrisons were created along the Atlantic coast and interior (Figure 2.4).

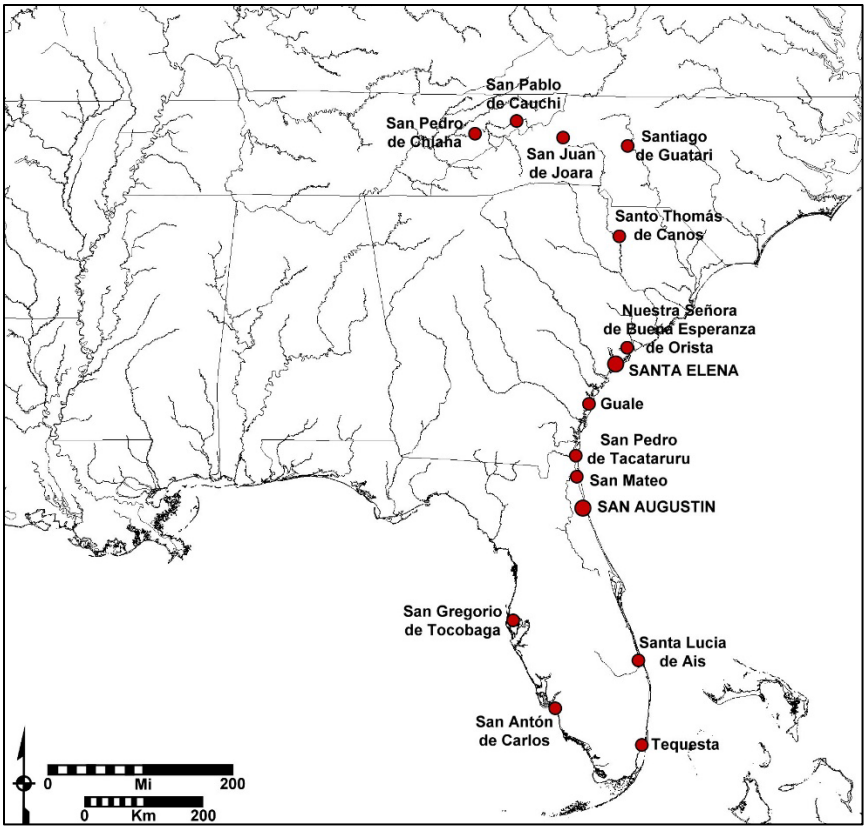


FIGURE 2.4. Spanish forts and cities (Courtesy of John E. Worth).

The proximity of St. Augustine to the shipping lanes along the coast of Florida, and its location northeast of the fortified city of Havana, Cuba, the port where the fleets assembled for the return voyage to Spain, assisted in the control and defense of the Florida straits (Hoffman 1997:24-25). St. Augustine also served as a buffer against foreign encroachment from the north (Hoffman 1997:25). St. Augustine was the first presidio established on the Atlantic coast in 1565, but West Florida would not receive a fortified settlement until the very end of the seventeenth century. On the east coast, the Spanish empire rapidly expanded north into Georgia, and south to the lower Gulf coast. However, during this expansion, the Native American resistance was overwhelming, and both Spanish and missionaries suffered

from attacks and diseases. By 1570, only 2 of the 15 fortified garrisons remained: St. Augustine and Santa Elena, (Milanich 2004a:334; Worth 2009:183). In the span of fifty years, Spanish Florida would collapse and contract into a very small area around its only remaining city of St. Augustine. The main reason for this contraction was increasing hostilities by Native groups and encroachment by the British. By the late seventeenth-century, a Frenchman by the name of Robert Cavalier de la Salle attempted to settle the northern Gulf coast in Texas, which was dangerously close to the borders of La Florida. This final act of territorial encroachment renewed the importance of establishing a Spanish presence in the Gulf of Mexico. News that La Salle had established a settlement prompted over 11 Spanish expeditions to look for him between 1685 and 1690 (Coker 1999:6). In 1698, the Spanish selected Pensacola Bay as the location for construction of the presidio Santa María de Galve.

The *Situado*

St. Augustine and other frontier settlements in La Florida suffered from a lack of sufficient attention and supply from Spain. To maintain and develop the settlement of St. Augustine during its formative years, the Spanish secular and ecclesiastical representatives created several economic structures. These structures included the *situado* (annual subsidy), the *gasto de indios* (Indian fund), and the *repartimiento* (labor draft). One commonality among these economic structures was their complete failure. The *repartimiento* (1994; Deagan 1993; Griffin 1993; Worth 1998; Eschbach 2007), *gasto de indos* (Sluiter 1985; Bushnell 1994; Worth 1998; McEwan 2000;

Hann 2017), and *situado* were sixteenth-century creations, but only the *situado* managed to survive into the eighteenth century.

The *situado* was enacted as early as 1571, and from 1573 to 1574 the payments were transferred from Spain to the treasury in Veracruz (Sluiter 1985:3; Worth 1998:130; Dadiego 2014). In 1592, Mexico City temporarily took over payments for Veracruz, but after 1594 Veracruz was made officially responsible for Florida's financial assistance until 1702 (Sluiter 1985:3; Bushnell 1994:43; Dadiego 2014). The annual *situado* was the primary legal source of imported goods in St. Augustine (Deagan 2007). Specific expenses covered by the *situado* included salaries for troops, maintenance costs for fortifications and port settlements, support for religious missions, and salaries for clergy and civil servants (Marichal and Mantecon 1994:600–601). The bulk of the *situados* were sent in ships from Veracruz to Havana and were then distributed to other points in the greater Caribbean. Analysis of shipping records for Seville reveals that virtually all classes of "non-ceramic items found typically on colonial sites were imported from Seville or Cadiz from France, Holland, England, and Germany and re-exported to America throughout the colonial era" (Deagan 2007:101). La Florida relied on provisions brought by the *situado* because it was unable to create enough surplus to sustain itself (Ewen 1990:4). Only two *situados* were sent to Pensacola bi-annually though Mexican official purchases, one with payments, and the other with supplies. St. Augustine's *situado* was annual with a *situador* in charge of collecting cash in Veracruz and using the funds to make supply purchases along the way back in New Spain and Havana. Unfortunately, the

situado was frequently late, and when it did arrive on time, it was often insufficient to support the colonists (Worth 1998:130–131). Florida depended on this annual subsidy well into the eighteenth century, which proved detrimental to the growth of the Spanish Empire. The average amount in pesos sent to Pensacola annually from 1750-1759 was only 28,000, extensively less than what other colonies received (Marichal and Mantecon 1994:603). Krista Eschbach (2007) used a selection of requisitions and shipment inventories from the Santa Rosa period for the years 1723 to 1752. Amanda Roberts (2009) used the same documents and others to compile additional lists of supplies requisitioned and sent to the Pensacola presidios dating back to 1698. Glass beads are rarely mentioned in these documents, and information for lead and ammunition is only mentioned once in 1723. Approximately 8,000 lbs. of lead bars with fusil balls were delivered in the 1723 *situado* to Pensacola (Eschbach 2007, Appendices D-F). Glass beads may not have been important enough to mention, but as for ammunition, it seems Santa Rosa was in short supply.

Failure of the *Situado* and Mercantilism and Illicit Opportunities

As mentioned above, the distribution of materials goods in Spanish colonies was largely determined by Spain's mercantilist commercial policies for colonial supply and trade. Monopolies and regulations kept goods scarce at ports like St. Augustine and Pensacola, which allowed merchants to unscrupulously charge what the market would bare (Weber 2009:133). For consumer and suppliers alike, these artificially high prices made smuggling an attractive alternative. Additionally, major shipping convoys often bypassed colonies resulting in requests for *sueltos*, or single, non-convoy ships to call at their ports for much needed supplies (Deagan 1987:19).

Their requests were consistently denied, exacerbating the need for alternative means of supply. Contraband became so chronic that almost two-thirds of all commerce throughout the Spanish empire consisted of illegal trade with foreign suppliers; a condition that was a distinguishing trait for the Florida and Caribbean colonies throughout much of their history (Deagan 1987:19; Weber 2009:133). As Spanish trade declined and illicit trade increased, Spanish colonial governors not only began to tolerate illicit trade as a means of survival, but also encouraged it as a means of personal gain, sometimes accepting bribes and participating in buying and selling contraband goods (Johnson 2003:317).

Although Spain's restrictive mercantilist policies were system wide, there appears to have been a certain amount of flexibility under conditions of local emergency. Under such circumstances, legal dispensation to trade with foreigners was sometimes granted as a relief (Deagan 2007:102). English goods, including ceramics, could have entered St. Augustine legally almost continuously from 1713 until Spain's entry into the French and Indian War in 1762 (Deagan 2007:104). In 1713 the Treaty of Utrecht established the slave *asiento*, giving English traders greater opportunities to penetrate Spanish American markets. The *asiento* was basically a trading agreement that gave exclusive rights to the Jamaica-based English to supply African slaves to the New World colonies (Haring 1947:315; Deagan 1987:23; Roberts 2009:35; Dadiego 2014). For several years, fewer Spanish merchant fleets (with the *situado*) did not sail at all to America, leaving the English *asiento* ships and other non-Spanish sources as the only legal source of new merchandise. Charleston

merchant reaped enormous benefits from contraband trade with Florida, including smuggling weapons to Seminoles, runaway slaves, and even the Spanish (Brown 1980:173). Spanish revenue agents arrested a contraband trader, Robert Jenkins, confiscated his ship, and cut off his ear as penalty for smuggling. Outraged, Jenkins presented his pickled ear to English Parliament, which incited yet another war between Spain and England (Brown 1980:173). The War of Jenkin's Ear thus ended the English slave trade *asiento* in 1739 (Deagan 2007:107). This problem provoked widespread dissatisfaction with the colonies and contributed to the colonists' willingness to engage in *rescate* or illicit non-Spanish sources of trade (Deagan 2003:7). For the citizens of St. Augustine, this meant returning to whatever economic opportunities presented themselves, regardless of legality. Opportunities increased after 1670 when the English established Charlestown providing yet again a steady stream of English goods (Deagan 2007:100). At one time, Spanish officers in St. Augustine purchased weapons from Carolina merchants in order to defend themselves in a war with the very same Carolinians (Weber 2009:131)!

For the French, mercantilism proved equally constrictive. From 1712 to 1731, Louisiana colonists endured strict terms under a series of companies called collectively “The Company.” The Company held exclusive control over all imports and exports and all nonlocal goods and necessities had to be purchased at Company-owned stores (Dawdy 2008). Additionally, ships coming out of New Orleans had to be French-owned and carrying French cargoes. Any violation of these economic restrictions constituted a form of smuggling (Dawdy 2008). The capricious nature of

the French policy encouraged a complete disregard for the rules altogether (Dawdy 2008:103). French officials found it difficult to project these laws on distant frontiers where sympathetic governors let local needs prevail, similar to Pensacola. Evidence of smuggling from Louisiana's notarial archival and official correspondence demonstrates how colonial elites and even officials were less inclined toward fulfilling Frances plan that consolidating their own wealth and power (Dawdy 2008:122). The same can be said for colonial Pensacola. As evidenced throughout the rest of this chapter residents of Pensacola turned to nearby French Mobile for essentials, and more importantly, indirectly accessed French and English goods from interior Upper and Lower Creek groups through Apalachee and Yamasee intermediaries. These Native groups used and maintained longstanding trade networks established by their Mississippian ancestors.

Historic Native Groups and Their Origins

Several important Native polities were present in the region, many of them descendants of complex Mississippian societies (Figure 2.5). Mississippian cultures, named after the valley where they first originated, are characterized by their complex chiefdoms, each with a paramount chief who ruled over many other secondary chiefs, village chiefs, and their people (Milanich 1999:51). Mississippian societies flourished in the Southeast for nearly 1000 years and developed into the largest and most institutionally sophisticated cultures in eastern North America (Oatis 2004:13).

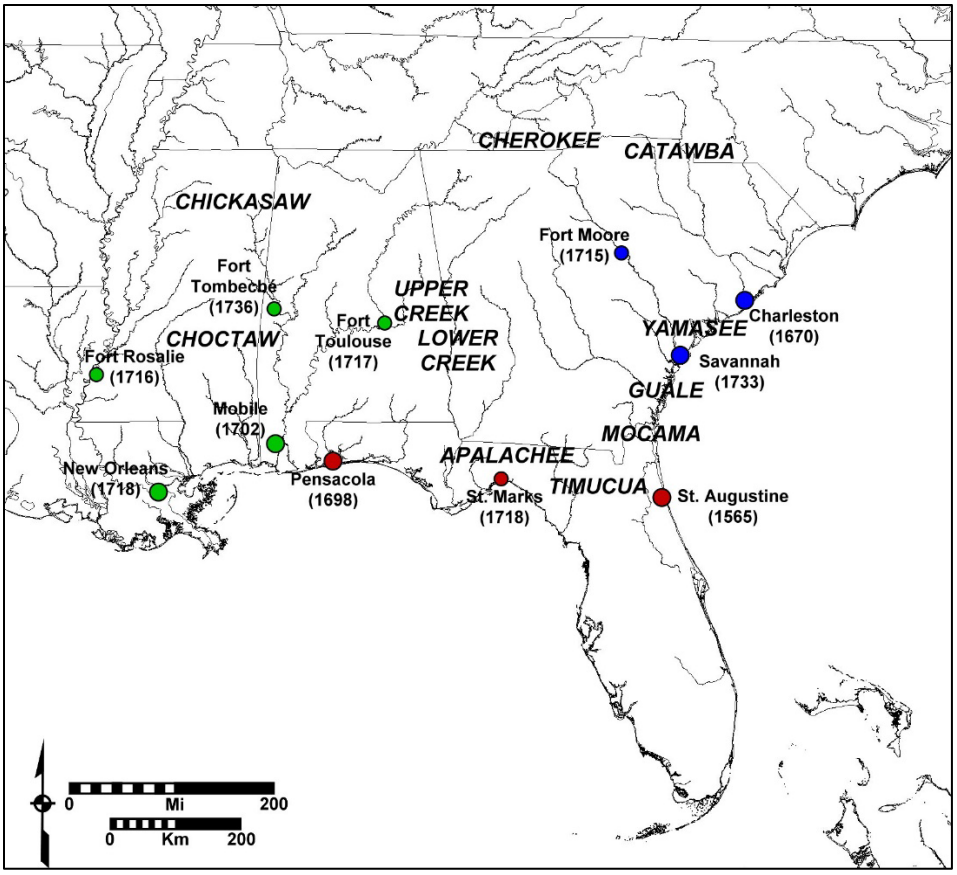


FIGURE 2.5. Map showing Native groups and major European sites (Courtesy of John E. Worth).

By the beginning of the sixteenth century, most of the Mississippian cultures had declined from the pinnacles of population and political cohesiveness, a process which European diseases only exacerbated (Oatis 2004). The sixteenth-century iteration of these chiefdoms were still hierarchically ranked, kin-based regional polities where chiefs actively sought political power and control. Which they amassed through institutional governance and through warfare (Dye 1997:129). Among all southeastern Natives in the eighteenth and nineteenth centuries the color white represented peace and purity and red was the color of blood and war; as such, they had white towns and red towns that symbolized the duality of peace and war (Braund

1993). Native warfare would continue to evolve and change into the eighteenth century, primarily in response "to the expanding political arena of mutually hostile European nations aided by indigenous auxiliaries" (Dye 1997:141). Two main historic native polities, confederacies, or chiefdoms were born from the crucible of the colonial southeast that bear directly on the growth and decay of the Spanish presence in West Florida: the Yamasee and the Creek Confederacy (Upper and Lower Creek). The Apalachee were a persistent indigenous chiefdom up to the beginning of the eighteenth century. Similar to their contemporaries in other regions of the New World, these native groups actively negotiated with colonial processes and persisted politically and economically despite the profoundly devastating consequences of colonialism (Worth 2002; Ethridge 2006, 2010; Galloway 2009; Hall 2009; Marcoux 2010; Schneider 2015).

Apalachee

The eighteenth-century Apalachee were very different, in some respects, from their precontact and sixteenth-century ancestors, as can be said for all historic southeastern native groups. Over two centuries of internal political and territorial warfare, European influenced destruction, relocation, migration, and consolidation via slave raiding, missionization, capitalistic trade, and disease left southeastern native groups including the Apalachee distinctly transformed from their predecessors. The Apalachee played a significant role in trade networks that linked many of the southeastern chiefdoms. Archaeologically, their origins can be traced back to AD 700 (Scarry 1994:157). The Apalachee spoke a language that was part of the Muskogean family, apparently most closely related to either the Alabama-Koasati or Hitchiti-

Mikasukee languages (Martin 2004:71). Kin group affiliation and inheritance were matrilineal and there were political offices that formed at least two administrative levels above the local community where the paramount chief exercised authority over the entire polity (Scarry 1994:159). There were three tiers within the hierarchy, the principal center, regional centers, and local communities each with a *cacique* or chief (Scarry 1996). The Apalachee province of precontact and early contact consisted of vast fertile agricultural land that supported the Mississippian chiefdom, and later the early Spanish frontier at St. Augustine (Scarry 1994; Worth 2002; Hann 2017).

The protohistoric period for Apalachee sites dates from 1500-1633, and the subsequent period extending to 1704 is called the San Luis Phase, named after the Apalachee principal center located in present-day Tallahassee, Florida (Scarry 1996; Scarry and Maxham 1997:145). Emboldened by the rapid fall of two great empires (Aztec and Inca) the Spaniards turned their attention to North America but were initially met with hostile resistance. The Apalachee had a reputation among other Southeastern chiefdoms as being a formidable military force and were also economically powerful. They lived up to their fame when Pánfilo de Narváez and Hernando de Soto encountered them on their entradas during the early sixteenth century (Swanton 1998; Hann 2017:181). During the sixteenth century the province was bounded by the Aucilla and Ochlockonee rivers the Gulf of Mexico (Figure 2.6). Over time the Mississippian chiefdom transformed into a mission chiefdom.

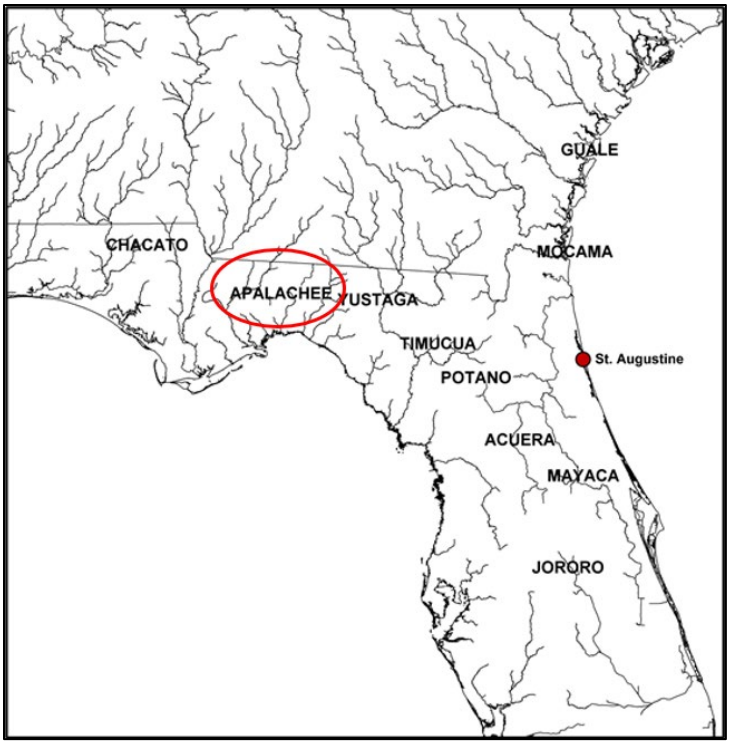


FIGURE 2.6. Location of the Apalachee Province (Courtesy of John E. Worth).

During the seventeenth century, the Spanish made more progress with the Apalachee and by 1670s had established missions, ranches, and a fort in Apalachee territory (Scarry 1994:157). By the early 1670s most of the Apalachee could be considered Christian, but they were able to adapt to the new Spanish system while also retaining many dimensions of their previous identity. Upon being Christianized, the Apalachee would adopt Spanish first names, but this was usually reserved for *caciques* and other leaders (Hann 1994:344). Mortuary patterning at San Luis reveals that the Apalachee adhered to Christian burial traditions, but also retained the inclusion of grave goods as status indicators (McEwan 2000:70). Documentary and archaeological evidence that many Apalachee political and social traditions persisted throughout Spanish colonization and missionization, and even though they were

growing surplus corn, beans, squash, and other introduced species for the Spanish, they retained their own dietary preferences. They used their land to support the Spanish at St. Augustine, but also raised cattle and other domesticates for profit (McEwan 2000:74–75; Scarry 1994). The Apalachee would continue to play an important role during the eighteenth century.

Yamasee

As is currently understood, the Yamasee, as a recognizably distinct ethnic group and polity, were a product of the early colonial era, a new society that emerged during the mid-seventeenth century (Worth 2018b:309). In part, the Yamasee were originally descendants of the Altamaha or Tama chiefdoms, from central and eastern Georgia. In the 1660s and 1670s the Yamasee fled to the missions in the face of English-sponsored slave-raiding, then fled the Spanish in 1683 to become active raiders for the English beginning in 1685 (targeting groups like the Apalachee) until 1715, when English trade abuses incited revolt and migration into Spanish territory (White 2002:24; Worth 2004:245; Ethridge 2006). The Yamasee had a distinctive identity as a group and oscillated their allegiance between the English and the Spanish for several years before finally settling in Florida and accepting Christianity. The speed at which Yamasee societies coalesced around European towns proved that they were prepared to move in new directions, form new alliances, and assume new rules, yet they switched sides as soon as the arrangement no longer benefited them (Bushnell 2018:46). They spoke a Muskogean language and had a mixed subsistence economy based on farming supplemented by hunting, fishing, and gathering (Worth

2004:245, 250). While the Yamasees had a common language, a common name, and two capitals by 1695 (Pocotaligo for the Upper Yamasees and Altamaha for the Lower), they always acted for themselves and were resistant to Spanish authority (Bushnell 2018:39). During the seventeenth century the Yamasee showed great reluctance to conform with Spanish-style governance, and only remained connected to Spain if it remained a reliable source of trade goods and military protection. The political system of the Yamasee aligned more with the opportunistic Creek and was less defined than that of the Apalachee, which consisted of centralized matrilineal inheritance (Worth 2004:250).

Upper and Lower Creek

The Creeks were a multi-ethnic confederation of village agriculturalists that occupied around 40 towns, with the Upper Creeks residing along the Coosa and Tallapoosa Rivers in east-central Alabama and the Lower Creeks residing along the Chattahoochee River (Wesson 2010:65). The Creeks were part of the Muskogee language family that included Alabama, Apalachee, Chickasaw, Chocktaw Hitchiti-Miskasuki, and Koasati speakers (Martin and Maultin 2000: xiii; Foster 2007:1–2). The immediate Mississippian background for the Creek involves several Western Lamar archaeological cultures (Knight 1994:381). European observers divided the Creeks into the Upper and the Lower Creek based on geography (Figure 2.7). This designation was also based on a town's proximity to either of the two main trade paths that linked the Creeks with South Carolina: The Upper and Lower trade paths (Braund 1993:6). The Upper and Lower dichotomy of the Creek was very important

because distance and relative location gave the Upper and Lower Creeks different views of and access to the outside world. They acknowledged their shared kinship yet Upper and Lower towns "held separate councils, claimed separate territories, and often pursued different foreign polices" (Braund 1993:7).

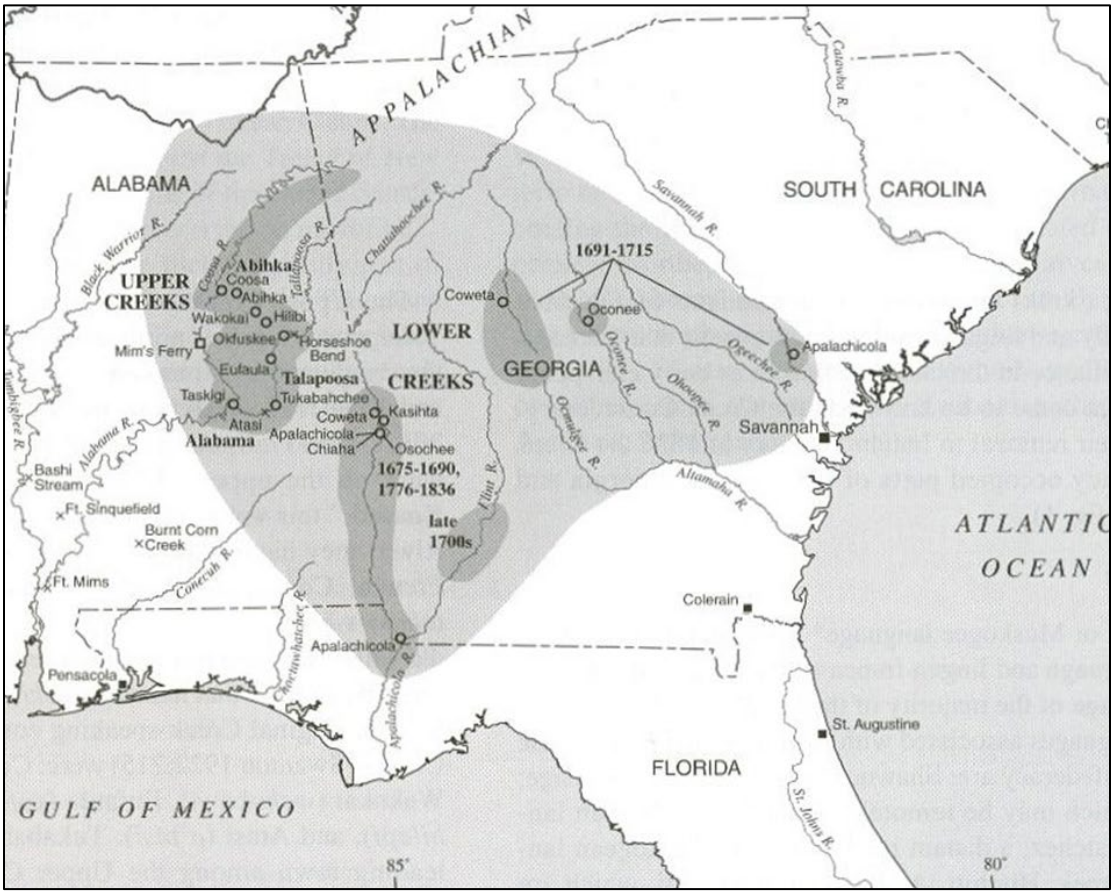


FIGURE 2.7. Location of Upper and Lower Creek Provinces (Fogelson and Sturtevant 2004).

Creek political economy emphasizes the centrality of their political leaders, or *micos*, in economic life. *Micos* were individuals from high ranking families, and controlled access to nonlocal exotic raw materials and finished goods (Wesson 2010). At the local level, the basic unit of governance was the town or *talwa* (Knight

1994:375). The *talwa* was the heart of Creek social, political, and economic life and represented more than just a town; it represented the tribe of people who inhabited it (Braund 1993:15). Above the *talwa* was the town moiety and above that was the province. The Creek were matrilineal and matrilocal; however, by the historic Tallapoosa Phase (1700–1750), *micos* advanced politically as a result of gaining prestige in the form of European trade goods and titles, and the same can be said for some of the Spanish-allied Apalachee and Yamasee chiefs (Wesson 1997; Hann 2004). Not only had chiefly succession lost its hereditary character, it also lost its elevated and privileged character with the *micos* of the eighteenth century being equal to anyone else in town (Worth 2002:41). The initial influx of European trade goods reinforced the Creek political economy, but by the time deerskins became the major commodity during the mid-eighteenth century, challenges to the pre-existing political economy mounted. A pre-contact moral economy began to confront the ideologies of individualizing capitalism as elites circumvented *micos* to trade directly with Europeans (Wesson 2010:70).

By the eighteenth-century divisions among the Creeks began to crystallize, with some agreeable to the benefits of individual capitalism, while others grew increasingly hostile and militant as the responsibilities and principles of reciprocity were abandoned (Hann 2004). Factions among the Upper Creek allied with the French, British, and Spanish. Chiefly authority was reconstituted as frontier groups used subsistence farming now only as a supplement to their roles as primary producers in the European market economy (Worth 2002:60; Crane 2004). However,

the legendary Creek policy of neutrality that managed to play off European powers as counterweights against each other was generally effective for much of the eighteenth century (Ramsey 2008:197). Creek leaders encouraged the development of competing pro-French and pro-British factions among different *talwas* (Hann 2004).

The Upper Creek are subdivided into four groups based on regional affiliation: Tallapoosa, Abihka, Okfuskee, and the Alabama (Ethridge 2003:28; Johnson 2012:31). Important historic Upper Creek towns included Muccolossus, Tuckabatchee, Little Talahassee, Okfuskee, Okchai, and Tawasa (Braund 1986:3). Tuckabatchee was one of the most important Creek towns pre-contact through the eighteenth century (Braund 1993; Hall 2009). Tawasa was primarily a Spanish-allied Upper Creek town on the Escambia River, not far from Escambe (Figure 2.8). The town as first established near French Mobile, but moved during the eighteenth century (Waselkov and Gums 2000:31–32). During at least two periods in the mid-eighteenth century (1738 and 1759–1761), Tawasa was the principal Creek outpost along the Spanish frontier, and all other towns noted in documents were clustered at least 70 leagues away from Santa Rosa (Tijanape Valero 1738; Román de Castilla y Lugo 1759a; Galloway et al. 2004:186–187; Worth 2008:10).

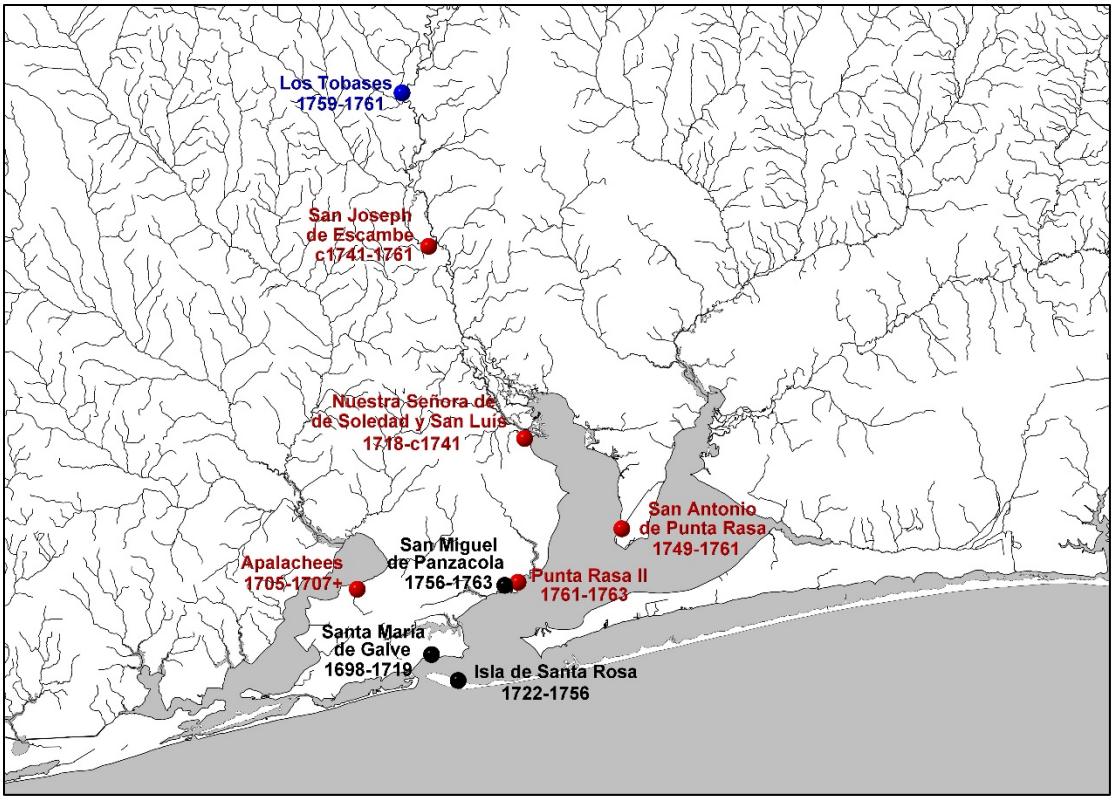


FIGURE 2.8. Location of Tawasa (Los Tobases) relative to Escambe (Courtesy of John E. Worth).

The Abihkas consisted primarily of remnants of the sixteenth-century chiefdom of Coosa, which was a native polity in northwestern Georgia (Waselkov and Smith 2000:244). The Alabama lived near the headwaters of the Alabama River near the city of Montgomery. During the early eighteenth century the Alabama warred with the French at Mobile and were heavily engaged in trade with the Spanish (Waselkov and Smith 2000:248). After the British attacks on Spanish-allied Apalachee in 1704, the Alabama warred with Mobile and Pensacola (Waselkov and Smith 2000:248–249; Johnson 2012:33). After the Yamasee War in 1715, they switched allegiance back to the French at Mobile, and allowed the French to build a fortification on their territory called Fort Toulouse (Braund 1986:19; Hahn 2004:86,

229–270; Worth 2008:12). The core towns of the Tallapoosa are descended from local precontact populations but were joined by refuges of other tribes during the eighteenth century (Waselkov and Smith 2000:250). Little is known of the precontact life and historic life of the Okfuskees, though historic documents suggest they are closely related to the Coosa-Abihka.

The Lower Creeks were located along the Chattahoochee River, and the banks of the Flint and Ocmulgee Rivers where towns like Coweta and Cussita were located (Braund 1986:3; Foster 2007:1–2). The English referred to the Lower Creek as the Ochese Creek, or simply "Creek," and the Spanish normally referred to them as the Uchise. Before 1691, all of the Lower Creek groups were situated along the Chattahoochee River, but from 1691 to 1715, they moved to the Ocmulgee, Oconee, and Savannah rivers in central Georgia, where they were in direct contact with Carolina traders from Charlestown (Worth 2000:278–279). After the Yamasee War, the Lower Creeks relocated back to the Chattahoochee River where they would remain for the next 60 years (Worth 2000:286).

Native-European Trade Relations

Exchange among townspeople allowed them to maintain equilibrium and hierarchy, and exchange with outsiders and provided leaders with rare objects (Hall 2009:13). All economic exchanges were barter, payment in kind, or gifts, all under the principle of reciprocity. Exchanges were between equals and fomented relationships and alliances. Therefore, Native groups insisted on exchanging gifts with European colonists during any serious negotiation as it put the two parties on

equal footing (Hudson 1976:310). Trade and alliance went hand in hand, and Native customs and attitudes toward both trade goods and trading partners shaped the commercial relation they established with outsiders (Braund 1993:26). Europeans were forced to respect, and often adopt the diplomatic customs and domestic traditions of their native trading partners, giving and receiving established relations of mutual obligation. Europeans would soon learn that when they made gifts from a position of weakness, the Natives accepted these offerings as tribute instead of gifts (Hall 2009:21). By doing this the Europeans gained indirect access to a vast network of preexisting, well-travelled trading paths that linked villages across the western part of North America (Braund 1993). The exchange network was so widespread that a special trade language developed (Mobilan) to expedite negotiations between the various tribes.

Throughout the eighteenth century, the Lower Creek stole horses from Spanish Florida, especially the Apalachee territory, and sold them to the English in Carolina (Braund 1986:17). The Creek found trade with Carolina extremely convenient, and the English supplied them with guns and cloth in exchange for captured Indian slaves and deerskins. The Lower Creek quickly fell into debt, however, because the English allowed trade with credit (Braund 1986:19). Especially during the eighteenth century, the principal Creek item traded for European guns, powder, shot, cloth, and liquor came to be deerskins (Waselkov 1998:200–202). The British were able to successfully meet Creek needs on Creeks terms, but they took advantage of them with the credit system (Braund 1986:78, 1993:26). Mounting debt,

addiction to rum, and unrelenting abuses from English traders led to the Yamasee War, and an all-around anti-English sentiment among most Creek tribes.

The French were in competition with the British for trading rights with the Native Americans, and until the 1740s, food was the major focus of a list including "maize, bear oil, hickory nut oil, venison, fish, beans, and deerskins" (Waselkov 1992:37). The French depended primarily on the profit of selling liquor (brandy) to the Creeks in exchange for deerskins after the 1740s, but they also traded munitions and clothing items. The French argued that their goods were of higher quality than British goods, and there was supporting evidence that the Creeks preferred French gunpowder, gunflints, and musket balls over English equivalents (Waselkov 1992:41–43).

In eighteenth-century Spanish West Florida, most of the trade was conducted by soldiers and other individuals in Pensacola and scattered at Spanish settlements and missions (Figure 2.9). By virtue of indigenous trade networks that had existed long before the arrival of the Spanish, mission communities were often in a position to serve as intermediaries or brokers for Spanish and other Native groups (Oatis 2004:19). Trade consisted mostly of deerskins and foodstuffs in exchange for glass beads, brandy, and cloth. Some Creek became dependent on alcohol and would strip and trade the shirts off their backs in exchange for liquor (Braund 1993:126). One document highlights this and is discussed later in the chapter.

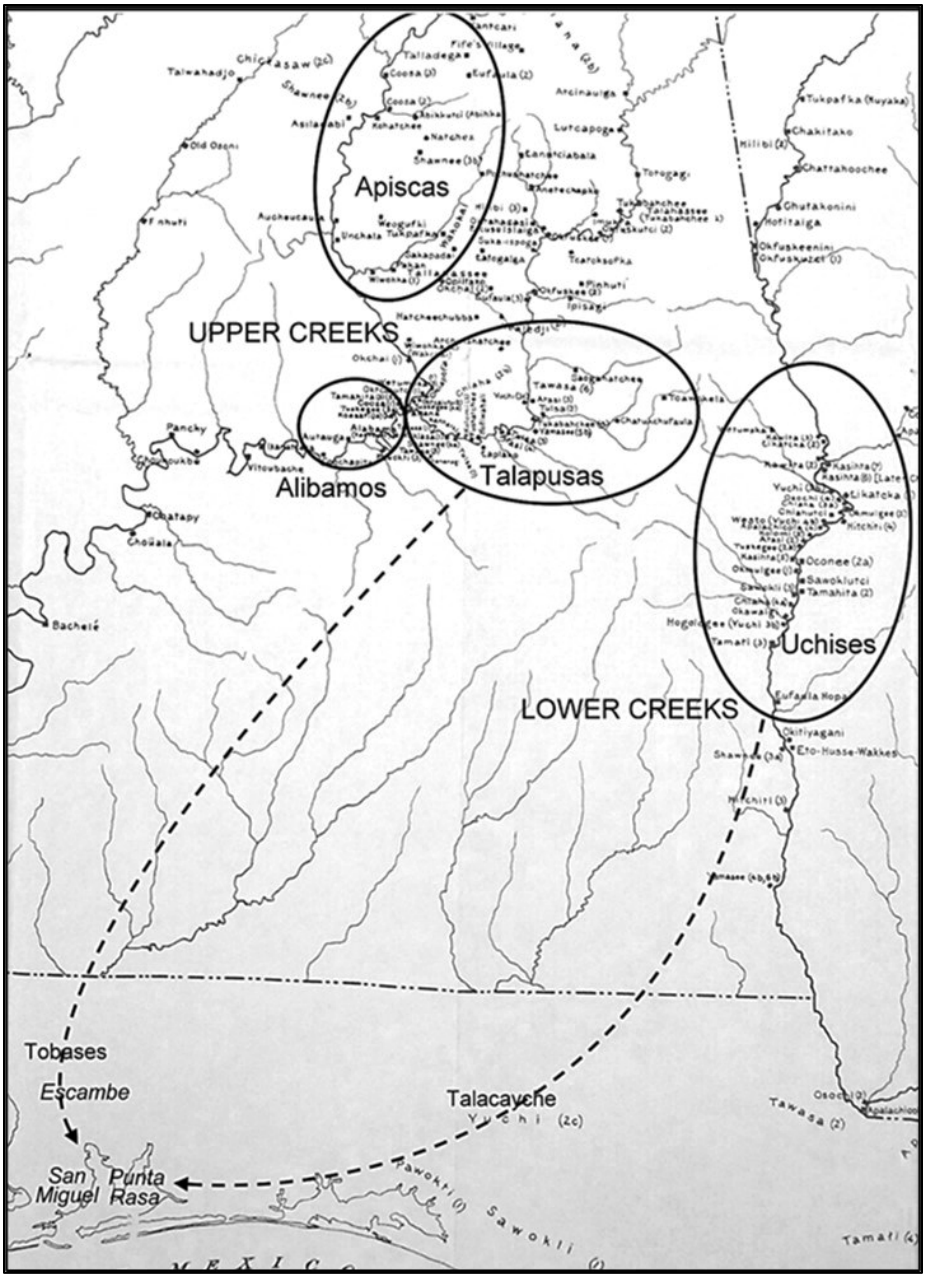


FIGURE 2.9. Creek trade routes (Adapted from Swanton 1998).

Missions and Native Labor

During the sixteenth century, in addition to building garrisons, Pedro Menéndez also initiated the establishment several missions to coalesce the widely dispersed native groups. *Doctrinas*, missions with churches and resident friars, were needed not only to make the colony successful, but also to provide safe passage and

communication between Spanish Florida's two current coastal settlements, St. Augustine and Santa Elena (Milanich 1994:278).

Among the earliest missions established in Florida were those established between 1567 and 1572 by the Jesuits posted at the many garrisons Menéndez had constructed along the Atlantic and southwest Gulf coasts (Milanich 1994:278). Being the first missionaries to attempt to convert Native populations, the Jesuits were largely unsuccessful, and were frequently met with hostile resistance. Except for the Tampa Bay Tocobaga, several interior groups still remembered the mistreatment by De Soto and resisted any attempt to change their traditional religious practices. Jesuits were frequently killed by hostile Native groups and survivors were in constant disagreement with Spanish soldiers stationed at their outposts (Milanich 1994). In 1572, Jesuit authorities in Spain abandoned their effort in Florida and retracted their remaining missionaries (McEwan 2001:634).

The primary mission era in Florida did not effectively start until 1587 when the newly contracted Franciscans gained acceptance of indigenous groups near St. Augustine (Worth 2009:183–184). The turn of the century marked some of the most difficult years for St. Augustine and its Spanish inhabitants, but it would also mark the beginning of the incorporation of Florida's indigenous groups into the Spanish colonial system. Spanish missionaries incorporated the Timucua surrounding the St. Augustine into the mission system, and they also converted the Guale to the north shortly after in 1595 (Worth 2009:184). Missions played a large part in sustaining La Florida when the economic structures like the *situado* became unreliable or failed

completely. These same economic institutions were completely dependent on the friars' success in converting Native peoples. By 1602 a chain of Franciscan missions had been established along the Atlantic coast from St. Augustine almost to South Carolina (Milanich 1994:276) (Figure 2.10). In 1633, two friars were allowed to settle in the Apalachee Province in its two principal villages of Ivitachuco and San Luis de Jinayca, known as the head peace town and head war town (Hann 1994:329–330). This settlement patterning followed Native American worldview of a "red" state of violence coexisting with a "white" state of peace (Oatis 2004:9). After a second string of missions was successfully established westward across northern Florida, the mission period reached its height, with over 30,000 Native converts, 40 churches, and 52 missionaries (Milanich 1994:277). San Luis de Talimali in the Apalachee Province is perhaps the most thoroughly investigated mission in Spanish Florida, and much of our historical and archaeological knowledge of this period comes from this site (McEwan 2001:636). For more details on a century of research on the Franciscan missions of seventeenth century Florida see Milanich (2004b, 2006) and Hann (1990).

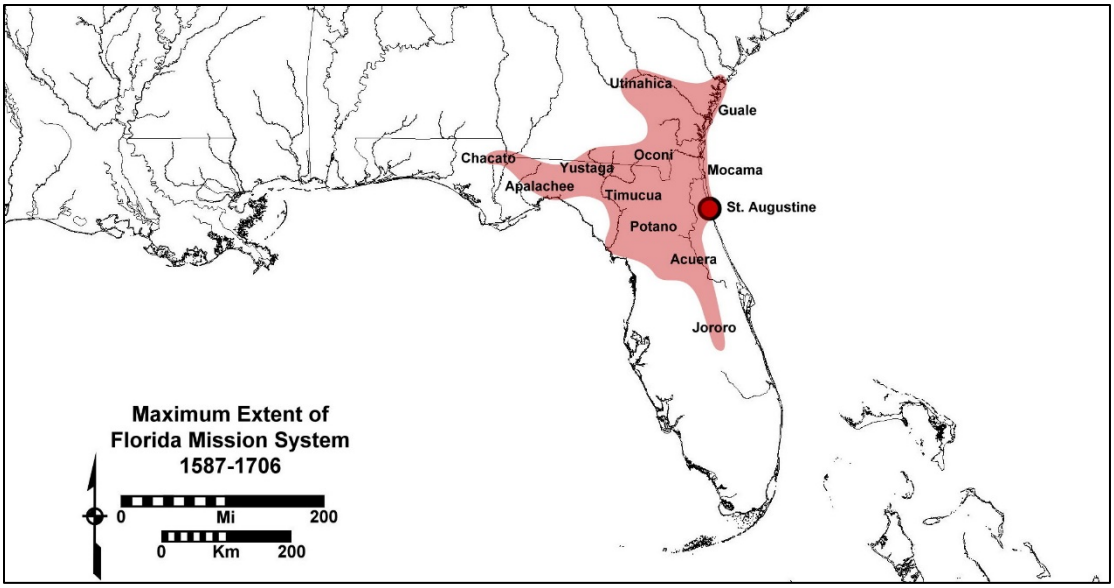


FIGURE 2.10. Map showing location of mission provinces in Spanish territory (Courtesy of John E. Worth).

Missionization of Spanish Florida was successful for two main reasons; the way that the Spanish integrated into the Native political system and the shrewdness of the Native polities in using Spanish goods and authority for their own benefit. The Franciscan missionaries were the lead actors on the Spanish side, with governors playing a more peripheral role. Instead of trying to forcefully subjugate Native groups, whether by military force or religious coercion, Franciscan missionaries proliferated a new model of voluntary conversion which gave Native groups direct access to the "world of the Spaniards both in material and spiritual realms" (Worth 2013b:141). They served as technical advisors, advocates, and cultural brokers for Native groups within the Spanish colonial system (Worth 2013b:138). The eventual goal of the crown was to replace native institutions with Spanish counterparts as the colony expanded into the frontier (McEwan 2001:635).

The Spanish accomplished this by working within indigenous sociopolitical structures, targeting their paramount and secondary chiefs. By working through this chiefly structure, the Spaniards were able to place missions in numerous towns without force or coercion (Milanich 1999:51). Chiefs would give their allegiance to the Spanish crown by pledging obedience to the governor and accepting Christianity. In return the governor would give not only material items, but also increased status (Milanich 1999:107). Chiefs would actively ally with the Spanish in this way, they were not just passive victims of Spanish proselytization and assimilation. Association with the Spaniards was viewed as a means of bolstering a leader's power, partly because the leader was now allied with a very powerful paramount leader (governor) (Milanich 1991; McEwan 2001). The Native chiefs skillfully navigated the Spanish colonial political system by adopting European practices of formal recognition and appropriating Spanish goods that were considered prestigious among Native groups, thus greatly enhancing their status among other Native chiefs.

Despite the expansion and success of the missions, several internal and external factors led to a large-scale demographic collapse of Native American populations. Disease, rebellion, and territorial warfare resulted in the decrease of Native populations and the slow decline of the mission system in the seventeenth century. Between 1655 and 1675 mission numbers drastically reduced, not only from abandonment, rebellion, or relocation, but from growing efforts of the English to colonize the eastern seaboard to develop a lucrative trade in deerskins and Native slaves (Milanich 1994:284). Enticed away from Virginia, the Westos served as key

intermediaries in the Carolina Native slave trade (Oatis 2004). Slave raiding tradition prior to contact was an occasional practice the purpose of which was to augment the ranks of diminished local populations or acquire war prisoners, but the English turned this practice into a commercial venture (Marcoux 2010:30). Instability escalated as English colonists to the north sponsored slave raids by allied Native groups who began attacking missions and Native villages as early as 1659 and continued to do so through 1715 (Worth 2009, 2013a). All these factors, coupled with ongoing internal political problems between Native American groups, persisted for the next 60 years. Spanish Florida contracted instead of expanding, and the mission provinces diminished in political power. Spain's hold on North America had dwindled to just a small area around St. Augustine and the recently established Pensacola presidio, and it became vitally important to keep other European forces at a safe distance.

Eighteenth Century Pensacola

Santa Maria de Galve

Over the course of less than a century, three presidios were constructed in the Bay of Pensacola, each one facing similar endeavors of survival (Figure 2.11). In 1698, the Spanish initiated the construction of the presidio Santa María de Galve on Pensacola Bay as the location for construction of the presidio Santa María de Galve. Andrés de Arriola founded the presidio in November of that year (Bense 2003b; Clune 2003:20; Melcher 2011:28–29). The presidio served as a buffer zone from the French to the west (Roberts 2009:17). In addition to its regular military officers and soldiers, Santa Maria de Galve was also manned minimally by convicts from Mexico City, Puebla, and Vera Cruz (Bense 2004:3). Although it was authorized by Spain,

West Florida was much more a colony of New Spain than Old Spain (Bense 2004:3). Unlike other areas of the Spanish empire, this region offered no native stone suitable for constructing buildings, so pine logs were the only available construction material. Hot temperatures and moist air rotted the timbers quickly, leaving the buildings in disrepair just two years after its construction (Bense and Wilson 1999:8). The fort was built on a bluff and the church, cemetery, friary, and hospital were placed east of the fort (Figure 2.12). The village was located east of the as well, most likely near the church (Bense and Wilson 2003:203).

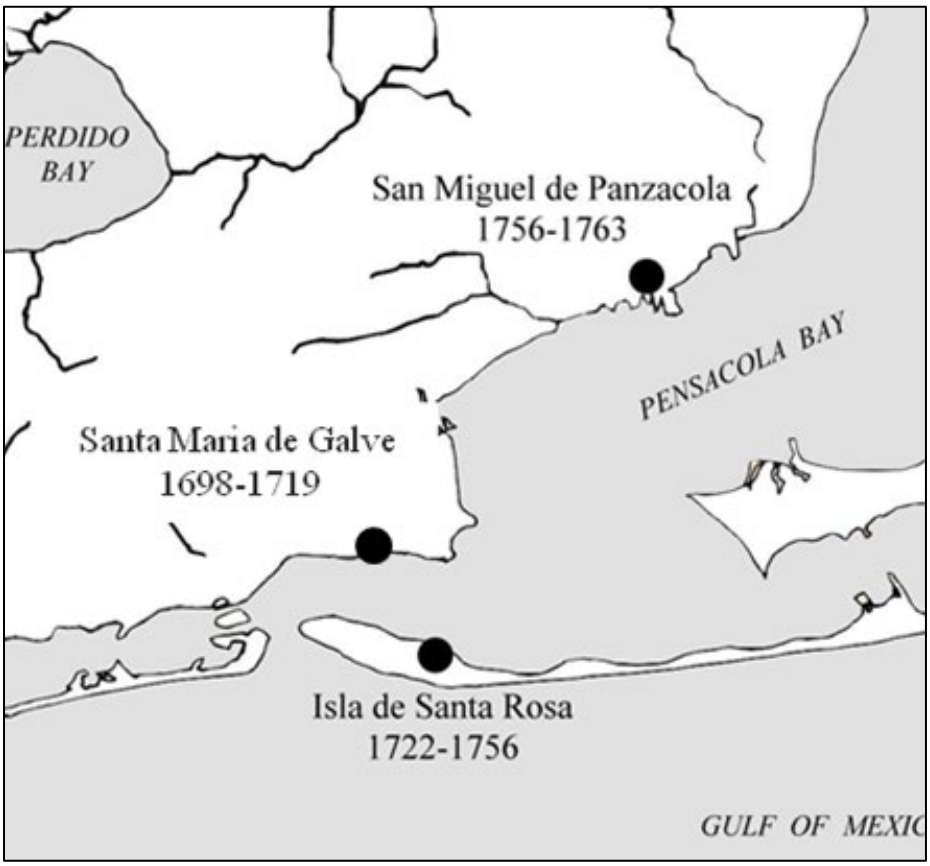


FIGURE 2.11. Map showing three presidio locations.



FIGURE 2.12. Detail from 1782 map showing Santa Maria (Courtesy of Norman B. Leventhal Map and Education center).

At the time, Native American populations in the area were low, in part because of the disease spread by sixteenth-century Spanish expeditions, and because of ongoing conflicts between the Panzacolas and the Mobilas (Bense 2004:47). The Mobilas (from north of Mobile Bay), had decimated the local native group before the Spanish arrived, leaving the struggling Santa María colony without a large Native American population (Dunn 1917:170; Roberts 2009:21). However, recent research shows that a number of other Native American groups did interact with the population at Santa María, including the Apalachee, Chacato (Chato), Tabaza (Tawasa), Ocatoze, Creek, and Yamasee among others (Dysart 1999; Harris 1999, 2003; Clune et al. 2003; Melcher 2011:31). Many of the interactions with native

groups in the region were hostile, so Santa María had difficulty trading for supplies. There is documented evidence of local Spanish farming as early as 1700, but it did not prove successful enough to support the presidio population (Roberts 2009:22). Moreover, food was difficult to come by and the temperature spoiled the little food that was stocked in the presidio. Inconsistent shipping, faulty records, and insufficient funds in the coffers of Mexico City exacerbated the Viceroy's inability to supply the presidio. Overall, Santa María was in perpetual disrepair, and its occupants suffered from malnutrition, severe weather, and frequent attacks from hostile native groups.

Mobile

Over the next 20 years, Santa María struggled to survive, while events in Europe were affecting conflicts and political motivations in New Spain. One important event was the War of Spanish Succession (1702– 1713), or Queen Anne's War. The opposing sides were the Grand Alliance, which consisted of England, Holland, and Austria against Spain and France. This war resulted in turning the French at Mobile into helpful allies to the Spanish at Santa María, as well as aggravating relations with the Carolina English and their Creek allies (Clune 2003:21).

Early in 1702 the French established a fortification on the Mobile River in present-day Alabama, aptly named Mobile (Figure 2.13). The town and river were named after the Mobila Natives that occupied villages just south of the French establishment. The French hoped that the Mobila would help defend the new colony against raids by the English-allied Alabama as well as provide surplus maize from their rich agricultural fields in the delta (Waselkov 2005). The colony remained in

this location until 1711 when they moved downriver to the head of Mobile Bay. The establishment of Mobile simultaneously granted them access and control of the Mississippi River Valley from Canada to the Gulf, and it also facilitated access to Spanish colonial ports of trade (Waselkov 2002:3).



FIGURE 2.13. Detail of 1763 map depicting the location of Mobile (Courtesy of The New York Public Library).

At times, the conditions were so poor, and the Spanish in such dire need of food, that they resorted to buying and trading supplies with the French settlement in Mobile, Alabama (Higginbotham 1991; Coker 1999; Johnson 1999:17, 25; Bense 2003b; Waselkov 2005). Despite acceptable protocol, Pensacola often turned to the French at Mobile for supplies. The effort to acquire daily essentials of survival forced colonists to overlook political rules and regulation. Mobile and Pensacola survived partly because of the assistance each colony offered to its neighbor (Johnson 2003:316). The Spanish at Pensacola maintained this reciprocal relationship with Mobile until the end of the War. For almost two decades, supply and demand overrode the concerns of empire and the ideals of a mercantile political economy in the conduct of trade on the northern Gulf Coast (Clune et al. 2003). It should be noted that the French had ulterior motives beyond survival for trading with the Spanish. They wanted compensation in the form of access to trade networks with New Spain, especially to keep ahead of the British influx of trade goods flooding Mexican markets during the first part of the century (Waselkov 2005; Schooler 2009).

Collapse of the Spanish Mission System

From 1702 through 1704, English raiders from Carolina and their Creek and Yamasee allies raided French-allied villages and decimated the remaining missions in Apalachee, Timucua, and Mocama, (Usner 1992; Boyd et al. 1999:108; McEwan 2000:75; Milanich 2004b:314; Worth 2008:4). When James Moore, former governor of South Carolina organized these raids he did so with the intention of selling the captives to the slave markets of Charlestown (Waselkov 2005:45; Ethridge 2010). He

was also determined to weaken the French along the Mississippi River, but he first had to destroy Florida so that it could not threaten Carolina or its lucrative trade (Hoffman 2002:175). Moore offered freedom to the inhabitants of the missions on the condition that they would join his forces (Hann and McEwan 1998:168). By the end of August of 1704, Apalachee lost almost its entire Native population as well as its thriving ranching and farming operations (Hann and McEwan 1998; Ethridge 2010). By 1704, several missionized Native groups fled to the immediate vicinity of St. Augustine, but by 1706, the English had effectively destroyed all Florida missions leaving several refugee Native groups to survive on their own (Worth 2009:187). After a second attack in June of 1704, the *caciques* of San Luis abandoned their capital and migrated westward (Hann and McEwan 1998). Spanish and French reports in 1704 indicate that a large group of Apalachee fled west towards Pensacola, but most passed on though and settled in French Mobile (Higginbotham 1991:189–194; Worth et al. n.d.). The Spanish repeatedly attempted to coax the Apalachee living in Mobile to return to Pensacola, but every request was pointedly turned down with the argument that the French could provide muskets and ammunition, which were always in short supply and rarely given to Natives in Spanish Florida. By 1706 the Florida missions were decimated, and more than 10,000 Christian Natives had been enslaved or exiled to Creek territory (Milanich 1994:286).

Also during this time, a Native raid destroyed the Spanish village around Santa María, forcing everyone into the presidio compound, and records indicate a continued presence of Apalachee laborers receiving rations at Santa María (Childers

and Cotter 1998:87–91; Harris 2003:270–274; Worth et al. n.d.). The Spanish were barely able to defend the remaining presidios at Pensacola and St. Augustine from British forces. Not only were the English attacking Spanish villages and presidios, they were also rapidly expanding the deer skin trade with groups living in the eastern interior of the Southeast (Bense 1999:208–209). After 1704 food procurement activities outside the fort were impossible due to the presence of English-led Creek attacks (Bense and Wilson 1999).

In 1713, the Treaty of Utrecht finally ended the War of Spanish Succession or Queen Ann's War (Coker 1999:14; Clune 2003:22). As a result of Queen Ann's War, by 1715 virtually all Native societies in the Southeast were embroiled in economic debt, slaving, militarization, and warfare (Ethridge 2010:232). During this part of the century, demographic collapse caused primarily by slave raiding increased native relocations and migrations all over the region. In 1715, Yamasee and Creek slave raiders, who received repeated mistreatment from the English rebelled marking the beginning of the Yamasee War, and then withdrew from central Georgia and the Carolinas (Milanich 1995a:229; Ramsey 2008). The Yamasee War was the capstone of the English contact period, as it marked the culmination of disruptions caused by three forces: epidemic disease, colonial competition, and Native slave trade (Marcoux 2010:18). Most of the Creek moved west to their original homeland accompanied by their Yamasee allies, but many Yamasee moved south to St. Augustine (Worth 2008:6, 2009:187). One long-term impact of the rebellion included the return of a number of the northern band of Apalachee who had been living in exile among the

English-allied Upper Creek since 1704 (Covington 1972:374–378; Hann 2017:289–291, 294–305; Worth et al. n.d.). This uprising not only brought more Native Americans into Florida, it also lessened attacks against the Spanish and their allies, and eventually marked the end of the Native slave trade (Hann 1996:306). Shortly after the Yamasee War, Franciscan missionaries were reassigned in Florida to serve eleven towns composed of Creeks, Yamasees, and remnant Apalachees (Milanich 1994:287).

After the War of Spanish Succession, Spanish relations with the Creek slowly improved, but their relations with the French soured. The War of Quadruple Alliance (1718 to 1721) added the French to the alliance of Austria, Holland, and England against Spain (Coker and Childers 1998; Clune 2003:23). Subsequently, the French at Mobile captured and ultimately burned Santa María in 1719, eventually forcing its inhabitants to relocate 125 miles to the east of St. Joseph's Bay where they built the presidio of San Joseph (Clune et al. 2003:80). The French only occupied the ruins of presidio Santa María de Galve for three short years, before the peace treaty in 1721 that ended the War of Quadruple Alliance. The Spanish abandoned Presidio San Joseph and eventually decided to return west and build a new settlement and fortification on Santa Rosa Island (Roberts 2009:25; Melcher 2011:33).

Fort Toulouse

After the founding of Mobile in 1702, the French quickly found themselves inadvertently involved in a war with the English-allied Alabama who had been raiding small coastal villages for the English slave trade. The conflict continued until trade abuses (similar to the cause of the Yamasee War) caused a rift between the

English and their Native allies (Waselkov 1989). In 1717, the *cacique* of the Alabama requested the French build a fort in his village at his own expense. This represented an advantageous shift in alliance that would open up new trade networks for the French as well as the Alabama. The French chose the location near the junction of the Coosa and Tallapoosa rivers hoping to neutralize the influence of the Carolinians among the Alabama and other Creek tribes (Weber 2009:139) (Figure 2.14). Moreover, the fort itself was the terminus point of a land route leading south to Mobile and Pensacola, and it was also on a direct route to Charlestown (Thomas 1989:32). Disrepair and supply problems would plague the fort until its abandonment in 1763 (Thomas 1989:1). Toulouse adopted many roles over its life and one of the main functions of the fort was trade with the Upper Creek tribes. In exchange for deerskins the Creeks would receive guns and gunpowder, both of which were thought to be superior to those of British origin (Thomas 1989:34). Additionally, the prices were lower at this fort than any other trading posts, and river travel facilitated trade and transport of heavy objects like bullets and gunpowder (Oatis 2004:215).



FIGURE 2.14. Detail from a 1757 map showing location of Fort Toulouse (Courtesy of the Library of Congress).

Isla de Santa Rosa

In 1722, a Scottish colonel of the Spanish Windward Fleet named Alejandro Wauchope arrived in Pensacola to establish the Presidio Isla de Santa Rosa east of Punta de Sigüenza, on the bay side of the barrier island that separated Pensacola Bay from the Gulf of Mexico (Coker 1975; Clune et al. 2003:82; Eschbach 2007:11). The Spanish selected this location because they thought it would protect them from Native attacks, which had besieged the Presidio of Santa María (Figure 2.15). Although the location on the barrier island protected them from hostile Indians on the mainland, it did not protect them from the forces of nature. During its 30-year existence at Santa Rosa, the presidio's inhabitants suffered at least eight significant hurricanes, two of them covered in detail in historical records. The hurricanes caused considerable

damage, and the settlement was in constant need of repair (Eschbach 2007:17; Melcher 2011:34–35).

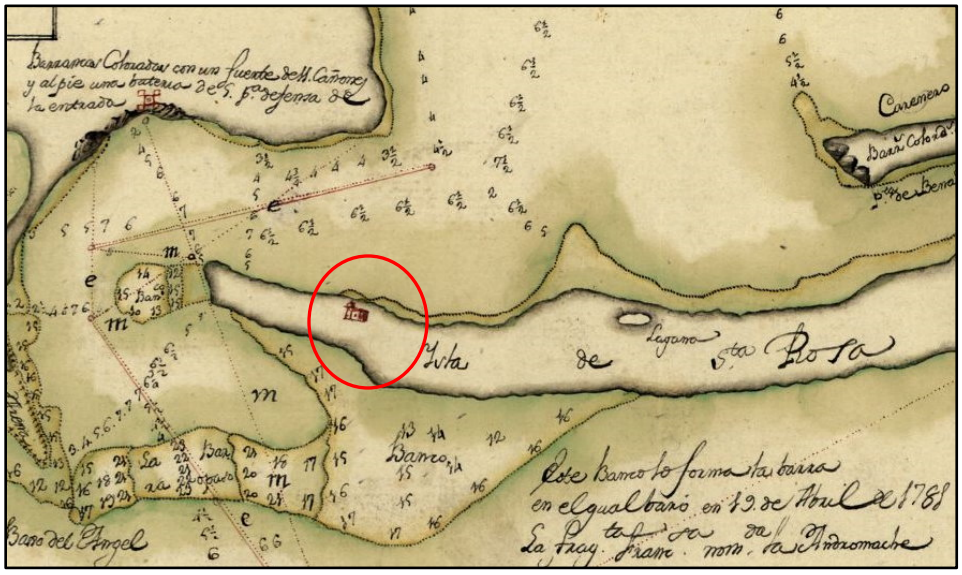


FIGURE 2.15. Detail from a 1782 map showing location of Santa Rosa (Courtesy of the Library of Congress).

The little money that Pensacola did receive through the *situado* was frequently beset by delays and shortages, making the settlers rely mostly on goods purchased at Veracruz. These supplies were unfortunately very expensive, subject to high interest rates, and much of the food arrived spoiled (Coker 1975:7; Roberts 2009:51). At this time the Spanish colonial settlements were still prohibited from exporting goods for trade with foreign merchants, leaving them to rely completely on the *situado* for support. Economically, the presidios in Pensacola were struggling, and as a result, the Spanish seem to have become even more reliant on trading with the French and Native groups living in the vicinity. dependence on the *situado* led to a reliance on illicit trade, and this practice continued though the occupation of Santa Rosa, while

relations with native populations only deteriorated after the start of the French and Indian War (1754).

After 1720, the number of refugee and mission Indians around St. Augustine decreased significantly, and by 1743, only four villages were left at St. Augustine, including Tolomato, Palica, Pocotalaca, and La Punta (White 2002:46; Milanich 2004a:341). The Yamasee mission of Nuestra Señora del Rosario de la Punta was established in the 1720s and abandoned in 1754 (John E. Worth 2013, pers. comm.), and another mission by the name of Pocotalaca was abandoned that same year. After 1754, only two missions remained around St. Augustine, Nombre de Dios Nuestra Señora de la Leche, and Tolomato (Waters 2009; Worth 2009:190). The two mission sites in St. Augustine were supplemented by two missions among the Yamasee and Apalachee in Pensacola (Worth 2013a).

San Miguel de Panzacola

The occupation of the Presidio de San Miguel de Panzacola overlaps with that of Santa Rosa. Repeated hurricane damage prompted a warehouse and other buildings to be constructed on the mainland in a location that is now downtown Pensacola beginning in 1740 (Figure 2.16). At this point, San Miguel was only a small, garrisoned outpost, and Santa Rosa was in dire need of repair. The fort, garrison, and outlying Spanish missions were poorly supplied and inhabitants lived in constant fear of attack from French- and British-allied Creek groups. Despite tensions, Creek traders living proximal to Spanish-controlled Pensacola tenuously continued to pass though the northern-most mission San Joseph de Escambe to exchange foodstuffs and deerskins with the Apalachee residents before making their way to Santa Rosa and

San Miguel. Between the years 1754 and 1756, the residents of Santa Rosa moved to the mainland into the presidio in construction at San Miguel de Panzacola, and in 1757 Miguel Román de Castilla y Lugo arrived to govern the presidio formally recognized the previous year (Coker 1999:18; Benchley et al. 2007; Melcher 2011:35–36). In 1749, a few years before the Spanish started constructing buildings in earnest on the mainland, the Yamasee moved their town to a new location on the other side of the bay, most likely to facilitate commerce with the English-allied Creeks (Worth 2013b). That same year, Tallapoosa Indians threatened to attack the presidio because one of their war chiefs (Yufala) had been killed in Apalachee territory at San Marcos, and Román requested support to build a stockade against attacks around the fledgling presidio. Tensions kept building, and the Spanish feared attacks so greatly that in 1761 they destroyed the houses outside the presidio and moved all personnel into the compound (McMahon 2018:28). The residents of San Miguel also witnessed a devastating hurricane one year before that destroyed over half the buildings in the presidio as well as defensive construction that had been started at mission San Joseph de Escambe (Feringan Cortés 1760; Coker 1999:20).

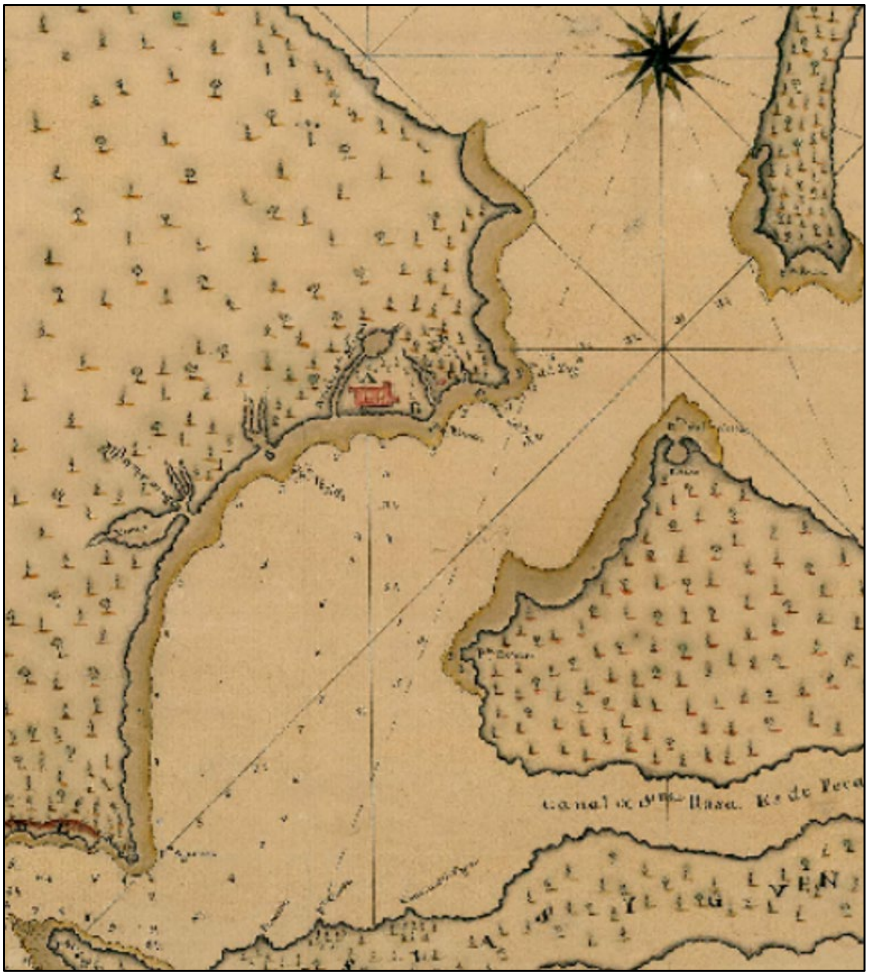


FIGURE 2.16. Detail of 1761 map showing location of San Miguel (Courtesy of Biblioteca Nacional de España).

During this same time, Creek groups increased visits into the abandoned Apalachee province, filling the void left after slave raids, mission raids, and war had pushed most of inhabitants out of the region. In 1747 Spanish officials in Pensacola began to note the influx of unprecedented numbers of Creek visitors to the presidio (Hahn 2004:237). This surge of Creek people into Florida set the stage for more permanent migrations to the panhandle.

San Joseph de Escambe

In 1718, Escmabe's chief Juan Marcos Ysfani led a small group of Apalachee refugees out of Creek territory down into the western border of Spanish territory in proximity to the presidio of Santa María de Galve. Juan Marcos had recently been appointed "Governor of the Apalachee" by the viceroy of New Spain upon his visit to Mexico City the previous year. More specifically, he established a new Apalachee town at the mouth of the River Chiscas (later known as the Escambia River) some five leagues from Santa María (Worth et al. n.d.). Unequivocal archaeological evidence of this mission has not been found, and records mentioning the resident Apalachee are scarce towards the end of the Santa María into the Santa Rosa occupation, but several archaeological sites have been investigated that are possible locations of this mission. The mission was called Nuestra Señora de la Soledad y San Luis and seems to have been abandoned shortly after the new mission was established upriver (Worth et al. 2012:3).

In 1741, Fray Marcos de Hita y Salazar requested a list of supplies for a new pueblo he called “New Pueblo of the Chiscas” located along the Chiscas River which was later known as Escambia River (Urueña 1741; Worth et al. n.d.). Evidence from documentary sources imply that this was the new Apalachee mission under Chief Juan Marcos, who had originally established the mission Nuestra Señora de la Soledad y San Luis at the mouth of the river in 1718 (Worth et al. n.d.). The move upriver could have resulted from many events, including the establishment of the Spanish outpost at San Miguel, and the immigrations of a group of Yamasee after the 1740 siege on St. Augustine (Figure 2.17). The Apalachee living at mission Escambe

were fifth-generation Christians and acted as middlemen for economic interactions with the Spanish presidios and interior Creek groups (Worth et al. 2012:4).

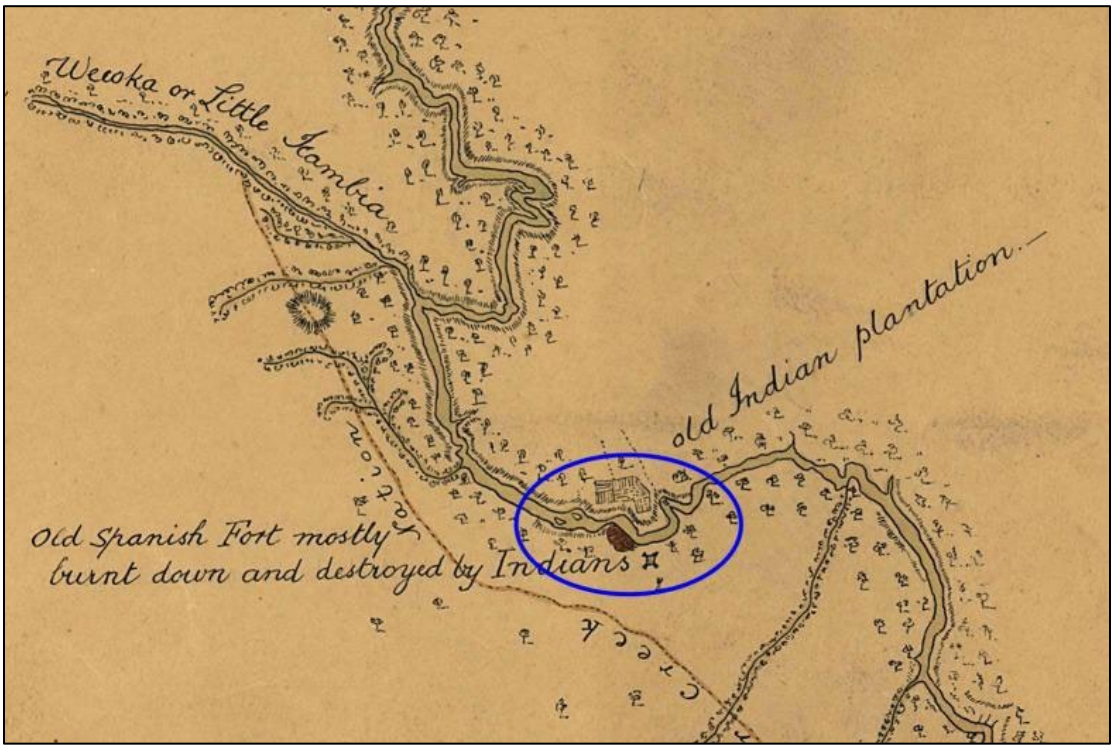


FIGURE 2.17. Detail of 1771 Taitt map showing the location of Escambe (Courtesy of the Library of Congress).

Based on an analysis of census records from the combined Apalachee-Yamasee refugee town dating to 1763, there were approximately 33 to 49 people living at Escambe, which equates to four or six families (Solana 1759; Worth 2011). Three infantry soldiers and a *cabo* (corporal) were stationed at Escambe in 1749 or 1750 to discourage trade with the Creeks, but there is no record of them staying for the entire occupation aside from one soldier named Antonio de Torres who testified in 1761 that he had been living at the village for 11 years (Yarza y Axcona 1750; Román de Castilla y Lugo 1757; Torres 1761). Specifically, there were about 30 Apalachee, one

visiting friar, and 15 cavalrymen, including one officer by 1760 (Worth 2013a). The Apalachee chief was Juan Marcos Fant (Ysfani), and the Spanish officer in charge after 1760 was Ensign Pedro Ximeno. Ximeno was later charged with conducting illicit trade with Upper Creek groups, which is detailed later in this chapter. In addition to their own subsistence activities the Apalachee received Spanish rations from the *situado*, and the missionaries and soldiers were equipped and fed from Santa Rosa and San Miguel successively.

By 1756, the garrison had formally moved to the mainland at San Miguel, but the cavalry was not officially formed until captain Don Luis de Ullate arrived from Veracruz in 1759. In 1760, 15 cavalry soldiers were detached to Escambe, and according to documents, they all (including the officer) stayed in an "old Indian made" house while the horses were left out in the open tied up at night (Ullate 1761). The original garrison of four infantry soldiers was augmented with cavalry which nearly upset the regional peace (John E. Worth 2020, pers. comm.). Ullate (1761) also mentions that the infantry at Escambe needed to be augmented because they wanted to make sure the forced laborers did not run away, and because they needed an area to pasture the horses so that they did not need to rely on the presidio for horse feed.

Spanish and Creek relations were deteriorating by the late 1750s, and in 1758 a follow meeting up to peace treaty from April was initiated in an attempt repair and sustain those relations. In May of 1757, Andrés de Escudero, chief of Punta Rasa, brokered the treaty in the pueblo of Tuquipache (Talapusa Province) with the head *cacique* of all the Upper Creek groups, Acmucayche. Acmucayche offered a white

fan as a symbol of peace to the governor as well as a red pipe in the name of the war captains (Escudero 1758a). The second meeting of the *junta* at the end of May did not go as well. The Creek war captains complained to Escudero that they were being treated very poorly whenever they visited the presidio, and they claimed the Spanish were violating the treaty. One example of abuse occurred whenever they arrived by land. The soldiers would receive them with fixed bayonets, and escort them inside without even letting them unload their pack horses (Escudero 1758a:361). The third meeting was even worse, and the war captains painted the white fan red symbolizing a threat of conflict. Escudero knew that the governor must change the way he treated the Creek war captains, and he convinced Acmucayche that things would indeed change. The fourth and final meeting ended on 30 July 1758 with the Creek washing the fan, and the governor promising to treat them "like sons;" however, the Creek left with the final remark that the Spaniards had less justification to the land they were living on because they had won it by blood and fire, but the Indians considered the land their birth land (Escudero 1758a:361). The treaty was a success, but the terms were tenuous, and any small mishap would tip the balance against the Spaniards.

Regardless, Spanish and Creek interactions increased, so much that by the spring of 1759, two Creek towns had been established far removed from their homeland. The towns of Talaglache and Los Tobaces purportedly accepted the vassalage of the King of Spain (Worth 2018b:326). Talaglache was another Upper Creek town located on the road to the Apalachee province about 30 leagues from Punta Rasa (Childers

2000:23). Annatichi was the *cacique* of this pueblo comprised of 20 Tallapoosa warriors and their families

In June of 1760, captain of cavalry Ullate and engineer Phelipe Feringan Cortés visited Escambe, planning to construct more suitable lodging for officers, the troops, and a stable for the horses that had been stationed there earlier that year. On 12 August 1760, however, a "furious hurricane descended" on San Miguel and Escambe destroying nearly all the buildings that Feringan Cortés had constructed just two months earlier (Feringan Cortés 1760). Governor Román determined that ensign Ximeno withdraw, leaving eight cavalry soldiers behind under a corporal for the season. Still, Creek traders passing though Escambe continued to exchange foodstuffs and deerskins with residents before making their way to San Miguel, just as they had previously done at Santa Rosa. The Spanish soldiers often traded brandy, and on occasion, chocolate, bread, corn, and tobacco in exchange for whatever the Creeks were carrying with them (Román de Castilla y Lugo 1761a; Worth et al. n.d.).

San Antonio de Punta Rasa

Following the Yamasee War in 1715, some Yamasee established a town near the Spanish outpost at San Marcos de Apalachee called Tamasle (Primo de Rivera 1718:693–694; Worth et al. n.d.). By the mid-1730s, Tamasle appears to have remained a distinct mission, conventionally named San Antonio de la Tama (Morales et al. 1735; Arredondo 1736; Montiano 1738; Worth et al. n.d.). However, it was not until after the 1740 attack by General James Oglethorpe on St. Augustine that a large group of Yamasee refugees settled in at least two successive locations in the

proximity of Pensacola Bay. During the 1740s, Pensacola became the new aggregation point for refugee Yamasees (Worth 2018b:321).

Historical documentation has confirmed the location of one Yamasee village is situated on present-day Garcon Point, where the Yamasee mission of San Antonio de Punta Rasa was officially established by early 1749. Punta Rasa was situated on the path to the Lower Creek towns south of Columbus, Georgia (Worth et al. n.d.). Based on an analysis of census records from 1763, there was approximately 54 to 70 people living at Punta Rasa which equates to 10 or 12 families (Solana 1759; Worth 2011). In addition, four infantry soldiers were stationed at the mission not long after it was established in 1749 to help control illicit trade with the English-allied Creeks (Figure 2.18). Punta Rasa also had a friar, but it is unclear whether he was a resident or itinerant. The Yamasee chief Andrés de Escudero was a young and very influential individual. Escudero was elected as governor of the Punta Rasa Yamasee at the age of 29, and he was entitled to bring all other refugee Yamasee to one location for governing (Escudero 1757a). Escudero would become the leading negotiator and mediator between the Upper and Lower Creeks and the Spanish. He had many titles both with Spanish and among the Yamasee and Creek. He was the *cacique* of Punta Rasa, the governor general of the Talapuses and Apiscas, elected by Acmucayche, who was the Superior chief of the Upper Creek (Escudero 1757a:365). He was well versed in the Spanish language and legal system and knew exactly how to placate both the Spanish officials and Upper Creek groups. In April of 1757 he asked governor Román if he could travel to New Spain when the *situado* arrived to speak

with the Viceroy and explain to him the growing escalations of unrest within Upper Creek territory (Escudero 1757a:365). The governor was doubtless worried that Escudero might intentionally or unintentionally tell the Viceroy too much about Román's illicit dealings and unfair treatment of Creek traders, so he denied Escudero.

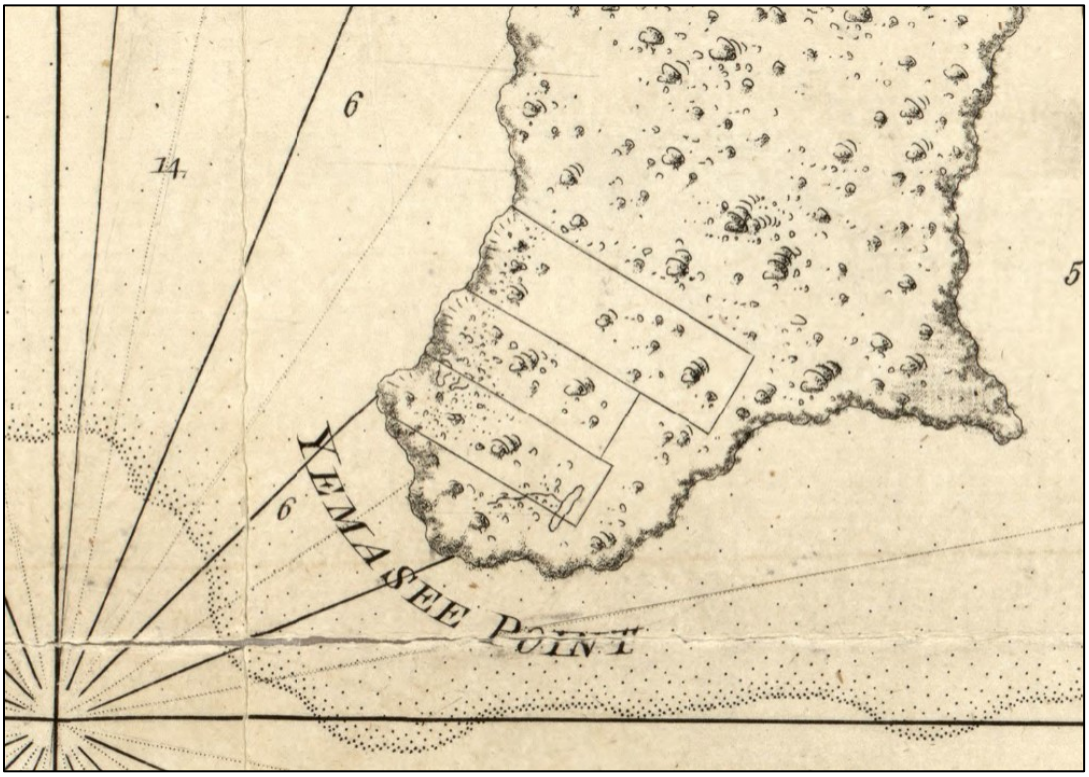


FIGURE 2.18. Detail from a 1780 map showing the location of Punta Rasa (Courtesy of the Library of Congress).

Later that year, tensions began to flare as Upper Creek were becoming inpatient with Spanish treatment. Tensions broke when a Yufala captain was killed by Spanish soldiers at San Marcos de Apalachee (Escudero 1757b:362–363). When Román got word of possible retaliation at San Miguel he sent Escudero to the Upper Creek capital of Tuquipache to "find out the truth" (Escudero 1757b:362–363). Escudero had a meeting with 12 of the 13 *talwas* of the Upper Creek, with the

exception of Talsi, that had formed a vengeance alliance with the Yufalas. He learned the reason for the planned attacks and also found out that the Creek had sent a spy to the presidio of San Miguel (Escudero 1757b:362–363). Through Escudero's negotiations the aggrieved Creek promised to step down and maintain peace with the Spanish. This is just one example of the many times Escudero was the key player in holding back the aggression of the Upper and Lower Creek.

After the successful peace treaty broker by Escudero (mentioned earlier in this chapter), Escudero wanted to maintain the peace with the Uchise that visited Punta Rasa. He wrote to the governor requesting a larger supply of maize to support the influx of Uchises coming to Punta Rasa as well as to promote the alliance and commerce the Yamasee have with them (Escudero 1758b:30–31). Escudero reminds the governor that Punt Rasa is the Presidio's only defense against the tribes to the east and from the English, so if the governor wants peace and continued commerce with the Lower Creek he must provide for those coming to Punta Rasa. Escudero also mentions a newly formed town named Talaglache 30 leagues from Punta Rasa at the request of the governor (Escudero 1758b:30–31).

As mentioned earlier in this chapter, Escudero received permission from the governor in December of 1759 to establish a store at Escudero's house in Punta Rasa. Escudero complained that some Creek bought liquor from San Miguel residents, and they caused some minor trouble in Punta Rasa. Escudero wanted control over the amount of liquor sold, and he basically wanted a license to sell the liquor himself (Román de Castilla y Lugo 1759a:366). The Spanish administration required Natives

to have licenses for trading, and the license had to be renewed annually with a proclamation that was posted publicly in the main plaza of the presidio (Román de Castilla y Lugo 1759a:366). This is an interesting example, because it provides evidence that even though Escudero's store regulated shipments coming to Punta Rasa from San Miguel, it also shows that the Spanish government gave a Native American a license to sell liquor to soldiers and possibly Creek visitors. That same year (after the peace treaty) Román learned that tensions were rising among the Creek and he sent Escudero into Creek territory to discover the cause of the reneging. Escudero reported back after traveling to Ymuclasa, Julibale, and Fusjachi that the cause of the uprising was from false rumors that an English merchant was spreading (Escudero 1759b:46–49). Escudero requested that the governor send 8 *anclotes* of brandy to Tuquipache as a gesture of good faith to Acmucayche and the other caciques but knew he would not receive them in time for the scheduled meetings. So Escudero traveled to Fort Toulouse and asked that the commandant for 4 anclotes of brandy, which the commandant denied since Escudero did not have a permit/passport from Román and the commandant did not want to illegally give Escudero anything without official permission (Escudero 1759b:46–49). This intriguing document is also full of information about the alliance between the Creek and the English. Escudero describes a ceremony where an Englishman and his large entourage traveled to Tuquipachi to win over the Creek there. They brought 50 horses laden with goods and carried a flag bearing the king's arms and that of a Native. They also boasted that they were allies with 400 Choctaws and were planning to overtake New Orleans (Escudero 1759b:46–

49). This document demonstrates that the English, Spanish, and French were constantly trying to win over Native tribes, all with differing strategies.

Illicit Trade in Pensacola post-1720

The economy of Spanish Pensacola was greatly diversified by the need to supplement the frequently sporadic and insufficient supply system. Meager rations, meager pay, and inflated prices in Havana with limited other legal sources pushed Spanish officials to adapt alternative economies. Some adapted to survive, and others took advantage of the system for self-profit. Entangled in this system were the Apalachee and Yamasee who were, on one hand just continuing traditions of trade that did not recognize Spanish mercantilism as a legitimate structure, and on the other using the very same foreign policy to place themselves as brokers between competing native groups and European powers. The Apalachee and Yamasee communities were actively engaged in substantial interaction and trade with the Upper Creek. The trade was most likely facilitated by the presence of the Upper Creek town named Tawasa, which in 1738 was documented to have been located about 10 miles up the Escambia River from Escambe, roughly 18 leagues from Santa Rosa (Worth 2008:9–10; Pigott 2014). The two Pensacola mission communities ultimately played a significant role in defining Spanish relation with the Creeks who were allied with French and English powers (Worth 2008:11–12).

Not long after Punta Rasa was established by Yamasee originally situated across the bay, Spanish officials voiced concerns about English interaction and influence not only at the new town, but also among their tentative Creek allies. Juan de Yarza y Ascona, commandant of the Presidio of San Miguel tasked Lieutenant

Joseph de Escobar with apprehending an English merchant said to be living among the Tallapoosa nation, and question him about his dealings before expelling him from Spanish territory (Yarza y Ascona 1749). He was also tasked with impressing on the Creek and Yamasee that this practice was illegal and take necessary disciplinary actions. Escobar traveled to Punta Rasa to inquire where the English merchant was staying, and they told him that the English merchant was living with the Talapuse in a pueblo two days distant from Punta Rasa (Yarza y Ascona 1749). He also learned that the English would travel to Punta Rasa with horses loaded with clothes and other goods for trade in order to establish permanent trade connections with them:

> "Don Joseph de Escobar, Lieutenant of the company of the Capitan Don Nicolas Ximenez de Florencia gave me news about an Indian having informed him, that in the location of Punta Rasa where they have the Yamazes Indians, some English Indians find themselves with some horses loaded with clothes of that which they use for clothing and with some of their women and children and with daring nerve not doing what they ought to, they permit them entrance that they make themselves owners of the lands of his Majesty which could result in grave damage to this presidio never should he be able to verify the permission to the said English Indians to enter because with motive of introducing clothing for the Indians they would introduce other kinds of *goods which are illicit trade against the mind of his Majesty who prohibits all trade*, that which is mandated by his Majesty has proper effect, and the remedy to this goal is in place, keeping in mind that our allied Indians could take offense and to cause serious uproar by not having another source from which they can get clothing for covering the skin of their women and children without many other reasons that they could give cause to agitate the quietude and calm which our said Indians maintained themselves, so that my conduct can proceed with great skill to what is suitable to the service of the King…" (Yarza y Ascona 1749:6-7).

After a month and a half of correspondences and deliberation it was determined that the Spanish only reprimand the English-allied Creek and Yamasee and impress upon them that they could not continue allowing English traders in their towns to trade, especially without the knowledge or permission of the Spanish. Yarza

y Ascona even stated that the English merchant and the Upper Creek would not be harmed, nor would they confiscate any of the goods already traded among the Yamasee. So delicate was the alliance with the Upper Creek, and even the Yamasee, that the Spanish never followed through with any legal punishment. The Spanish took great care to maintain diplomatic relations with their Native allies and neighbors. Moreover, there is no further evidence that they were even reprimanded since the end of the letter just states that it is up to the Spanish officials at the presidio to decide what to do:

> "I am of the opinion that his order grace the people he holds to be most suitable with the aim of seeing if it is true that of the English merchants he has been advised in the Pueblo of Punta Rasa and if found to be true, with greatest wisdom and security (that which ought to be maintained) that there will not follow a detriment to their persons or to their goods (with respect to the suspension of the hostilities that there is today between the two Crowns and our Indian friends, nor those who they might bring on their behalf not to disrupt the good relations in which they have with them in which they live). They come to this presidio where by the señor commandant questions them about their return so they should not practice another time crossing the dominions of his Catholic Majesty which we guard in this territory; and to our Indian allies it should be explained to them that it is not legal for them to admit without license of his Grace the señor commandant any foreigner in their settlements imposing on them the punishment for in any future interactions that he holds most suitable… I am prepared to give measures that correspond to the aim of the service of the King (Yarza y Ascona 1749:7).

In a June 1750 letter to the Viceroy of New Spain the commander at Pensacola, Juan de Yarza y Ascona, complained about the difficulty in restricting illicit trade between the Apalachee, Yamasee, and Creeks and the English to the north and east, especially since the presidio was so poorly maned (Yarza y Ascona 1750; Worth 2018b). Yarza y Ascona also mentioned that in 1749 Spanish soldiers frequently traveled to New Orleans to trade for much needed supplies, and the French

also come to the presidio at Pensacola for the same reason (Yarza y Ascona 1750). It is interesting that at this time it was technically illegal for the Spanish to trade with the French, but they did so, nonetheless. Based on these documents and others it seems that the French trade with Pensacola was not limited strictly to times of peace (Schooler 2009:137). Also, in 1750 the acting governor again voiced his concerns to the viceroy about the Apalachee and Yamasee communicating and trading with the English (Güemes y Horcasitas 1751; Worth et al. n.d.). In an attempt to curtail these illicit transactions, the governor sent small detachments of infantry soldiers to live in the missions where they were still stationed in 1757 (Román de Castilla y Lugo 1757:340–343). However, illegal trade in the frontier villages persisted, in some instances under the direction of the active military officer at Escambe under the orders of the governor himself.

Several documents show not only direct evidence of trade in the Spanish missions of Escambe and Punta Rasa, but also the many abuses the Creek, Yamasee, and Apalachee endured in the last decade of Spanish control in Pensacola (Appendix A). The primary item that the Spanish traded was *aguardiente* or firewater (most likely brandy), but Native American groups traded for a variety of items including deerskins and comestibles primarily.

Garcon Point was good pastureland for horses and documents from this time indicate that the horses used by the Spanish cavalry at San Miguel and Escambe were actually purchased from the Yamasee at Punta Rasa who seem to have acquired the horses from Upper Creeks or English traders in their villages (Worth 2008; Ullate

1761). These transactions are particularly important because these purchases were poorly executed by the governor and subsequently resulted in the attack on Punta Rasa. Governor Román frequently used Escudero as an intermediary with the Creeks. Many witnesses in addition to Escudero confirmed that the governor spent the minimum possible in acquiring the horses from the Creek traders (Worth 2018b). Each horse was purchased for two *anclotes* of watered-down brandy, so watered down that it was useless. The Viceroy originally allocated 20 pesos per horse, but the governor diverted the extra cash and essentially purchased the horses for less than 8 pesos each, additionally abusing the traders while they were in the presidio to add insult to injury. Escudero details several instances of abuse that the Upper Creek received from the Spaniards when they came to trade at the Presidio San Miguel. He included his explanations in the minutes of the junta held with the Creeks in July of 1758 (Escudero 1758a:361). Another offense occurred when some Creek traders came to San Miguel to sell horses to Governor Román. The governor offered them brandy for the horses, but not an amount that the traders were satisfied with. According to Escudero (1758a:361) the Indians "asked for two or three *anclotes* of brandy for their horses, [but Román] gave them two [of] the little [*anclotes*] that did not amount to one [*anclote*] for their horses." Escudero complained in the letter that the exchange was “not buying, but rather taking [the horses] by force” (Escudero 1758a:361).

Regarding another horse purchase, Román (Román de Castilla y Lugo 1760:367) wrote a short response to a previous letter that Andrés de Escudero wrote

concerning the lack of payment for an exchange of horses for brandy. Escudero mentioned (in a previous letter) that there was a mistake in regard to the payment for a mare that a man named Thomás bought. Román declared that although he was not there to witness the exchange, his sergeant had informed him that brandy was indeed given for seven horses. Then, confusingly, Román declared that everyone was wrong, and he denied seeing any evidence for the exchange of the mare. In this letter Spanish soldiers are reported to have given an undisclosed amount of brandy in exchange for seven horses provided by the Indians (Román de Castilla y Lugo 1760:367).

In another correspondence Escudero responded to Román's letter concerning the purchase of horses for brandy, and with silver. Escudero explained that he clarified everything in the previous letter he wrote to Román concerning the horse exchange. He noted that the Indians who made the trade with the Spanish soldiers did not complete the exchange because they did not have any *anclotes* to receive the brandy from the soldiers. Escudero informed Román that he also sent the same letter to Juan Delgado, and that Delgado should have been aware of the discrepancies with the purchase as well. He sent the letter to Juan Delgado because Delgado was the one who sent Escudero a receipt that said he did not receive the horse because the Indian he traded with did not have any containers for the brandy (Escudero 1759a:364). Escudero also talked about another incident about an Indian who sold a cinnamon colored horse for an *anclote* and a half but kept the mare because he too did not have the containers to receive the brandy. He stated that "Your Lordship did not give the *anclotes* to the Indian, they did not carry them from here [Punta Rasa], nor did they

ask for them there [San Miguel], nor can they acquire them, because there are none" (Escudero 1759a:364). It seems there were several cases where payment for the horses could not be completed because Creek could not produce containers for the brandy, nor did the Spanish supply the containers.

Peace with the Upper Creek was tenuous at best, and it was apparent that Román was not helping the situation. The governor finally petitioned for help once the spring 1761 war with the Creeks got out of hand, but reports got back to the viceroy of how Román's administration was corrupt and inept. The viceroy decided to replace Román, so he sent Colonel Diego Ortíz Parrilla as the new governor with secret instructions to conduct an investigation. Part of that investigation was the collection of any documents pertaining to Román's dealings, as well as testimonies of officers acting under his administration. In Ullate's testimony to Parrilla, he talked about different incidents when Román committed trading abuses to the neighboring Creek Indians. For example, three Indians and a boy went to San Miguel to sell some meat to anyone that would buy it. The governor promptly seized the meat, insisting that it should be for the hospital (Ullate 1761). His *mayordomo* Pedro de Goycochea gave the Indian four anclotes of brandy for three *tercios* of meat, but the Creek trader had requested eight *anclotes* of brandy. The traders attempted to haggle for a reduced price, but the mayordomo insulted and mistreated them with "words and deeds." The Creek traders left angered and vowed that the soldiers would have to pay. This is similar to the case described in the 1758 Escudero letter where the Spanish gave the Native Americans half of what they wanted in exchange for horses. During his

testimony Ullate also mentioned another instance were Governor Román conducted illicit trade. In addition to the "mishaps" with the horse trade, Román also had Native Americans come to his house in secret to trade goods and supplies that he needed for his house in exchange for brandy (Ullate 1761:257–259). Not only were the comestibles for the provision of his own house, but the Native Americans also accused him of diluting the brandy he sold them.

There were a number of legal and quasi-legal merchants in Pensacola who appear to have arrived from Havana during Román's tenure. The residents of Pensacola traded with the English, purchasing flour, butter, and other items from English merchant ships, and sometimes resold those same items to the French (Benchley et al. 2007:56; Román de Castilla y Lugo 1761b). Additionally, the Spanish used the same goods smuggled from New York to trade with visiting Creek (Benchley et al. 2007). The Spanish also used alliances with the Creek to procure horses, pelts, chickens, turkey, venison, fruits, and even muskets that the Creeks acquired from the English and French (Misc. 1761; Alba 1761; Romero 1761; Garcia 1761).

Documentary evidence reveals that a British trader by the name of William Walton was smuggling British goods from New York to Pensacola with the cooperation of Román. Walton had been licensed by the Spanish to deliver goods to St. Augustine, not Pensacola. In 1760 Walton stored his smuggled goods in the warehouse at San Miguel while he sailed to New Orleans, only to find the warehouse destroyed from the hurricane that year (Benchley et al. 2007:9). Ortíz Parrilla seized

Walton's ship when it made port in Pensacola in 1761, confiscating the contraband (Ortíz Parrilla 1762). This was not the only smuggling scheme Ortíz Parrilla associated with Román's tenure in Pensacola (Román de Castilla y Lugo 1761b; Eraso 1761; Escobar 1761; Ullate 1761).

While under investigation, Román tried to divert all of the accusation he received regarding the origins of the Creek war over to Ensign Pedro Ximeno, at Escambe. Several witnesses including *cacique* Juan Marcos testified against Ximeno, stating that his poor treatment of the Creek who traded at Escambe was the reason for its demise. Marcos (1761) was not present in Escambe during the exchange between Ximeno and the war chief named Mestizo, but he did hear the news when he returned to the pueblo. Ximeno normally paid Juan Marcos's wife one bottle of brandy for every deerskin she dressed for him. This meant that anytime Creeks brought deerskins to the pueblo, Marcos' wife dressed them for Ximeno (Marcos 1761). Juan Antonio Sandoval, a light cavalry soldier stationed at Escambe, also witnessed the poor way in which Ximeno conducted his trade. He stated that the soldiers previously stationed at Escambe traded bread, chocolate, or tobacco with the Creeks in exchange for whatever they brought with them, and this was all done in friendship and peace (Sandoval 1761). He also stated that once Ximeno took over, he traded liquor and sometimes corn for horses, skins, blankets, and anything else they brought with them (Guerrero 1761). In one instance he sold two barrels of brandy for one horse, which was more than what the governor offered for horses. The only problem was that Ximeno got the Indians drunk from the brandy he literally just sold them, and when

they complained, he sent them away angry and unsatisfied with the trade arrangement.

When Francisco Guerrero came to Escambe to repair the church, he noted that Ximeno came to him and asked him for brandy he could borrow and sell. He also noted that the Indians were complained about the brandy Ximeno gave them, because they thought it was diluted (Guerrero 1761). One of the men who accompanied Guerrero, Pedro de Alba, witnessed first-hand the exchange between Ximeno and Mestizo. Alba stated that Mestizo brought a flesh colored waistcoat with him and became so inebriated that he sold it to Ximeno. When he tried to get it back in the morning, Ximeno refused and sent them away (Alba 1761). This was the final insult for the Creek, because soon after, Mestizo led the surprise attack on Escambe, fulfilling the promise he made that morning; "Kill me, because if you do not kill me now, I will come back and recover my clothes, and I will kill you, and anyone that is with you" (Alba 1761). Ximeno promptly defended himself and asked the viceroy for protection against the “grave slanders” from Román and the “restoration of his reputation” (Ximeno 1761:348–352).

It is unclear whether Ximeno and Román worked together to profit from their trade arrangements, but Ximeno took the fall once Román was investigated by Parrilla, though he subsequently mounted a robust defense supported by Andrés Escudero (Escudero 1761a:353–355). In the same letter to Ximeno, Escudero explained Román sent him into Creek territory, even though they were hostile and Escudero had to hide from patrolling war parties repeatedly, but managed to evade

them by staying off the main roads and subsisting only on water for 12 days (Escudero 1761a:353–355). He also said that in 1759 he sent a letter to the viceroy about the complaints the Creek had of Román, and was attempting to write another letter but the governor interceded and told him that he would inform the viceroy himself. However, Román "did not ordain it suitable that the reality come to his Excellency" (Escudero 1761a:353–355). One final note of this letter is worth mentioning. Escudero mentions that the Creek learned quickly that the governor would swindle them when they came to trade so they sold their goods secretly among the soldiers and other officers. In 1762, Román was sent to Veracruz without any responsibility or potential for advancement. This was the same year that Upper Creek raiders destroyed both Pensacola missions, and even though peace negotiations were underway when Parrilla arrived, Román's success was outweighed by the viceroy's decision to replace him.

Conclusions

On 12 February 1761, three Creek assailants attacked San Antonio de Punta Rasa killing five people, and seriously injuring a nursing infant. The attackers had come to the presidio to trade some meat for liquor and were treated poorly by the governor and Spanish soldiers (Ullate 1761). Corporal Juan Gutierrez was killed, along with his pregnant wife Rosalia Milan, and his five-year-old daughter (Román de Castilla y Lugo 1761a; Ullate 1761; Ximeno 1761). Soldiers Juan Nicolás Casimico and Simon Abellafuerte were also killed in the attack (Román de Castilla y Lugo 1761a; Ullate 1761; Ximeno 1761). There is also an account of Milan's nursing infant who was wounded but survived the attack. On the 9th of April 1761, twenty-

eight Alibamos led by Meztizo followed through with his promise and raided Escambe around 7:00 pm during vespers stealing horses and equipment and burning the mission after they left (Ytuarte 1761). The aftermath of the raid on Escambe resulted in two deaths, four captures, and one nearly fatal scalping of Spanish soldiers stationed there.

After the attacks on the missions in 1761 the Apalachee and Yamasee moved to San Miguel for refuge. They then moved to a location later called Indian Town just outside the presidio for two short years before the British took over. Talaglache was attacked by warriors from Punta Rasa and Escambe sometime between April and July of 1761 in retribution for the mission attacks that same year.

The French and Indian War which began in 1754 ended in 1763 with the Treaty of Paris, which called for the exchange of Florida for Havana and Manila (Clune et al. 2003:82). Havana and Manila were Spanish colonies captured by the British during the war. As a result of the war, Spain acquired Louisiana, and effectively gave Florida to the British in exchange for Cuba (Bense 1999:210; Clune et al. 2003:82). Escudero wrote a letter to the new governor requesting that he and 108 others be allowed to move to Mexico along with the evacuating Spanish (Worth 2018b:329). As a result, the Apalachee of Escambe moved to Veracruz, along with Escudero who died from sickness not long after his arrival in New Spain (John E. Worth 2020, pers. comm). They did not join their Apalachee cousins in Alabama and Louisiana. When the United States acquired the Louisiana Territory at the beginning of the nineteenth century, all the surviving Apalachee there were thought to have

moved to Texas (Hann and McEwan 1998:176). However, in a testament to their continued survivance, Native Americans living in Louisiana have recently come forward claiming to be descendants of the late eighteenth-century Apalachee community there and demanding to gain federal recognition (Hann and McEwan 1998).

With a clear view through documentary evidence that illicit trade was occurring, and that several Spanish and Native actors were engaged in this informal economy, we must ground truth the data. But how can historical archeologists recognize contraband trade when encountered? How can we organize the archeological record on a temporal scale that is at least roughly equivalent to the temporal scale or periodicity of contraband trade? The presence of imported goods themselves does not equate to contraband. Deagan (2007:102) demonstrates that researchers can suggest illicit origins by correlation of multiple, connected factors, including "artifact origins, artifact periodicity, trade periodicity (available only legally or illegally), and archaeological context. Her case study in St. Augustine provided evidence based on the aforementioned factors that the highest probability of English goods entering the town illegally would have been before 1715 and between 1739 and 1750. The increase in English ceramics in St. Augustine in its formative years most likely reflects a newly established contraband trade network between English merchants in the Carolinas and the citizens of St. Augustine (Deagan 2007:107). The only time that it would have been legal for French goods to enter St. Augustine would have been between 1702 and 1713. This same timeline can be

applied to the Pensacola colony. The documentary evidence discussed above present a clear picture of what the local economy looked like and to what degree different individuals, groups, and communities were engaged in illicit economic activities, but archaeological evidence can provide us with a different perspective on how these illicit activities played out in the day to day lives of both Spanish colonists and Native residents of Pensacola in the eighteenth century.

Chapter 3: Archaeological Context and Evidence of Illicit Trade

Archaeologists have been conducting research on Spanish colonial sites in the Southeastern United States and the circum-Caribbean since the early twentieth century, but until the past few decades, much attention has been focused on the British colonial period. The disinterest in Spanish archaeological research probably correlates with the Anglo-centric bias that has permeated North American historical studies in general (Ewen 1990). This review only focuses on Spanish colonial presidios and missions as well as a sample of other sites from eighteenth-century Florida region. Several other sources list bibliographies of southeastern U.S. Spanish colonial work (Milanich and Milbrath 1989; Hoffman 1990; Thomas 1990; Brown 1994; Van Buren 2010). Spanish colonial archaeology has followed the general developmental trend in American archaeology ranging from particularistic analyses, artifact descriptions, generalizing theoretical syntheses, to pattern recognition in material culture (Ewen 1990:6).

In recent decades, historical archaeologists studying La Florida have increasingly placed the native people of the region at the center of their efforts (Deagan 2013; McEwan 2014). Researchers have concentrated on revealing indigenous social and political dynamics, population movements related to shifting power structures, ecological changes, and the emergence of new ethnic identities among Native American groups during the sixteenth century (Galloway 1995;

Wesson and Rees 2002; Ethridge 2010; Bushnell 2018). Archaeological research has become more interdisciplinary and more technologically sophisticated, giving new insights into Native American health, genetic relationships, diet, the environment, and work stresses associated with colonization and missionization (Deagan 2013:373). Archaeological investigations undertaken or published since 1980 occurred throughout the state of Florida and covered every time period from earliest to most recent (Milanich 1995b:97).

In Pensacola, Judith Bense (1985) has successfully merged archaeological inquiry with public education and participation, resulting in a model of how to build support for research and for the preservation of archaeological sites (Milanich 1995b:97). In 1992, 2006, and 2016 archaeologists with the Florida Department of State and the University of West Florida discovered the remains of the two wrecked vessels from the Luna expedition (1559-1561) near Emanuel Point in Pensacola Bay (Collis 2008; Smith et al. 1995; Deagan 2013:358; Worth and Bratten 2019). A wide array of master's theses, journal publications, and books on the colonial history of Pensacola Bay have been produced (Bense 1999, 2003a; Harris 1999; Johnson 1999; Harris and Eschbach 2006; Benchley et al. 2007; Eschbach 2007; Worth 2008; Melcher 2011; Worth et al. 2011; Worth et al. 2012; Dadiego 2014). In short, the body of historical archaeology literature on Spain in the Southeast has already surpassed management size (Brown 1994:62). This chapter will outline the types of archaeological sites commonly found and investigated in the Southeast, and the

degree to which imported goods and other artifacts may evidence legal or illegal trade activity within and between these sites.

Relevant Eighteenth-Century Site Types

Presidios and Forts

Fortifications are the most impressive reminder of the Spanish presence, consequently, they have served as a natural focus for archaeological investigation since the 1930's (Fairbanks 1952; Goggin 1952; Gluckman 1966; Deagan 1979; Deagan and Launders 1989). The most extensively recorded fortification in the Castillo de San Marcos in St. Augustine, Florida, which has been continuously excavated since the early 1930s. Other fortification sites include San Felipe and San Marcos (Harrington et al. 1955), Fort Mose (Deagan 1995), Fort Pupo (Goggin 1952), Fort San Marcos de Apalachee (Sappington 2018), Fort San Antón de Carlos (Thomspon et al. 2020), and Fort San Juan (Beck et al. 2016). The remains of Fort San Juan were discovered in 1986 at the Berry Site near Morganton, North Carolina, and have been excavated constantly for the last quarter century (Beck et al. 2006, 2016; Deagan 2013:356).

St. Augustine is very well documented historically and has a very large, diverse, and temporally controlled body of archaeological data (Chaney and Deagan 1989; Gannon 1996; Deagan 2007, 2009). St. Augustine was among the most economically disadvantaged colonies in Spanish America, partially because there was almost no direct trade between Florida and Spain. In addition, throughout its existence as a Spanish presidio, St. Augustine relied on the *situado*. However, the unreliable nature of the *situado* after 1635 forced officials in St. Augustine to explore

other means of provisioning (Hoffman 1997:25). Despite royal restrictions, trade between Native Americans and the Spanish colonists did exist as well. The development of these and other forms of economic activity illustrate the ways in which the people of St. Augustine built upon existing resources and created new opportunities for economic growth despite various economic, social, and natural disasters of the seventeenth century. They continued to rely on the *situado* and illegal trade networks for military accoutrements, trade goods for the Native Americans, oil, wine, and luxury items such as chocolate or fine majolica (Hoffman 1997:27). The establishment of Charlestown by the English in 1670 provided another potential, if illegal, source of European goods for St. Augustine (Deagan 2007:100). Archaeological evidence revealed tangible evidence of contraband trade with northern European powers including white clay tobacco pipes (Hoffman 1997:33).

There have also been numerous excavations on early Spanish settlements as well as research on colonial life within settlements and fortifications. Santa Elena in South Carolina is another well studied Spanish town (Ewen 1990:7). The site of Santa Elena was located conclusively in 1979 by Stanley South of the South Carolina Institute for Archaeology and Anthropology, initiating a multi-year program of archaeological excavation (South 1980, 1988; South and DePratter 1996; Deagan 2013:365). La Isabela in the Dominican Republic, which was Columbus's first intentional colony, and Puerto Real in Haiti, which was established in 1503 as one of the original thirteen imperially sanctioned towns in the Caribbean (Deagan 1988, 1989). La Isabela represents a failed attempt at transplanting Spanish lifeways

directly into Hispaniola without accommodating to local conditions (Van Buren 2010:156). Research on daily life also includes topics on gender and ethnicity.

Missions and Pueblos

The sites of Franciscan, Jesuit, and Dominican missionaries have been popular subjects of archaeological research. However, these missions are different from their Southwestern and California counterparts, because there are no extant remains. The development of mission related archaeology began in the early 1940s with the establishment of the Florida Park Service by John W. Griffin, Hale G. Smith, and Ripley Bullen (Weisman 1992:11). Since the early works of these researchers and others, dozens of missions have been identified in the historical record, many of which have been archaeologically investigated (Ewen 1990). It was not until the 1970s and 1980s that major excavations and reconstructions of mission sites were initiated. Historically, the primary impetus for archaeological investigations of mission sites has been the need for information for the purposes of architectural reconstruction (Van Buren 2010:159).

From 1968 to 1972, the Florida Division of Historical Resources conducted a project designed to locate and excavate mission sites in the region of Apalachee, in and around Tallahassee, Florida (Saunders 1996:24). During the testing of these mission sites, an informal model of mission compound layout in western Florida was generated and applied to most sites (Saunders 1996:24). This model was routinely interpreted from limited excavation, leading to the misidentification of structure function and poor appreciation of the variability of intrasite settlement patterning in general (Saunders 1996). The plans of missions in La Florida deviate from the

supposed "ideal" regarding overall layout, the size and design of churches, and the location of burials (Van Buren 2010:160).

Mission Nombre de Dios at St. Augustine (1587-1763) was perhaps the first Franciscan mission in Florida, with a church built in 1587 within a settlement of already largely Christianized Timucua (Deagan 2013:369). Santa Catalina de Guale (Thomas 1987, 1988, 1993, 1996) has been the focus of very important, decades long systematic excavations looking at the intermediate stage of mission development (Deagan 2013:370). The work has provided detailed information about early Franciscan mission architecture, organization of space, diet, material culture, and economic strategies.

The work of Boyd, Smith, and Griffin (1999 [1951]) is an excellent early synthesis of the archaeological and historical analyses of missions (Ewen 1990:8). Since this and other early works, three dozen mission have been identified in the historical record, and over half of them located (Ewen 1990:8). These cited works by no means exhaust the mission research that has been and is being conducted in the Southeast (Hardin 1985, 1986; Marrinan 1985; Thomas 1985; Jones and Shapiro 1987; Saunders 1987; Jones et al. 1989; McEwan 1991,1993; Hoshower 1992; Weisman 1992; Milanich 2006). Another body of research has been concerned with sites that existed at the same time as and interacted with Spanish missions, but which were not missions themselves (Seaberg 1965; Milanich 1972; Gedris 1981; Baker 1987) (Figure 3.1). Studies of native groups of the colonial period and their interaction with the Spaniards in Florida, especially the Franciscan-Indian mission

system, have blossomed across northern Florida from St. Augustine west to Tallahassee, informing topics as diverse as the roles of Spanish women, the architecture of the houses of missionary priests, and the health and diets of mission villagers (Milanich 1995b:97). Most of these archaeological investigations do not focus on identifying contraband trade; missions in this sense are still not seen as centers for formal and informal trade activities (Waselkov 1989b; Worth 2020).

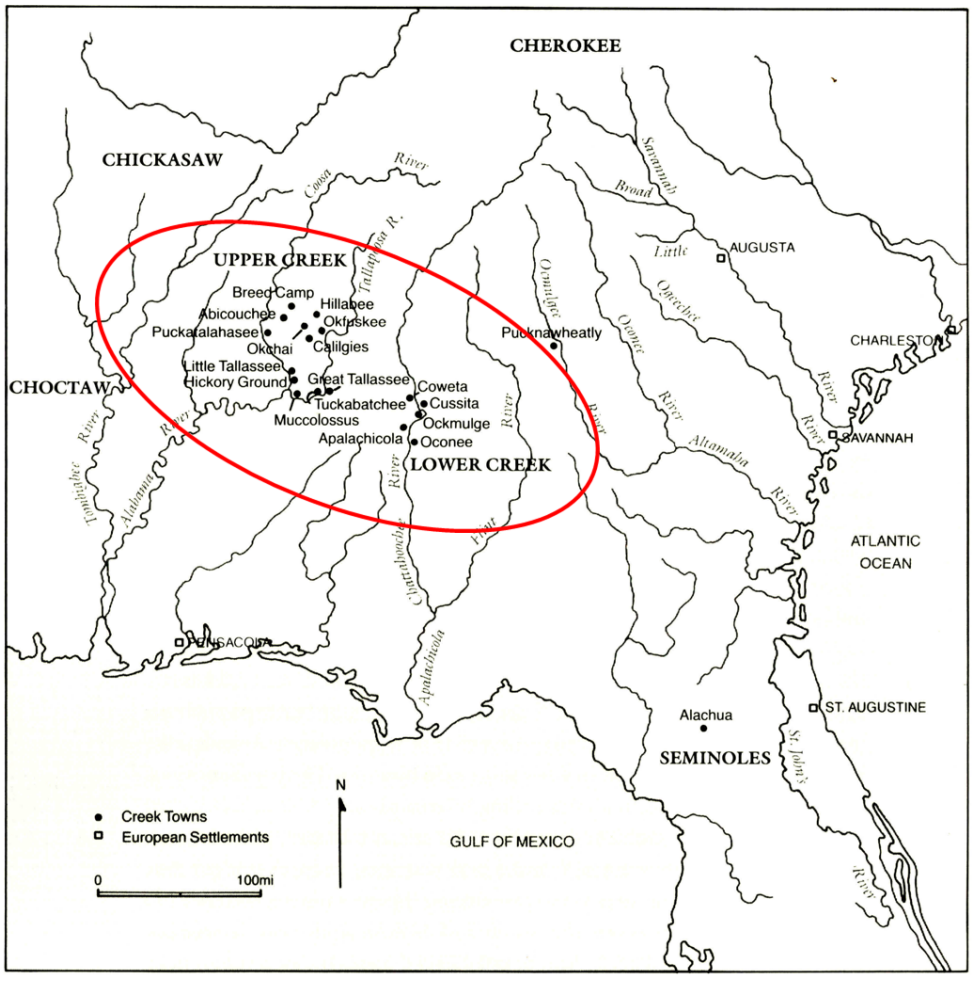


FIGURE 3.1. Map of Creek archaeological sites and European towns (Braund 1993:10).

Trading Posts and Ports

Numerous other sites mentioned in the previous chapter and in ethnohistorical documents have been archaeologically investigated (Figure 3.2). The relevant French sites include Old Mobile and Fort Toulouse. Old Mobile (1MB94) was established by Pierre Le Moyne d'Iberville early in 1702 to serve as the military, political, and economic center of the newly founded colony of Louisiana (Waselkov 2002:3). Archaeology at the site revealed evidence of a large-scale private trade that developed between the French and Spanish colonial ports "under the cover of officially sanctioned contacts during the War of Spanish Succession (1702-1713)" (Waselkov 2002:10). Such informal economic activities involved risks. Even though England was pitted against France and Spain, a small-scale contraband trade developed with the English and Dutch ships passing the Louisiana coast (Waselkov 2005:34). Any item taxed or embargoed was liable to be smuggled; the evidence of this can be found in the range and quantity of Spanish material recovered from excavations. Analysis of the ceramics recovered from Old Mobile revealed that a large portion of the ceramics were produced in Mexico. Majolica types like Puebla Polychrome and San Luis Polychrome, as well as other Mexican earthenwares including Guadalajara Polychrome and El Morro are present in similar quantities to French ceramics (Waselkov 2005:50–51).

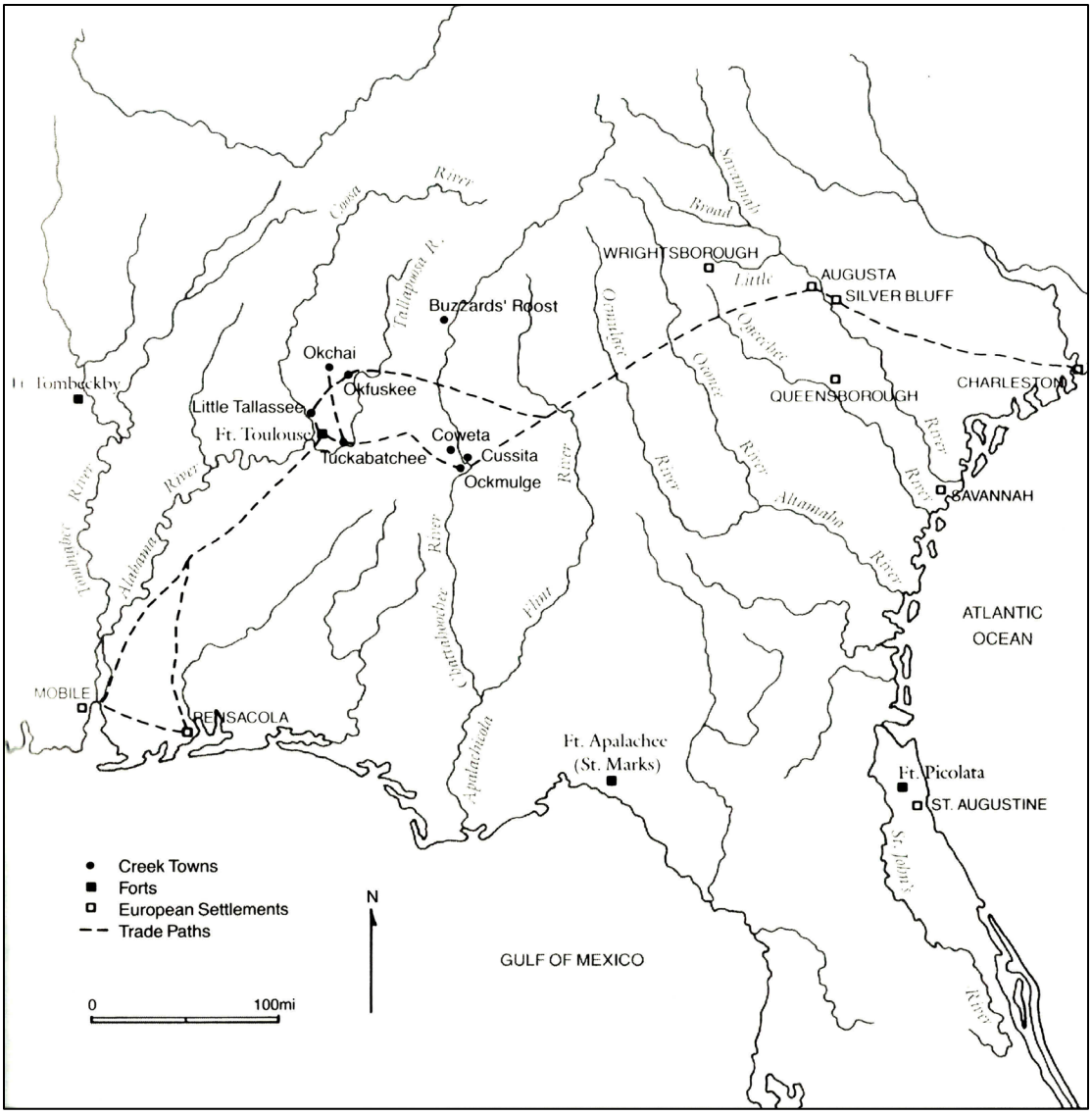


FIGURE 3.2. Map showing Upper and Lower Paths and major European trade posts (Braund 1993:91).

Evidence suggests that the French colonists also relied heavily on trade with local Indians to meet much of their subsistence needs. One of the reasons for the fort's location was to position itself near waterways that gave it access to more distant and powerful trading partners like the Choctaw. The abundance of glass beads excavated from every structure in Old Mobile is testament to the degree of colonist-

native trade occurring (Waselkov 2002). Most of the glass beads recovered from Old Mobile and the adjacent Port Dauphin were produced in Venice and Amsterdam and imported by the French for trade, but some types were also brought by the Apalachee from Spanish Florida (Waselkov 2005:43).

Archeological work at Fort Toulouse began in 1972 and continued through the 1980s (Thomas 1989). Throughout its occupation it suffered from frequent supply shortages that forced its inhabitant to seek other means of survival. English traders were an additional source of firearms, as indicated by the English guns and gunflints recovered from the fort (Thomas 1989). The food and other supply shortages also led the resident Native group the Alabamans to resort to trading with the English. In exchange for gunpowder, lead balls, brandy, and deerskins, the French received a greater variety of trade goods. These goods were better than what they would have received from Mobile, and the French used these items to trade with visiting Native groups in order to acquire scarce commodities like smoking pipes and muskets (Thomas 1989).

The closest British archaeological site was Charleston (Charles Town) located on the east coast. Archaeology in Charleston started in the 1960s and is considered urban archaeology (Zierden and Reitz 2016). A city-wide research program began in the 1980s and researchers suggested the whole city was an archaeological site (Zierden and Reitz 2016, Appendix 1). In the early 2000s, investigations focused on the first decades of the British-sponsored settlement, which was largely in the late

seventeenth century and the first decades of the eighteenth century (Zierden and Reitz 2016).

Early archaeological work in Creek territory in present-day Alabama and Georgia focused on identifying the Creek towns named in ethnohistorical documents from the Hernando de Soto expedition in the sixteenth century (Sheldon 2009). The tradition of attempting to locate named towns from historical records continued for eighteenth and nineteenth century Creek sites. Upper Creeks were otherwise known as Abihkas, Alabamas, Tallapoosas, and Okfuskees, which refers to the major regional affiliations. Each group has a complex history, but during the last century they have received varying levels of attention from archaeologists. Nearly 250 historic Upper Creek archaeological sites have been reported from surveys in Alabama (Waselkov and Smith 2000:242). Many of these have been attributed to specific *talwas*, including numerous isolated household sites. From these surveys, spatial limits of the *talwas* can be identified that correspond to historically described boundaries and depict a transition from semi-subterranean houses to household compounds, which seems to be related to the increased importance of the deerskin trade in the eighteenth century (Waselkov and Smith 2000:253, 255).

Eighteenth century occupation by the Coosa-Abihkas is best known from excavations at the Childersburg site (DeJarnette and Hansen 1960). During the seventeenth century, most if not all European trade goods were derived from Spanish trade sources to the south and east, but some of these items were certainly obtained from English trading sources (Waselkov and Smith 2000:246–247). Sites attributed to

the Alabamas are poorly known archaeologically. Excavations at Fort Toulouse have yielded an abundance of Alabama artifacts from French colonial contexts. The site of Taskigi (adjacent to Fort Toulouse) was excavated by members of the Alabama Anthropological Society in the early twentieth century, but that work is unpublished (Waselkov and Smith 2000). In absence of modern excavations at their village sites, we know little archaeologically about Alabama culture during the eighteenth century.

Much more is known of the Tallapoosas than of any other concerning archaeology. Modern excavations have been conducted at Big Tallassee (Knight and Smith 1980), Tuckabatchee (Knight 1985), Hoithlewaulee (Waselkov 1985), Hickory Ground (Silvia Mueller 1991, 1992, 1995), and Fusihatchee (Waselkov et al. 1990). European trade goods, which are entirely Spanish in origin early in the seventeenth century and gradually segmented by English goods beginning in the 1680s, are common (Waselkov and Smith 2000:250). Big Tallassee, otherwise known as Tulsa, was a major Muskogee town, situated on the Tallapoosa River opposite Tukabatchee. Florida State University tested the site in 1961 and investigations yielded evidence of both a protohistoric and later historic site component (Knight and Smith 1980:59–60). European artifacts were mostly from British trade sources, but French trade material was also present. The Upper Creek town site of Fusihatchee (1EE191) is in the Tallapoosa River Valley of central Alabama and was occupied continuously from 1640 to 1815 (Waselkov et al. 1990:39). Archaeological investigations revealed that the eighteenth-century village plan is essentially like a sketch made by William Bartram in 1775 of an unnamed Creek town. Surveys and excavations of Upper Creek

sites focus primarily on house structure, pottery typology, and presence/absence of European goods for chronology purposes. These investigations do not consider Creek interactions or roles in illicit or illegal trade.

Over the past several decades, archaeology has made significant contributions to our knowledge of Lower Creek origins, culture and history (Worth 2000:265). However, few overall syntheses of this work have been published, and most of the literature is not widely accessible. The archaeological phase (Blackmon) associated with the seventeenth-century antecedents of these Lower Creek towns was only formally defined in the 1980s (Worth 2000). The Lower Creeks moved back and forth between the Chattahoochee river system and the Ocmulgee and Oconee Rivers beginning in the late seventeenth century up through the end of the eighteenth century in response to Spanish and British colonial establishments. Lower Creek towns moved strategically to place themselves in direct contact with resident Carolina traders operating out of Charles Town (Worth 2000:279).

Only a few known Blackmon/Ocmulgee Fields phase sites along the Ocmulgee have been subjected to archaeological work, such as the Macon Trading House and the Macon Plateau site (9BI1), the Tarver (9JO6), and the Little Tarver (9JO198) (Mason 1963, 2005; Waselkov 1994; Pluckhahn 1997; Pluckhahn and Braley 1999). These sites produced substantial evidence for the English trade leading up to the Yamasee War (1715), including a variety of firearms-related material, and items related to clothing and personal ornamentation (Worth 2000:283). After the Yamasee War, “the brief eastward movement of the Apalachicola/Lower Creeks was

reversed, with most of the surviving towns regrouping once again along the lower Chattahoochee River" (Worth 2000:286). Excavations were conducted on a number of sites along the primary Chattahoochee River corridor, including the Lawson Field site (9CE1, or Kashita town), the Yuchi Town site (1RU63), the Hitchitee site (9SW50), and the Jackson site (1BR35, or Tamatli) (Willey and Sears 1952; Chase 1960; Kurjack 1975; Braley 1991, 1998; Foster 2007). Archaeological investigations of Lower Creek towns followed similar trajectories of those of the Upper Creek, a focus of settlement patterning, ceramic typologies, and level of European influence and interaction.

Although these sites are important, only five sites in Pensacola were selected for analysis due to the geographic scope of this dissertation. The archeological context of three presidios and two missions are the focus of this research, though inclusion of other sites and their material assemblages is necessary future work in order to gain more insight into the agency and interaction of the Creeks, Yamasee, and Apalachee beyond Pensacola. This chapter focuses on the previous investigations of these sites as well as a discussion on the utility of using imported artifacts (e.g. tin enameled ceramics) as a proxy for illegal trade. All archaeological investigations and ceramic analyses outlined in this dissertation were conducted both by the authors cited as well as trained archaeological analysts at the University of West Florida.

Primary Research Sites

Santa Maria de Galve, 1698-1719

Previous Archaeological Investigations

During the 1970s and 1980s several artifact collections and one professional compliance archaeology project documented an early eighteenth-century occupation on the Pensacola Naval Air Station. It was thought that the site could have been the location of the first Spanish presidio in Pensacola, Santa Maria de Galve. Even more evidence of the location of the presidio came in 1986 when a navy civilian employee shared his collection of eighteenth-century artifacts with the UWF (Bense and Wilson 1999:15). While monitoring mechanical trench excavation in the 1980s, archaeological monitors identified 93 features associated with the presidio. These finds prompted a five-year archaeological investigation by UWF beginning in 1995 and ending in 2000 (Braley 1979).

The purpose of the study was to understand the physical and cultural world of the community that lived there between 1698 and 1719 (Bense and Wilson 1999). A total of 119 features associated with the presidio occupation were identified just within the first three years of UWF's investigation. About two-thirds of the features were architectural and the remaining third were refuse pits (Bense and Wilson 1999:43). The architectural features consisted of postholes, posts, construction trenches, burned floor timbers, and the remains of a brick hearth. The basic organization of the deposits indicate that the remains of the fort (San Carlos de Austria) are located on the west side of the site and the village and cemetery are located to the east (Figure 3.3) (Bense and Wilson 1999:103). Only a handful of

French artifacts were identified in the more than 23,0000 material remains recovered, contrary to the extensive documentary records of trade between Santa Maria and Mobile. One reason for this discrepancy could be that most of the items the Spanish received from the French were consumables or items that would not have preserved in the archaeological record.

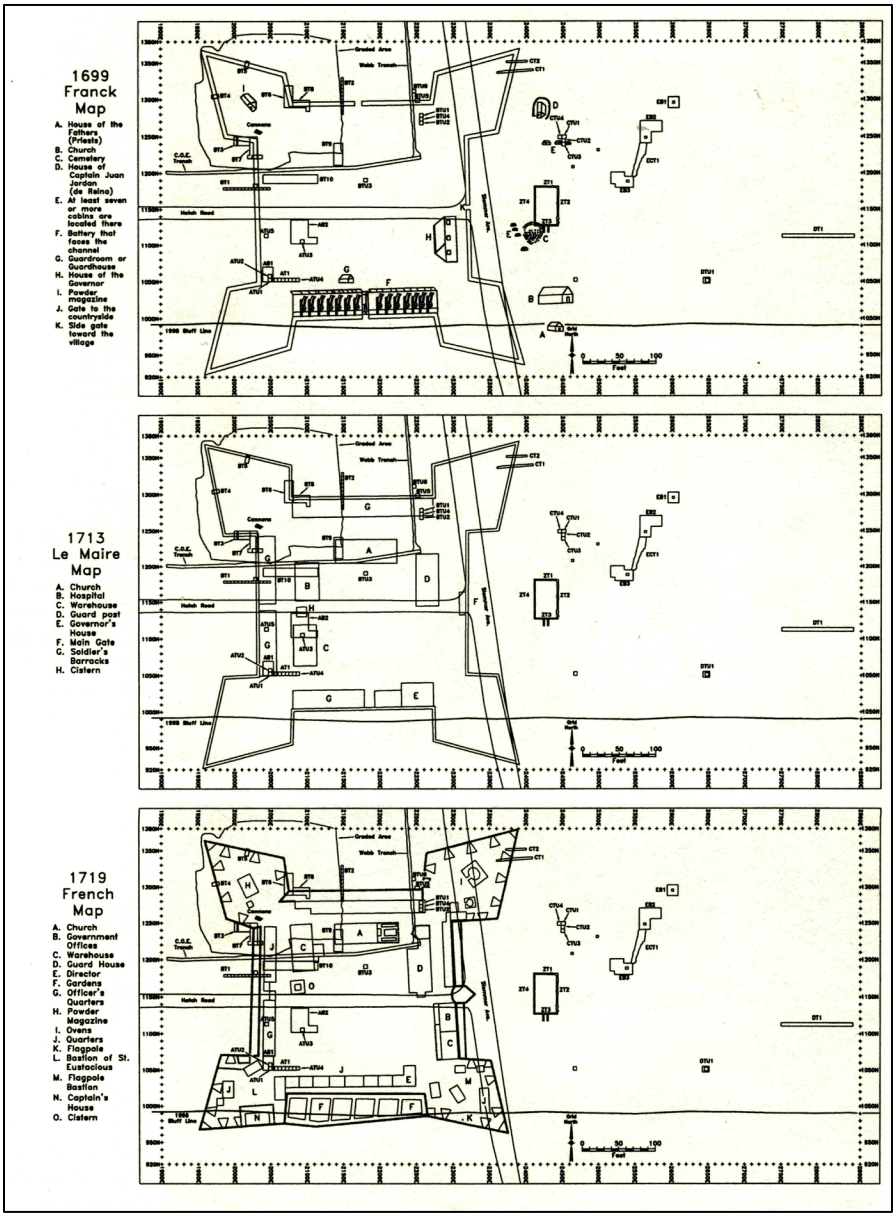


FIGURE 3.3. Overview of the fort San Carlos de Austria (Bense 2003:98).

In 2003, the University of West Florida, archaeologically investigated the site again under the direction of Judith Bense. The primary objectives of this investigation were to determine the site boundaries and confirm its association with Santa Maria (Bense and Wilson 2003:85). Since the presidio was destroyed by the French in 1719, there have been many impacts to its archaeological remains, largely due to cultivation and development (Bense and Wilson 2003:87). Many areas of the community were labeled on historical maps with contextual information and the basic strategy used to connect them to the modern landscape was ground-truthing the maps (Bense and Wilson 2003:92). Investigations targeted and located the remains of six buildings and adjacent areas, including three barracks, a warehouse, a church, and a building used as both a hospital and a warehouse (Bense and Wilson 2003:109). Historical records indicate that at least three warehouses were built inside the fort. The artifact assemblage recovered from the burned officers' quarters area is the largest by far of all the community areas. However, the warehouse deposits had the highest proportion of artifacts and density of all cultural contexts (Bense and Wilson 2003:172).

Features and Artifacts sampled

A total of 120 features were sampled for this dissertation from the first four years of excavations at Santa Maria de Galve (Appendix B). The features represent a variety of types including construction trenches, postholes and post molds, refuse pits, and a couple of burial contexts; however, most of the features are postholes and refuse pits. The features also come from a variety of contexts, both Indigenous and Spanish (Figures 3.4-3.8). A total of 383 glass beads and 802 lead shot and bullets

were sampled for morphometric analysis. Additionally, some of the lead shot and beads came from the midden or living surface located throughout the entire site

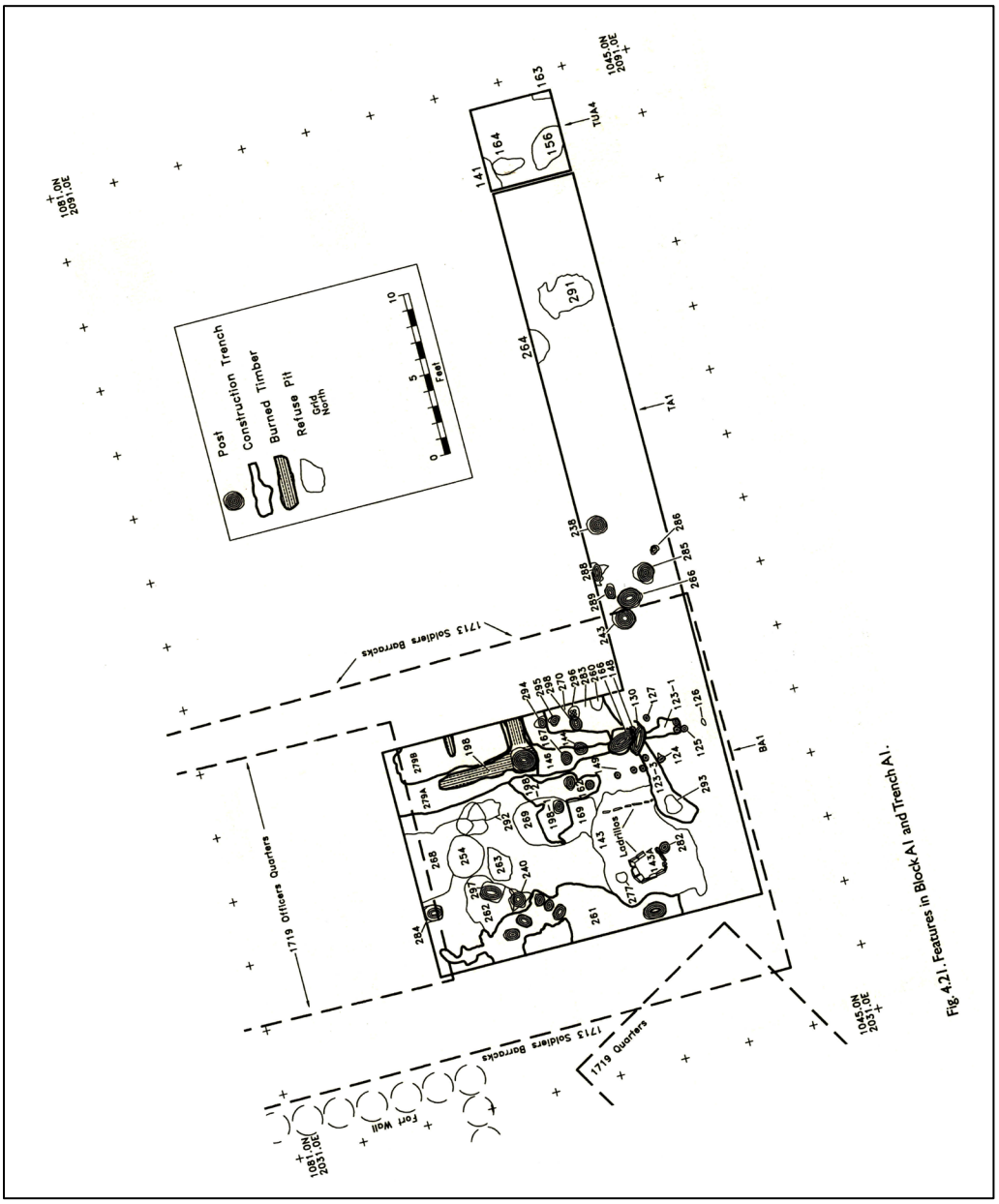


FIGURE 3.4. Features found withing the officer's quarters (Bense 2003:114).

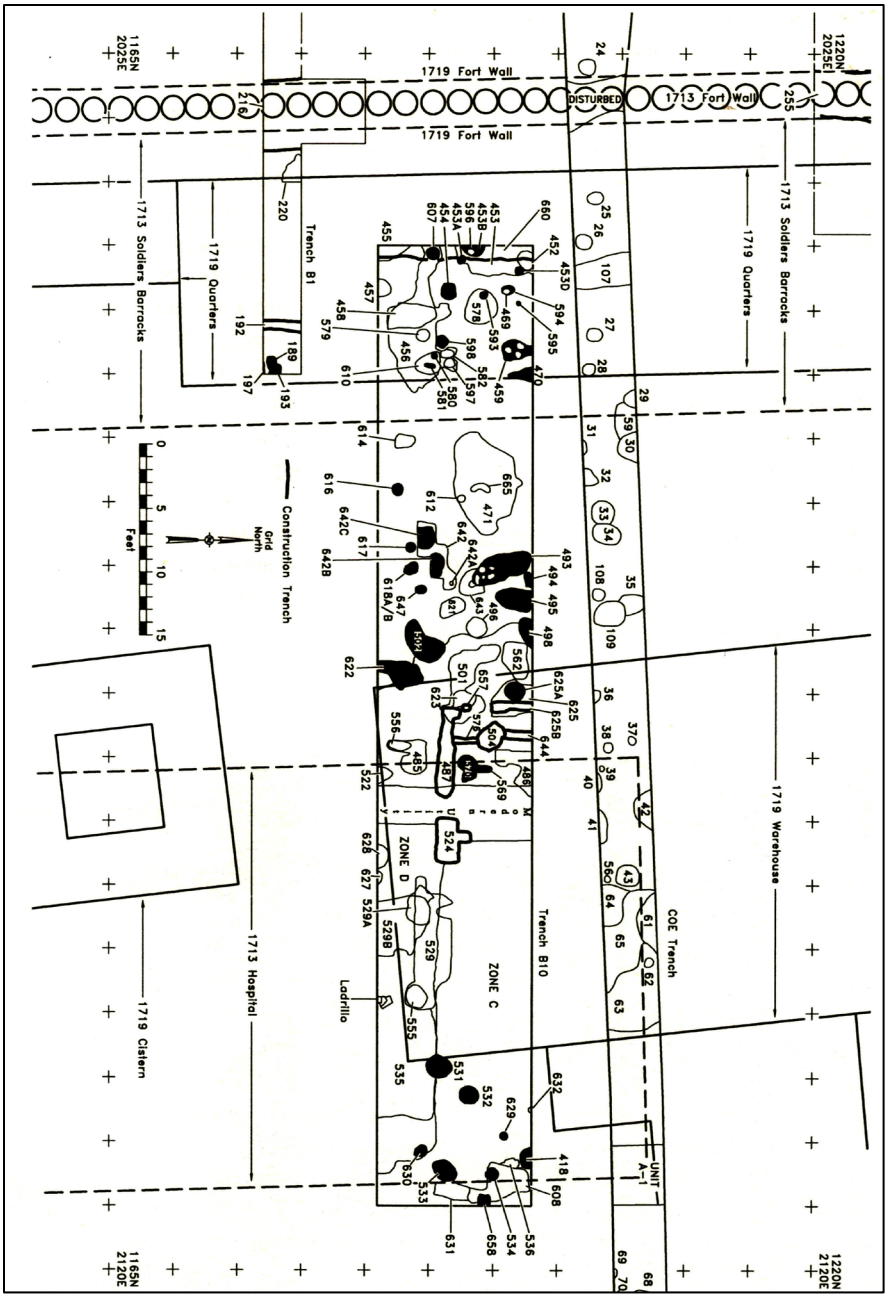


FIGURE 3.5. Features found within the warehouse and soldier's barracks (Bense 2003:129).

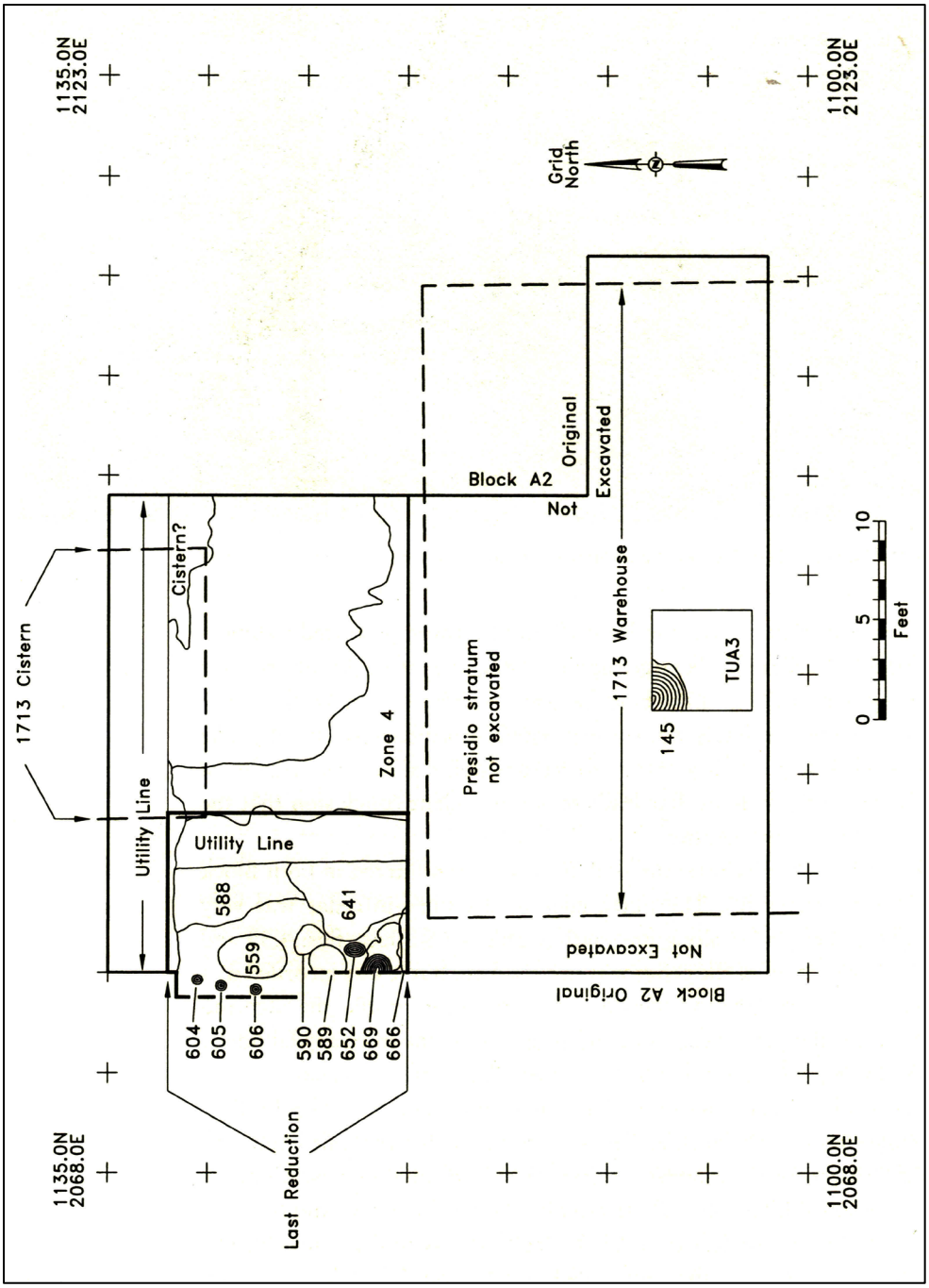


FIGURE 3.6. Features found outside the cistern (Bense 2003:136).

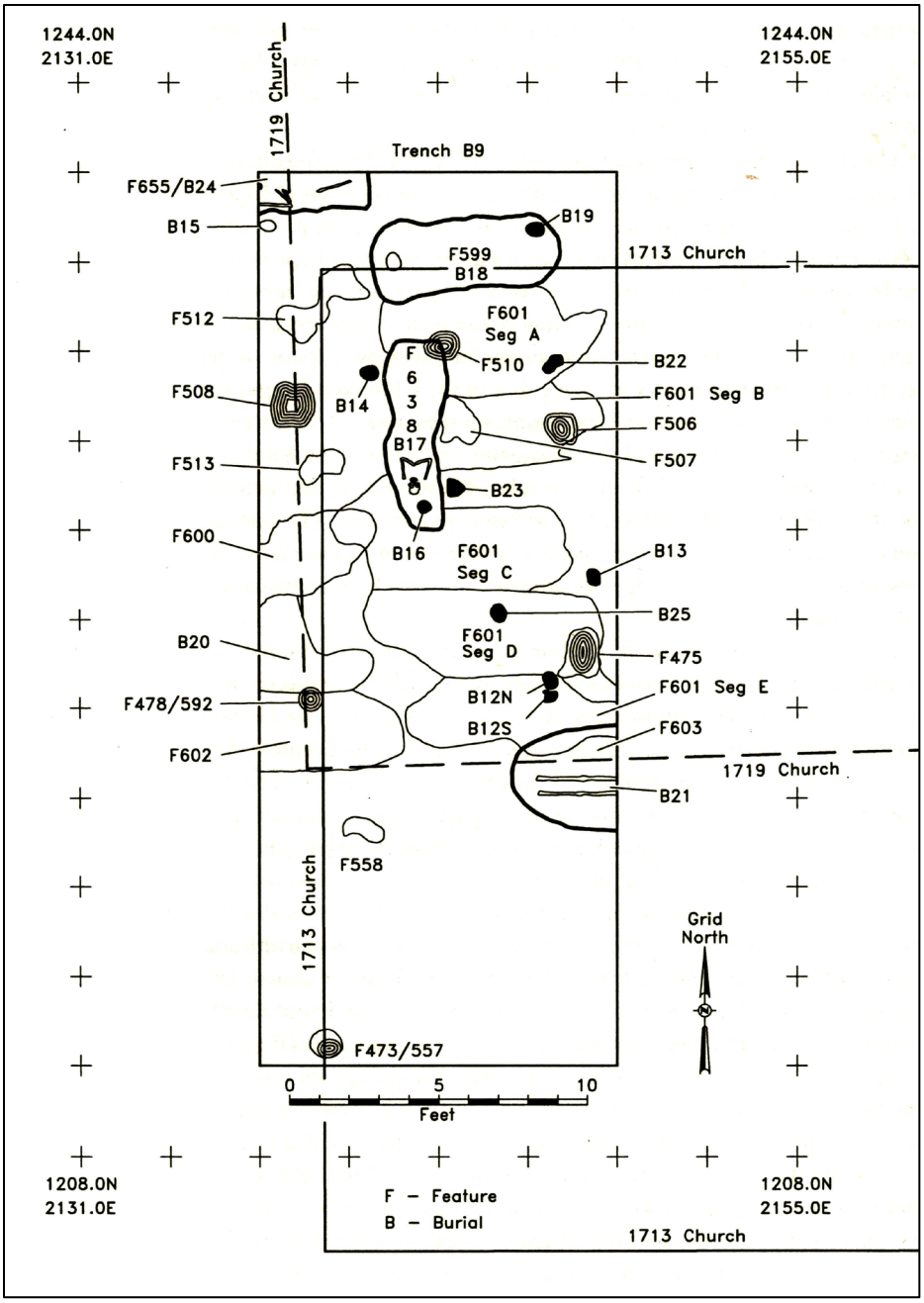


FIGURE 3.7. Features found within the church (Bense 2003:152).

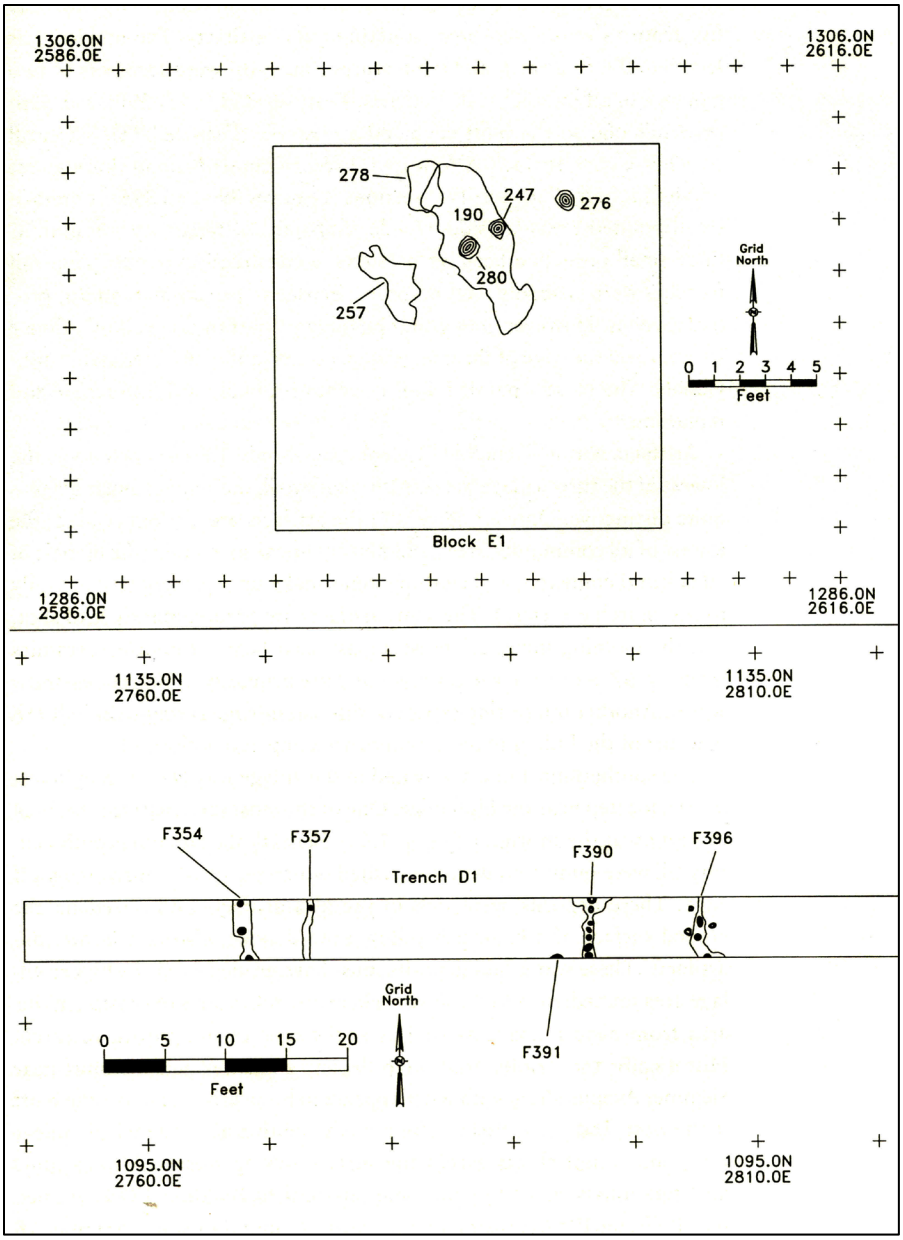


FIGURE 3.8. Features found within the village (Bense 2003:167).

Isla de Santa Rosa, 1722-1754

Previous Archaeological Investigations

The Presidio Isla de Santa Rosa site has been investigated by both historians and archaeologists alike. Many historians have published their findings about the settlement, but there are still many historical documents that have not been located

and analyzed (Ford 1939; Leonard 1939; Faye 1941, 1946; Griffen 1959). The site of the presidio was first investigated by G. Norman Simons, assistant curator of the Pensacola Historical Society in 1961 (Figure 3.9). In 1964 Hale G. Smith of Florida State University (FSU) excavated 11 trenches and exposed one complete structure, collecting over 30,000 artifacts (Smith 1965; Harris and Eschbach 2006:15). Very little original documentation from Smith's 1964 excavations have been located, and only a portion of the artifacts recovered have been located. Looting, ditch construction, and severe weather and flooding have seriously damaged the integrity of the site. Louis Tesar, of FSU, visited the site in 1973 and estimated the boundaries of the site based on surface collections (Tesar 1973). Judith A. Bense of UWF visited the site in 1985 in conjunction with a reconnaissance survey of the Island (Harris and Eschbach 2006:18). Santa Rosa was reinvestigated from 2002-2004 by Norma J. Harris of UWF with the primary goal of determining the site's potential eligibility for inclusion in the National Register of Historic Places and whether it would be eligible as a National Historic Landmark (Harris and Eschbach 2006:13). Investigations of the site included determining the boundaries of the site, identifying site formation processes, and collecting data sufficient to interpret the structure, organization, evolution, and demise of the community.

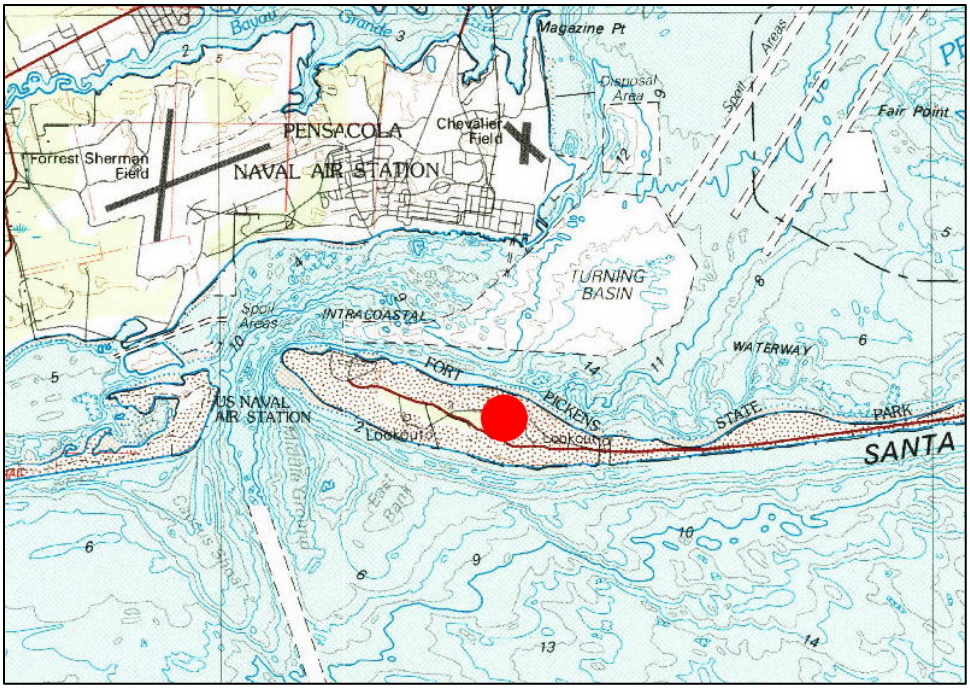


FIGURE 3.9. (8ES22) Santa Rosa presidio location on U.S.G.S. Fort Pickens, Fl 1994.

During the 2002 field season, remote sensing and subsurface testing was completed. A magnetometer was used and a total of 101 shovel tests were excavated. Based on the results from 2002, the 2003 field season concentrated on refining site boundaries (Harris and Eschbach 2006:49). Remote sensing techniques used in 2003 included gradiometer, soil conductivity, resistivity, and ground-penetrating radar. Twelve shovel tests were supplemented with 85 deep auger tests. Unfortunately, heavy rainfall during the 2003 field season raised the water table and halted excavations for the year. The 2004 field season consisted of re-opening and finishing excavations started in 2003 as well as adding judgmental units in areas were structures were likely to be (Harris and Eschbach 2006:61). Three seasons of excavations revealed only portions of wall trenches and the possible remains of small

structures (outbuildings). Hale Smith was the only one to fully excavate an entire structure. Multiple cases of destruction (due to hurricanes and floods), repair, and rebuilding are evident in all excavated areas (Harris and Eschbach 2006:220). This makes discerning original building outlines or building uses very difficult. During the eighteenth century, erosion was also a problem with every subsequent storm, a problem that was not resolved until dredging stabilized the natural shoreline beginning in 1959 (Harris and Eschbach 2006:223). The nature of the site formation processes, and subsequent repairs and rebuilding make this site difficult to interpret, but several wall features and refuse areas were identified, lending integrity to the site and its potential eligibility for NRHP.

Features and Artifacts sampled

A total of 73 features were sampled for this project from investigations during 2003 and 2004 at Isla de Sant Rosa (Appendix B). The features represent a variety of types including wall trenches, postholes and post molds, refuse pits; however, most of the features are postholes and wall trenches. The features also come from a variety of contexts, both Indigenous and Spanish (Figures 3.10-3.11). A total of 244 glass beads and 264 lead shot and bullets were sampled for morphometric analysis. Additionally, some of lead shot and beads came from the midden or living surface located throughout the entire site.

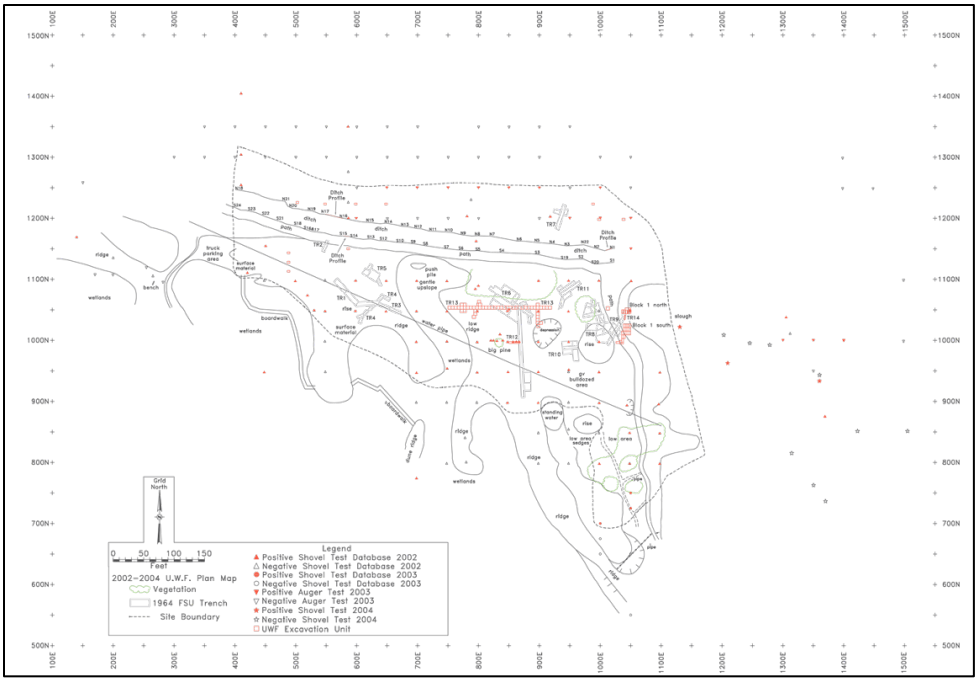


FIGURE 3.10. Plan of Santa Rosa archaeological investigations (Harris and Eschbach 2006).

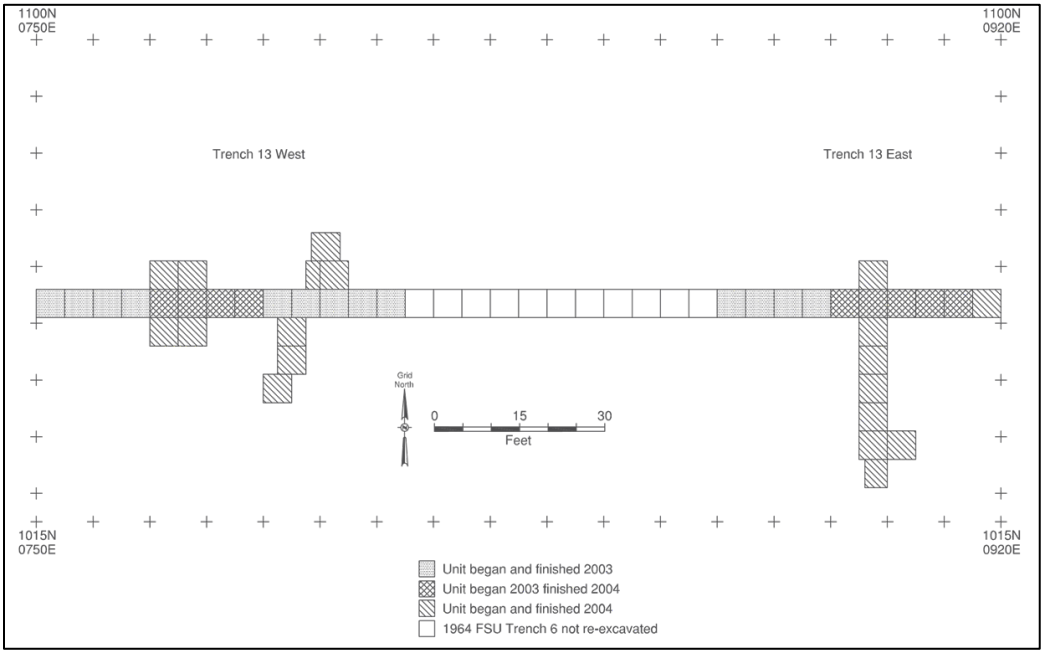


FIGURE 3.11. Plan showing UWF excavation trench (Harris and Eschbach 2006).

San Miguel de Panzacola

Previous Archaeological Investigations

Since 1740, Pensacola proper has been occupied throughout the remainder of the First Spanish (1698-1763), British (1763-1783), Second Spanish (1783-1812), and American (1812) periods. Subsequently, the area has been heavily developed and modified over the centuries. In downtown Pensacola, various archaeological projects were conducted during the 1970s (Schaeffer 1971; Magie 1972; Baker 1975; Long 1976; Sutton 1976). Much of the research in 1980s and early 1990s was conducted by UWF and focused on relocating colonial buildings and other mapped features (Bense 1983, 1986, 1989; Joy 1988; Joy and Lloyd 1988; Cusick 1993). From 1980 to the early 2000s three main sites were archaeologically investigates that contain features and artifacts contemporary with the presidio of San Miguel de Panzacola occupation: the Commanding Officer's Compound (8ES1150), Plaza Ferdinand (8ES981), and the Lee House (8ES115). However, only material from the Commanding Officer's Compound and the Lee House Lot contained contexts with good integrity for further analysis (Figures 3.12–3.13). In the center of downtown Pensacola, several archaeological investigations focused on military structures, which included relocating the Commanding Officer's Compound (Bense 1990, 1999; Benchley et al. 2007). The area was first examined in 1987 in conjunction with placement of a large water pipe into the back of old City Hall when it was being converted into the T.T. Wentworth Florida State Museum (Benchley et al. 2007:25). It was reinvestigated in 1988 and 1989 by UWF archaeologists. Intricated and complex features from all major periods of occupation were uncovered, and very little could be attributed to the

First Spanish Fort San Miguel (Joy 1989; Bense 1999). Only a few refuse pits and the structural remains of the northeast bastion were uncovered. More excavations in the Compound were completed in 1993, but no First Spanish features were located.

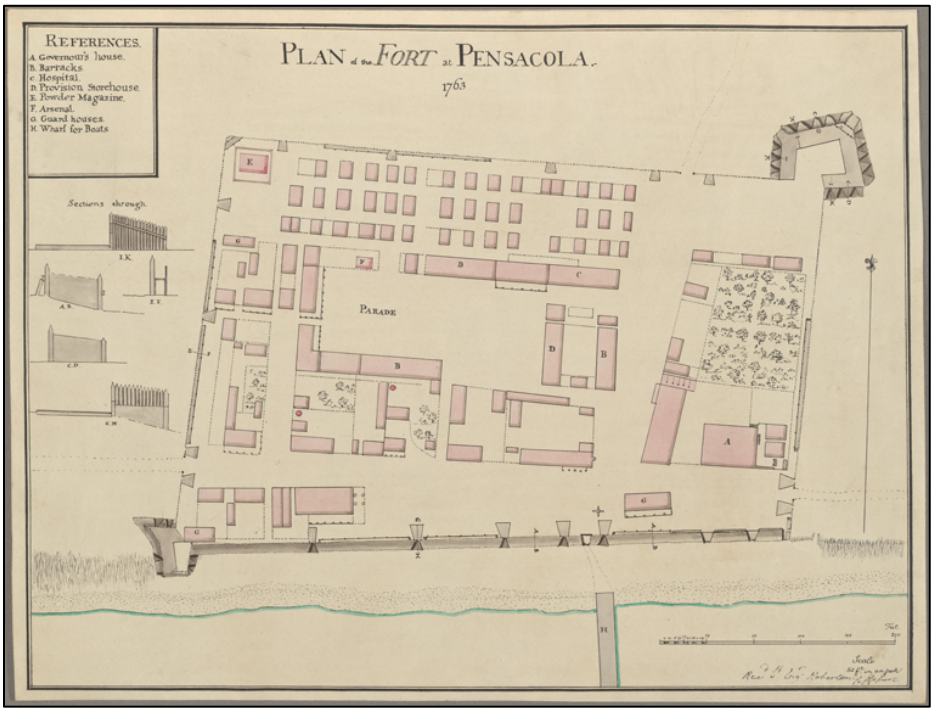


FIGURE 3.12. 1763 map of San Miguel de Panzacola (Courtesy of The New York Public Library Digital Collections).

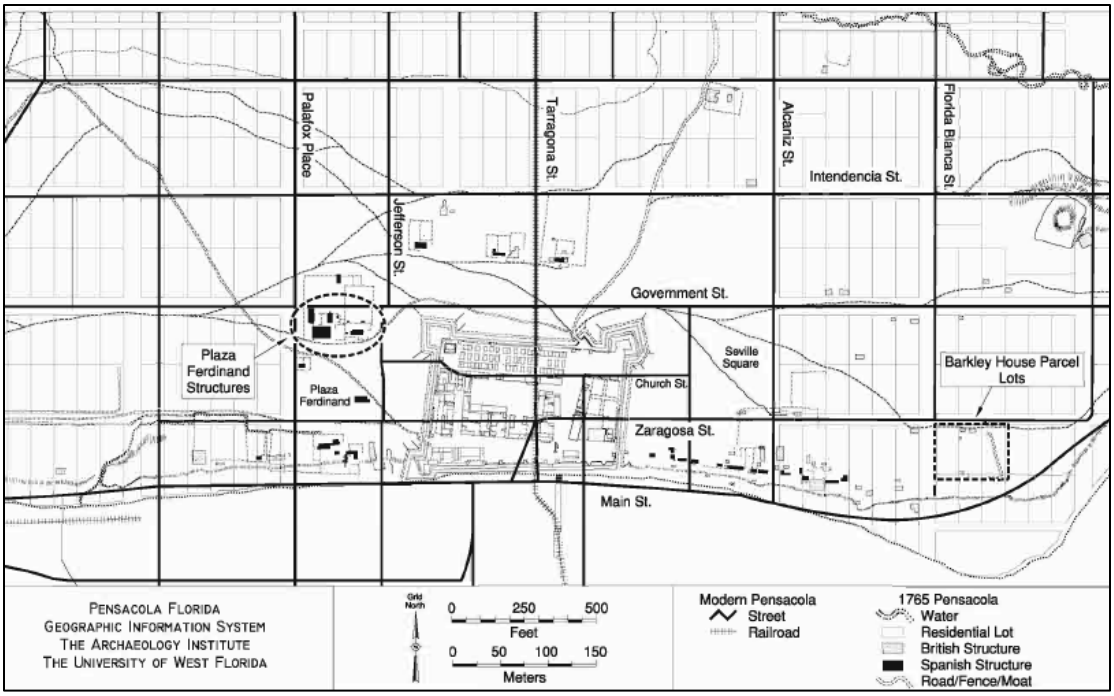


FIGURE 3.13. 1765 British map showing Plaza Ferdinand and Barkley House (Benchley et al. 2007:67).

Investigations during 2005-2006 by UWF sought to determine if earlier First Spanish features were present within the Officer's Compound and to locate buildings along the west side of the courtyard to better define the boundaries of the Compound (Benchley et al. 2007:15). Several block units (5 ft by 5 ft) were excavated on the same grid established in 1993, which facilitated seeing features that spanned larger areas (Figure 3.14). Only two kinds of features were located that related to the occupation of San Miguel. Several wall trenches and deep pits that could be wells or storage facilities were investigated (Benchley et al. 2007:48). Evidence of British and Second Spanish use were also located, but my analyses will focus only on materials from selected features with discrete contexts associated with the First Spanish period presidio.

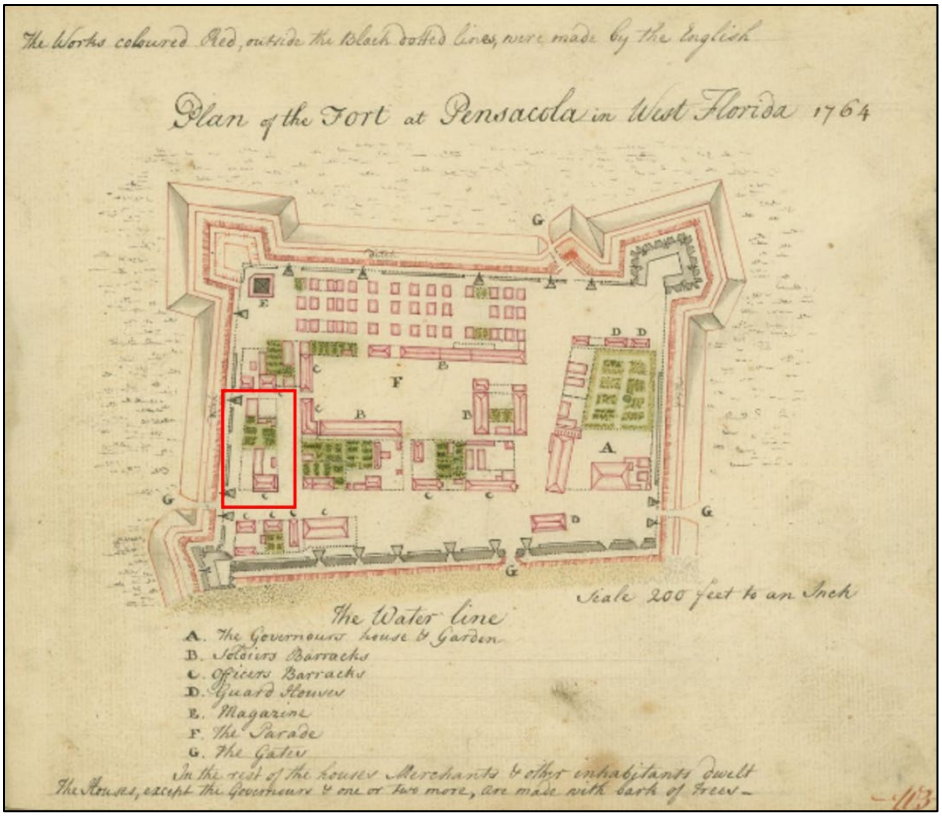


FIGURE 3.14. Location of the Commanding Officer's Compound in San Miguel (Courtesy of the John Carter Brown Library).

Excavations along the north side of Plaza Ferdinand were conducted in 2000 and 2001 to examine two house lots located on the 1765 plan map for British Pensacola created by Elias Durnford. Durnford color-coded the map indicating which houses were built by the Spanish before 1763, and those that were built by the British between 1763 and early 1765 (Benchley et al. 2007:66). Archaeological investigations attempted to locate the remains of buildings including foundations, walls, and outbuildings (Figure 3.15). Investigations of the two house lots revealed modest-sized Spanish buildings, but artifacts were predominantly of British origin. Archaeologist concluded that even though the foundations were Spanish made, the

British most likely heavily remodeled or re-built the houses (Benchley et al. 2007:91). No significant First Spanish features were encountered.

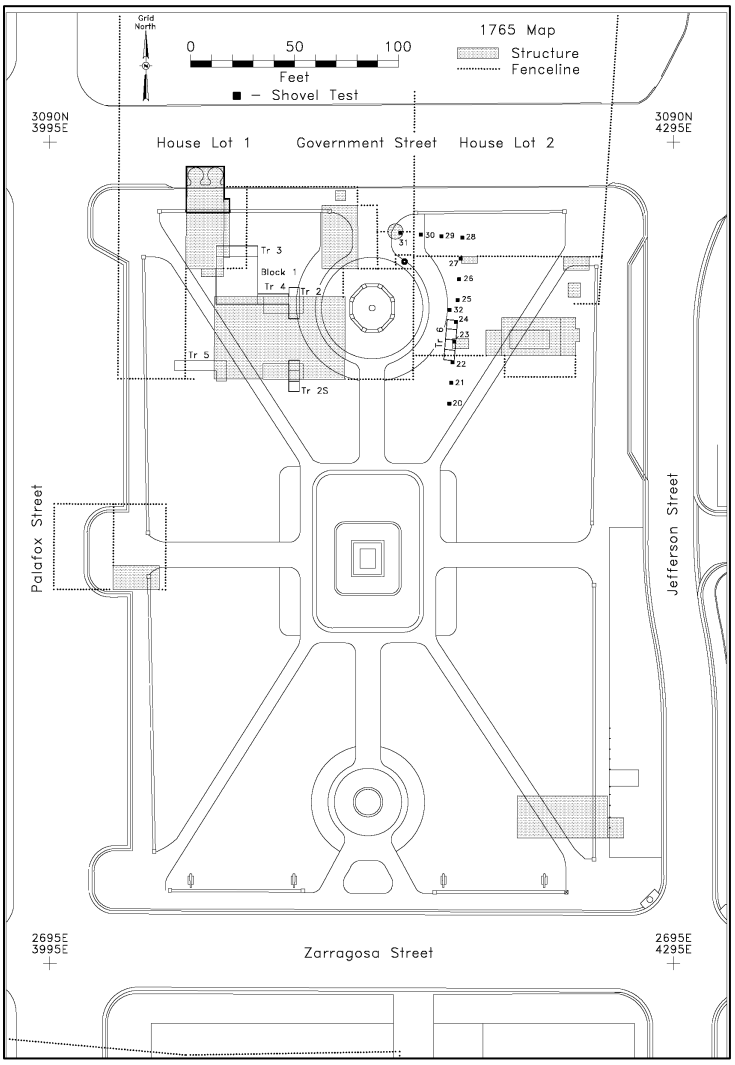


FIGURE 3.15. UWF excavation units at Plaza Ferdinand (Benchley et al. 2007:68).

The Lee House Lot was designated by George Long during his survey of the Pensacola waterfront (Long 1976). Long's work on the site produced evidence of three main occupation levels including an eighteenth-century occupation, an early nineteenth century dwelling, and the remnants of a recently demolished house (Melcher n.d). Archaeological work was not conducted on the site again until UWF's

investigation in 2007. The house lot lies 700 feet east of the eighteenth-century presidio wall and was occupied by Apalachee and Yamasee refugees from the 1761 mission attacks. This area was designated as 'Indian Town" on British era maps. Archaeological excavations in 2007 were designed to investigate only the area of the house lot that would be impacted by construction of a new building. Among features from other time periods, 23 features were from the First Spanish period (Melcher n.d). The features represent the remains of at least two Spanish buildings with most artifact types belonging to British, French, and Native American sources, and only a small percentage of Mexican origin.

Features and Artifacts sampled

A total of 67 features were sampled for this project from investigations during 2005-2007 at San Miguel de Panzacola (Appendix B). The features represent a variety of types including wall trenches, barrel wells, postholes and post molds, refuse pits, and a brick hearth; however, most of the features are postholes, wall trenches, and refuse pits. The features also come from a variety of contexts (Figure 3.16). A total of 230 glass beads and 198 lead shot and bullets were sampled for morphometric analysis. Additionally, some of lead shot and beads came from the midden or living surface located throughout the entire site.

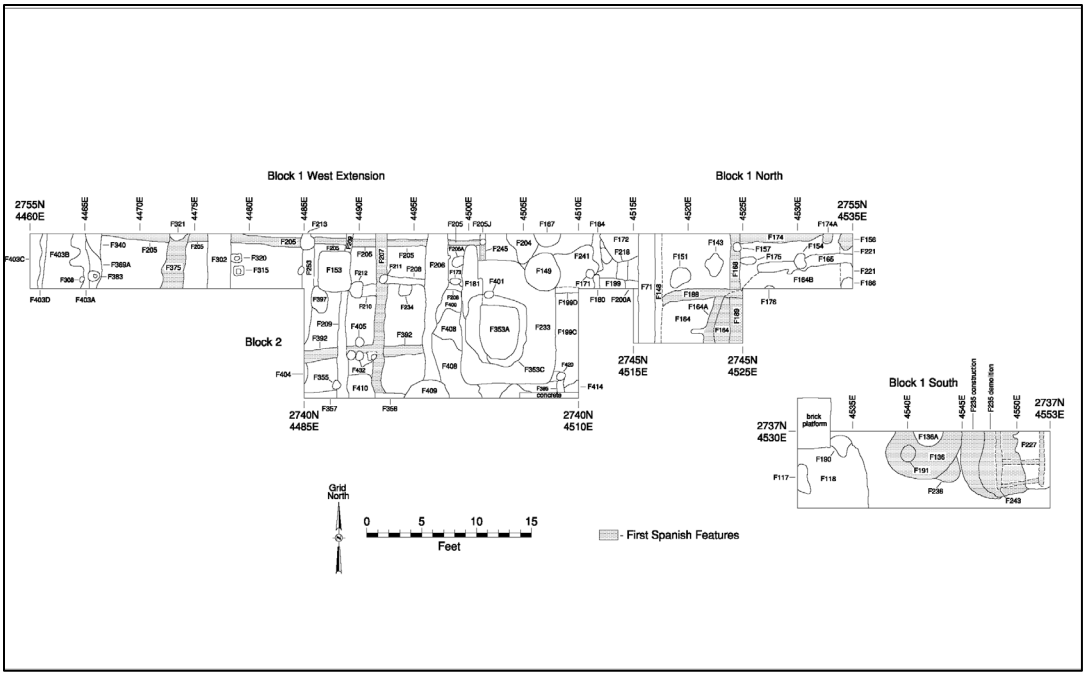


FIGURE 3.16. Features found within the Commanding Officer's Compound (Benchley et al. 2007:50).

San Joseph de Escambe

Previous Archaeological Investigations

John E. Worth of UWF started gathering historical information on the locations of the two missions associated with the Spanish Presidios just prior to 2009.The UWF field school season of 2009 set up the parameters for testing based on the historical research using cartographic and manuscript data. The documentary research and field work paid off because they found archaeological evidence of mission San Joseph de Escambe by the end of the 2009 field school. Apalachee pottery, European trade goods, and eighteenth-century Spanish materials were recovered, and a few important structural features were identified in limited test units. Five additional field seasons were spent investigating the Escambe mission.

In the 2010 field season, three units that were excavated in 2009 were reopened and expanded around the structural features, and the site was separated into three main areas. Area A is the northern-most part of the site and contains the most Native American pottery and posthole features. Area B is in the central part of the site and contained structural evidence of what was originally interpreted as the soldiers' barracks. Excavation in this area focused on finding the corners, or horizontal extent, of the barracks. No corners were found by the end of the 2010 season, but a moderate amount of both Native American and European artifacts was recovered from Area B. Area C is the southern-most section of the site and contained the greatest variety of European material.

The goals for the 2011 field season were to expose and excavate the features identified the previous year, and to delineate and determine the dimensions of the buildings. All three areas were expanded, but investigations focused more on areas B and C. The 2012 field season was very productive in terms of identifying features and artifact recovery. The objectives of the 2012 excavations were to focus on further exploring features to better understand the size and organization of the mission complex (McMahon and Dadiego 2012). A new area of the site between Area B and Area C, designated Area E, was tested. Area E revealed some of the richest mission related midden deposits, and evidence of a burnt clay floor was uncovered. Area E is located within the confines of the stockade, and the burnt floor could either be evidence of the Creek raid that destroyed the mission in 1761, or a ceramic

production area. The midden produced several types of Spanish majolica and other European export goods.

The site was not revisited until the summers of 2014 and 2015. In 2014, the UWF field school continued goals of tracing out structural features, as well as attempting to locate a waste disposal area used by the Apalachee (Pigott 2014). Most of the research focused on the inside of the palisade where a possible structure, identified by a fire-hardened clay layer with Spanish and Apalachee ceramics was excavated. One of the main goals of the 2015 field season was to determine whether the residential structures present on the site followed the traditional Apalachee pattern or the Spanish style (Okray and Maynard 2015). Excavations revealed some structures followed the circular Apalachee pattern, but the larger public structures were square in shape (Worth 2020). Investigations also identified the corner of the possible church. Several Apalachee and Spanish artifacts were recovered from both field seasons. The Native American ceramic assemblage resembles a blend of Blackmon-Phase ceramics of the Lower Creeks with San Luis-Phase ceramics of the Apalachee, indicating that the ethnicity of the mission Natives was Apalachee, but they had strong connections and interactions with the Lower Creeks during the early eighteenth century (Worth et al. 2011; Johnson 2012; Pigott 2015).

Features and Artifacts sampled

A total of 28 features were sampled for this project from every year of excavation at San Joseph de Escambe (Appendix B). The features represent a variety of types including wall trenches, postholes and post molds, refuse pits, hearths, and corn cob smudge pits; however, most of the features are wall trenches and refuse pits.

The features also come from a variety of contexts, both Indigenous and Spanish. A total of 287 glass beads and 347 lead shot and bullets were sampled for morphometric analysis. Most of lead shot and beads came from the midden or living surface located throughout the entire site.

San Antonio de Punta Rasa

Previous Archaeological Investigations

From 2015 to 2016, a small UWF crew lead by Patrick Johnson of William and Mary found archaeological evidence of the Punta Rasa. During the field season they were able to bound the site; a roughly 50 square meter area at modern day Garcon Point (Johnson 2018). Unfortunately, all plow zone with later materials mixed in and no features were identified. Several common types of eighteenth-century Native and Spanish ceramic types were recovered as well as a small trade bead assemblage. The archaeological report for investigations is currently under development, but much of the investigation is outlined in Johnson's (2018) dissertation.

Features and Artifacts sampled

A total of 6 glass beads and 4 lead shot and bullets were sampled for morphometric analysis in this project. The lead shot and beads came from the midden or living surface located throughout the entire site.

General Artifact Analysis

Many of the European artifacts recovered from the presidios and missions in Pensacola were brought in by Spanish soldiers or supplied directly from the presidio. Other items were brought in by Native groups like the Creek, Apalachee, and

Yamasee. Items from French or British trade spheres were thus introduced indirectly through Upper and Lower Creek traders. In other instances, British and French traders illegally smuggled certain goods into the presidios. For instance, at Santa Maria, over 80 percent of the gunflints were made from honey colored amber flint which is attributed to French origins (Bense and Wilson 1999:72). There are several factors to consider when looking at the presence of certain artifacts including the availability, quality, and ease of accessibility of the item in question. Several Creek tribes preferred French-made weapons over British weapons and ammunition because of their quality, but the British traded munitions in far greater quantities than the French and were more willing to trade (Waselkov 1992). Also, the color of the glass trade beads reflected the personal preference of the different Indian tribes (Waselkov 1992). Some tribes preferred red, but the Apalachee interpreted red as a sign of war (Mitchem 1993:399, 417). Tin-enameled ceramics were mostly used by Spanish colonists and represent a higher social status (Voss 2012). This qualitative analysis sheds light on the social interactions and economic choices of the inhabitants at both the missions and presidios.

Tin-Enameled Earthenwares

Spanish and Mexican Majolica

The tin-enameled earthenware, commonly known as majolica, has been categorized by researchers based on attributes of paste type and color, surface treatment, and decorative motif (Deagan 1987:25). In the late 1960s, John Goggin (1968:203–206) named and described 24 types of majolica, but this organizational framework was subsequently refined and expanded to a classificatory system based

largely upon the origins of production for the various majolica varieties, including four categories of Spanish majolica, three categories of Italian majolicas, and two major categories of Mexican majolicas (Deagan 1987:53). Lister and Lister (1974:19) identified five complexes of majolica in colonial Spanish America; one representing direct export from Spain and the remainder are from sources in the Americas (Figures 3.17–3.18). It was in the Mexican complex that a thriving majolica industry emerged that not only endured for over 450 years but absorbed a multitude of varied influences, digested them, and produced a unique regional craft (Lister and Lister 1974:23). By the time Santa Maria was established, the majority of the majolica produced for the colonies came from Puebla and Mexico City (Roberts-Thompson 2012:58). A total of 21 majolica types (Spanish and Mexican) were present at the three presidios and missions; brief descriptions of each type come from Deagan (1987), Goggin (1968), and Lister and Lister (1982).



FIGURE 3.17. Majolica production centers in Spain (Lister and Lister 2001:18).

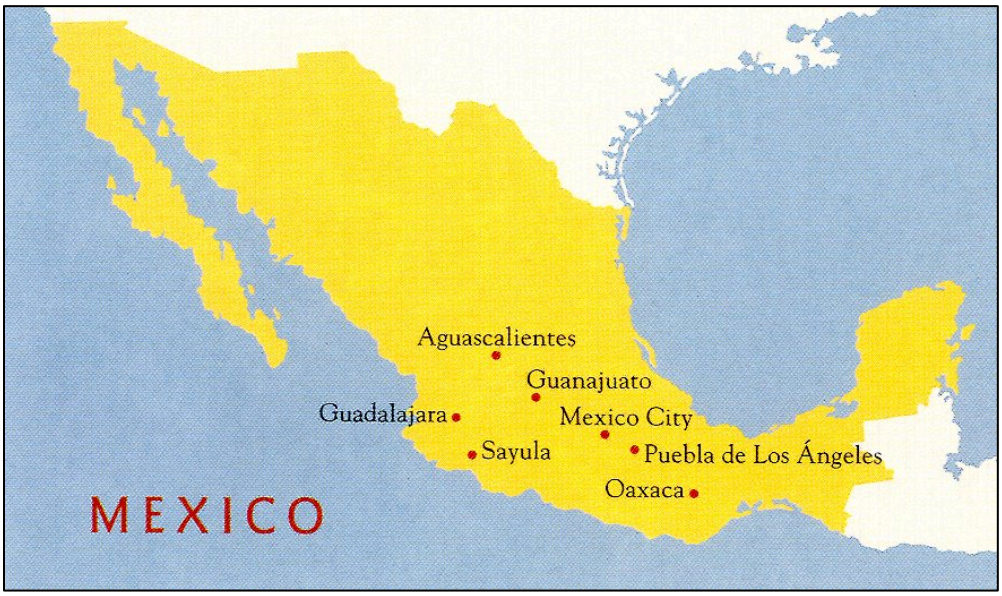


FIGURE 3.18. Majolica production centers in Mexico (Lister and Lister 2001:81).

Spain

Caparra Blue: This ware is easily defined by its even and solid-blue exterior enamel, which is produced by adding cobalt to the white enamel. Frequently has a sponged or speckled appearance.

Ichtucknee Blue of White: Distinguished by its chalky white background enamel and thin vessel walls. Designs are frequently painted in more than one shade of clear cobalt blue, with a central base medallion set of by framing lines. Birds, animals, and floral motifs are found in the central element, and the interior sides of vessels are decorated with combinations of geometric and floral designs, quite frequently separated into panels set off by vertical bands or wavy lines.

Catalonia Blue on White: This majolica reflects influences on the industry by Italian made majolica, French Faience, and Holland delftware. French influence on these wares is most evident in the eighteenth century. Plates generally have a well-defined central element surrounded by a wreath or lines, and an intricate and continuous rim pattern restricted to the edge of the vessel.

New Spain:

San Luis Blue on White: This ware has an overall stylized design painted in two colors of dull, often grayish blue on a grayish off-white background. Motifs include lobed floral elements, stylized leaves, dots, and half circles.

San Luis Polychrome: Distinguished by its cream-colored or tan paste with an off-white, cream, or tan background enamel applied thinly over the vessel. Designs are painted in crude floral or geometric patterns in dark green, set off by black or dark brown framing lines (Figure 3.19).



FIGURE 3.19. San Luis Polychrome majolica from the Pensacola presidios (Photo by author 2019).

Mexico City Green on Cream: This ware has a dark green design, usually blurred at the edges, is painted on a tan or yellowish background enamel with a grainy appearance. Decorative motifs include series of thin, parallel loops, lines, and degenerated palmette-like elements.

Aucilla Polychrome: Distinguished by having green, brown, and orange-yellow design on tan or terra-cotta-colored grainy paste with an off-white, grayish background enamel. Designed with dots, ovoids, or amorphous indeterminate areas. The designs are set off by orange bands framed in black that border both the center and the rim of vessels.

Abo Polychrome: This ware has colorfully painted floral and animal designs in yellow, orange, green-blue, and brown, with a distinct Italian flavor to the palette. Designs cover the entire surface of vessel interiors, and rims are always encircled by an orange band colored by one brown line above and two below it. Animals are frequently depicted in the center of the vessels, humans too (Figure 3.20).



FIGURE 3.20. Abo Polychrome majolica from the Pensacola presidios (Photo by author 2019).

Puebla Polychrome: Distinguished by its cobalt-blue and black decoration, with scroll-like and lobe designs painted in blue, overlaid by a series of thin black lines in lacy patterns. Black dots are also found, and the blue dots are often raised form the surface of the vessel (Figure 3.21).



FIGURE 3.21. Puebla Polychrome majolica from the Pensacola presidios (Photo by author 2019).

Castillo Polychrome: Described as having a white paste and white glossy background enamel. Naturalistic designs are painted on the vessels in light blue, and then with thin black lines over the blue to emphasize details of the designs. Humans, flowers, and animals and birds with detailed fur and feathers used, and diamond-shaped cross-hatching is often used to fill in large blue areas.

San Augustin Blue on White: The background enamel is chalky white, smooth, and glossy in contrast to the cream-colored. Its painted with precise, intricate designs in two colors of blue: a dark and rich cobalt, and a light, pale blue.

Puebla Blue on White: The most abundant, widespread, and frequently encountered of the eighteenth-century Puebla majolicas. *Fino* and *entrefino* categories Chinese and Talaveran-inspired decorations are most commonly found on examples dating to the first half of the eighteenth century.

Aranama Polychrome: Distinguished by its orange band framed in brown black around the rim, and another such band around the base of the rim. Both the brim and the center of the vessel are filled with floral and geometric designs with green and yellow the predominating colors. Blue is used infrequently and with restraint.

Playa Polychrome: It is essentially Puebla Blue on White with the addition of black-line highlighting, most frequently apparent on the style having the rim-band and pendant floral motif. It probably originated in the second quarter of the eighteenth century, but its end date is uncertain.

Fig Springs Polychrome: This type is more appropriately called *San Juan Polychrome* to communicate more effectively its Hispanic origins. It has a red paste, grayish white background enamel, and painted designs in yellow and washed-out grayish blue. Typical design motifs include a central palmette executed in a manner reminiscent of finger painting.

Huejotzingo: This ware is easily distinguished by its single blue band at the edge of the vessel rim and the absence of other decoration.

Marineware: Controversial majolica type described as a coarse earthenware covered in a green or grayish green undecorated tin enamel in utilitarian vessel forms.

San Elizario Polychrome: The rims are distinguished by having a wide, brownish band edged in black, with blue pendant elements suspended from the rim band. The central motif is commonly a long-legged shore bird with a blue body and brown or black legs and beak.

Blue-Green Bacín: Guatemalan majolica also known as *Triana Policromo*. It describes a bacín form vessel covered with off-white tin enamel, which is decorated with designs painted in combinations of dark blue, green, and occasionally black.

Pensacola Striped: This ware was only encountered in Pensacola and contains polychrome concentric stripes bordered by thin dark brown or black lines (Figure 3.22).



FIGURE 3.22. Pensacola Striped from the Pensacola presidios (Photo by author 2019).

French Faience

During the seventeenth and eighteenth centuries, tin-enameled, soft paste earthenware was a major product of the ceramic kilns of western Europe. French faience remains among the least studied of all European ceramics found at North American archaeological sites. Tin-enameled earthenwares or faience was produced primarily in southwestern France beginning around 1670. Regional styles were highly common, and by 1690 ceramic manufacturers in Rouen, Paris, Lille, Nevers, Provence, Strasbourg, Moustiers, Marseille, and Brittany were all producing regionally stylistic vessels with the *grand feu* palette, which consisted of heat-resistant pigments that were applied to the glaze before firing (Walthall 1991; Waselkov and Walthall 2002). The primary producing centers were Rouen in Normandy, Moustiers in Provence, and Nevers. Two main types of faience were produced that all regional styles could be categorized under: *faience blanch* and *faince brune*. Faience potters frequently copied each other's decorative styles making it difficult for archaeologists to determine the exact manufacture origin (Waselkov 2005:32). The Saintonge region also specialized in pottery making, just not of the tin-enameled variety. This low-fired earthenware pottery was mostly for utilitarian purposes and is distinguished by a green-tinted lead glaze covering the interior and sometimes exterior of the vessel (Waselkov 2005:32). Saintonge ware was common at the Spanish presidios of Pensacola, Florida. A total of eight different faience types (excluding plain and indeterminate polychrome) were recovered from excavations at

the presidios and missions. Descriptions are based on work by Walthall (1991) and Waselkov and Walthall (2002).

Normandy Blue on White: Stylized borders and floral motifs painted in underglaze blue. Dark outlines for decorative motifs are used sometimes. Two varieties are defined on the basis of painting technique. Normandy variety and St. Cloud variety (Figure 3.23).



FIGURE 3.23. Normandy Blue on White faience from the Pensacola presidios (Photo by author 2019).

St. Cloud Polychrome: Outlines of the design drawn in dark pigment. Then outlined area was painted or filled in with a blue of a light or medium hue (Figure 3.24).

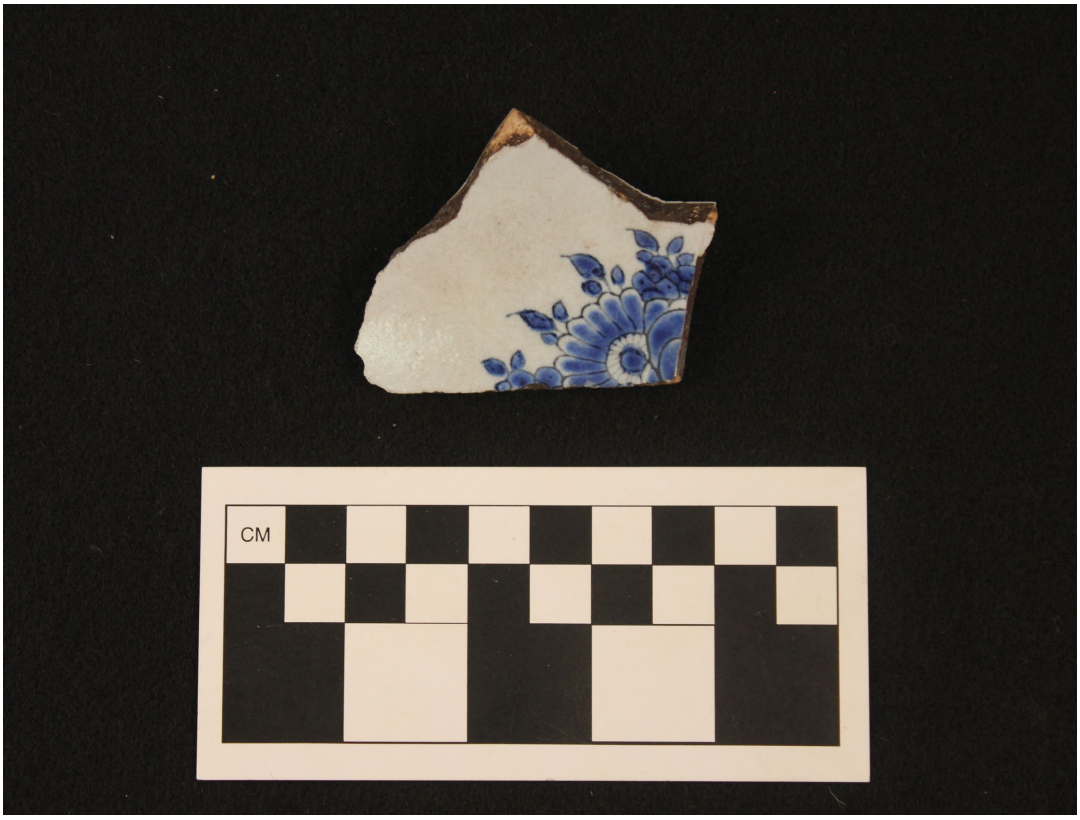


FIGURE 3.24. Saint Cloud Polychrome Faience from the Pensacola presidios (Photo by author 2019).

Brittany Blue on White: Commonly single solid blue painted band circumscribes the interior of the vessel rim. Double solid blue bands are known but are rare. Simple circular geometric designs are at times painted in the center of the vessel (Figure 3.25).

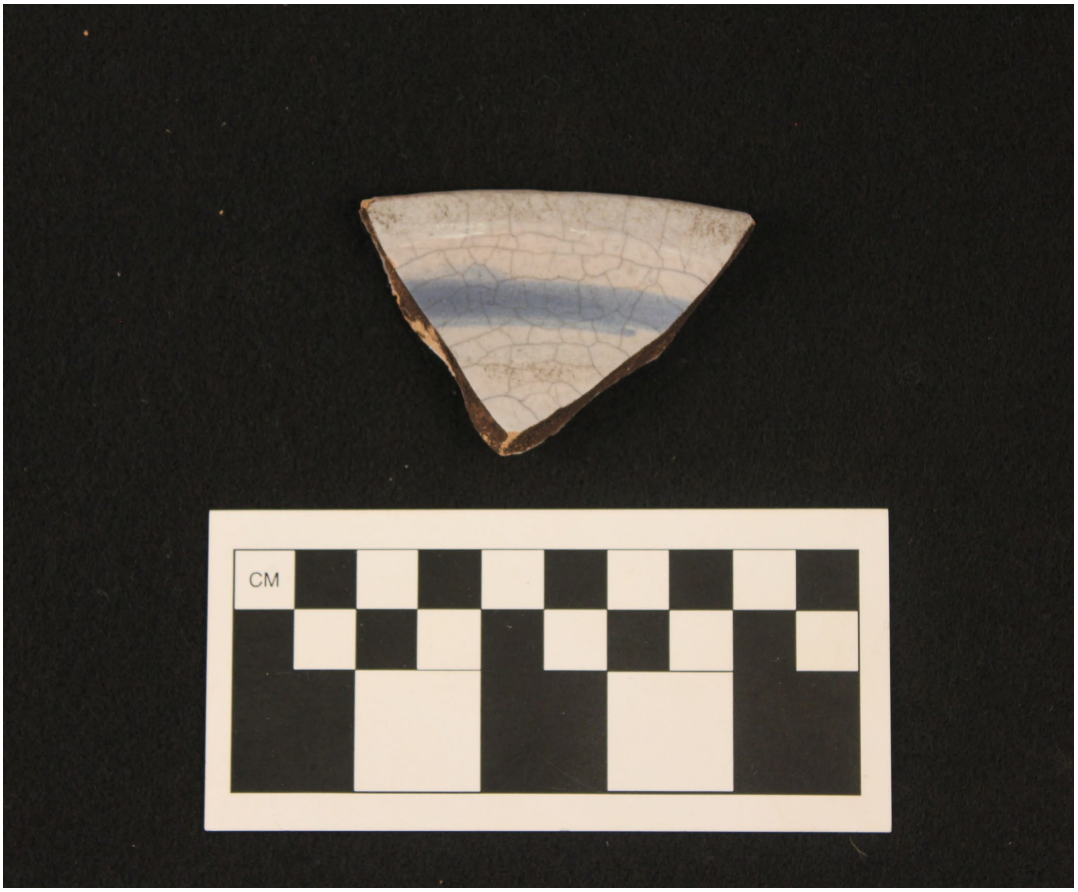


FIGURE 3.25. Brittany Blue on White faience from the Pensacola presidios (Photo by author 2019).

Seine Polychrome: Stylized borders, floral and geometric designs, and chinoiseries in combinations of blue, black, yellow, green, purple-brown, and orange red (Figure 3.26).



FIGURE 3.26. Seine Polychrome from the Pensacola presidios (Photo by author 2019).

Rouen Plain: Earthenware with undecorated white tin-glazed interiors and medium to dark manganese brown lead glazed exteriors. Decoration is limited to molding of vessel walls, lids, and appendages. Vertical ribbing of vessels from rim to base is known. The white interior glaze was at times intentionally allowed to overflow the rim to produce a streaked effect on the vessel exterior (Figure 3.27).



FIGURE 3.27. Rouen faience from the Pensacola presidios (Photo by author 2019).

Provence Blue on White: This earthenware has a near white to very light blue background enamel and the interior of rim is double banded in blue with geometric and crude floral designs within (Figure 3.28).



FIGURE 3.28. Provence faience from the Pensacola presidios (Photo by author 2019).

Moustiers Blue on White: The early Moustiers style occurs largely in monochrome blue until about 1730, when polychrome patterns in light blue, orange-yellow, and sage green were added.

English Delft

The earliest certain date in the history of English delftware is 1570. New potteries sprang up at the end of the seventeenth century, some of them also employing Dutch workmen (Ray 2000:4). The industry continued to flourish in London in the eighteenth century, producing good quality wares until the 1790s. Factories were also established at Delftfield in Glasgow and in Dublin in the mid-

eighteenth century (Ray 2000:5). In terms of decoration, apart from the heraldic and 'royal' motifs, and the ware commemorating historical events, the "potters were imitators and adaptors, rather than inventors" (Ray 2000:6). Only one variety of delftware (Blue on White) was recovered from excavations at the presidios and missions and the amount was very low (Figure 3.29).



FIGURE 3.29. Blue on White delft from the Pensacola presidios (Photo by author 2019).

Imported Ceramic Percentages

At Santa Maria, although there were three kinds of tin-enameled ceramics in the presidio assemblage, majolica made up the majority with faience and delft

comprising trade amounts. Only about 0.8% of the European ceramics were French in origin, even though the colonists routinely traveled between the two towns (Waselkov 2005:51). This is a general trend for the rest of the presidios and missions investigated (Tables 3.1–3.5). The variety of types varies from site to site, but overall, Mexican majolicas dominate the imported ceramic assemblages in the presidios, and native ceramics dominate within the mission contexts. Other imported ceramics from French, British, Central American, and Chinese are rare, especially within the missions. The reasons for this are two-fold: (1) The Spanish were supplied enough majolica to support their living styles and status, and thus, had no need to trade for French or British sources, they also had a ready supply of native-made ceramics and colonoware if needed; (2) the Apalachee and Yamasee had no use for these ceramics since their own served all functional and social purposes, and were trading with the Creek for other items like glass beads, clothing, and weapons and ammunition. The Spanish would have traded directly with the French or British traders for ceramics since this is most likely not an item carried to the missions for trade by the Upper and Lower Creeks. Foodstuffs, horses, and ammunition would have been the main items that Spanish colonists were lacking.

TABLE 3.1. Imported tin-enameled ceramics from presidio Santa Maria.

Majolica	Faience	Delft
Abo Polychrome Type A and B	Seine Polychrome	Blue on White
Aranama Polychrome	Plain	Plain
Aucilla Polychrome	Polychrome	
Caparra Blue	Rouen Style	
Castillo Polychrome	Blue on White	
Green Bacin	Saintonge	
Ichtucknee Blue on White		
Mexico City Green on Cream		
Pensacola Polychrome		
Puebla Blue on White		
Puebla Polychrome		
San Augustin Blue on White		
San Luis Blue on White		
San Luis Polychrome		
Huejotzingo		

TABLE 3.2. Imported tin-enameled ceramics from presidio Santa Rosa.

Majolica	Faience	Delft
Abo Polychrome Type A and B	Seine Polychrome	Blue on White
Aranama Polychrome	Polychrome	Polychrome
Ichtucknee Blue on White	Rouen Style	Plain
Puebla Blue on White	Provence Blue on White	
Puebla Polychrome	Normandy Blue on White	
San Luis Polychrome	Blue on White	
Aucilla Polychrome	Brittany Blue on White	
Fig Springs Polychrome	St. Cloud Polychrome	
Huejotzingo	Moustiers Blue on White	
Marineware	Plain	
Playa Polychrome	Saintonge	
San Augustin Blue on White		
San Luis Blue on White		

TABLE 3.3. Imported tin-enameled ceramics from presidio San Miguel.

Majolica	Faience	Delft
Abo Polychrome Type A and B	Seine Polychrome	Blue on White
Plain	Blue on White	Plain
Aranama Polychrome	Plain	Polychrome
Mexico City Green on Cream	Polychrome	Powdered Purple
Puebla Blue on White	Rouen Style	
Puebla Polychrome	Provence Blue on White	
San Augustin Blue on White	Normandy Blue on White	
San Luis Polychrome	Brittany Blue on White	
Playa Polychrome	St. Cloud Polychrome	
San Elizario Polychrome	Moustiers Blue on White	
Catalonia Blue on White	Saintonge	
Huejotzingo		
Marineware		

TABLE 3.4. Imported tin-enameled ceramics from mission Escambe.

Majolica	Delft
Abo Polychrome Type A	Blue on White
Puebla Blue on White	
Puebla Polychrome	
Playa Polychrome	
Plain	

TABLE 3.5. Imported tin-enameled ceramics from mission Punta Rasa.

Majolica	Faience	Delft
Abo Polychrome	Plain	Blue on White
Plain	Rouen Style	
Aranama Polychrome		
Playa Polychrome		
Puebla Blue on White		

Conclusions and Implications: Formal or Informal?

Direct correlation of the archaeological record to formal and illicit economic activities if difficult. We know from numerous historical records that trade within the colonies was, in theory, also highly regulated. These strict commercial policies were responsible, at least in part, for the shortages of imported Spanish goods in the colonies attested to by both historical and archaeological data (Myers et al. 1992:139). Contraband trade augmented legal trade in some cases (Myers et al. 1992:139–140). Residents of Spanish America turned to illicit trade with foreigners to survive. By default, Spanish colonials had to procure essential goods from enterprising British, Dutch, French, or American merchants, goods that were "cheaper, better, and greater variety than those sold by the infrequent Spanish *flota* or *registros*" (Tepaske 1984:515). People developed many kinds of local solutions to coping with the conundrum of an essential but illegal economic mechanism (Deagan 2007:99). But what archaeological evidence of illicit and contraband trade can we find? At this point, correlations in non-Spanish, European goods could have entered presidios in a variety of ways, including (1) mission inhabitants were moving goods they acquired from interior native groups or undocumented European traders/merchants into presidios; (2) interior Creek groups were trading directly with inhabitants of the presidios; (3) French, British, and other European exports were brought in legally via Havana or Veracruz ports that were supplied with multi-European sourced goods in Seville; or (4) Spanish officials in presidios directly

(informally and discretely) trading with French for supplies to supplement the *situado* which was perpetually lacking.

This means that there is good chance that the imported ceramics (non-Mexican) found within Spanish contexts were acquired illegally. Decorated tin-enameled earthenwares are easily diagnostic of the county of production. Other items like bale seal, gunflints, and other earthenware types are also easily identifiable to a country of origin. Spanish colonists and officials were particularly partial to using imported ceramics since the Apalachee and Yamasee could easily make their own and considered other items as prestige goods. Spanish residents of higher rank would likely have desired higher-quality tableware to solidify their status in an environment far removed from Spanish society (Roberts-Thompson 2012:60). To some extent, military authority throughout presidios both facilitated and constrained illegal actions based on the community or personal benefit gained from each action. Based on the presence of imported ceramics and other highly identifiable objects, where can we detect illicit activity on the colonial landscape, especially within the presidios and missions of Pensacola, Florida?

As noted above, the answer is not easy based only on presence or absence of certain imported goods. Documents provide clear evidence of illicit trade, but archaeologically the evidence is more elusive. Combining historical documents relating to when it was quasi-legal to stretch the rules of Spain's mercantile policy with archaeological evidence is possible, but only in tightly dated contexts. For example, during the twelve years of the War of Spanish Succession, trade with France

was legal to an extent. The archaeological data needed to support this would have to be tightly dated to those twelve years, a daunting task. There is another way to address physical evidence of illicit trade in these contexts. The chemical and isotopic analysis of monochrome glass beads and lead shot, two mundane yet ubiquitous artifact groups, can provide a greater understanding, in finer detail, of where objects were coming from and where they were being distributed.

Chapter 4: Glass Bead Research, Analysis, and Results

This chapter outlines previous glass bead studies that focus primarily on morphological traits and more recently on their chemical composition. Based on the chemical composition of the glass beads it is possible to trace the distribution of this artifact group as well as identify possible supply origins for the beads. Glass beads have long been a popular trade item, especially during the colonial era. At any given archaeological site or within any given ethnographic group there can be an enormous number of beads made from a variety of materials coming from every point on the compass (Pendleton and Francis 2009a:3). Because of their frequency of occurrence on archaeological sites, and because of the manner in which they were used by Native groups, glass beads offer considerable temporal and cultural interpretive potential (Spector 1976; Brain 1979).

Most glass bead studies focus on providing general morphological and stylistic descriptions of bead types during the colonial period (Spanish, French, British), and improving understanding of temporal change within glass bead assemblages (Marcoux 2012:179). However, the interpreted age of a bead can vary greatly depending on the approach used: date of manufacture, date of initial trade, or date and period of use. A given bead may be an heirloom, circulated for an extended period before being buried. Even without heirlooming, beads can circulate for some time (Sprague 2000; Ogundiran and Ige 2015). Despite the considerable attention

they have received, it is difficult to discuss Spanish colonial beads from an archaeological perspective, owing to the extreme variety in recovery and recording methods used on Spanish colonial sites in the circum-Caribbean region over the past several decades (Deagan 1987:156). Additionally, little attention has been devoted to archaeological evidence for different uses or functions of beads among various groups of people. Color symbolism and the ideational and aesthetic values of materials of particular colors may have influenced the desire to obtain specific European beads or other artifact types (Mitchem 1993:412). Small seed beads of blue, white, and black were preferred by Apalachee and these small beads are often dismissed as useless for interpretive purposes (Mitchem 1993:412). Shipping records indicate that beads were shipped in large quantities to the colonies from the beginning of the sixteenth century onwards in strings, rosaries, and bunches of individual and varying colors and shapes (Deagan 1987:157).

However, little is known of the processes by which the glass beads passed from shipwrecks or European trade through indigenous exchange networks in order to arrive at the contexts from which they were recovered archaeologically (Deagan 1987:162). Some beads were doubtless provided as gifts, others were a currency of the officially sanctioned mission economy, and others still were products of unsanctioned trading activities (Blair 2009:169). Recently, research has shifted towards not only looking at the structure, manufacture, or morphology of the bead, but also analyzing the chemical make-up of the bead, opening avenues of inquiry into all sorts of aspects of the production and consumption of glass beads. Macroscopic,

typological, or stylistic bead classification systems can potentially lead to the misclassification or artificial separation of chemically similar glass types, while emphasizing morphological variation among bead categories; however, in some cases some morphological variation does correspond to chemical differences among glass recipes (Walder 2013:120–121). Techniques that analyze the chemical composition of the glass bead illuminate a variety of aspects that would normally be unattainable through physical analysis alone. These techniques can even give physically undiagnostic beads (like seed beads) much more data potential.

Glass Bead Production and Manufacture Origins

In order to produce glass beads, several raw materials needed to be acquired, mixed, melted, and formed. Some material was available locally and others needed to be imported. In most cases, creating glass beads was a continental endeavor. Glass canes and rods (with and without perforation) for making drawn or wound beads were created in one factory in one country, then sent to another factory (in the same or different country) to make glass beads, and decorations and finishes like polishing and sorting were done at another location. In Spain, the polished, sorted beads were strung into strands or gathered in bundles and were sold to merchants before being sent to the Americas from Seville (Blair 2016:110). Once the beads reached the Americas they were usually transferred to Native elites and subsequently redistributed to their communities.

Manufacturing methods include drawing, winding, segmenting, individually blowing, and molding or pressing (Pendleton et al. 2009:35). The most commonly

occurring bead in most archaeological sites is the drawn bead (Sprague 2000:202). To produce such beads, two rods were attached to a hollow gather of molten glass then pulled by two workers moving in opposite directions along a corridor to create a long, hollow tube, or cane, as much as 300 meters in length (Deagan 1987:159). Canes are mostly round in cross-section but can be other shapes as well (Allen 1983:173). When carefully viewing most drawn beads, it is possible to notice stress lines and minute elongated bubbles in a longitudinal pattern, parallel to the hole of the bead (Deagan 1987:160). The small bubbles found as inclusions in the glass tend to be elongated in the same direction as the perforation in drawn beads since the originally round bubbles have been distorted by the drawing process (Figure 4.1). Massive quantities of beads could be manufactured in a single production episode making them the most commonly occurring bead type on archaeological sites (Sprague 2000:202; Graesch 2001:272). Before the introduction of the tumbling drum in the early nineteenth century, beads were finished either *a ferrazza* (in a pan) or *a speo* (on a spit) (Francis 2008:63). Drawn beads are structured in three distinct ways: simple (one layer of glass), compound (two or more layers), and complex (Duffield and Jelks 1961:40–41; Sprague 2000:205). Complex beads have decorative designs of extra glass pressed into the bead.

The second most common bead is the wound bead. The process involves winding a thread of molten glass onto a revolving wire or mandrel until a bead of desired size and shape is produced (Deagan 1987:160). Wound beads exhibit stress lines and tiny circular bubbles in a pattern encircling the perforation (Deagan

1987:160). During some periods, a slight projection will be left where the rod is broken loose from the bead (Sprague 2000:208). Other methods of manufacture include mold-pressed, blown, and fired or frit-core. During the eighteenth-century simple wound beads slowly started replacing large drawn beads, but decorated wound beads remained rare (Francis 1999:6).

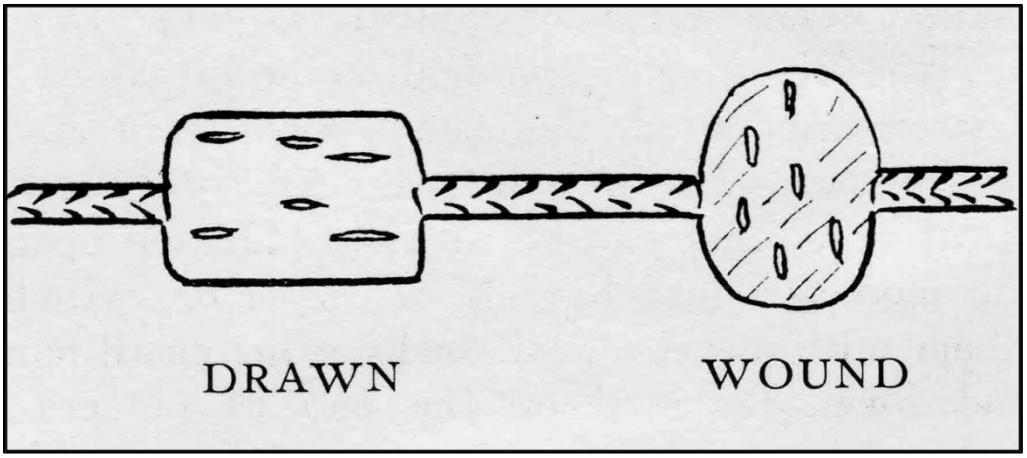


FIGURE 4.1. Drawn and wound bead with bubble orientation (Van der Sleen 1973:24).

Italy

In the sixteenth century, Venice was well known for the manufacture of extraordinary glass products (Little 2010:226). Revealing details of glass-making technologies to outside agents was considered treason and punishable by death (Little 2010:226). Sixteenth-century Italian bead makers belonged to two classes; Margariteri, makers of small drawn beads such as seed beads, and Perlai or Paternostri, makers of larger drawn and wound beads that are further finished by hand techniques (Sprague 2000:206). The Margariteri was the first and most prolific beadmaking guild in Venice (Francis 2009b:59). Venetian glass was always highly fashionable and most desirable (Smit et al. 2005:94). During the eighteenth century

the Venetian industry was complex and contained at least 562 major categories of beads, with subdivisions within each category (Deagan 1987:159). Murano was equally successful in glassmaking and attracting other glassmakers. Venice worked hard to restrict glassmaking to Murano, or at least the Lagoon of Venice, but there were many incidents of glassmakers sneaking out to all parts of Italy and most of the rest of Europe (Pendleton and Francis 2009b:56). For example, Venetians taught monks in southern Bohemia to make beads as early as 1486 (Pendleton and Francis 2009b:56).

Bohemia and Central Europe

Major glass factories within Central Europe included Moravia, Bavaria, Saxony, Thurningia, Turnov, and Jablonec (Figure 4.2). Bohemia, one of Europe's major beadmaking centers is located in the heart of Europe in what is now the Czech Republic and was surrounded by densely forested mountains (Lukáš 1981:56). Bohemia has a history of glassmaking that goes back to the eighth or seventh century B.C. (Francis 2009e:97). Northern Bohemia grew in importance in the world bead market, and, by the 1860s, outsold Venice (Francis 2009e:97). The Fichtelgebirge region of northeastern Bavaria produced beads from 1480 to 1800, utilizing the vast forests for wood fuel for their furnaces (Karklins et al. 2016). One distinctive trait of Bohemia's beads is faceting. By the early seventeenth century the art of cutting stones was transferred to glass beads and by the eighteenth-century locales like Turnov and Jablonec were using wheels driven by water to grind facets onto their molded glass beads (Thomas 2000:6). Venetian beads were sent frequently to Bohemia to be

ground and faceted because waterpower was not yet available in Venice (Francis 2009b:63). By the second half of the eighteenth century Bohemia had over 50 different glassworks operating and Bohemian crystal glass beads were shipped to France, Germany, Russia, Italy, Spain, and Holland, and subsequently, to the American colonies (Lukáš 1981:58–62; Coutinho et al. 2017:186).



FIGURE 4.2. Beadmaking centers in Europe (Francis 1988).

The Netherlands and the Low Countries

Dutch beads were made from fine quality glass that competed with the products of Venice until 1750 when the Dutch glass industry collapsed (Karklins 1974:64). Major glass working regions in the Netherlands and Low Countries include Middleburg, Amsterdam, Namus, Haarlem, Rotterdam, and Zutphen (Figure 4.2). Archival records indicate that the first glass beads to be made in the Netherlands were

produced in Middleburg in 1597 (Baart 1988:67). Middleburg produced long colored canes for the production of beads but stopped sometime in the 1620s (Karklins et al. 2001). The Netherlands had a lively drawn glass bead industry spanning the late sixteenth century to the early eighteenth century; wound beads may have been made after 1700 (Francis 2009c:73). The first documented reference to glass beadmaking in Amsterdam dates to 1619, but archaeological evidence suggests a much earlier production, at least by 1590 (Francis 2009c:73). Recent archaeological discoveries, supplemented by documentary research, provide a clearer and more detailed understanding of bead production in Amsterdam (Baart 1988:73). Because many of the beads have counterparts on archaeological sites in eastern North America, they can tell us something of how Dutch beads fit into the early North American fur trade (Karklins 1985:36).

The deposit at the Keizersgracht canal produced chunks of vari-colored glass, numerous colored glass rods, crucible remains, and a wide range of drinking-glass fragments, all of which indicate that the material in manufacturing debris from a local glasshouse (Karklins 1985:37). Undecorated, small to medium sized "seed" beads dominate the collection, composing 67% of the sample (Karklins 1985:40). A lack of comparative data from Venice and other bead-producing centers of Europe has so far made it difficult to establish which bead types and varieties, if any, are exclusively Dutch. It is quite possible that the incidence of Dutch beads in the Spanish colonies is greater than that currently recognized, particularly since many of them were made in

imitation of Venetian beads (Deagan 1987:159). Beads of Dutch origin are more frequently present in eighteenth-century Spanish contexts (Deagan 1987:177).

England, France, Spain, and Beyond

Bead production throughout Europe and other countries is less well known and documented. The establishment of Venetian-style glassmaking activities in London originated with the arrival of Italians during the second half of the sixteenth century (Janssens et al. 2013:539). Archaeological excavations at the Hammersmith Embankment in London, England revealed the remains of two brick furnaces with glass-encrusted crucible fragments and a large quantity of beadmaking wasters in association (Karklins et al. 2015:16). It dates to the second quarter of the seventeenth century. To determine if the Dutch were producing similar beads, the Hammersmith assemblage was compared to beadmaking wasters from a site in Amsterdam (Karklins et al. 2015:20). The Hammersmith assemblage was then compared to beads excavated at several early to mid-seventeenth-century aboriginal sites in eastern North America to see if there might be similar varieties there. The findings combining major, minor, and trace elements suggest that most of the Amsterdam glass samples were manufactured using similar recipes compared to the glass used in London, but the glasses found at the two sites were manufactured with different raw materials (Karklins et al. 2015:21).

Written records of glassmaking in France mention Normandy as early as the fifteenth century and one in Rouen in 1593 (Loewen 2019:9). From that time until the end of the nineteenth century France housed at least 59 different glass factories, each with a license that included a limited patent on products and conditions on fuel

procurement (Figure 4.3). Postmortem inventories of bead makers in particular provide lists of beads, descriptions of tools used in the manufacturing process, and sometimes bills and addresses (Turgeon 2001:62). Records indicate that the French were trading marine shell as well. In Normandy there are rural and urban beadmaking areas that thrived from the sixteenth through the eighteenth centuries but no industrial bead factory (Loewren 2019:10–12). Techniques of bead manufacture in France are often handed down from one generation to another of a family or the employees of a glassworks (Opper and Opper 1991:53). It is significant that the Normandy beadmaking region corresponds with the area in France where numerous transatlantic fur-trading venture were organized because they could have supplied the traders with some of the beads found in northeastern North American contexts during the seventeenth century (Loewren 2019). Numerous Venetian glassworkers came to work in France after 1797, the date when Venice fell under the control of Napoleon (Opper and Opper 1991:48).

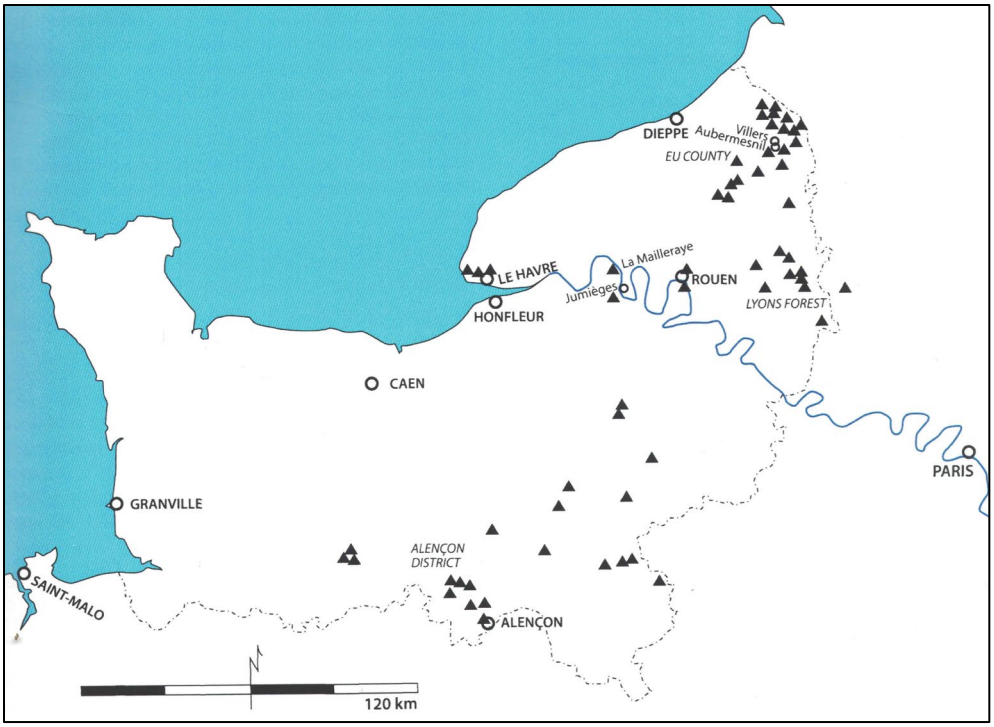


FIGURE 4.3. Glasshouses in France (Loewen 2019).

Little is specifically known about the Spanish bead industry from the sixteenth through the eighteenth centuries (Deagan 1987:159). No specimens have yet been positively identified as Spanish in origin. One Spanish glassworks site has been identified to date, but it is unclear if beads were produced there (Coutinho et al. 2017). It is possible the Spanish often gilded their beads and made some glass crosses outside the furnace (Pendleton and Francis 2009b:53). A glass factory was founded in Puebla, Mexico in 1542 and other factories opened elsewhere later (Francis 2009a:7). The site of the first glasshouse in Puebla is now inaccessible, as modern buildings stand there today. China had been making glass since 473 B.C. and glass beads were principally for export (Francis 2009d:81). The Spanish Manila Galleon trade became a lucrative outlet for Chinese glass beads (Francis 2009d:81).

Distribution and Consumption of Glass Beads

Once glass beads were manufactured in Europe, they followed a precise yet complex sequence on their journey to Spanish Florida before even entering Native communities of consumption (Blair 2016:109). The Spanish, British, and French most likely all purchased their beads from the same sources; however, "there may have been national predilections for certain varieties as well as differential availabilities during frequent periods of economic and political stress, and differing attitudes and implementations of colonial policies" (Brain 1979:116). Additionally, if we view Native groups like the Creek, Apalachee, and Yamasee as active consumers rather than passive recipients in the bead market, then we can address fundamental differences in Native preferences and how those preferences influenced and redirected certain bead types into Native communities. In this sense, consumption can be understood as a "process of structured improvisation that continually materializes cultural order by dealing with alien objects and practices through either transformative appropriation…or rejection" (Panich 2014:732).

The primary route for beads and other goods into Spanish Florida was the *situado*. Beads passed initially from Europeans to Natives as trade items, gifts, tribute, or as payment. They then traveled down-the-line within and between communities as trade or tribute, but with increased religious or social significance. Beads had a much clearer role in the labor *repartimiento*, as participating Natives were paid for their labor (Blair 2009:170). In St. Augustine the beads were used as payment for the surplus of maize produced at missions (Blair 2015:90). As missions were established, the friars were indirectly responsible for importing and distributing

beads and other exotic items received from the far reaches of the Spanish Empire and beyond (Francis 2009a:8).

Glass beads cannot be eaten, they do not protect against the elements, they were not made to kill or destroy, they cannot serve as containers, or be forged into strong tools, yet they were vitally important to Europeans and Natives, just for very different reasons (Guerrero 2010:66). For European consumers, glass beads were inexpensive imitations of precious stones like emeralds, rubies, quartz, and lapis lazuli (Opper and Opper:1991:48). The beads also represented one of the most lucrative exports for obtaining other items highly valued back in Europe.

Both documentary and archaeological data suggests that among various Native American groups glass beads were commonly worn as personal adornment in the form of necklaces, wristlets, and anklets (Blair 2015:91). Uses of beads of personal decoration include indicating social status, marking important life stages, and sometimes were treated as talismans or amulets (Francis 1988:292). Some Native American groups preferred certain colors of beads over others; for example, the Guale at mission Santa Catalina seem to have preferred blue, white, and black (dark violet) (Blair 2009:177). Red beads are absent from most sites in the Southeast, with the exception of Cornaline d' Aleppo beads. Color preference may play a role in glass bead manufacturing and distribution chains, but not much research has been conducted on the matter. McLamb (2000:84–86) proposed possible explanations for color preferences among the Apalachee, but her work was rejected for explaining the absence of red beads among the Apalachee (Blair 2009:177). Work done at the

Presidio of Los Adaes in Louisiana by George Avery (2008) showed a general preference for black colored beads on local Caddo sites. The following sections outline evidence from previous studies of glass beads found in Spanish contexts and how morphological and chemical types can inform discussions of chronology and possible trade and consumption.

Common Diagnostic Bead Types Found in Spanish Contexts

Simple Monochrome Beads

Seed Beads

Drawn beads of simple construction of this type are monochrome and are usually less than 4 mm in diameter which makes them ideal for sewing onto clothing and other personal items (Deagan 2002:131; Avery 2008:57). They offer no diagnostic features to accurately assign them an origin of manufacture. Seed beads are a secondary item to clothing, but a primary item (sold separately in sacks, bundles, and strings) for trade. Seed beads are the most common and numerous bead type found on archaeological sites and come in a variety of colors (Figures 4.4–4.6).

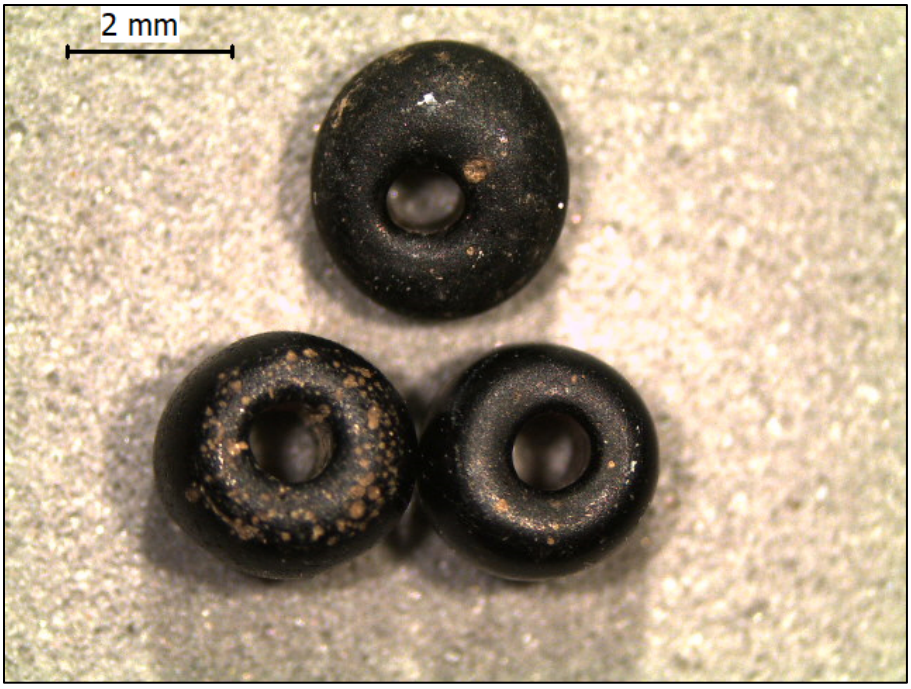


FIGURE 4.4. Black seed beads recovered from the study sites (Prov. #423-16, Photo by author 2020).



FIGURE 4.5. Blue seed beads recovered from the study sites (Prov. #1183-38, Photo by author 2020).

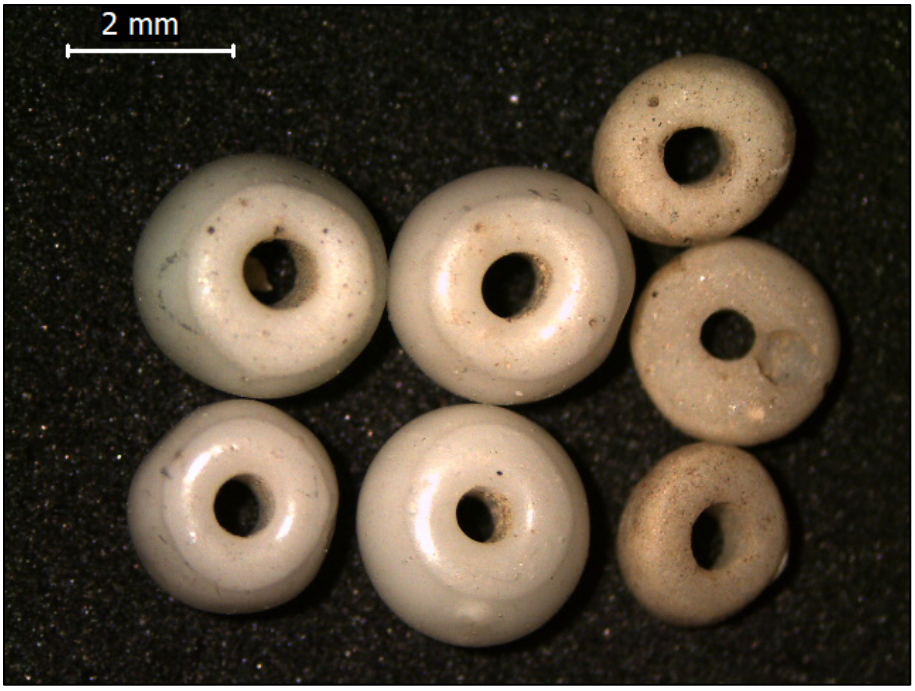


FIGURE 4.6. White seed beads recovered from the study sites (Prov. #4406-27, Photo by author 2020).

Barley Corn and Melon Beads

Barleycorn beads are small, oval, wound monochrome beads that occur most commonly in opaque black and less frequently in red or white (Figures 4.7–4.10). They are also referred to as rat turd beads (Smith 2002:60). Barleycorn beads are found on English, Spanish, and French sites but only in the second half of the eighteenth century. The beads appear in English trade records between 1758 and 1784, and in French colonial settings they occur between 1755 and 1764 (Smith 2002:60). White barleycorn beads occur much later, possibly extending to 1836 (Francis 1999a:7). Melon beads are wound monochrome beads that resemble the shape of a melon, often with indentation that run the length of the bead parallel to the perforation. They are usually medium to large in size indicating that they were likely work as necklaces or bracelets.



FIGURE 4.7. Black barleycorn bead recovered from the study sites (Prov. #513-1, Photo by author 2020).



FIGURE 4.8. White barleycorn bead recovered from the study sites (Prov. #4264-4, Photo by author 2020).

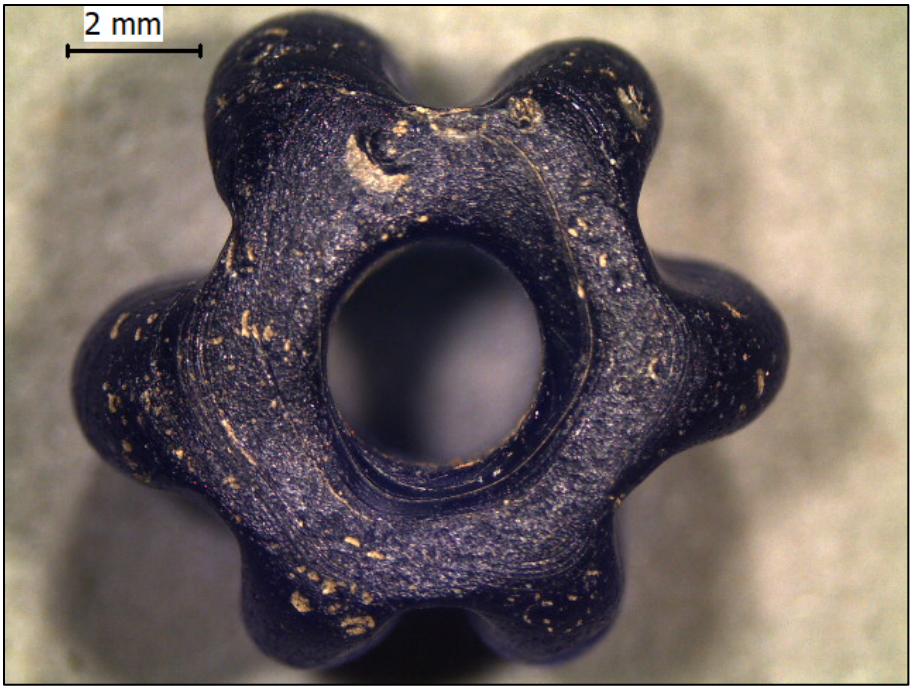


FIGURE 4.9. Melon bead recovered from study sites (Prov. #8243-8, Photo by author 2020).

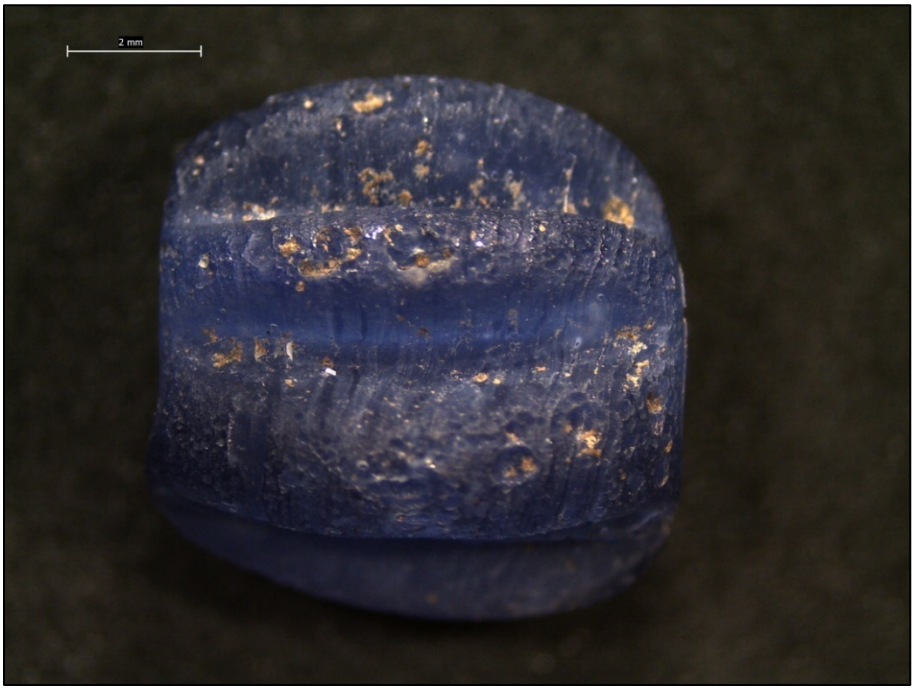


FIGURE 4.10. Melon bead recovered from study sites (Prov. #8243-8, Photo by author 2020).

Compound Polychrome Beads

Cornaline D-Aleppo Beads

Cornaline d' Aleppo beads were used for embroidery on clothing, or necklace beads, and were specifically reserved for Spanish personal use according to Mitchem (1993:405–409). The beads were made from either drawn or wound methods (Sprague 2000:209). Cornaline d' Aleppo beads were common on Florida Apalachee missions (including San Luis) from 1633 to 1704, but they are most frequently found on French occupation sites (Deagan 1987:168–169).

Cornaline d'Aleppo beads also known as white hearts or green hearts, depending on their core. These beads are also referred to as "galet rouge" in the literature (Opper and Opper 1989). Carnelian, a stone that is prized by many cultures for its deep red color, was used for centuries to make beads and Aleppo is a city in Syria. It is not clear why the glass beads were given this name, neither the stone nor the city has anything to do with the beads (CMOG 2002). During the seventeenth and eighteenth centuries beads were made with an opaque red outer layer and a green to dark brown translucent inner core (Figure 4.11) (Francis 1988:26; DeCorse et al. 2003). Green hearts began around 1600 and in the American context were largely gone by 1836, the seed bead sizes often being the earliest (Francis 1988, 2009b:62). In the 1820s and 1830s, the colors changed to a translucent red exterior and an ivory to white interior, and new shapes, such as larger cylindrical forms, appeared. Varieties with yellow centers made by winding began to be manufactured in the 1830s-1840s (Francis 1988). Around 1860 the core had become pure white, and by the 1880 the outer layer had become a much more brilliant red due to the introduction

of modern dyes and the addition of selenium instead of gold (Francis 1988; Sprague 2000:209; Billeck 2008). This bead, in the drawn form, often has a third layer of clear glass over the red (Sprague 2000:209). Cornaline d'Aleppo beads did not become important in trade networks in the Southeast until after the arrival of the French and British (Smith 1983:151).

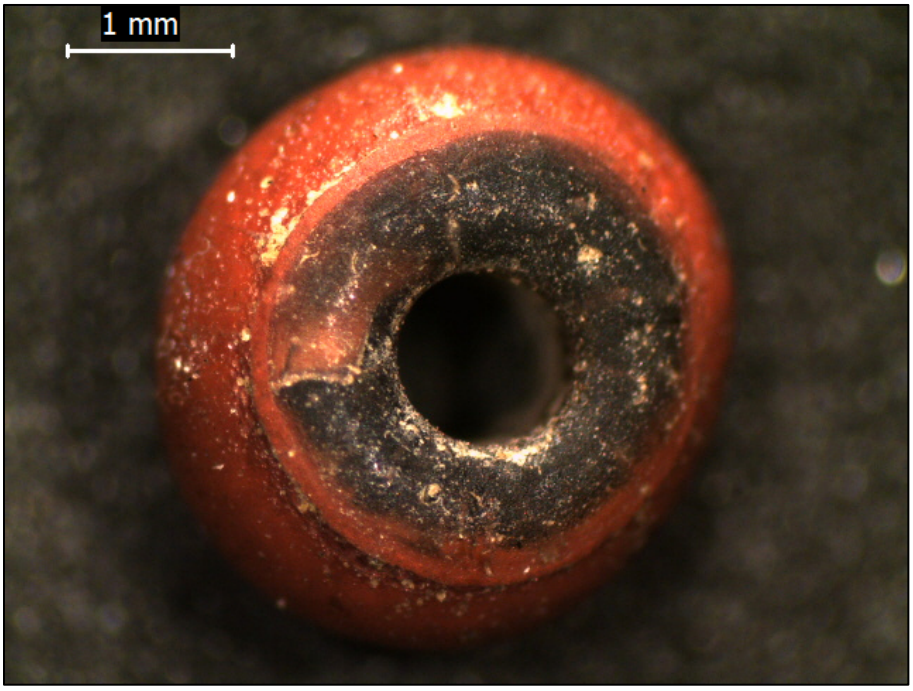


FIGURE 4.11. Cornaline d'Aleppo bead recovered from the study sites with brown core (Prov. #4847-3, Photo by author 2020).

Gooseberry Beads

Gooseberry beads are most common in the sixteenth and seventeenth centuries and are drawn cylindrical clear with opaque lead-white stripes sandwiched between the clear glass (Francis 1994:5). The clear glass is sometimes grayish in tint and the number of stripes may indicate different time periods (Figure 4.12).

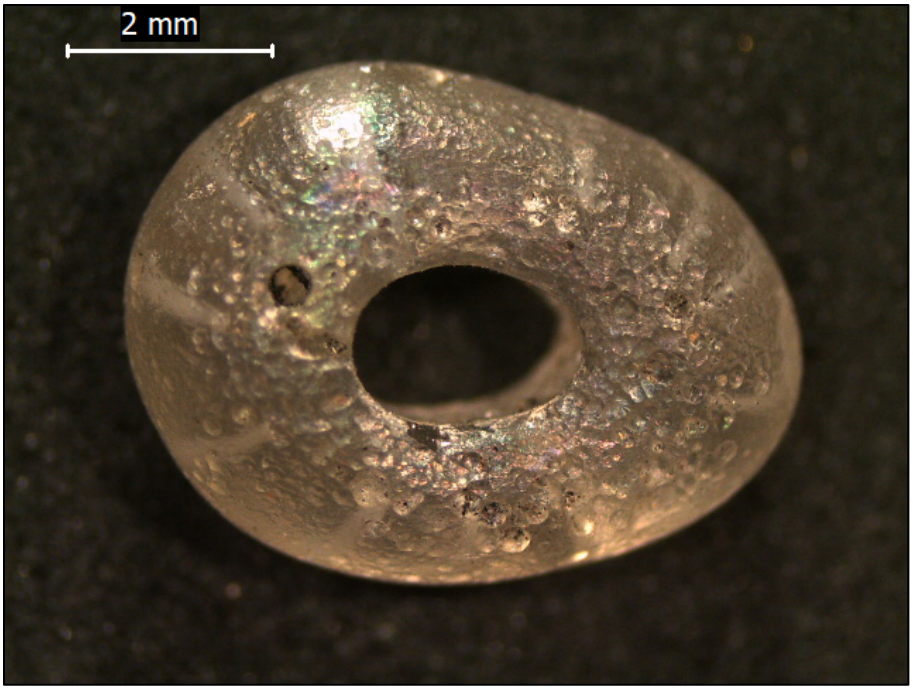


FIGURE 4.12. Gooseberry bead recovered from the study sites (Prov. #2444-19, Photo by author 2020).

Man-in-the-Moon Beads

The term man-in-the-moon is used to designate a crescent moon which has a nose, eye, and mouth (Lorenzini and Karklins 2000:39). The beads are wound and tabular in form and commonly are either transparent blue or ultramarine and less frequently black (Figure 4.13). There is some debate as to how the designs were applied to the bead. It is thought that while the bead was still in a plastic state it was pressed flat and they the designs were trailed on the surface. Before the glass hardened completely the applied decoration was pressed into the surface (Lorenzini and Karklins 2000:39). Other examples show that the designs were not trailed but rather painted on a suspension of pulverized opaque yellow or white glass in water, then fired in a furnace to fuse the materials (Stricker et al. 2018). With either method the design easily breaks off or fades with time making it difficult to determine the

design in some cases (Figure 4.14). These beads occur mostly in French colonial spheres, are relatively scarce, and have a very short production period (Lorenzini and Karlkins 2000; Smith 2002). The man-in-the-moon beads show up as early as 1640 in French context, but their core use was between 1700 and 1750. The French were known to have been supplied by the Dutch in the eighteenth century, but the occurrence of these beads in Spanish contexts, who were regularly supplied by Venice make the origins of the bead type unclear.



FIGURE 4.13. Examples of Man-in-the-Moon beads (Stricker et al. 2018).



FIGURE 4.14. Man-in-the-Moon bead from the Pensacola presidio with degraded design (Prov. # 7470-23, Photo by author 2020).

Methods for Glass and Glass Bead Chemical Composition Studies

Tracing the chemical variation and provenance among glass beads can provide information about their import, use, and exchange in North America (Bertini et al. 2013; Walder 2013:128). The characterization and patterning of primary glass ingredients can also be used to identify the place of manufacture, source of raw material, and the temporality of the glass recipe used (Blair 2017:32). The wide distribution of glass trade beads makes them a useful indicator of participation in specific trade networks (Walder 2013:120). The chemical composition of glass is an important source of information about the provenance of a single object and it can also support knowledge about the technological history of glassmaking obtained from the technical literature and other historical documents in archives and libraries

(Wagner et al. 2008:415). In recent studies, element chemistries of glass beads were used to sort beads into groups, using elemental concentration fingerprints (Karklins et al. 2001:188). These fingerprints can relate to glass recipes because they reflect not only batch composition, type of applied raw materials, or their source and method of preparation, but also the amount and the kind of cullet (recycled, broken, or waste glass) added to the batch, as well as various technological conditions of glass production (Wagner et al. 2008:416). Additionally, particular ingredients and their shifting ratios to one another can function as temporal markers or indicate distinct production batches or manufacturing centers (Walder 2013:138).

There has been a considerable amount of scholarship highlighting the strengths and limitations of provenance studies. Hypotheses concerning the provenance of North American glass beads of Italian, British, Dutch, or French origin are speculative and lack historical or scientific support because the production and distribution of this material within Europe has been poorly known (Dussubieux 2009:95). Furthermore, the lack of comparative contemporaneous data necessary to trace glass bead back to European countries is lacking. With the development of a robust dataset the chemical composition of glass beads from archaeological sites in North America and their coeval production centers in Europe is a fundamental step in their sourcing. The provenance postulate assumes that low variability in chemical groups indicate that the material came from the same source, while high variability suggests different sources (Jackson and Booth 2005:782). Provenance studies rely on discerning patterns of elements, minerals, and other included materials which

constitute the composition of the artifact (Hauser 2008:162). Ideally these patterns can be coordinated with naturally occurring geological formations, thus providing the provenience of the artifact and the source of the material used to make it (Hauser 2008:162–163).

However, the source of manufacture should not be confused with the country making the sale to the trader, the country of origin of the trading company, the flag under which the trading ship sails, or the nationality of the trader (Sprague 2000:216). Furthermore, little attention has been paid to the chemistry of monochromatic trade beads (Hancock et al. 1997:181). While specific multi-colored glass bead types have proven to be useful time-markers for the dating of archaeological sites of the European contact era, single-colored glass trade beads, commonly found on these sites, have proven more difficult to date on the basis of appearance alone (Sempowski et al. 2000:559). A wide array of techniques and instruments are available for chemical analyses of artifacts; however, each comes with its own limitations (Table 4.1). Because of machine calibration and other sample processing problems, it can sometimes be difficult to compare analyses from different analytical techniques (Miksic et al. 2007:188).

TABLE 4.1. Methods for chemically studying glass.

Method	Reference
Methods for studying glass: Ultraviolet-Visible-Infra-red Spectrometry Electron Microprobe Analysis	Green and Hart 1987
Proton-Induced Emission	Fleming and Swann 1999
X-Ray Fluorescence	Silvestri et al. 2006
X-Ray Diffraction	Jackson and Booth 2005
Energy Dispersive Spectrometry/ Raman Spectrometry	Koleini et al. 2016
X-Ray Powder Diffraction X-Ray Absorption Spectroscopy X-Ray Absorption Near Edge Structure X-Ray Absorption Fine Structure	Arletti et al. 2006
Instrument Neutron Activation Analysis	Dussubieux et al. 2008
X-Ray Microtomography	Bertini et al. 2014
Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry	Dussubieux et al. 2009; Robertshaw et al. 2006; Dussubieux 2009; Robertshaw et al. 2010; Bertini et al. 2011
Neodymium and strontium isotopes	Degryse et al. 2009; Dungworth 2009; Henderson 2013

INAA

Instrumental thermal neutron activation analysis (INAA) provides precise simultaneous determination of the concentrations of up to 15 elements (Olin and Myers 1992:32). INAA is actually able to quantify almost all the elements in the periodic table, but then the samples would need to be irradiated for a long time and would stay radioactive for decades. Because of this, only short-life elements can be

studied, such as aluminum, calcium, chloride, magnesium, potassium, sodium, tin, antimony, cobalt, copper, manganese, vanadium, arsenic, and gold (Walder 2013; Bonneau et al. 2014). This technique is considered a bulk analysis which means that it measures the entire composition of the sample, even if it is a glass bead with multiple colored stripes. Additionally, it can be constrained by sample size, composition and weight (Gratuze et al. 2001:645)

INAA is based on the irradiation of a sample by neutrons in a nuclear reactor where a minute portion of the sample is transformed into radioactive isotopes representing its chemical make-up emitted as gamma-rays (Bonneau et al. 2014:40). Each gamma-ray is linked to a specific element in the periodic table. By comparing the emissions from the archaeological sample with those from samples of reference material containing known elemental concentrations, the amount of certain elemental constituents in the glass bead can be calculated (Skowronek et al. 2009:7; Bonneau et al. 2014).

In most cases, composite glass (like glass beads) is also heterogeneous in nature, which makes INAA difficult to conduct. However, it is a useful method that predated LA-ICP-MS and it has some utility for monochrome beads as a bulk analysis. Numerous publications demonstrate that chemical composition analyses are well suited for ancient and early historic glasses, but much less has been done on colonial-period (c.a.1500-1800) glasses. By far, Canada, the northeast United States and the Great Lakes have been the primary focus of historic glass studies using INAA (see citations below). Within these studies, most have focused on the seventeenth

century. Since INAA is a bulk technique only monochrome beads are used; predominantly blue, turquoise, or white beads. Publications focused in Canada attempt to either determine site chronologies based on opacifying agents in the glass, determine specific batch chemistries or compositional groups, and to identify production origins (Kenyon et al. 1995; Hancock et al. 1996, 1999; Moreau et al. 1997, 2011).

Studies centered on the northeast US and Canada focus more on just the chemical composition of blue beads (Hancock et al. 1994; Hancock et al. 2000) or determining chronologies of production by looking at changing opacifying agents of tin and antimony in white glass beads (Hancock et al. 1997; Sempowski et al. 2000). More recent publications have focused on attempting to identify production origins of certain beads by comparing samples recovered from archaeological sites in North America with possible production centers in Europe (Karklins et al. 2001, 2002, 2015; Sempowski et al. 2001; Miksic et al. 2007). Unfortunately, all of these studies are limited in focus for many reasons. This includes testing only monochrome beads, looking at a specific time period or limited diachronic range, and only testing bead production centers from a couple European countries. Even though Italy is seen as a major source of trade beads, little to no work has been done on glass production sites, or chemical analyses of diagnostic Venetian or Murano beads. Regardless of the limitations of INAA or the scarcity of chemical composition studies of colonial glass and tin-enameled ceramics, the data presented above is an extremely useful

foundation to work from. I will compare INAA data with ICPMS because the values are compatible, at least for the 15 elements that INAA can record for beads.

XRF

X-ray fluorescence (XRF) spectrometry is the measurement and analysis of samples excited by incident radiation. The two primary components of an XRF spectrometer are an x-ray output and a sensitive detector capable of determining fluorescent x-rays from the incident light. This array emits a beam of x-rays or gamma rays into a sample, exciting electrons within the sample's inner atoms and displacing them from their orbital shells. Atoms replace the vacancies left by these electrons by bringing down electrons from higher orbital shells which causes them to lose the increased binding energy associated with outer orbits in the process. This release of energy is registered as fluorescence, a phenomenon that is unique to each element.

X-Ray Fluorescence provides multi-elemental results in a faster way than INAA without damaging the sample, but it only yields bulk surface information and sensitivity is limited, especially if the sample has a corroded surface layer (Gratuze et al. 2001:645; Resano et al. 2010; Blair 2017). Corrosion on the glass surface is caused by a depletion of alkali metals from the glass structure, which alters the composition of the glass (Shugar and O'Connor 2011). Since x-rays are more powerful than electrons, XRF is capable of detecting both major and trace elements, though it does have problems reliably measuring elements lighter than aluminum and silicon (Shugar and O'Connor 2011:60; Bonneau et al. 2014:39; Blair 2017). Additionally, XRF is restricted by the morphology of the sample, in that it needs to

have a flat surface otherwise the refraction of elements will lead to inaccurate readings. Moreover, unless the sample is in powder form or polished in an epoxy resin it also needs to be able to fit within the measuring apparatus; something that is particularly relevant for hand-held XRF machines. Portable-XRF is a great tool for preselecting beads to be analyzed using other techniques, or for grouping glass beads based on colorants or opacifiers, except for lead (Bonneau et al. 2014). It is relatively inexpensive and useful in defining subgroups but is not precise or sensitive enough for provenance studies. Elliot Blair (2017) successfully tested the metallic oxides responsible for opacifying 783 white seed beads recovered from the seventeenth-century archaeological site of Santa Elena. He was able to test a large number of beads relatively quickly and inexpensively with a portable XRF, adding to the chronological data previously compiled by other researchers using INAA (Blair 2017).

LA-ICP-MS

Researchers and analysts look for several different requirements when considering chemical analyses, including minimal or no sample damage, minimal sample preparation (regardless of the type of sample), potential to rapidly achieve simultaneous multi-elemental data, capabilities for isotopic analysis, and the potential to provide spatially resolved information, laterally and in depth (Resano et al. 2010:55). Nowadays, the technique that complies with all of these requirements is LA-ICP-MS. This technique is rapidly gaining popularity in provenience studies because of its unique ability to characterize glazes, glasses, paints, and slips with better precision than the bulk analyses of INAA. Not only does the laser eliminate the

need for sample digestion, it also turns ICP-MS instruments into extremely sensitive microprobes capable of solid sample determination of the vast majority of elements in the periodic table at concentrations below 1 ppm (Neff 2012:830). Stable types of lasers now exist that operate in the UV region and produce radiation that is more efficiently absorbed by all types of materials, including transparent ones (Resano et al. 2010:55).

No sample preparation is necessary, and the analytical technique is micro-destructive leaving almost no visible damage to the sample. For most of the elements, the detection limits range from 10 ppb to 1ppm (Little et al. 2007:450). Moreover, the microspatial capability of LA-ICP-MS can be its greatest advantage (Neff 2012:834). An extremely small bead with over six banded colors is easily tested with precision choices between 20µm and 200µm (equal to the diameter of a strand of human hair). This also is true for the amount of the object ablated for testing. Micro-destructiveness is a big advantage of this method for historical objects and analysis allows limiting sample consumption to the absolute minimum (Wagner et al. 2008:416; van Elteren et al. 2009). LA-ICP-MS also allows for depth profiling which could be very useful for measuring the clear layer of glass sometimes applied over monochrome beads to give them a glossy appearance (Gratuze 2016a:180). Some studies have demonstrated the value of ICP-MS for the study of geochemical processes and more particularly for the determination of rare earth element patterns, but it is also good for understanding details of technology, organization of production, and interaction patterns (Gratuze et al. 2001:645; Speakman et al. 2002:49).

LA-ICP-MS represents a combination of a three apparatus: a laser which pulverizes a minute part of the sample, a plasma torch which ionizes the ablated material, and a mass spectrometer which sorts the elements based on their mass to charge ratio (Bonneau et al. 2014:40). In mass spectrometry, the atoms of elements in a sample are converted into ions by several methods. ICP-MS is useful for quantitative analysis of trace and ultratrace elements and is capable of analyzing more elements and elements present in smaller amounts than can INAA (Rice 2015:301). It will most likely replace INAA as the preferred technique for provenance analyses. Laser ablation is a technique that uses a laser beam to remove a thin layer from the surface of the sample. The removed particles are then analyzed by the ICP-MS system (Rice 2015:301–302). In order to accurately measure the elemental composition of the sample, an internal standard and external standard are used to calibrate the results. For silicate glasses, silica is most commonly used as an internal standard. In internal standardization the content of the element chosen as an internal reference does not need to be known in advance, but instead is assumed at 50% with the rest of the element oxides making up the remaining 50% (Resano et al. 2010). Taking into account the widely varying composition of historic glass, the selection of appropriate matrix-matched solid reference materials takes careful consideration, and sometimes the use of multiple standards and mathematical calculations to select the best reference material for a certain element (Wagner et al. 2012). There are also a large number of secondary or external reference materials available, including those originally formulated by Robert Brill at the Corning Museum of Glass (CMG), which

are designed to match the composition of the different types of ancient glasses (Cagno et al. 2016:164). Other frequently used standards are those provided by the National Institute of Standards and Technology (NIST).

Quantitative results are obtained by comparing the signal intensity measure for a given element in the sample to that for the same element in the standard reference material, which has certified concentrations (Dussibieux 2007:339). Each ablation is preceded by a gas blank in order to ensure the baseline has returned to normal which avoids any memory effects in the system (Gratuze 2013:209). Since all the elements are present in oxide form in the glass, a correction factor is applied to account for the oxygen. After measurements are gathered, the data can then be normalized to 100% to permit accurate quantification (Speakman et al. 2007:278; van Elteren et al. 2009:4). Standardization, and normalization calculations are fairly easy as long as the reference materials are analyzed in the same way as the artifact samples (Gratuze 2013:232).

In general, LA-ICP-MS is extremely useful for analyzing any vitreous material (glazes and glasses). A great deal has been published on the analysis of chemical compositions and the identifying of trace elements in ancient (Schreurs and Brill 1984; Shortland et al. 2007; Dussubieux et al. 2008; Degryse et al. 2009), Roman (Green and Hart 1987; Arletti et al. 2006; Silvestri et al. 2006; Van der Linden et al. 2009), Iron Age (Bertini et al. 2011), Bronze Age (Tite et al. 2006; Shortland et al. 2007), Medieval and Middle Age (Robertshaw et al. 2010; Wedepohl et al. 2010; Wedepohl and Simon 2010), and historic glasses around the world

(Jacoby 1993; De Readt et al. 2001; Smit et al. 2005; Robertshaw et al. 2006; Veritá and Zecchin 2008). There has even been a fair amount of recent work on identifying both locally-made and imported glass trade beads on African sites from the 1st millennium AD to the eighteenth century (Davidson et al. 1971; Robertshaw et al. 2003, 2010, 2014; Dussibiuex et al. 2009; Ogundiran and Ige 2015).

Unfortunately, some of the same limitations in production topics from INAA studies on glass also pertain to IC-MS studies on colonial-period glass. Several publications focus on glass production centers in Paris and London (Dussubieux and Gratuze 2012; Dussubieux and Karklins 2016), but many sources are published in languages other than English. Other sources do not focus on beads at all, but rather rare examples of special glass vessels not common to colonial sites in the Americas (Dussubieux 2009; Smit et al. 2005). Two sources directly relate to identifying glass bead production origins (Burgess and Dussubieux 2007; Walder 2013). Additionally, Walder (2018) uses the metal oxides copper and cobalt found in blue beads from seventeenth-century sites in the Great Lakes Region to identify compositional groups that are more refined and statistically significant than using fluxes or stabilizers alone. She found that the chemical sub-groups likely reflected changes in glass recipes over time or potential differences among coeval European glass workshops. Interestingly, if different Native communities, via their relationships with particular European traders or European-allied middlemen, only had access to certain glasshouses that used distinctive recipes, then the spatial variability and distribution within chemical sub-groups would reflect this (Walder 2018:323).

These publications do not focus on the eighteenth century or on beads recovered from sites in the American Southeast. There is a dearth of compositional data on glass beads in this area and from their production area counterparts from the eighteenth century. I hope to compare my data with INAA data from previous research. Additionally, this will become a long-term project that will help create/add to a slowly growing dataset. Taken together, I should be able to compile enough comparative data and new data to answer my dissertation questions while contributing to chemical composition studies as a whole. There is little doubt that historical archaeology is just beginning to realize the advantage of understanding the nature and origin of raw materials used in glass making provided by chemical analysis (Wandruszka and Warner 2018:742).

Glass Composition

Fluxes and Stabilizers

Glass is a complicated substance made from silica, an alkali, a stabilizer, and a coloring agent that becomes molten when heated (Kidd and Kidd 2012:40). Technically glass is not a "material" at all, but rather a state of matter created when a metal or metalloid is melted and then cooled without being allowed to recrystallize (Pendleton and Francis 2009b:54). The vitrifying agent responsible for the structure of the glass is silica, either in the form of ore sands, or crushed/powdered quartz crystal (Moretti and Hreglich 2013:28). Older furnaces never attained enough heat to melt silica, so a flux, usually soda or potash, was added to lower the melting temperature (Kenyon et al. 1995; Pendleton and Francis 2009b:55; Velde 2013). However, too much soda can make the glass susceptible to humidity and carbon

dioxide, the two elements that cause the surface to decay or patina (Wandruszka and Warner 2018:750). Usually sodium and/or potassium are present in substantial amounts in the raw material mixture in the form of mineral soda or vegetal ash. Sodium can be found in two sources: as a natural carbonate deposit (natron) or from the burning of saline plants found in littoral or desert regions (Robertshaw et al. 2006). These alkali-tolerant, halophytic plants are found in costal, salt marsh, or desert regions (Robertshaw et al. 2010). In mineral soda glasses, magnesium levels are less than 1.5% and alumina is high (Robertshaw et al. 2006). Mineral soda has more uranium but less magnesium and calcium than plant ash counterparts and possesses greater amounts of titanium which commonly occurs as rutile in beach sands rich in feldspars (Dussubieux et al. 2010; Robertshaw et al. 2010; Bertini et al. 2011). Alternatively, magnesia (MgO) and potash (K_2O) concentrations are higher than 1.5% suggesting the use of halophytic plant ash as soda source (Dussubieux 2009; Dussubieux and Karklins 2016:575).

Potassium is also found in abundance in plants, but specifically in the form of wood ash. Plant ash glasses have lower manganese, but MgO and K_2O levels are both greater than 2.5% (Robertshaw et al. 2006, 2010). Some studies have found that drawn beads are mostly fluxed with soda or soda-lime and wound beads have a high potash content (Karklins 1974; Burgess and Dussubieux 2007), but this data does not always match results from other studies.

Alumina and alkaline-earth oxides act as basic stabilizers that make the glass water resistant (Moretti and Hreglich 2013:30). Another essential element in glass is

calcium, which in moderate amounts acts as a network stabilizer improving the resistance of glass to chemical attack (Hancock et al. 1994:256). Alumina was introduced into glass through impurities in the sand and calcium was introduced primarily through impurities in the ash (Moretti and Hreglich 2013). Feldspars containing alumina only appeared in the nineteenth century (Moretti and Hreglich 2013). Lime (calcium) was apparently first used deliberately in glass manufacture during the early nineteenth century (Pendleton and Francis 2009b:55). Lead oxide acts as a stabilizer, but also functions as a flux and vitrifier. Lead gives glass a certain sparkle, makes it easier to cut and melt, and helps dissolve certain colorants (Pendleton and Francis 2009b:55).

Colorants, Decolorants, and Opacifiers

Coloring technologies and related elements vary, and they may be diagnostic of some specific productions (Dussubieux 2009). Color of glass is determined by the oxidation state and electronic configuration of the metal ions (Bertini et al. 2011). Iron is present in naturally colored glasses not as an additive. Common colorants in glass are transition metal compounds of iron, lead, tin, copper, and cobalt (Dussubieux 2009:101). In general glasses high in Mn content are also high in strontium, slightly elevated in barium, and lower in chromium and vanadium (Bertini et al. 2011). Glasses colored with cobalt show slightly elevated levels of aluminum, iron, manganese, copper, and zinc (Bertini et al. 2011). Several elements were used to opacify glass, including tin, antimony, arsenic, lead, and fluorine. Color can be canceled out with the addition of a small amount of manganese. As noted earlier, the use of colorants and opacifiers facilitates the identification of chemical groups and

subgroups within glass samples. Finer chemical groupings could come from a single batch of glass or from batches of glass made with similar proportions of ingredients, over a short period of time (Kenyon et al. 1995:329; Sempowski et al. 2001:513). Since some polychrome glass bead varieties were manufactured and traded for short periods of time, elemental analysis of those beads would allow for researchers to sort out similarities and differences in their glass chemistries, contributing significant data to established chronologies (Hancock 2005:52).

Colorless

Most colorless glasses have levels of manganese indicative of deliberate addition of this oxide, which is used to decolor the glass or stop it from turning amber (Robertshaw et al. 2006). Also called glassmakers soap, manganese in the form of pyrolusite compensates for the green in glass cause by iron impurities (Weyl 1959). Colorless glasses sometimes have a grayish hue because of the presence of manganese as intentionally added decolorizer (Bertini et al. 2011). Boron is one interesting constituent of colorless glass. It was introduced in a form of borax to colorless vessel glass technology probably in the mid seventeenth century (Wagner et al. 2008:416). Arsenic could also act both as a decolorizer and a refining agent. Additionally, nickel can counteract the greyish or smokey-color in lead fluxed glass (Weyl 1959).

White

White glass trade beads of European manufacture are commonly found on seventeenth- to nineteenth-century sites in northeastern North America (Hancock et al. 1997:181). Using the chemical analysis of white glass beads from relatively well

dated seventeenth-, eighteenth-, and nineteenth-century archaeological sites, the establishment of the time periods during which the opacifying elements tin, antimony, and arsenic were used successively in plain white glass trade beads (Blair 2017; Hancock et al. 1997, 1999; Sempowski et al. 2000). According to some recipes dating to the mid-seventeenth century, opaque white (*lattimo*) glass was made in Italy and used lead and tin oxides (Dussubieux 2009:100). It seems that the presence of lead facilitated the stability of tin oxide, which affords the glass a white aspect if the matrix is colorless or any opaque color (Dussubieux 2009:100). Tin was used almost exclusively as an opacifier from the first-century A.D. until the late seventeenth century (Hancock et al. 1994:260). The role of arsenic and antimony as opacifiers changed in the seventeenth and eighteenth centuries, with both becoming more prominent and replacing tin as the most common opacifiers for all glass (Shugar and O'Connor 2011:64). Additional research suggests that early-seventeenth century tin-rich drawn glass beads were replaced sometime later in that century by antimony-rich glass beads, which continued to be produced into the nineteenth century (Blair 2017; Sempowski et al. 2000:559). Arsenic-rich white beads were also produced in the late-eighteenth century and continue through to the twentieth century (Hancock et al. 1997:185).

Elliot Blair (2017) combined historical information from fourteenth- to seventeenth-century Venetian recipe books with chemical analysis of opaque white glass beads recovered from Mission Santa Catalina cemetery. The primary opacifier for Venetian glass was tin dioxide which was added to the glass mixture of calcined

lead and tin (Blair 2017:35). At some point during the seventeenth century, antimony was mentioned in the recipe books instead of tin. Blair's chemical study of the white beads revealed that 288 beads were opacified with lead-tin and 495 were opacified with calcium antimonate, but no beads were opacified with lead antimonate, lead arsenate or bone ash (Blair 2017:37). The lack of mixed-opacifier assemblages within the burial context at the mission implies that the transition from tin to antimony was not a gradual process. Based on previous chemical analyses of opaque glass beads, the following opacifying chronology adds chronological texture to historic sites, including colonial missions: tin (1600-1700), antimony (1650-1890), and arsenic (1800-1949) (Shugar and O'Connor 2011:59).

Yellow and Orange

Most yellow and orange glass had a large admixture that came from an orange colored powder known as *mino* combined with lead (Carroll 2004:19). Mino is vermillion, which is a mercuric sulfide obtained from cinnabar in most cases and purchased from England and Germany in historic times. Some yellow glasses contain high concentrations of phosphorous oxide (>6.3%). The presence of phosphorous could have resulted from the use of bone ashes (as a flux or opacifying phase) or from post-depositional alteration (Dussubieux 2009:101). Some recipes for seventeenth- to nineteenth-century Italian glass include lead antimonate, lead stannate ($PbSnO_3$), and an addition of zinc to achieve a very specific yellow. These recipes describe an ingredient called *anime* that contains approximately 60% lead, 12-17% silica, and 3-8% antimony and tin with, in some cases, several percent zinc (Dussubieux 2009:101; Biron and Chopinet 2013:62). Lead mixed with tin was frequently used as a yellow

colorant; cerussite ($PbCO_3$), which is often associated with manganese (Robertshaw et al. 2006). Iron dissolved as Fe^{3+} was used to make yellow in mineral soda glass (Robertshaw et al. 2010). Opaque yellow contained 20-31% lead and 0.8-3.4% antimony (Bertini et al. 2011). Amber-colored glass contains more than 4% iron. Uranium was not added to glass until 1789 and creates a brilliant yellow glass (Weyl 1959).

Black/Violet

Manganese imparts a violet tinge to glass, perhaps best known to historic archaeologists in solar-oxidized, late nineteenth-century medicine bottles (Hancock et al. 1994:262). Purple glasses contain on average 1% manganese, but dark glass samples contain high concentrations of manganese ranging from 3.4-13% (Dussubieux 2009). Black glass usually contains about 1.8% manganese. Another way to create black glass is to use nickel with cobalt, which also opacifies the glass. Adding nickel to heavily leaded glass or glass with potassium create a purple to deep purple color, respectively (Weyl 1959). Other than the addition of manganese, very little is known about black/violet colored glass. For the most part, "black" glass is not often black but rather saturated with blue, green, brown or violet pigment that gives it the appearance of opaque black (Dussubieux and Gratuze 2012).

Blue and Turquoise

To produce glass that is blue in color, either copper or cobalt may be added to the glass recipe; copper generally produces a more turquoise hue, while cobalt results in a darker navy or cobalt blue color (Walder 2013:121). Cobalt is a lustrous, grayish-silver, brittle metal and is usually found as a bi-product of mining for other base

metals like nickel or copper. Cobalt is such a powerful colorant it takes approximately 24 times the amount of copper and 13 times the amount of manganese to obtain comparable color intensity (Shugar and O'Connor 2011). A significant amount of cobalt is considered 215-1650 ppm (Dussubieux and Karklins 2016:578). When a blue colorant is added, opacified glass usually has a pale or pastel color (Kenyon et al. 1995:332). Medium blue glasses also contain copper and tin and 1% lead with virtually no zinc. Dark blue has concentrations of tin oxide (5.6%) and lead oxide (3.2%) (Dussubieux 2009). In addition to chemical analyses of white glass beads, INAA and LA-ICP-MS have also been applied to blue and turquoise beads (Gratuze et al. 1995; Hancock et al. 1994, 1996, 2000; Kenyon et al. 1995; Walder 2013, 2018).

There are several identifiable elements present in cobalt glass that evidence the type of ore used. Trace elements associated with cobalt are nickel, arsenic, zinc, lead, antimony, and indium. A study by Gratuze et al. (1995) was able to identify four compositional groups of cobalt-colored glass based on the trace elements, including a cobalt-zinc-lead-indium glass, a cobalt-nickel glass, a cobalt-arsenic-nickel glass (smaltite), and a cobalt or cobalt-antimony glass. Groups 1 and 3 can be traced to specific mining districts in Germany, and group 3 was first discovered in the sixteenth century and used predominantly by Bohemian glass makers (Gratuze et al. 1995). If the arsenic and cobalt correlate positively then the use of the mineral smaltite was probably used as a colorant (Walder 2018). Smalt was invented in Bohemia, made its

way to Venice as early as the fifteenth century, and to the Netherlands sometime during the sixteenth century (Mühlethaler and Thissen 1969).

If the glass contains arsenic and high concentrations of nickel and bismuth, then Co-As-Ni-Bi is characteristic of cobalt ore used in Europe from fifteenth to eighteenth centuries (Dussubieux 2009). Such a cobalt ore was found in the Scheeberg-Erzgebirge mine district in Saxony, Germany (Gratuze et al. 1995; Dussubieux 2009:100; Dussubieux and Karklins 2016). Nickel is usually only present in significant quantities in cobalt-blue beads (Burgess and Dussubieux 2007:61). If nickel is low, then colorant could be cobalite or erytherite (Robertshaw et al. 2006). Cobalite is cobalt in association with sulfur, arsenic and trace zinc, while erytherite is a weathering product of cobalt containing cobalt and traces of silver (Henderson 2013:69). Skutterudite is another common cobalt ore found in Norway that contains 12-18.5% cobalt, 7% nickel, 76% arsenic, 1-8% iron, and trace amounts of gold (Henderson 2013). Bismuth and vanadium are other trace elements that are present as impurities in cobalt-blue glass (Burgess and Dussubieux 2007:62).

Copper, specifically copper oxide (1.4-1.7%) in Cu^{2+} form gives glass a turquoise blue color (Dussubieux 2009). The mineral turquoise is a hydrous phosphate of aluminum, iron, and copper (Hancock et al. 1994: 257; Burgess and Dussubieux 2007:63). Chemical analyses or turquoise blue, or copper-colored beads have greatly refined their use as chronological markers by indicating changes in chemical composition over time (Hancock et al. 1994; Sempowski et al. 2000:559). Sixteenth-century turquoise-blue beads have so little calcium that they often

disintegrate in the ground (Kenyon et al. 1995:331). Additionally, most sixteenth century beads contain 7-11% sodium compared to the 10-13% typical in the seventeenth century (Hancock et al. 1994:261). Calcium levels are slightly higher in most early twentieth-century beads, and the increase in calcium may require less alkali to produce acceptably low melting temperature in glass (Kenyon et al. 1995 331). See Table 4.2 for the chronology of copper and cobalt colored glass based on work from Hancock et al. (1994), Kenyon et al. (1995), Burgess and Dussubieux (2007), Sempowski et al. (2000), and Walder (2018).

TABLE 4.2. Turquoise bead chronology.

	Date Range	Chemical Differences
Copper	1580-1650	low calcium, low sodium, and high copper, zinc present
	post-1700	zinc absent
	1760-1840	more potassium and less sodium
	1840-1900	high potassium, low chlorine and calcium
	1900-1930	high soda, low calcium, high aluminum, trace chlorine
Cobalt	pre-1700	high magnesium, low phosphorous
	post-1700	high phosphorous, low magnesium

Red and Green

Red glass is difficult to produce and requires reducing conditions that can be obtained by controlling the furnace atmosphere. It can also be produced by adding ingredients to the glass that will facilitate the reduction of copper in significant concentrations ranging from 0.4-2.5% (Dussubieux and Karklins 2016:586). Iron is a reducer, and this element may have been introduced into the glass to facilitate the formation of copper crystal that constitutes a red opacifying phase (Dussubieux 2009:106). Iron may have been used to facilitate the growth of metallic copper

crystals in the glass (Dussubieux and Gratuze 2012:33). Although red glass is known to be opacified by the presence of cuprous oxide or elemental copper in glass, tin was intentionally added to make redwood glass trade beads in the early seventeenth century (Sempowski et al. 2001:510). After the mid-seventeenth century the levels of copper and tin dropped considerably, and antimony replaced tin as the opacifying agent. Much less in known about green colored glass. Lead ore was used to modify medium blue to green. The residual blue-green color of glass is primarily due to its iron content (Biron and Chopinet 2013:57). Iron, tin, copper, and lead were employed to produce emerald green (also some zinc).

Glass Recipes from Different Countries

Major bead manufacturing centers in Europe had different recipes and different ingredients that they used in the production of glass beads. Some overlap occurred and certain countries were the primary exporters of particular ingredients. In addition, Venetian glassworkers moved to other countries both when it was legal and when it was not. However, based on some raw materials, it is possible to infer the county of origin with some degree of certainty. In order for it to be absolutely certain, much more chemical data needs to be acquired from archaeologically identified and investigated glasshouses, and that data needs to be compared closely with historical documentation of glass recipes used by various countries. Glassmakers modified their recipes and batches over time according to consumer preferences and required glass properties, and they experimented with glass composition (Cílová and Woitsch 2012:380). This section briefly outlines previous research that has identified certain

raw materials and certain quantities of those materials and their uses in different bead making centers in Europe through time.

Italy

Venice and Murano were the main beadmaking areas within Italy, but Murano became the safer choice to have glass factories since it was as island and an accidental fire could be contained. Because of its location, Murano had to import all its raw materials for glassmaking (Van der Sleen 1973). Glassmakers there used a soda flux that was purified from glasswort, saltwort, or barilla, which resulted in glass beads with higher soda and calcium and lower magnesium and aluminum (Blair 2015:85). Barilla is a halophytic plant found primarily in Alicante in Spain growing on the Lio or Lido rivers (Moretti and Hreglich 2013). The barilla plant also grew on the Venetian coast and at the mouth of the Po River. These locations were utilized during the seventeenth century, but by the eighteenth century, Venice acquired its soda ashes from Sicily and Malta (Moretti and Hreglich 2013:30). There is also a low amount of certain trace elements associated with the silica source, indicating that Venice imported quartz river cobbles collected from the Ticino River rather than using low quality sand with high amounts of impurities (Veritá 2013; Blair 2015:94; Coutinho et al. 2017:193). Additionally, zirconium concentrations below 30µg/g are regarded as an indication of glass of Venetian origin (Smit et al. 2005:96). The use of continental plant ash that was used primarily in Central Europe was forbidden in Venetian glasshouses, at least until the very end of the eighteenth century (Janssens et al. 2013:539; Veritá 2013:533). Italian recipes for opaque white glass from the

seventeenth to nineteenth centuries used two primary ingredients; the first being lattimo, which used a mixture of lead and tin oxides, and the other being anime, which is composed of lead stannate and zinc that changes the glass color to yellow (Dussubieux 2009; Dussubieux and Karklins 2016). Cobalt from the Levant was imported to Venice until the fifteenth century, after which the cobalt ore came from southern Germany and contained impurities of nickel and sometimes arsenic (Veritá 2013:532). In red glass from Italy lead was used in much lower amounts (9%) than red glass produced in Bohemia, which produced red glass containing 50% or more lead (Brugess and Dussubieux 2007:70; Billeck 2008).

Bohemia and Central Europe

One of the attractions for Bohemian glassmakers was the plentiful supply of woods, especially beech wood that was used to make potash (Francis 1988:30). The chemical composition of Bohemian potassium-calcium glass differs from glass from other European counties based on the wood ash glass or wood ash-lime glass (Cílová and Woitsch 2012:317). The yield of both ash and potash differs depending on the type of wood ash that was used. Potash glass was introduced to western Europe sometime in the seventeenth century (Hellemans et al. 2014). Bohemian faceted beads and most other types of beads are high in potassium and calcium (Burgess and Dussubieux 2007:61). Conversely, potash with a low concentration of lime is tentatively attributed to Germany and Central Europe (Hellemans et al. 2014).

During the first half of the eighteenth century, Central Europe was producing three types of potassium-rich glass: ordinary, white chalk (lime), and crystal (lead)

glass (Coutinho et al. 2017:185). These potash-lime glasses were produced in countries like France, Germany, and Great Britain by using forest plant ash (Dussubieux and Karklins 2016). Germany used a particular ingredient called proterobas which was used to make true black glass. Proterobas is an igneous rock found in the mountains of northeastern Bavaria and beads made with this ingredient also contain low amounts of potash and soda, but high levels of iron, alumina, and lime (Karklins et al. 2016; Stricker et al. 2018). Britain played a leading role in the production of crystal glass during the eighteenth and nineteenth centuries (Dungworth and Brain 2013:573). They used high amounts of lead in addition to soda and potash to make crystal glass, otherwise known as flint glass (Hellemans et al. 2014). Over time more lead was added, and potash decreased. Based on the morphological and chemical information presented, how do the glass bead assemblages from the Pensacola presidios and missions fit into this narrative?

Analytical Protocol and Methods

Morphometric

The analysis of the beads is informed by the method of manufacture, bead structure, and bead decoration, with bead structure referring to the composition of the bead body (Smith 1992; Marcoux 2012:163). Manufacturing methods include drawing, winding, segmenting, individually blowing, and molding (Pendleton et al. 2009:35). Terms "simple" for one layer of glass, "compound" for two or more layers, "complex" as having decorative designs made of glass elements pressed into the bead, and "composite" involving both compound and complex attributes (Sprague 2000:205). I use methods similar to those of Graesch (2001) for characterizing

attributes including bead size, diaphaneity, patination, and color. I measured each bead's maximum diameter and length with Mititoyo Digimatic calipers to the nearest millimeter. There are several levels of bead shape or geometry, the first of which is standard geometric description using such terms as sphere or cylinder (Sprague 2000:214). Round is spherical and "doughnut" is not a specialized shape but rather should be designated "torus." Most geometric terms ignore the perforation, but some terms, such as torus or annular, do consider the perforation, usually when it is relatively large (Sprague 2000:214). I also categorized bead types with simple geometric descriptions such as ovoid, spherical, and cylindrical to avoid unquantifiable terms like barrel or ring (Graesch 2001:272). Some of the beads in the assemblages are decorated, so I characterize the decorative techniques, which include shaping (marvering), inlaying, and the addition of colored strips (Kidd and Kidd 2012; Marcoux 2012:163). The color and diaphaneity of each bead was determined by moistening the bead and analyzing the artifact under a high-powered microscope with backlighting. Diaphaneity refers to the capacity of beads to transmit light, and the designations I use are opaque, translucent, and transparent (Sprague 2000:215). Opaque beads do not transmit light, translucent beads transmit light, but so not permit vision through the glass, and transparent beads permit vision through the glass. Color was determined using the Munsell Bead Color Book®, again with the bead moistened and examined under a microscope.

Chemical Characterization

The chemical composition of bead was determined using LA-ICP-MS, in particular using a Teledyne CETAC Analyte Excite 193 nm excimer Laser Ablation System attached to a Thermo XSERIES 2 Inductively Coupled Plasma Mass Spectrometer (Table 4.3). The energy and light of lasers with short wavelengths of less than 200nm are efficiently absorbed by a majority of silicate glasses (Czas et al. 2012). Early limitations of LA-ICP-MS included poor absorption, non-homogenous energy distribution, limited spatial resolution, calibration strategies, and issues with fractionation. Most of these issues have been resolved in recent decades with the use of UV wavelengths, though fractionation still presents a problem (Guillong and Günther 2002). Element fractionation occurs when the signal of two different elements changes during the ablation and the concentration of one element relative to another is over or underestimated (Gratuze 2013:206). Machines using longer wavelengths (thus absorbing less) or depth profiling (creating deep craters in the sample) can lead to fractionation. Excimer lasers working at 193nm wavelengths allow for a significant decrease in chemical fractionation as well as increased ablation/absorption yield (Gratuze 2013:203). Results have shown that insignificant elemental fractionation occurs for a crater diameter-to-depth ratio using the 193nm laser system (Guillong and Günther 2002). Additionally, the use of helium and argon in the gas chamber reduces the amount of particle deposition in the ablation cell creating a “cleaner” path to the mass spectrometer, especially when the machine is used on multiple samples (Günther and Heinrich 1999:1369).

TABLE 4.3. LA-ICP-MS analysis methods.

	Pre-Ablation	**Ablation**
Mode	Burst	Burst
Rep Rate	20	5
Burst Count	5	300
Analysis Mode	Point	Point
Fluence	1.52 J/cm^2	1.52 J/cm2
Laser Beam Diameter	135 µm	110 µm
Laser Energy	4.5 mJ (31.1%)	4.5 mJ (31.1%)
Pulse Frequency	5Hz	5Hz
Number of Shots	30	300
Duration	1 second	60 seconds

Analytical protocols and calculation methods were adapted from Dussubieux et al. 2009 and Gratuze 1999, as well as procedures developed at UCSC by Robert Franks and Judith Habicht-Mauche. The isotope ^{30}Si was employed as an internal standard, and the standard reference materials NIST610 and NIST612 were used for external standardization, along with the Corning glass standards B (soda-lime-silica glass), C (lead-silica glass), and D (potash-lime glass) (Figure 4.15). Corning glasses C and D are considered most useful for looking at historic period glass (Vicenzi et al. 2002; Wagner et al. 2008:419). The NIST 61X series contain increasing iron content leading to different transparencies with NIST610 being dark blue and NIST612 being light blue (Czas et al. 2012:21). Two spots of 110 µm were tested on each bead and averaged against the gas blank. Data were collected on 55 elements: ^{7}Li, ^{9}Be, ^{11}B, ^{23}Na, ^{24}Mg, ^{27}Al, ^{29}Si, ^{31}P, ^{39}K, ^{43}Ca, ^{45}Sc,^{47}Ti, ^{51}V, ^{52}Cr, ^{55}Mn, ^{57}Fe, ^{59}Co, ^{60}Ni, ^{63}Cu, ^{66}Zn, ^{75}As, ^{85}Rb, ^{88}Sr, ^{89}Y, ^{90}Zr, ^{93}Nb, ^{95}Mo, ^{107}Ag, ^{111}Cd, ^{118}Sn, ^{121}Sb, ^{133}Cs,^{137}Ba, ^{139}La, ^{140}Ce, ^{141}Pr, ^{146}Nd, ^{147}Sm, ^{153}Eu, ^{157}Gd, ^{159}Tb, ^{163}Dy, ^{165}Ho, ^{166}Er, ^{169}Tm, ^{172}Yb,

^{175}Lu, ^{178}Hf, ^{181}Ta, ^{182}W, ^{197}Au, ^{208}Pb, ^{209}Bi, ^{232}Th, ^{238}U. The results obtained for each artifact were normalized to 100 percent (Dussubieux and Karklins 2016:575; Gratuze et al. 2001:649; van Elteren et al. 2009:4). All trace elements are presented in parts per million. Accuracy ranges from 5% to 10%, depending on the elements and their concentrations.

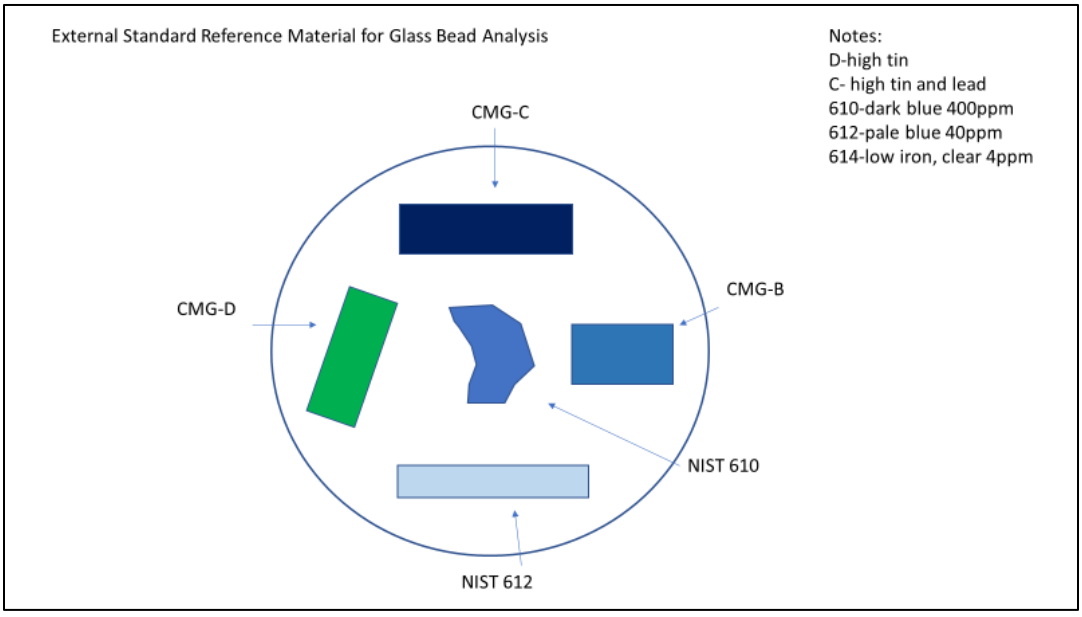


FIGURE 4.15. Standard reference materials and their elemental concentrations (created by author 2020).

Statistics

Most of the data were analyzed using simple biplots because the relationship between two measurement variables is best illustrated by a scatter or biplot. This technique shows variables that are strongly similar to each other by displaying clusters, while those that are more different from each other will wind up in different clusters (Drennan 2009:309). Once a certain number of variables are identified that produce distinct compositional groups within the bead assemblage, both principal component and discriminant analysis will be used to analyze both color groups and

the entire assemblage to identify groups within and between the mission and presidios. In both statistical techniques, eigenvalues are used to indicate the ratio of between group variability to within group variability. The larger the eigenvalue, the better that function/component is for accounting for group differences.

Principal component analysis (PCA) and Discriminant analysis (DA) are generic names given to a class of multivariate approaches used to explore and quantify the structure underlying data matrices. They are used to look at shared variation among a set of variables in a mathematical model (VanPool and Leonard 2011:286). These "components" allow the analyst to determine how much of the variation in each variable is shared with other variables, which may link variables together. Basically, a larger number of linked variables can be supplemented with a single component that reflects the relationship between the variables, both dependent and independent. Usually two components are analyzed at a time and the first component is the single best summary of the linear relationships within the data, and the second component maximizes the amount of the remaining variation that is summarized (VanPool and Leonard 2011:290–291).

Discriminant analysis functions in a similar way in that it describes characteristics that are specific to distinct groups and classifies them into pre-existing groups based on similarities between cases/variable that belong to the same group (Brown and Wicker 2000:209). The difference is that there needs to be a pre-defined group in which the group membership for the variables is known. It also requires a data set that contains two or more mutually exclusive groups and scores on two or

more variables for each case in the group (Brown and Wicker 2000). Variables must be chosen that represent dimensions on which the groups are expected to differ or have the greatest potential for distinguishing among groups of interest (Brown and Wicker 2000:212). One limitation of DA is that even though two or more variables are required for analysis, the number of variables cannot exceed the number of groups due to the increasing complexity of interrelations among the variables in accounting for group differences. Due to the limitations of DA, only biplots and PCA were used in the glass bead statistical analysis.

Sampling Strategy

A total of 1,150 glass beads were selected from First Spanish period features within the missions and presidios (Appendix C). Glass beads were sampled only from features with good integrity for the presidios Santa Maria, Santa Rosa, and San Miguel. Glass beads were also sampled from intact mission midden deposits at Escambe since there were so few features. At Punta Rasa, all beads were sampled because no features were discovered during excavations, and only a very small assemblage of beads was recovered. A subset of 400 blue, black, and white beads were selected for chemical analysis (Appendix D). Due to time and budget constraints glass beads from only presidios Santa Rosa and San Miguel as well as mission Escambe were selected for chemical analysis. These three sites also represent the most contemporary occupation and Punta Rasa did not have a large enough sample size to produce statistically significant data. In the future I would like to test blue, black, and white beads from Santa Maria, as well as Cornaline d'Aleppo beads from

all sites. Additionally, only monochrome seed beads were selected for analysis since they are the most abundant yet offer the least visual interpretive value.

Results

Morphometric

Out of the 1150 glass beads that were analyzed, 15 were too damaged or broken to determine manufacture or structure and are not included in this analysis (Appendix C). Most of the glass beads were of drawn manufacture (94.5 percent), and a small amount were wound (5.3 percent) (Figure 4.16). Only one blown bead and one molded bead were present accounting for the remaining 0.2 percent of the assemblage. The glass beads were predominantly simple structure (92.5 percent), with a small amount being compound structure (7.3 percent) and complex structure (0.2 percent) (Figure 4.16). A variety of shapes and colors are present in the assemblage, but the most common shapes are cylindrical (82.3 percent), toroidal (7.9 percent), and tubular (3.9 percent). Glass bead colors are more varied due to the specificity of the Munsell system, but colors include, white, blue, black, red, yellow, green, and clear; all of varying diaphaneity. Sizes ranged from very small (less than 2 mm) to very large (over 10 mm), but a majority (85 percent) of the glass beads were small in size (2 to 4 mm) (Figure 4.17).

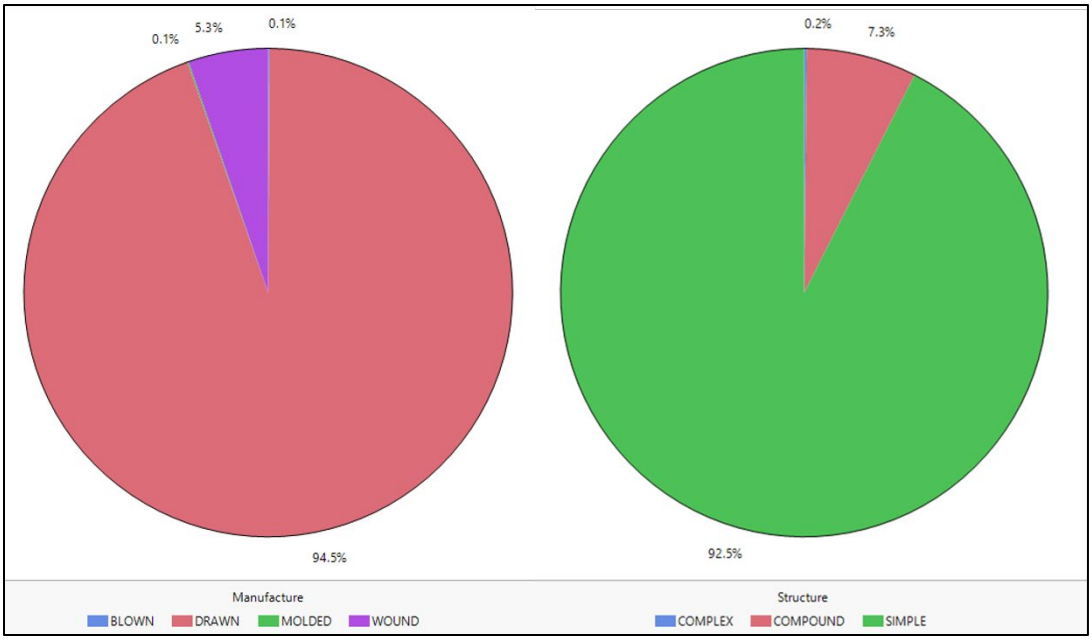


FIGURE 4.16. Manufacture method and structure for glass beads.

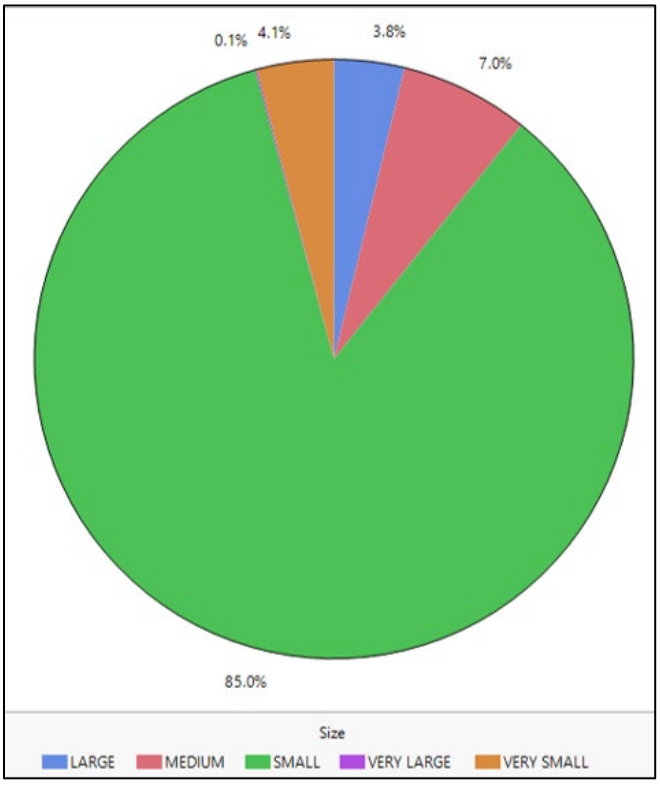


FIGURE 4.17. Size range for glass beads recovered from study sites.

Bead Types

Several commonly known bead types are present in the assemblages of the five sites including, monochrome seed and tubular beads, barleycorn beads, melon, gooseberry, raspberry beads, and Cornaline d'Aleppo beads (red-on-green variety). Some more uncommon beads include man-in-the moon beads, and faceted wound beads of various colors (Figures 4.18–4.20). Bead types based on the Kidd and Kidd type classification include Ia, Ic, If, IIa, IIb, IIbb, IIf, IIIa, Iva, WIa, WIb, WIc, WIIb, WIIc, WIIcc, WIId, WIIe, WIIj, WIIIc, BIa, and MPIg. The most common types are Ia (82 percent) and IVa (6.6 percent.). All of these bead types are typical to the time period, region, and context within the Southeast (Deagan 1987). The exception are the man-in-the-moon beads, which are most common within French contexts and are relatively rare in North America (Smith 2002). The following section is a discussion of general trends in bead color, size, shape, variety, etc. for each site except for Punta Rasa due to its limited sample size.



FIGURE 4.18. Faceted bead recovered from study sites (Prov. #194-2, Photo by author, 2020).



FIGURE 4.19. Faceted bead recovered from study sites (Prov. #2224-43, Photo by author, 2020).

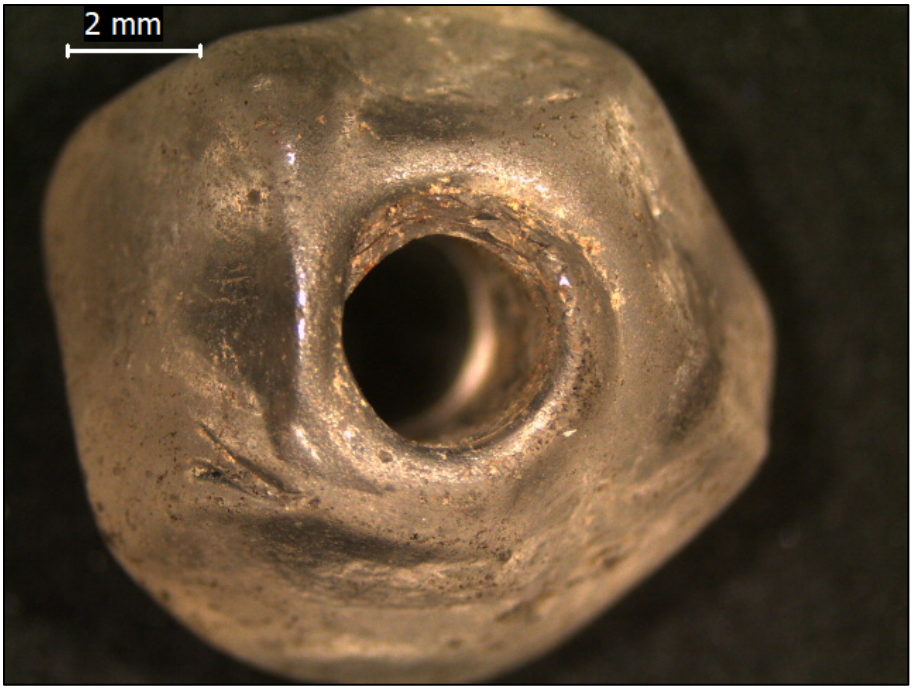


FIGURE 4.20. Faceted bead recovered from study sites (Prov. #4877-15, Photo by author, 2020).

Site Trends

A total of 383 glass beads were sampled from features within Santa Maria de Galve. Over eighty percent of the assemblage are drawn, simple, monochrome cylindrical beads (IIa), or seed beads (Figure 4.21-4.24). Other bead varieties include Cornaline d'Aleppo (n=39), gooseberry (n=2), Melon (n=4), raspberry (n=2), and one man-in-the-moon bead. As mentioned earlier in this chapter, Cornaline d'Aleppo beads are thought to be reserved for Spanish colonists and the color red was not a favored color among Native groups. The other large bead varieties were probably used on necklaces and not sewn onto clothing. No barleycorn beads are present in the Santa Maria bead assemblage. The most common glass bead colors are black (35.6 percent), white (23.8 percent), and blue (16.8 percent).

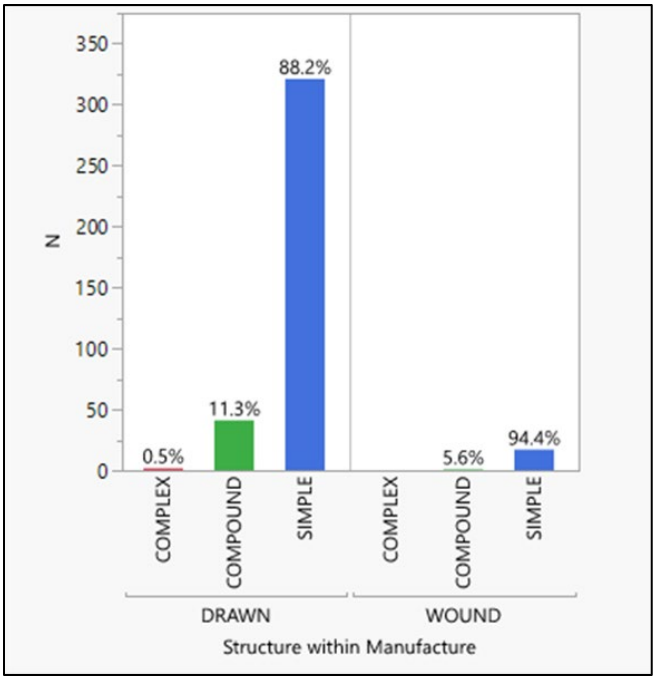


FIGURE 4.21. Structure and manufacture of beads recovered from Santa Maria.

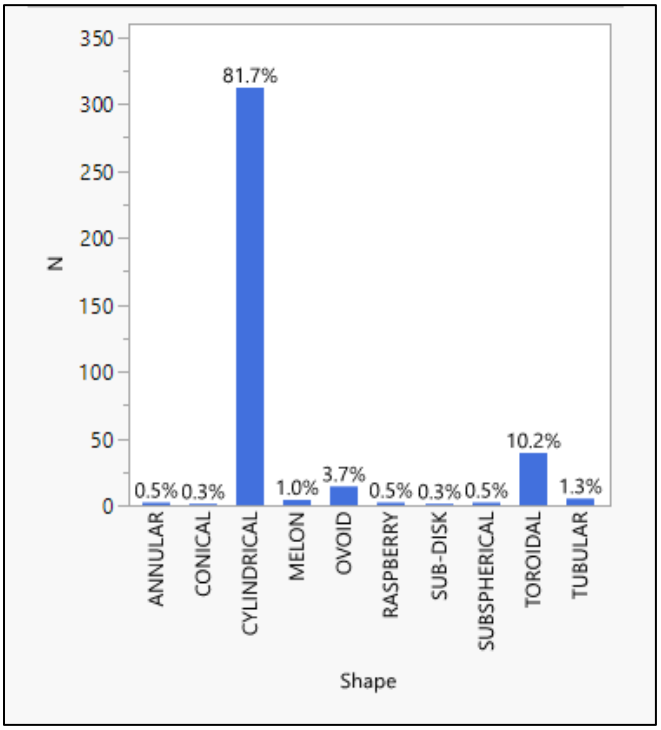


FIGURE 4.22. Shape of beads recovered from Santa Maria.

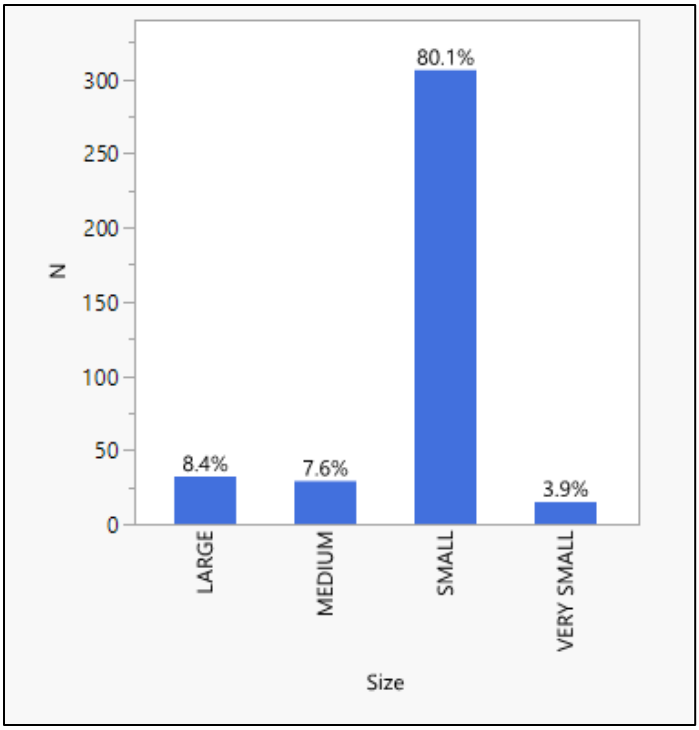


FIGURE 4.23. Size of beads recovered from Santa Maria.

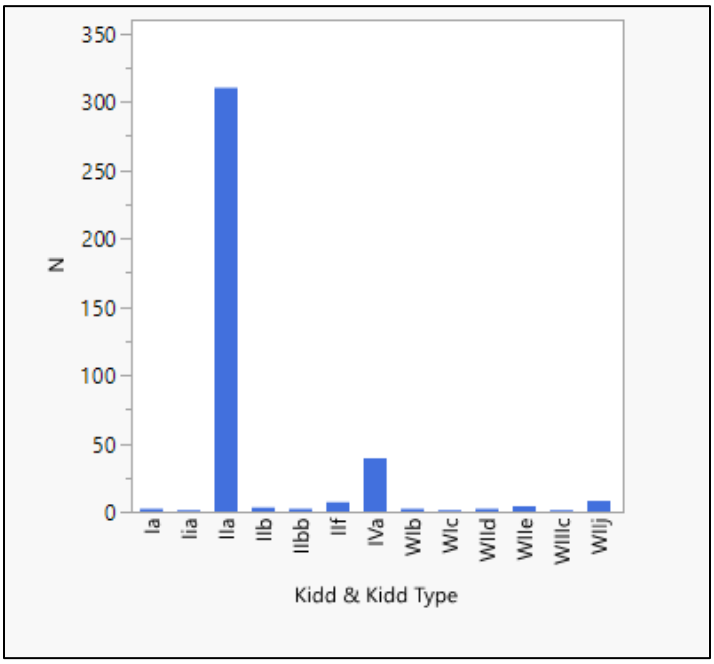


FIGURE 4.24. Kidd and Kidd (2012) type beads recovered from Santa Maria.

A total of 244 glass beads were sampled from features within Isla de Santa Rosa. Over ninety percent of the assemblage are drawn, simple, monochrome cylindrical and toroidal beads (IIa), or seed beads (Figures 4.25-4.28). Only three Cornaline d'Aleppo beads are present, and overall, there seems to be less bead variety in comparison to Santa Maria. The most common glass bead colors are black (40.6 percent), white (25.8 percent), and blue (24.2). There is a greater amount of seed beads within the Santa Rosa sample and although a large percentage are small, some (9.4 percent) are very small or under 2 mm in diameter.

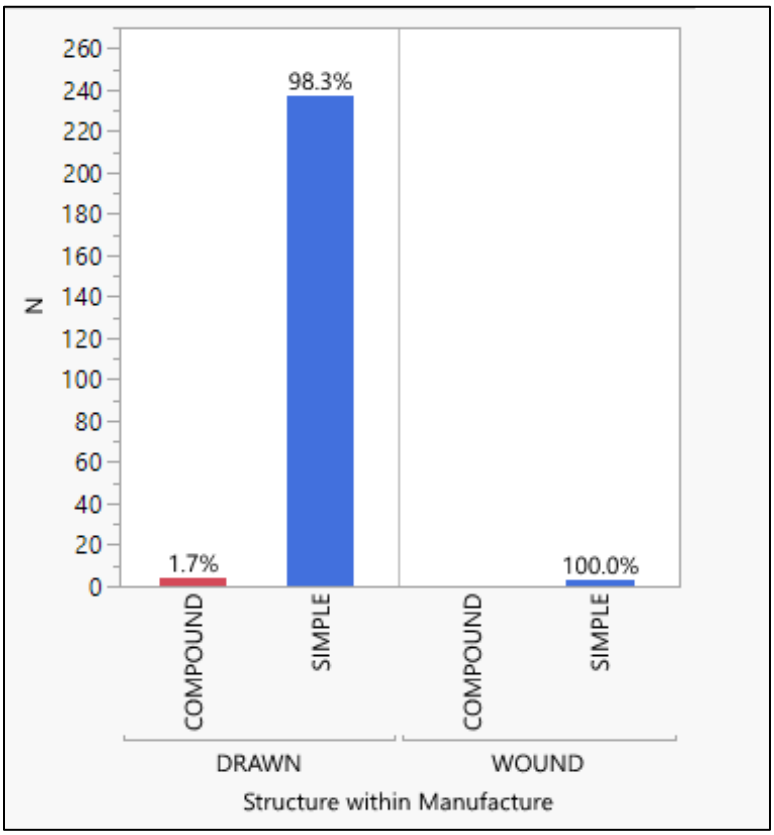


FIGURE 4.25. Manufacture and structure of beads recovered from Santa Rosa.

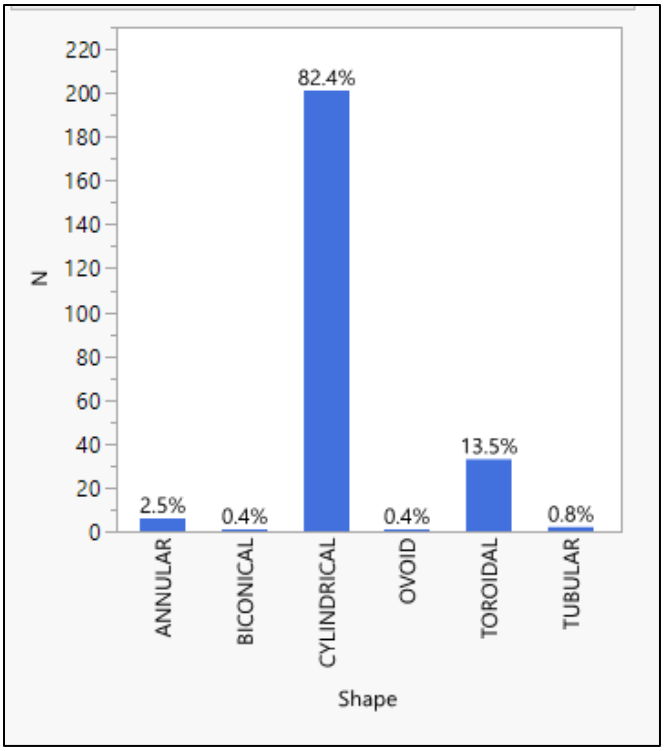


FIGURE 4.26. Shape of beads recovered from Santa Rosa.

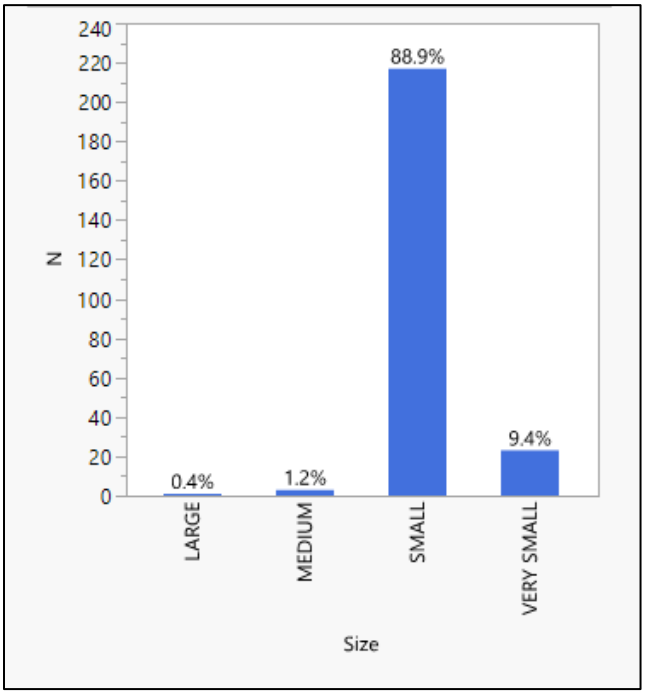


FIGURE 4.27. Size of beads recovered from Santa Rosa.

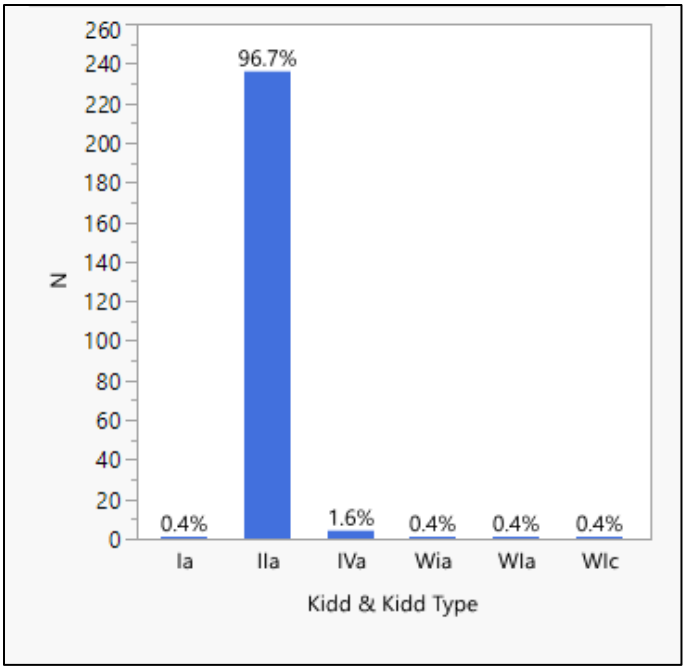


FIGURE 4.28. Kidd and Kidd (2012) type beads recovered from Santa Rosa.

A total of 230 glass beads were sampled from features within San Miguel de Panzacola. The bead assemblage for San Miguel is similar to that of Santa Maria. Over eighty percent of the assemblage are drawn, simple, monochrome cylindrical and tubular beads (Ia and IIa) (Figures 4.29-4.32). Other bead varieties include gooseberry (n=1) and Cornaline d'Aleppo (n=39). Although the assemblage has less overall variety in size, it does have more variety in bead color, and contains an increased amount of wound bead varieties. The most common glass bead colors are black (33 percent), white (24.2 percent), red (15.3 percent), and blue (12.5 percent). The red accounts for the Cornaline d' Aleppo beads, possibly used by the Spanish and not the Apalachee or Yamasee.

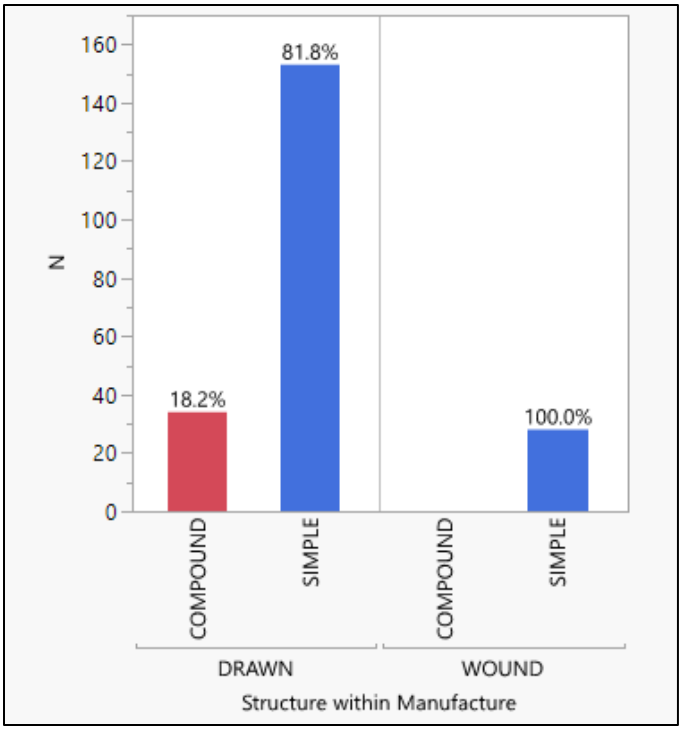


FIGURE 4.29. Manufacture and structure of beads recovered from San Miguel.

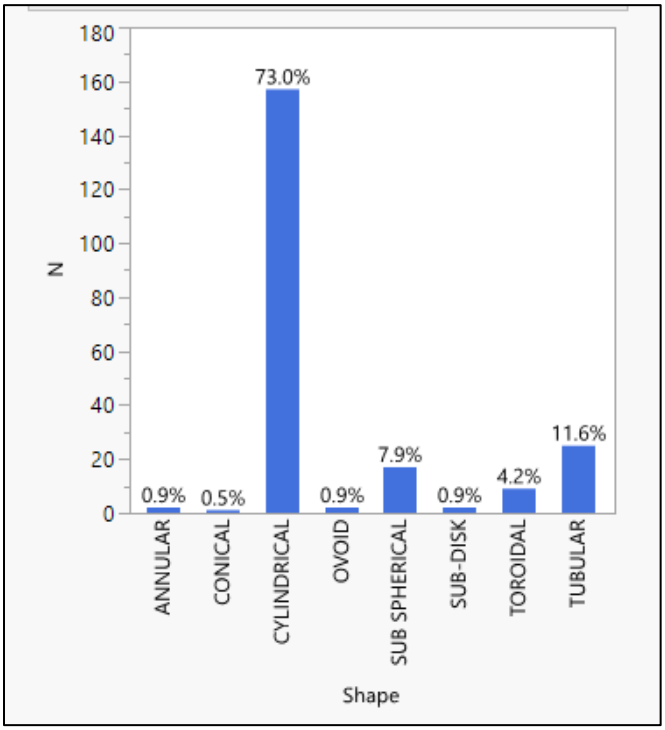


FIGURE 4.30. Shape of beads recovered from San Miguel.

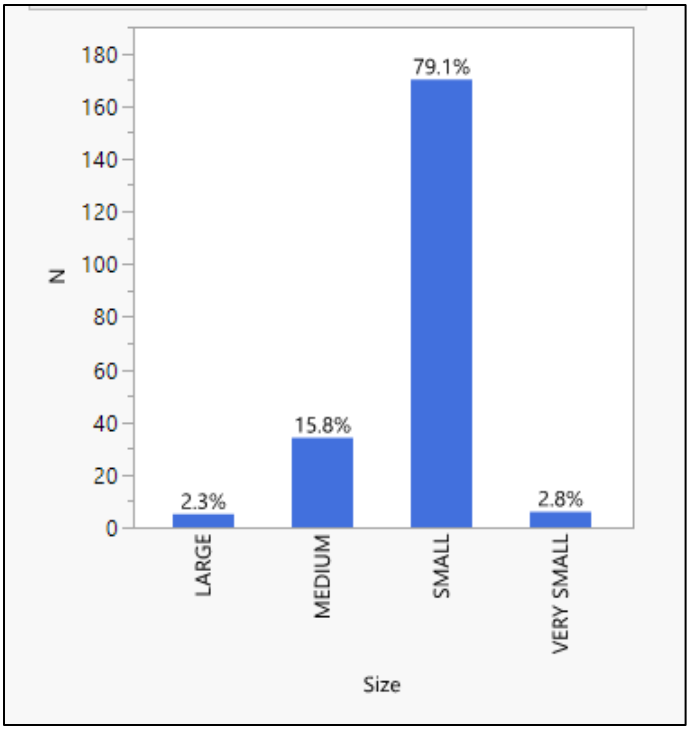


FIGURE 4.31. Size of beads recovered from San Miguel.

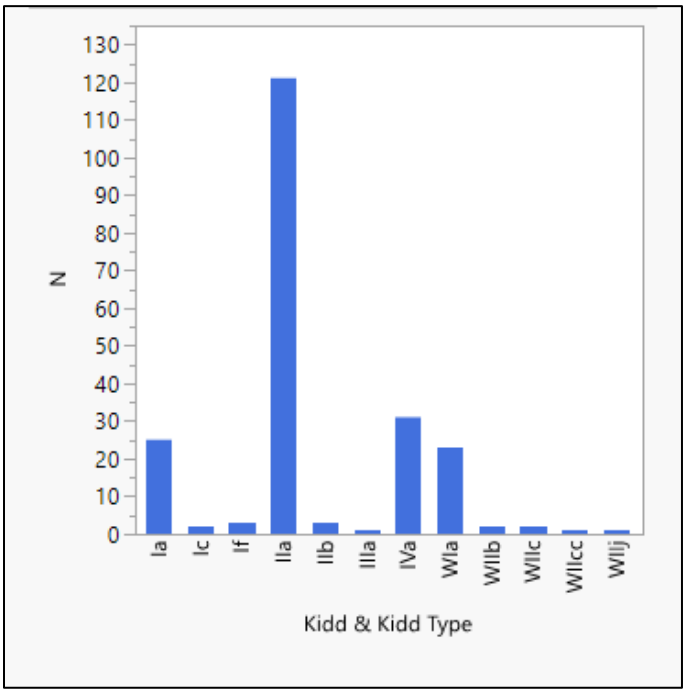


FIGURE 4.32. Kidd and Kidd (2012) type beads recovered from San Miguel.

A total of 287 glass beads were sampled from features and midden within San Joseph de Escambe. The assemblage at Escambe is different than those of the presidios in that it is predominantly comprised of (over 95 percent) drawn, simple, monochrome cylindrical seed beads (Figures 4.33-4.36). Other bead varieties are limited and include one Melon bead, one Cornaline d'Aleppo bead and several Barleycorn beads (n=6). Three colors dominate the assemblage and are equal in quantity: white (32.5 percent), blue (32.2. percent), and black (31.8 percent). Although each site bead assemblage is slightly different, they all have similar ratios of seed beads. Moreover, the common production of simple seed beads throughout Europe over a huge time span does not allow for much interpretive insight into the trade and distribution of this bead type. Chemical analysis of the seed beads may evidence distribution of beads based on the identification of compositional groups both within and between the mission and coeval presidios.

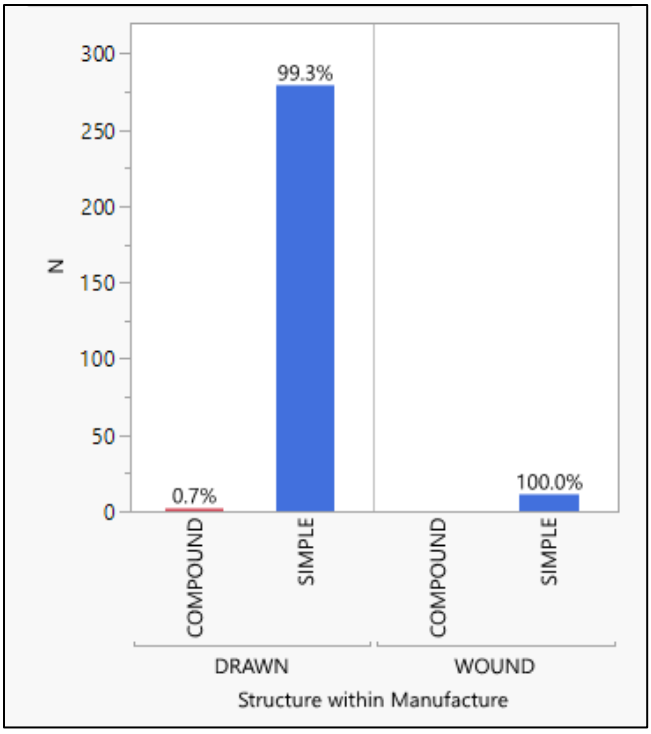


FIGURE 4.33. Manufacture and structure of beads recovered from Escambe.

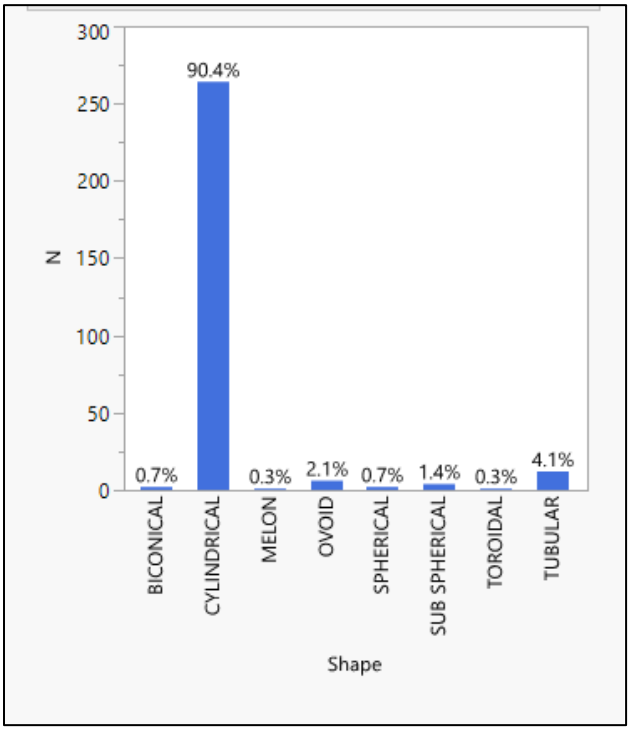


FIGURE 4.34. Shape of beads recovered from Escambe.

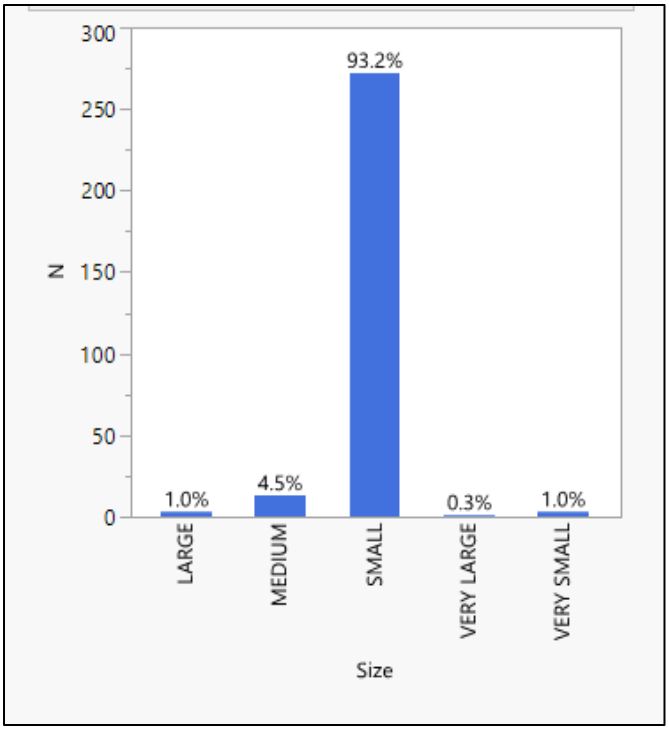


FIGURE 4.35. Size of beads recovered from Escambe.

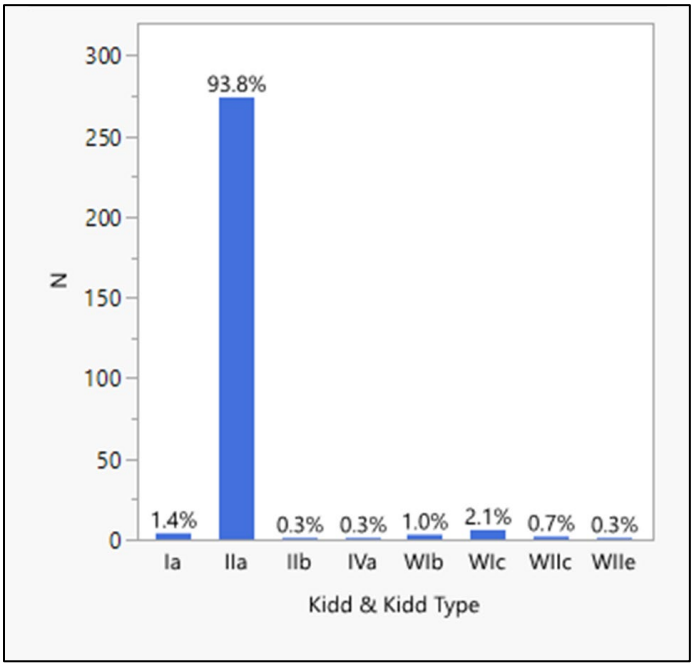


FIGURE 4.36. Kidd and Kidd (2012) type beads recovered from Escambe.

Chemical Composition

Flux Groups

In all subsequent figures in this chapter the circle symbol represents blue-colored beads, the triangle symbol represents white-colored beads, and the square symbol represents black-colored beads. A large majority of the glass beads from the two presidios and mission cluster in one broad compositional group fluxed with sodium, calcium, and aluminum (Figures 4.37-4.38). These beads have on average 10-12 percent sodium and 08-13 percent calcium content. Also, within this large compositional group, the glass beads have magnesium and potassium levels higher than 1.5 percent and alumina levels higher than one percent indicating a soda ash derived from halophytic plants rather than a mineral soda source (Figures 4.39-4.40). Further corroborating this evidence is the fact that both titanium and uranium are under 0.5 percent (Figure 4.41). In summary this compositional group of beads is fluxed with soda derived from plant ash and stabilized with both calcium and alumina, which is tentatively attributed to Venetian soda-lime glass recipes. A small group of black beads (n=10) from San Miguel have low silica content, less than 40 percent, where all the other beads have at least 60 percent silica. These black beads also have lower calcium and potassium levels and a high lead content that is over 30 percent (Figures 4.42). These black beads will be discussed further in the next section, as they most likely represent a single batch of beads. Only a few glass beads (n=9) contained more than six percent potassium, which possibly indicates a wood ash flux that was common in western European bead making practices.

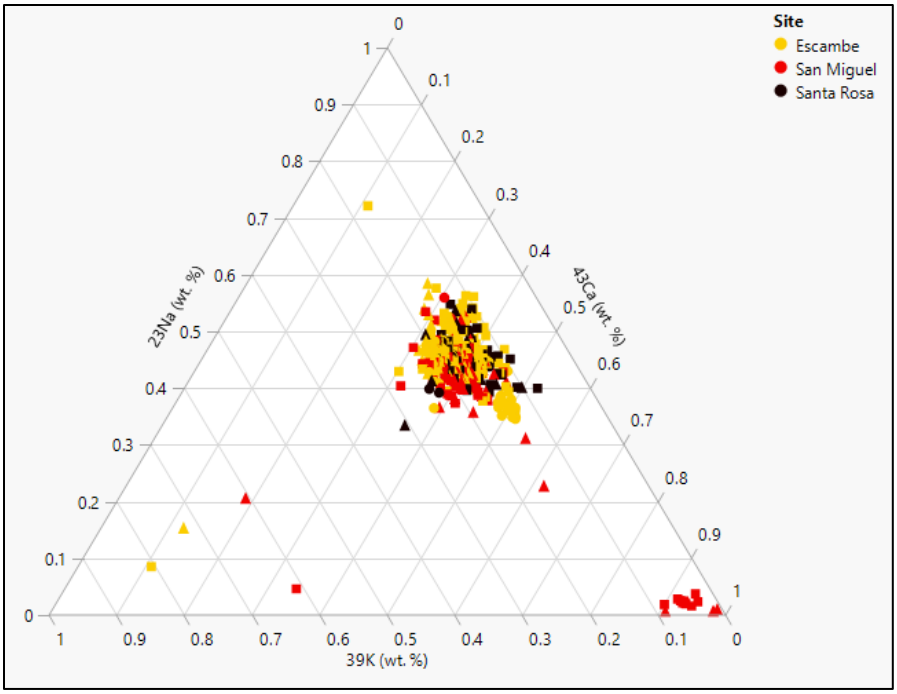


FIGURE 4.37. Ternary plot of flux used in glass beads.

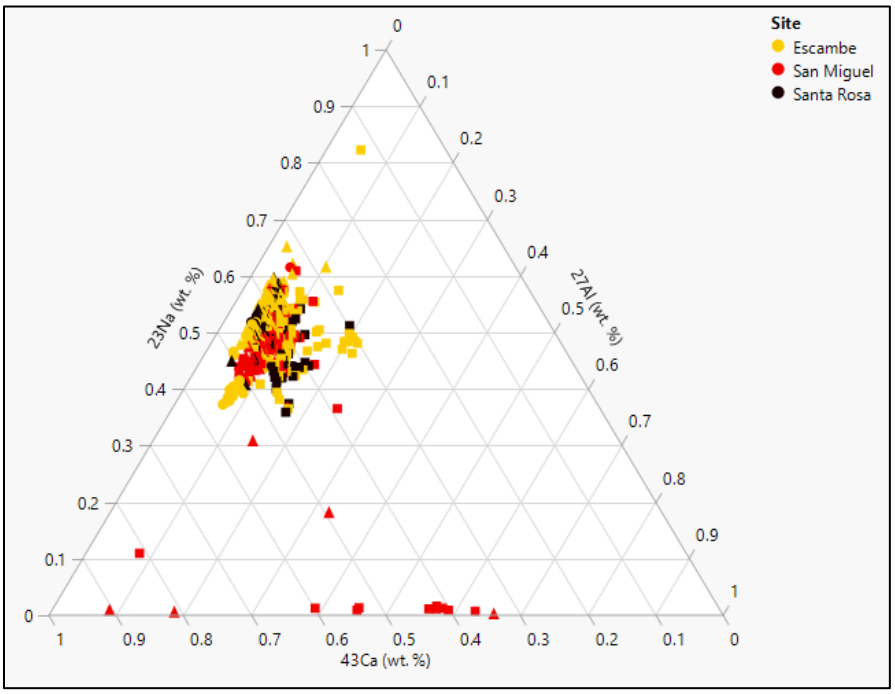


FIGURE 4.38. Ternary plot of aluminum concentrations in glass beads.

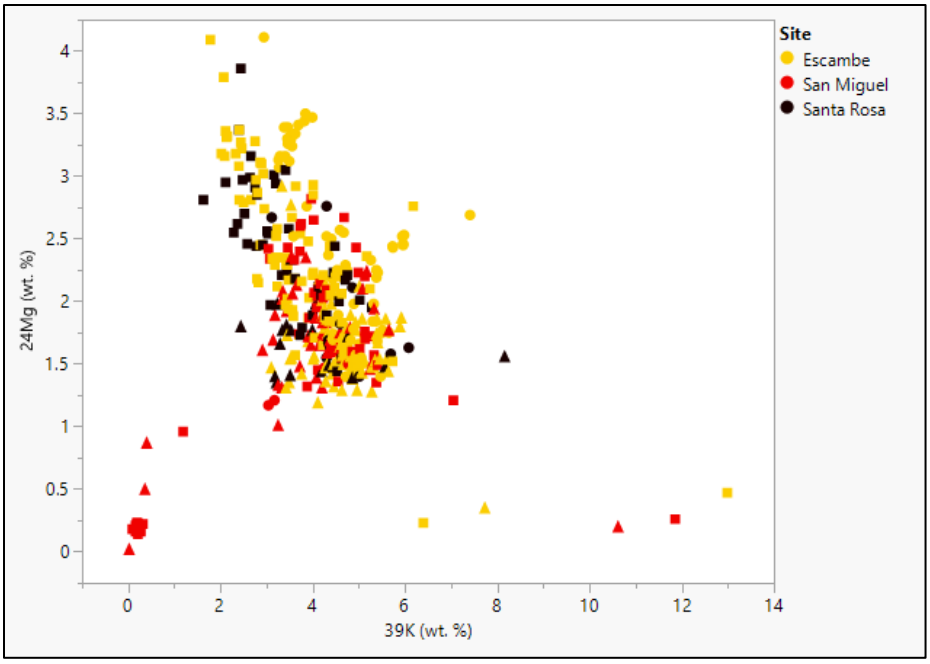


FIGURE 4.39. Biplot of potassium and magnesium concentrations in glass beads.

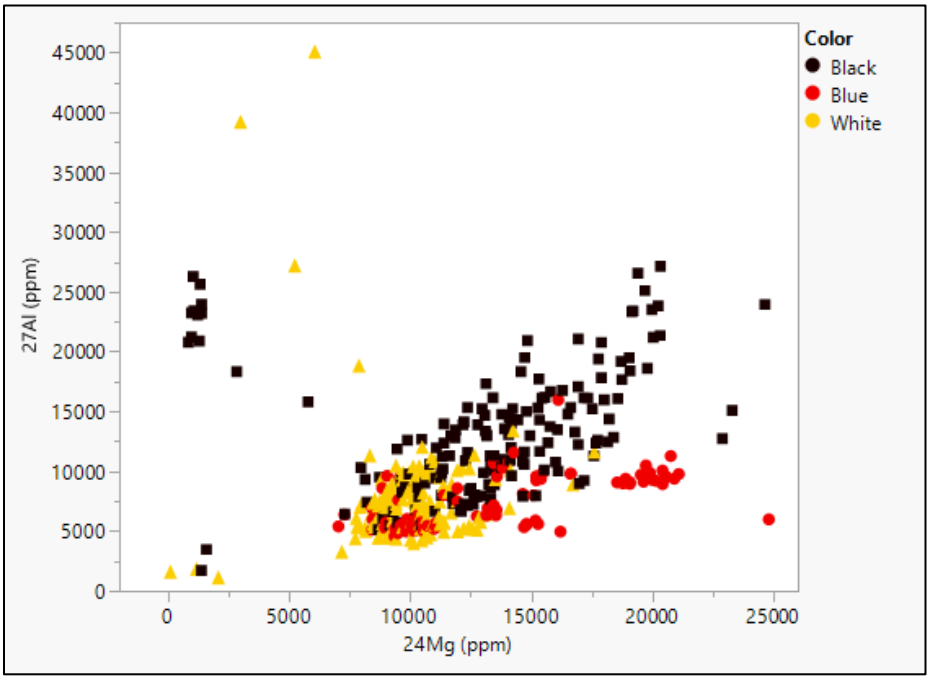


FIGURE 4.40. Biplot of aluminum and magnesium concentrations in glass beads.

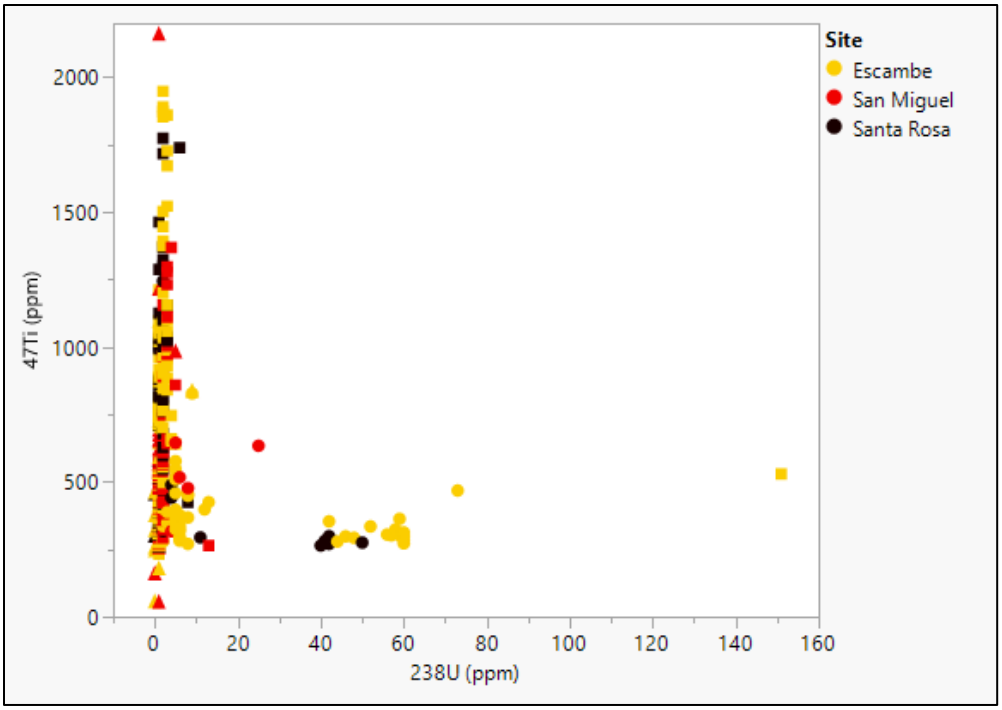


FIGURE 4.41. Biplot of titanium and uranium in glass beads.

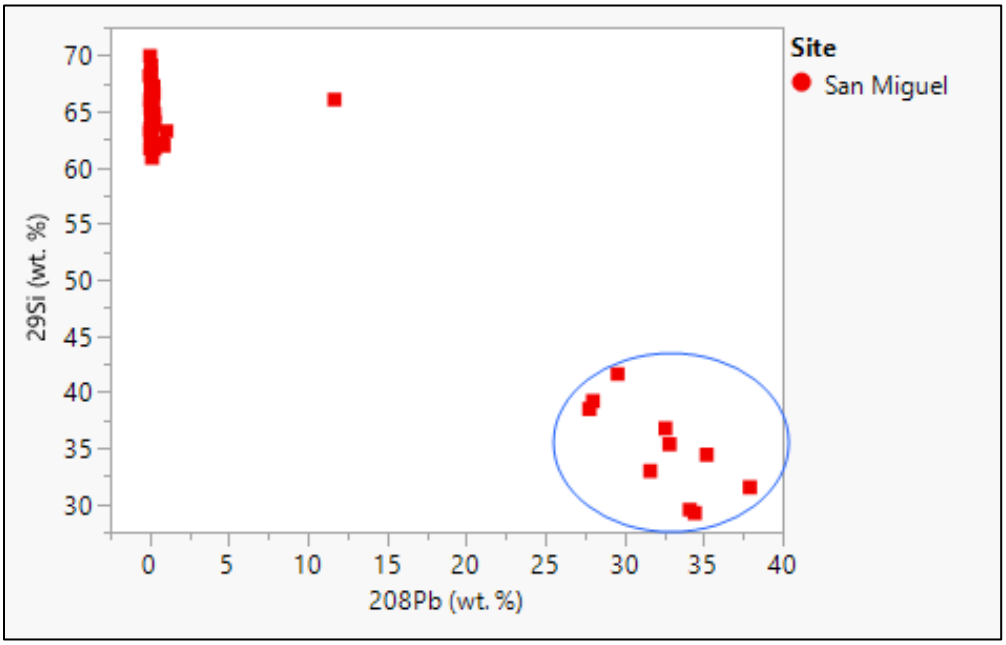


FIGURE 4.42. Biplot of lead concentration in black beads from San Miguel.

White Beads

A total of 139 white beads were sampled from the two presidios and mission (Table 4.4). A majority of the beads were opacified with antimony (Figure 4.43). These beads also have 4 percent or higher concentrations of calcium and low concentrations of lead, indicating that they were opacified with calcium antimonate as opposed to lead antimonate (Figure 4.44). Four white beads had a mixture of both antimony and tin signifying perhaps a transition in the opacifying recipe. Twelve white beads were opacified with tin instead of antimony suggesting an earlier date (1600-1700), but since these beads were found in contexts at San Miguel and Escambe (post 1750) it is likely that the beads were curated by the Apalachee and Yamasee. All but three white glass beads had very low amounts of arsenic (less than 500 ppm), which strengthens evidence for an eighteenth-century production date for the beads. One white glass bead from San Miguel is opacified with lead arsenate, suggesting a post 1800 date, which could be attributed to either a Second Spanish or early American occupational into the predominately earlier First Spanish context from which the beads were sampled.

TABLE 4.4. Glass bead colors sampled from archaeological sites.

Site	**Beads Sampled**	**White**	**Blue**	**Black**	**Other**
Santa Rosa	69	17	9	41	2
San Miguel	100	44	5	50	1
Escambe	231	78	77	75	1
Total	400	139	91	166	4

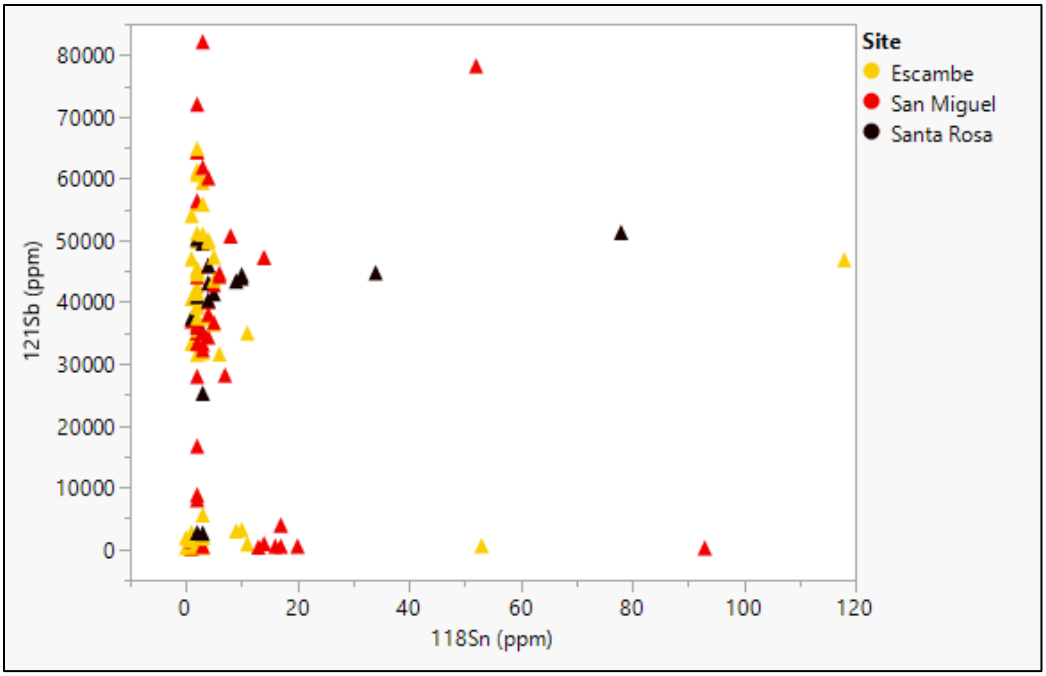


FIGURE 4.43. Biplot of antimony and tin concentrations in white beads.

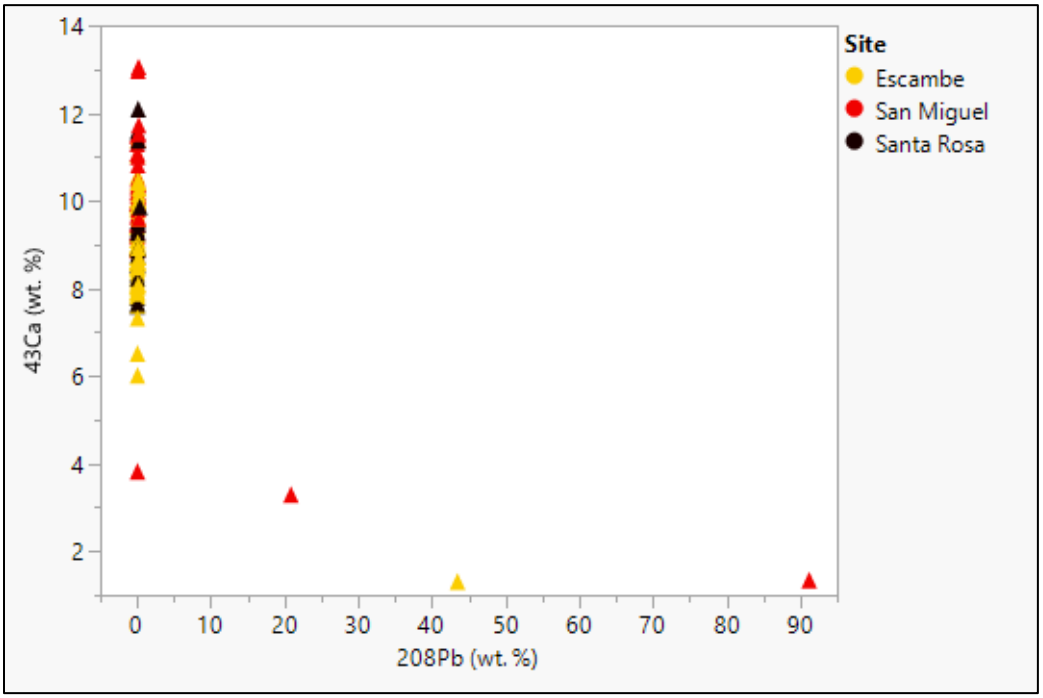


FIGURE 4.44. Biplot of lead and calcium concentrations in white beads.

Using elements as discriminating factors, variability can be seen with the white bead assemblage both within and between sites. The biplot of aluminum and magnesium oxides shows clear differentiation between white beads from San Miguel and Santa Rosa, with some overlap in chemical composition with Escambe and Santa Rosa mostly (Figure 4.45). Based on PCA, several components show chemical groupings that coincide with each archaeological site (Figure 4.46). However, Escambe beads somewhat overlap with both San Miguel and Santa Rosa. It is more difficult to determine compositional variability within each site. Only 17 white beads were sampled from Santa Rosa due to the condition of the beads. Some variation can be seen when looking at strontium and boron, however, the results are not statistically significant. The white beads from San Miguel show less variation and most cluster into one major compositional group with smaller numbers of beads clustering into two additional compositional groups (Figure 4.47). The white glass beads from Escambe represent at least two large compositional groups and a few outliers (Figure 4.48). In summary, results show that some of the Escambe white beads are chemically similar to those of Santa Rosa, but for the most part, the white bead assemblage from each site was chemically distinct. It is inconclusive as to whether this represents different sources of beads, different times of manufacture, or a change in supply from the presidio to the mission post 1750 or as early as 1740 when construction began on the mainland for San Miguel. Even though Escambe was not established until 1741, the Apalachee were living in earlier iterations of the mission before their move

upriver. Before San Miguel was fully established in 1754, the Apalachee living in the area would have been in contact primarily with Santa Rosa.

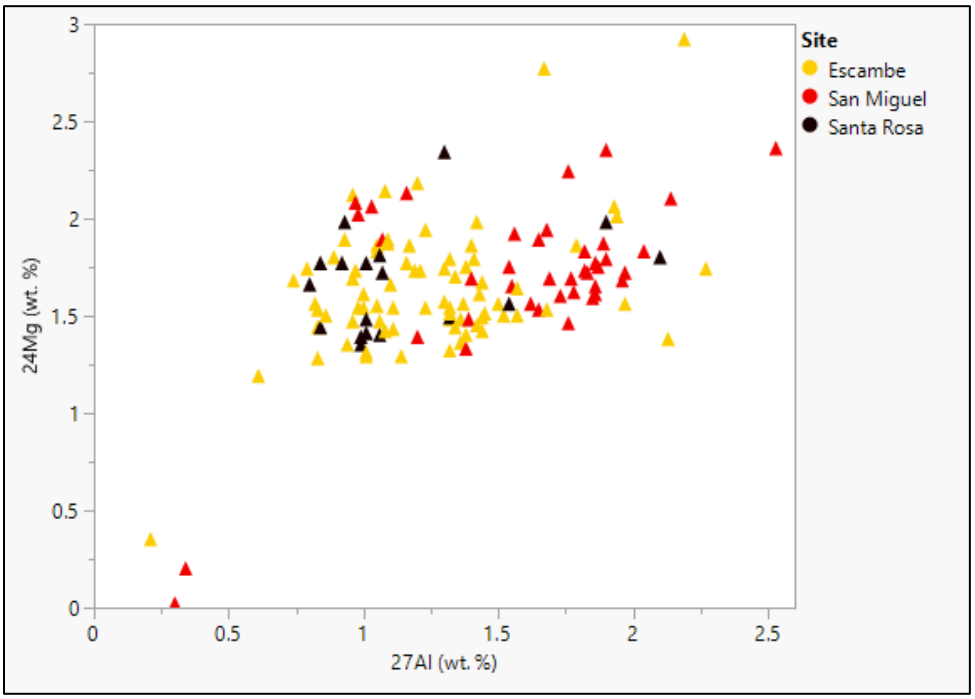


FIGURE 4.45. Biplot of aluminum and magnesium concentrations in glass beads.

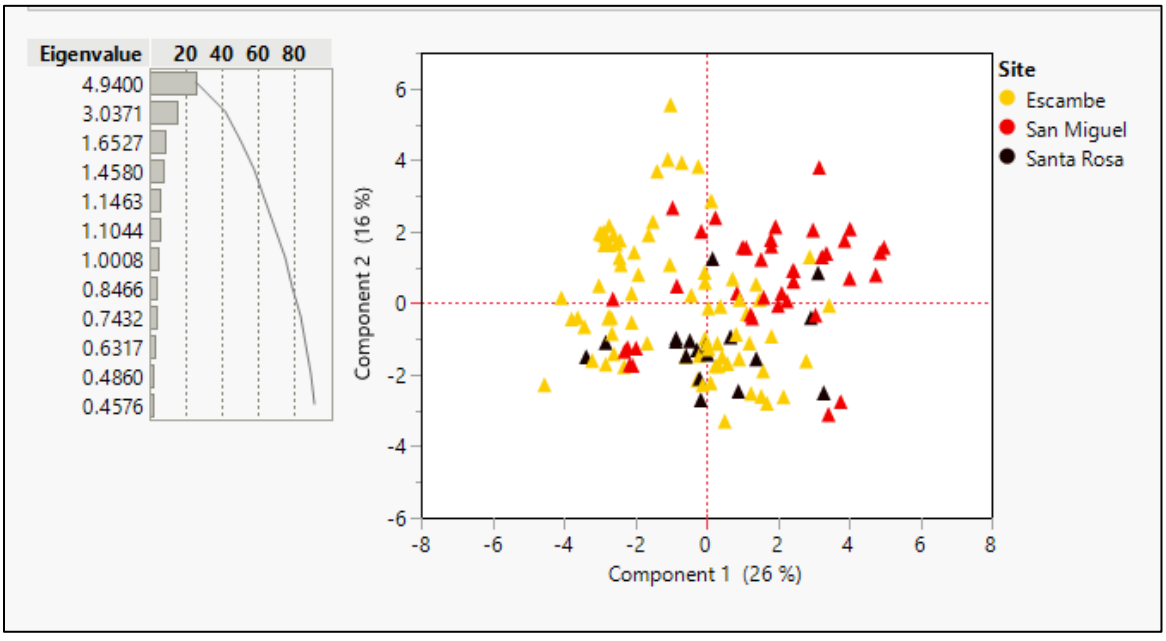


FIGURE 4.46. PCA of white beads from the two presidios and mission.

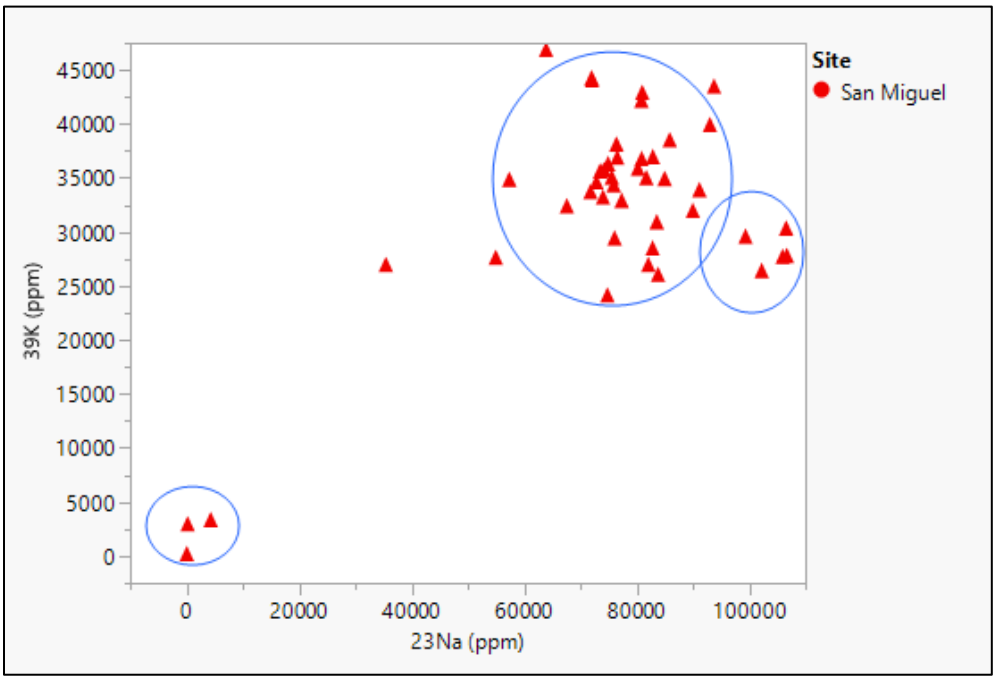


FIGURE 4.47. Biplot of potassium and sodium in white beads from San Miguel.

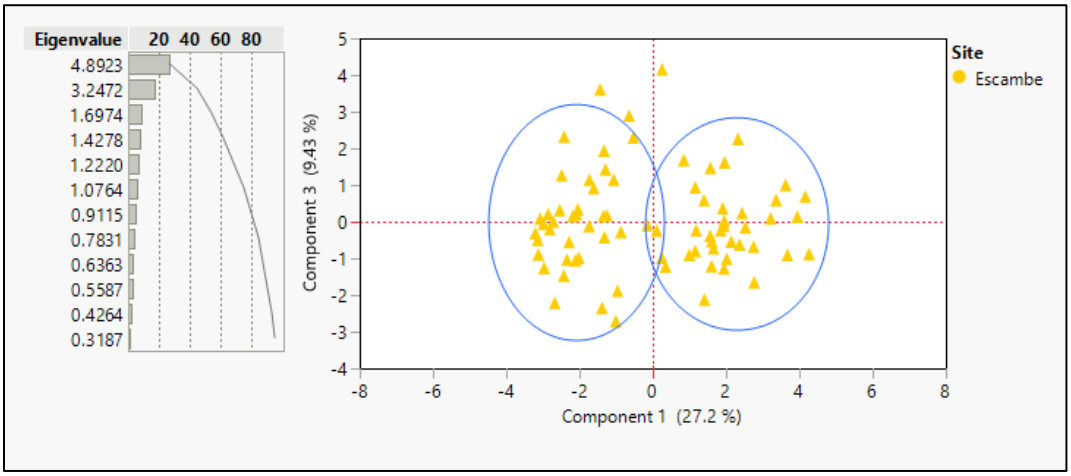


FIGURE 4.48. PCA of white beads from Escambe.

Blue Beads

A total of 91 blue beads were sampled from the two presidios and mission; however, a majority of the beads come from Escambe due to the preservation quality of the beads from the two presidios (Table 4.4). Based on whether the beads were

colored primarily with copper or cobalt, there appears to be two distinct compositional groups among all three sites as well as considerable variability with other blue beads (Figure 4.49). Both compositional groups are colored primarily with cobalt, but they also have small amounts of copper. Compositional Group 1 has higher amounts of cobalt and contains beads from Santa Rosa and Escambe. Compositional Group 2 has slightly lower concentrations of cobalt and contains beads from San Miguel and Escambe. By only focusing on the two main compositional groups it is possible to differentiate subgroupings (Figure 4.50). In each main compositional group, the blue beads from Escambe form multiple subgroups that could potentially belong to batches of glass or at least beads made from the same recipe. Comparing cobalt and arsenic concentrations further segregates the two main compositional groups with Group 1 containing more arsenic than Group 2 (Figure 4.51).

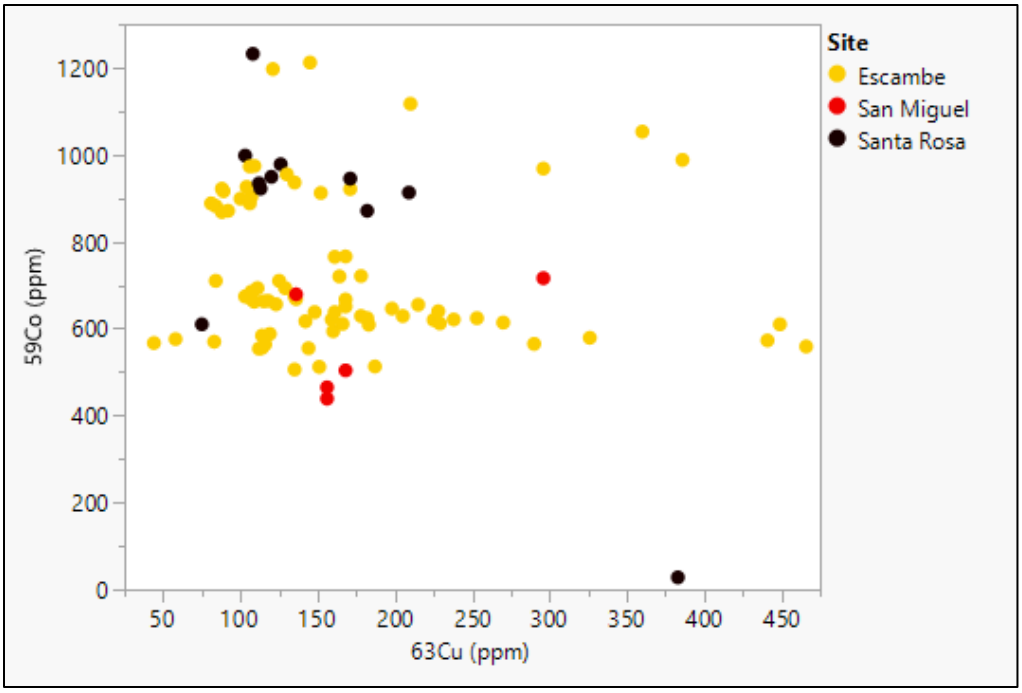


FIGURE 4.49. Biplot of copper and cobalt concentrations.

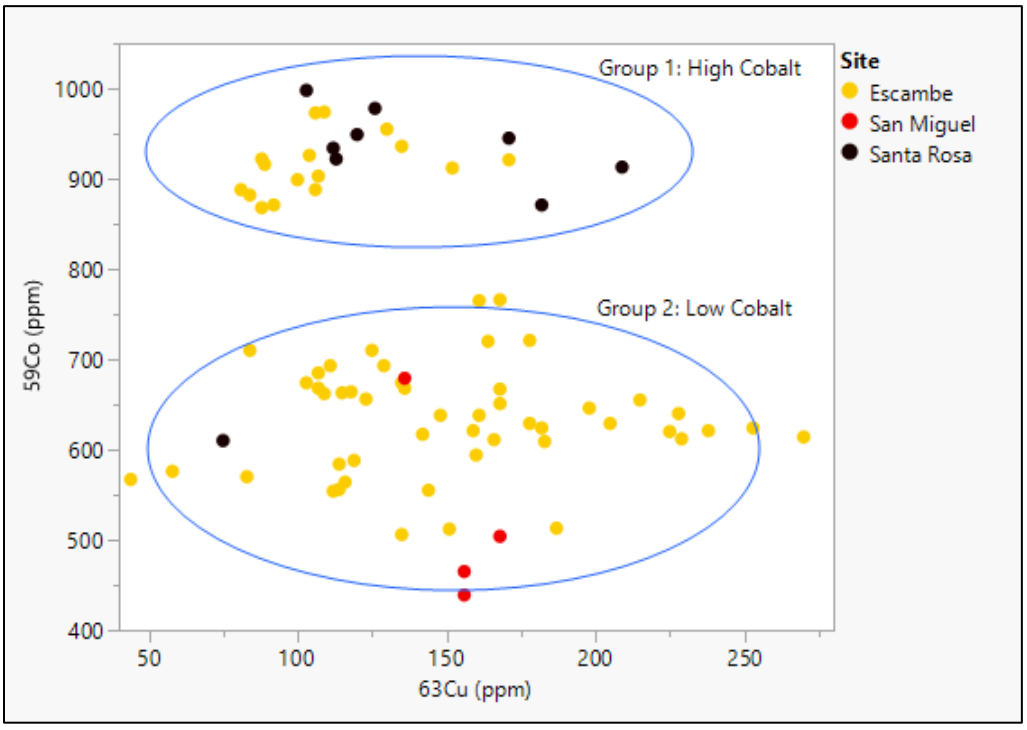


FIGURE 4.50. Biplot of compositional groups 1 and 2.

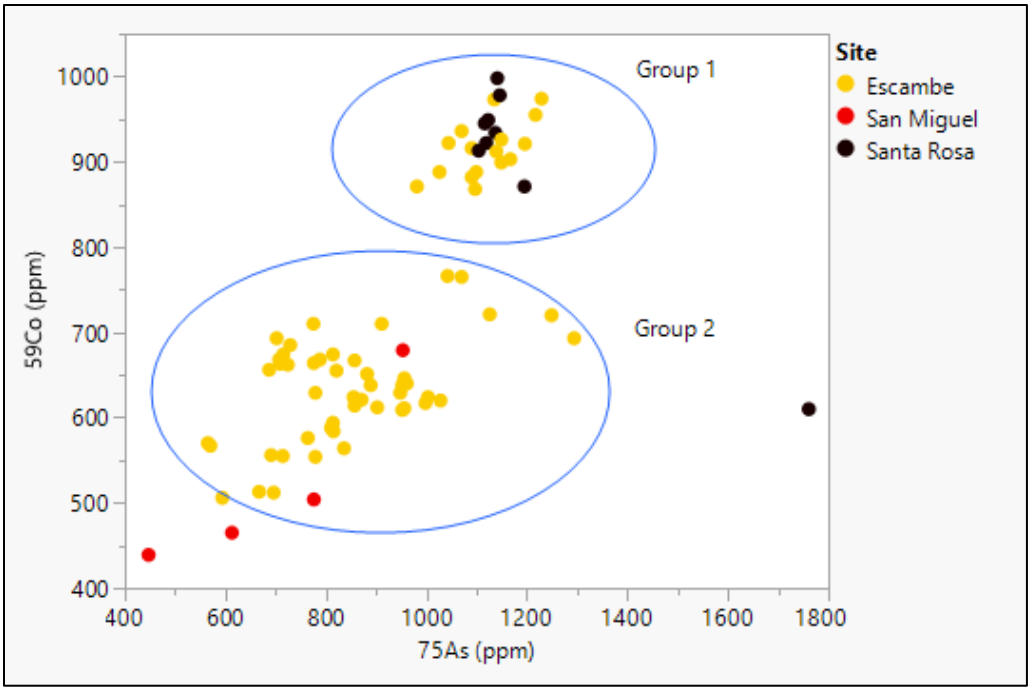


FIGURE 4.51. Biplot of arsenic and cobalt for compositional groups 1 and 2.

Most of the beads from Compositional Group 1 contain high amounts cobalt, arsenic, and nickel indicating that the cobalt ore used to color the glass was smaltite. Smaltite was predominately found in Germany and was used mostly by Bohemian glass makers beginning in the sixteenth century. Compositional Group 2 contains some bismuth while Compositional Group 1 does not contain any bismuth (Figure 4.52). This indicates that some of the beads in Group 2 were colored with a cobalt ore mined from the Scheeberg-Erzgebirge mine district in Saxony, Germany, used from the sixteenth to the eighteenth century. In addition, both Groups 1 and 2 contain trace amounts of zinc, but Group 2 also contains low amounts of nickel and trace amounts of bismuth indicating that some of those beads were colored with cobalite, which is also found in Germany. In summary it appears that at least three different cobalt ores were used to color the blue glass beads. This could be an indication of change in

recipes over a short period of time, but more likely represents recipes from different glasshouses. Based on the subgroups identified, Escambe contains blue beads from at least three different glasshouses while Santa Rosa and San Miguel contain blue beads each from one glass house or have glass from two distinct recipes. The glass beads from each presidio most likely represent a change in where they were getting their supply within Spanish networks. The glass beads from Escambe represent an increased variety of bead sources. By looking at the amounts of cobalt and cooper and trace amounts of manganese it is clear that the Escambe blue beads come from a variety of different recipes or even batches of glass (Figures 4.53-4.54), but the blue beads from the presidios are compositionally distinct from each other. This distinction is especially apparent when exploring the chemical data using PCA (Figure 4.55).

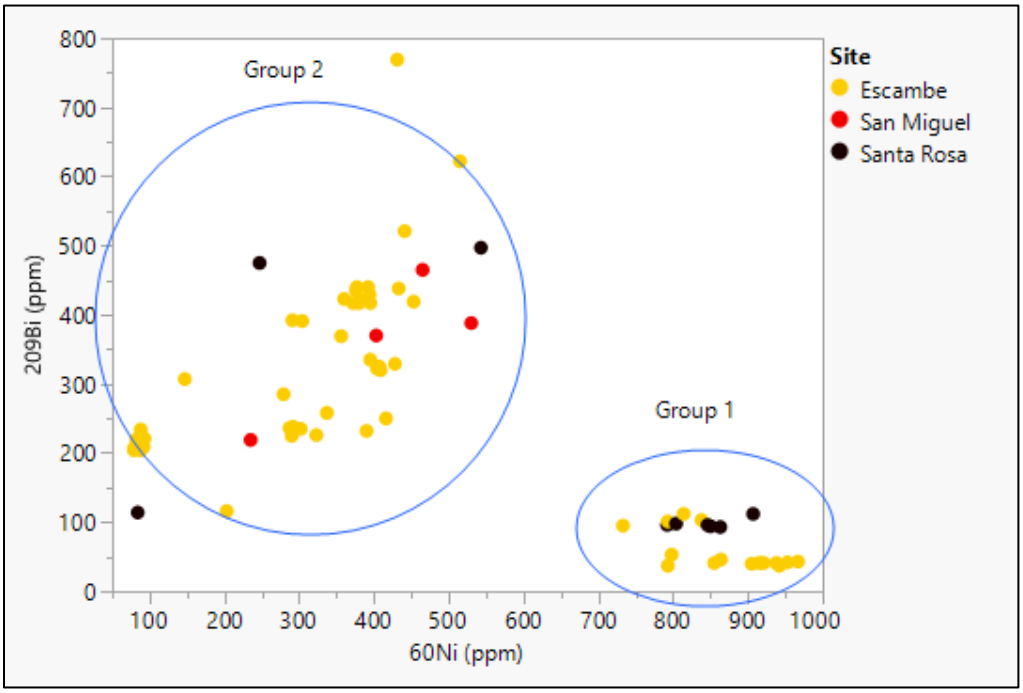


FIGURE 4.52. Biplot of nickel and bismuth concentrations in blue beads.

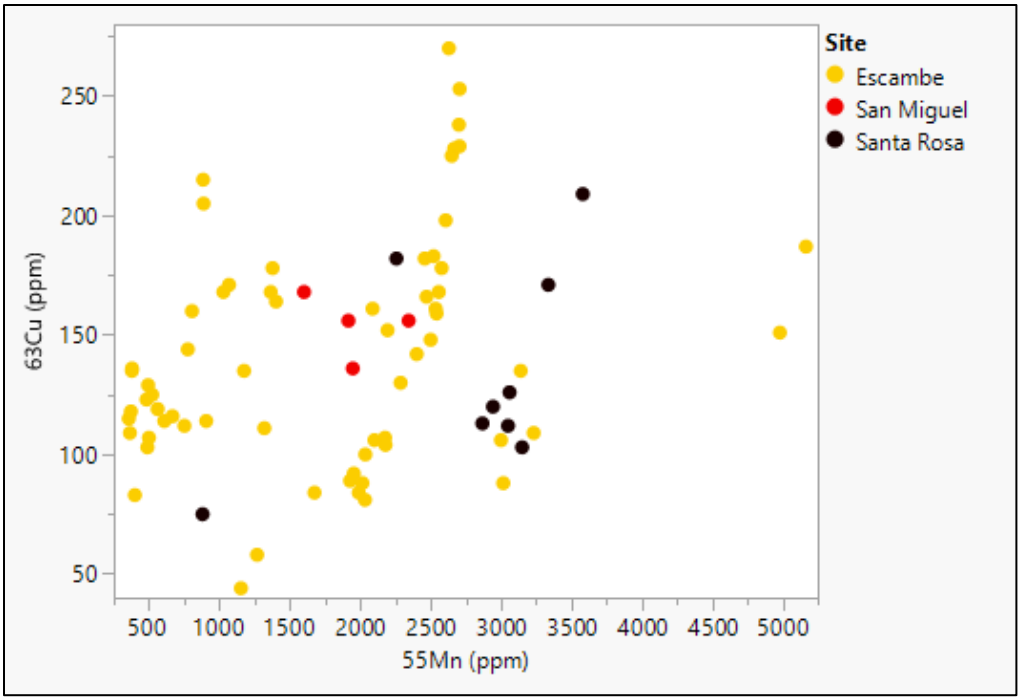


FIGURE 4.53. Biplot of copper and manganese concentrations in blue beads.

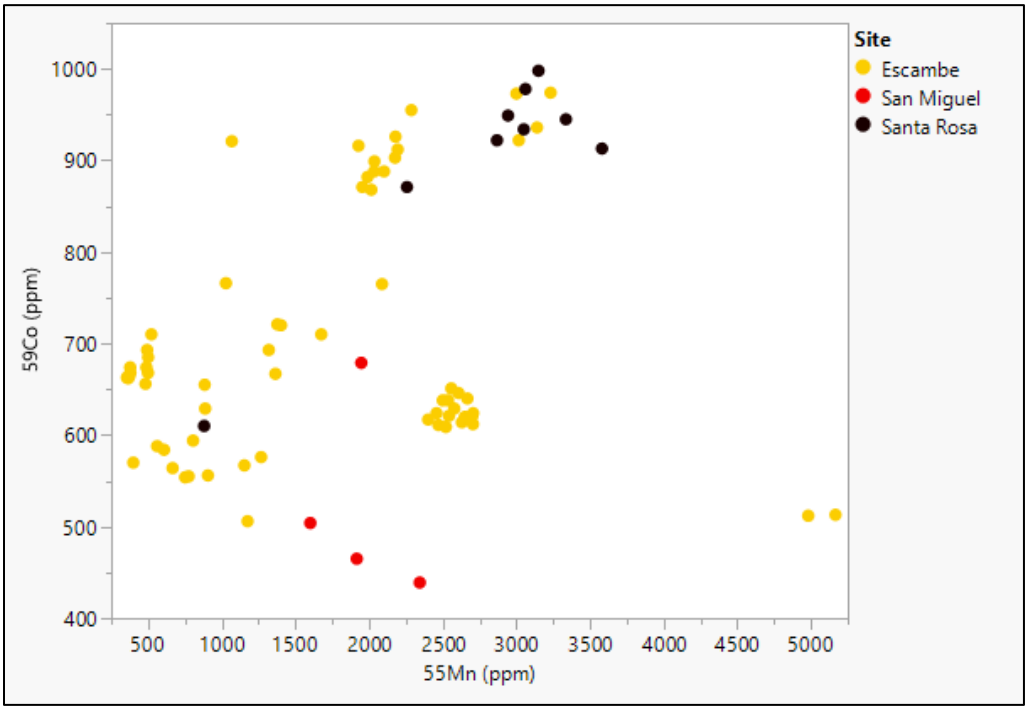


FIGURE 4.54. Biplot of cobalt and manganese concentrations in blue beads.

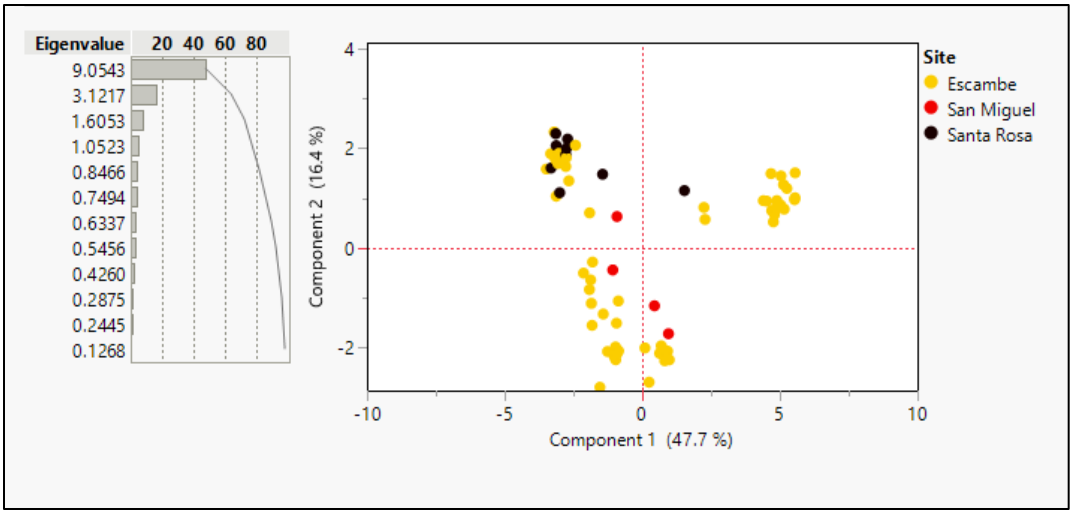


FIGURE 4.55. PCA of blue beads from two presidios and mission.

Black Beads

A total of 166 black beads were sampled from the two presidios and mission (Table 4.4). Almost all of the black glass beads were formed with silica and colored with manganese with little to no copper (Figures 4.56-4.57). Interestingly, there is a group of black beads from San Miguel that have much lower amounts of silica (approximately 30 percent) and equal amounts of lead (approximately 30 percent) as opposed to all the other glass beads analyzed, which were formed with higher amounts of silica and little or no lead (Figure 4.58). This group of beads also had no sodium and low calcium (Figure 4.59), high alumina and low magnesium (Figure 4.60), and more than one percent phosphorus (Figure 4.61). It is possible that these black beads were colored with proterobas, the igneous rock found in the mountains of Bavaria; an ingredient that contains low levels of potash and soda, but higher levels of alumina and iron. However, not enough data is available to accurately identify the

rock as the primary colorant, especially since manganese levels are higher in those beads than iron, calcium, and alumina combined.

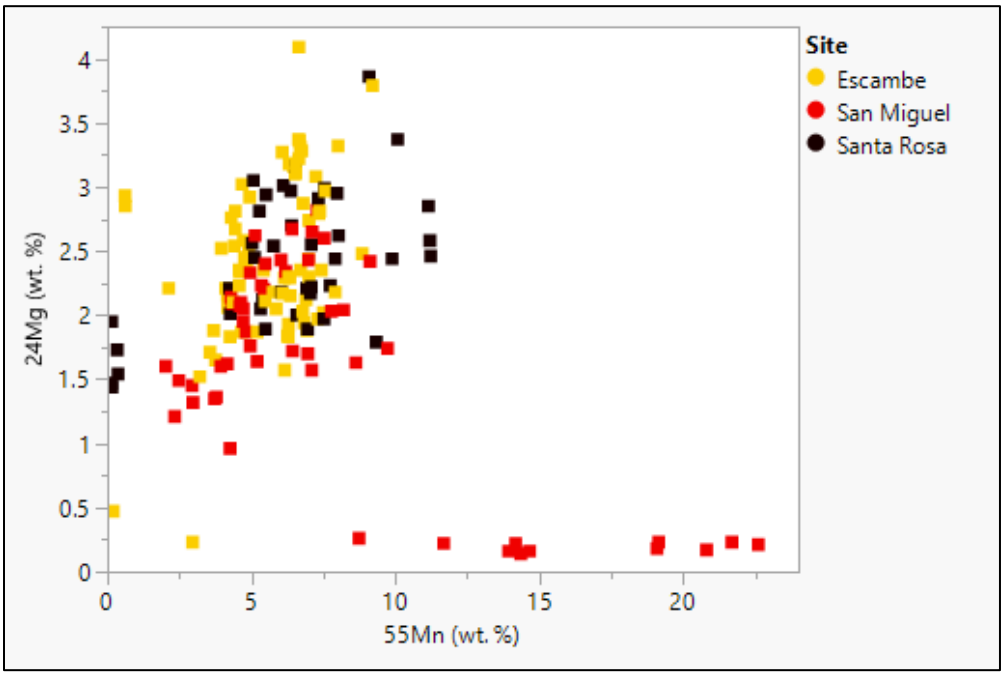


FIGURE 4.56. Biplot of manganese and magnesium concentrations in black beads.

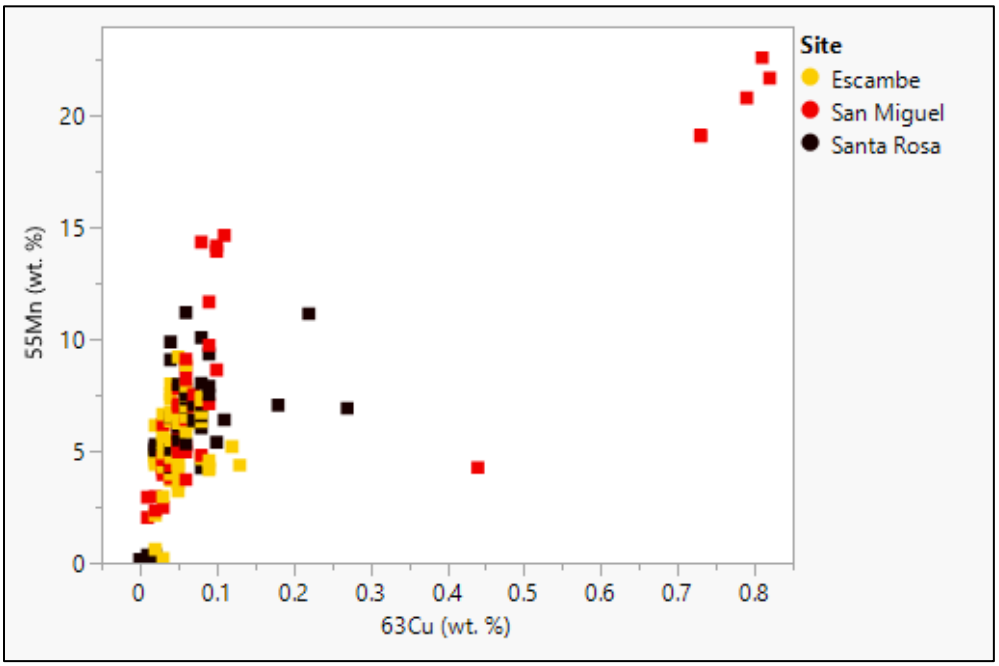


FIGURE 4.57. Biplot of manganese and copper concentrations in black beads.

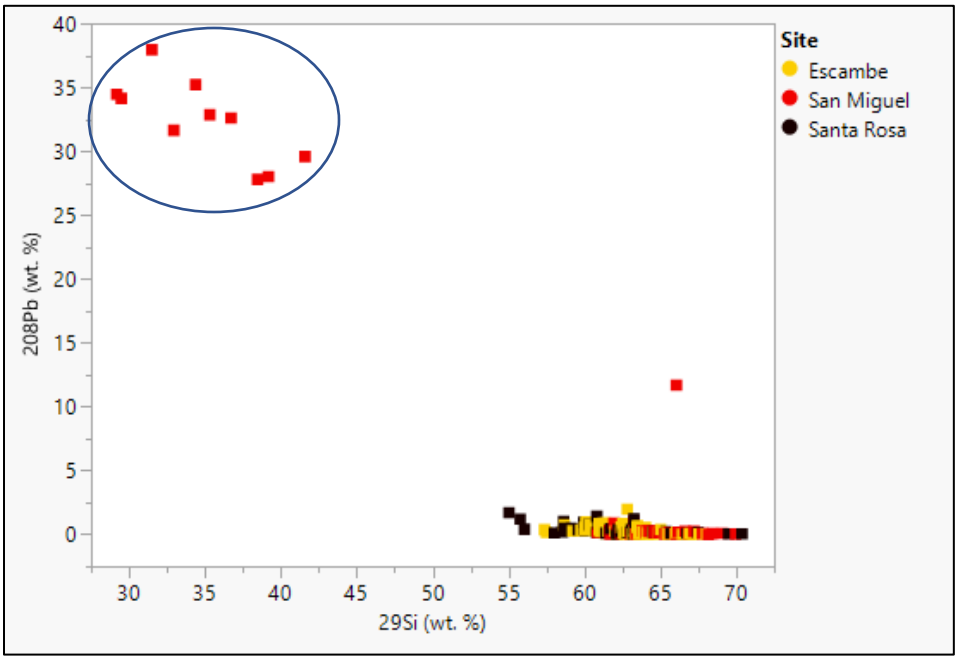


FIGURE 4.58. Biplot of silica and lead concentrations in black beads.

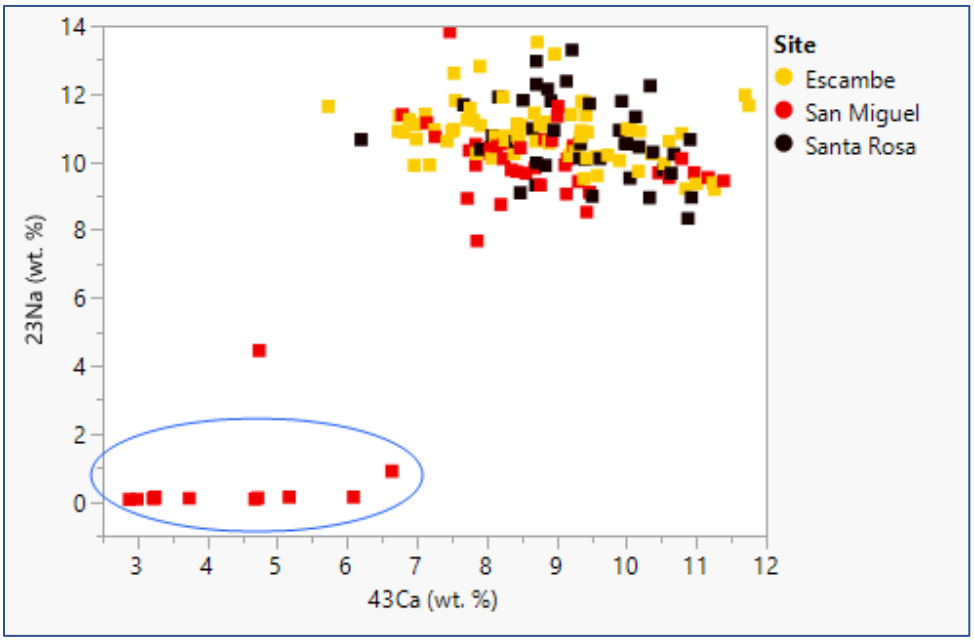


FIGURE 4.59. Biplot of calcium and sodium concentrations in black beads.

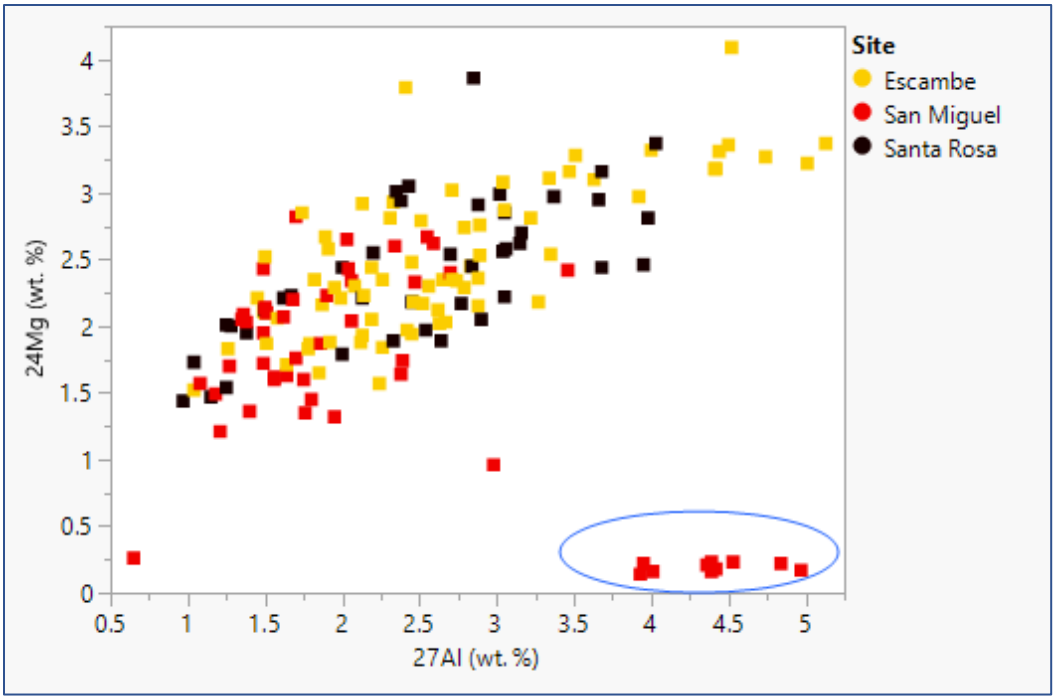


FIGURE 4.60. Biplot of aluminum and magnesium concentrations in black beads.

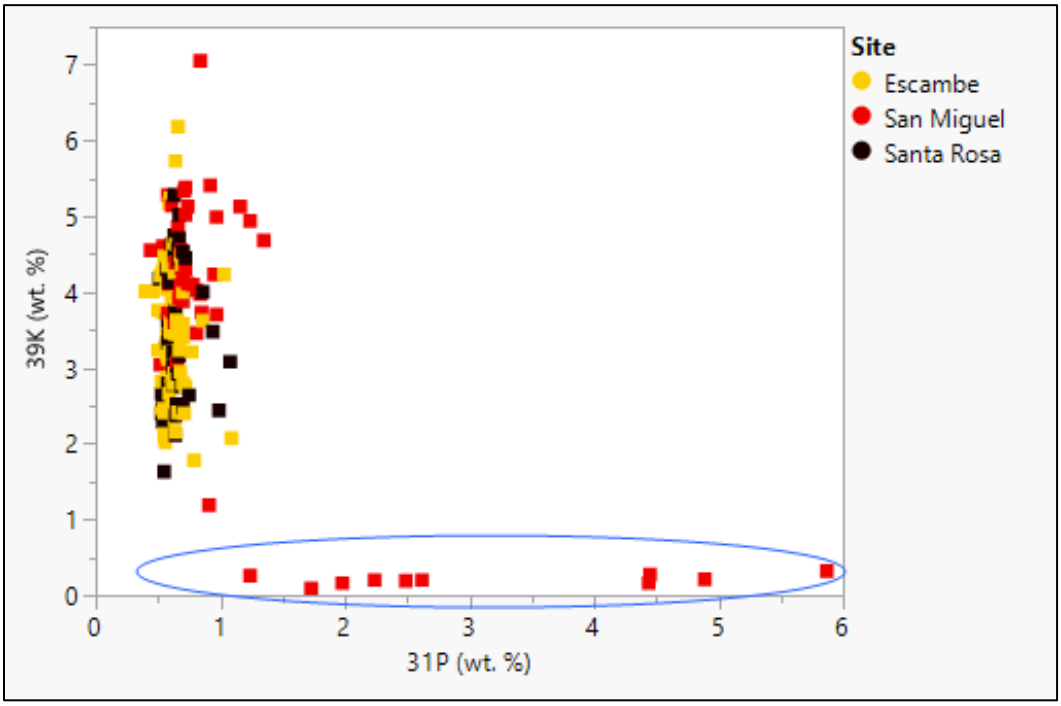


FIGURE 4.61. Biplot of phosphorous and potassium concentrations in black beads.

Compositionally the black beads are similar; however, some slight distinctions can be made using certain minor and trace elements. A biplot of barium and titanium not only marginally differentiates the black beads by site, it also shows chemically distinct clusters that could represent batches of glass (Figure 4.62). As we see with the white glass beads, there is some overlap between Escambe beads and the presidio beads, but for the most part black beads from each site have distinct chemical signatures (Figures 4.63-4.64). Also, in alignment with the white and blue beads, the chemical signature of black beads from Escambe most closely overlaps with that of Santa Rosa. Variability within each site is visible using PCA. For the most part, the black beads from Santa Rosa are chemically similar, and the beads from San Miguel and Escambe show more compositional variability (Figure 4.65). This could indicate that post 1750, San Miguel was getting supplied from different and more variable Spanish sources compared to its predecessor or that the increased influx of Creek to the presidio during peace treaty times also brought new supply chains.

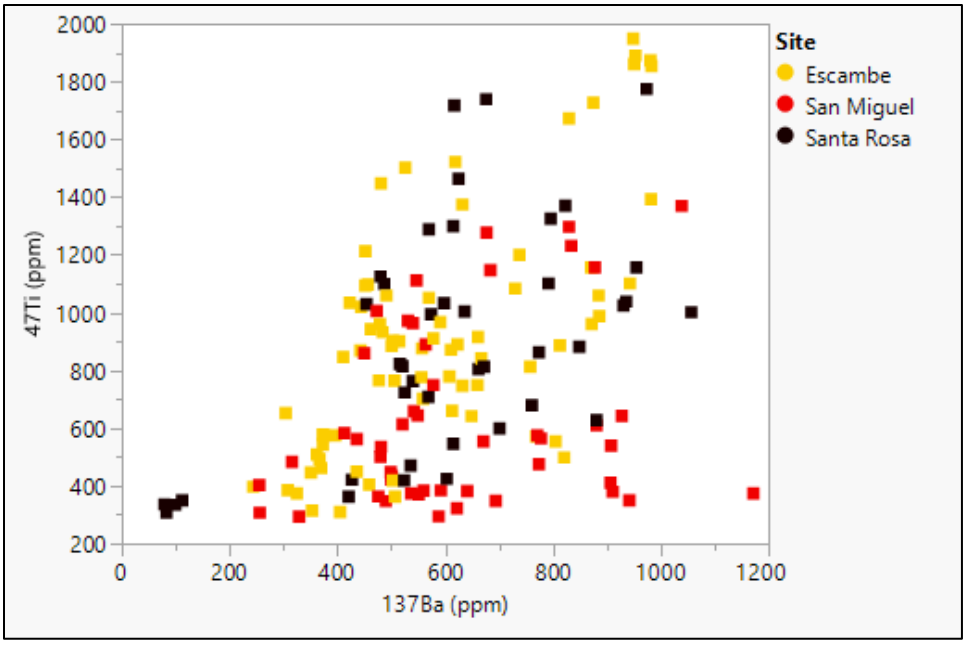


FIGURE 4.62. Biplot of barium and titanium concentrations in black beads.

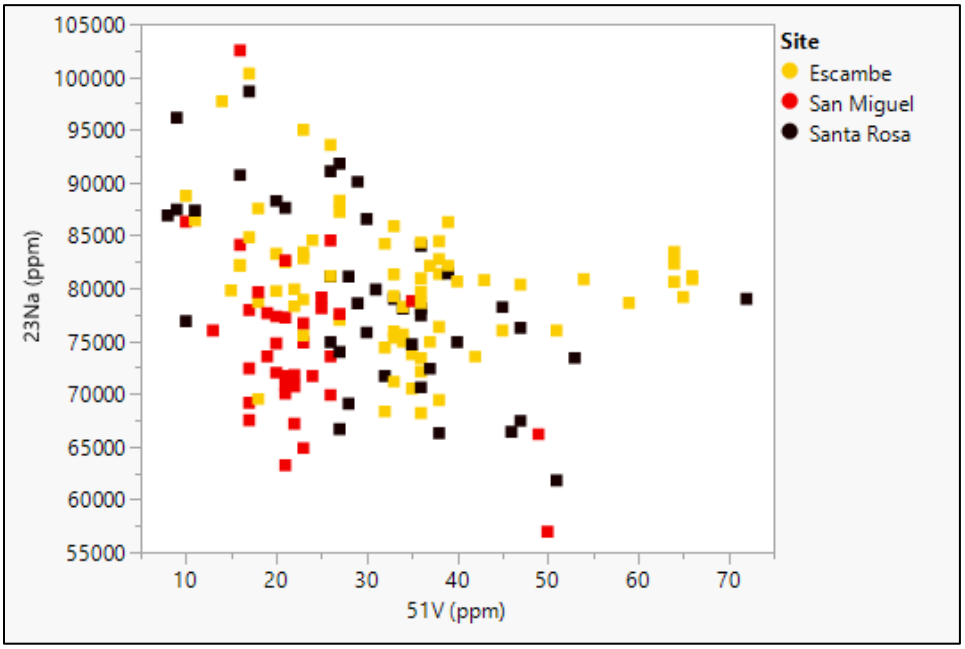


FIGURE 4.63. Biplot of vanadium and sodium concentrations in black beads.

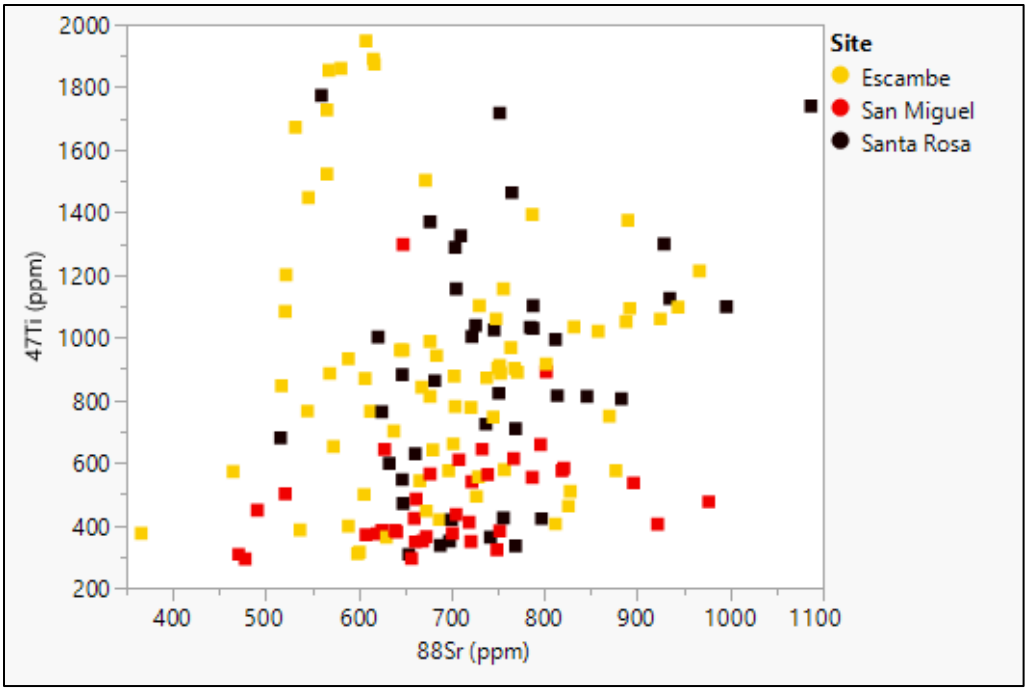


FIGURE 4.64. Biplot of strontium and titanium concentrations in black beads.

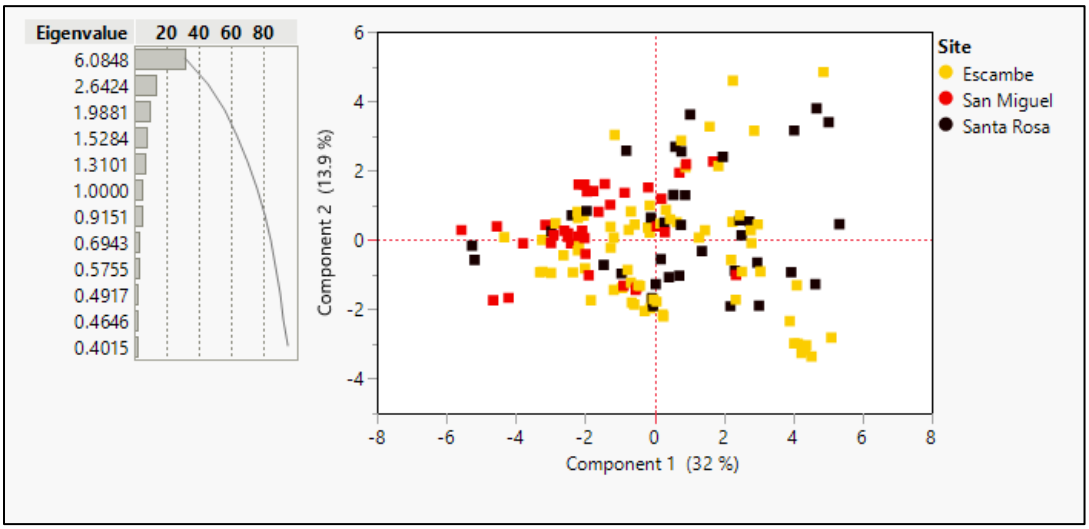


FIGURE 4.65. PCA of black beads from the two presidios and mission.

Discussion

A majority of the glass beads were fluxed with soda-lime which is tentatively a Venetian glass recipe, but a small amount of beads are fluxed with potash suggesting a possible western European production origin. Glass bead varieties within

the two presidios differed slightly from those within the mission. Apart from the large amount of blue, black, and white seed beads present at all three sites, the presidios had more varieties of larger necklace type beads as well as the presence of Cornaline d'Aleppo beads. Based on the historically reported preferences for bead colors, this evidence makes sense. More Spanish inhabitants were present at the presidios than at the missions. Other than these differences, not much can be said about where these beads were coming from or what they were used for (trade, payment, etc.).

Patterns revealed through chemical analysis include both variability and chemical similarities within and between the presidios and mission. A general trend that is seen for each color is that within Escambe some beads are clearly distinct chemical groups; however, other beads from the mission overlap in chemical composition with beads from Santa Rosa primarily, and less so with San Miguel. This pattern could indicate two possibilities. One being that pre-1750, Escambe was mostly supplied by Spanish supply lines (through Santa Rosa), but after 1750, supply chains shifted and Escambe residents started getting beads from sources outside Spanish influence (i.e., French and British-allied Creek). This fact is interesting because by 1750, a small detachment of Spanish soldiers was stationed at both missions and would likely have brought beads, cloth, brandy, and other items from the presidio for trading with mission inhabitants or visiting Creek. A second possibility is that San Miguel was supplied by different sources coming from Seville and thus had beads made with different recipes. Since San Miguel residents were also intermittently at peace with the French during this time, they also could have been

getting a new supply of beads from French traders at either Toulouse or Mobile, or from English merchants coming from Havana, both avenues being less than legal. From 1756-1757 the laws relaxed granting Havana merchants access to Campeche and Veracruz to buy locally-produced food or Spanish wines, and then transport them freely to Presidio San Miguel and sell them at a retail store (John E. Worth 2020, pers. comm.). Much more chemical analysis of the present collection of beads as well as beads from French and English contexts would be needed to fully unravel the complexity of glass bead distribution and consumption in this region. For instance, if glass beads from Fort Toulouse or Tucabatchee matched chemically to those found in Escambe (the beads distinct from San Miguel and Santa Rosa beads), then one could assume that some of Escambe's beads were coming from French contexts. Similarly, if the chemical composition of those beads also matched those from the two presidios that would mean that beads were traveling down the line through the missions and into the presidios. The isotopic analysis of the lead shot may provide better insight into where certain items are coming from due to the fact that opposed to the beads their provenance can be determined with more certainty.

Chapter 5: Lead Shot Research, Analysis, and Results

In comparison to glass bead studies, lead bullet and shot studies are much less detailed and varied. Even though lead bullets and shot are ubiquitous on historic sites, especially at forts, battlefields, and contexts where fighting or hunting was prevalent, they do not offer much in the way of inferable data. In contrast with glass beads, bullets were relatively uniform in shape and had a standardized size range because of their functionality. The weapons the bullets were used in were also standardized allowing archaeologists to infer the type of weapon used based on the diameter or caliber of the bullet. Bullets were also made in fewer ways than glass beads, being produced either by casting or dropping through a sieve. While attributes such as bullet diameter and weight offer some indication of weapon types, many gaps remain in defining these ubiquitous yet morphologically mundane artifacts. However, by linking artifacts to geographically restricted source materials based on their isotopic signature, provenance determination can infer mobility patterns and economic interaction systems (Neff 2012:829). Based on the ratios or isotopic fingerprints of the four isotopes of lead (^{204}Pb, ^{206}Pb, ^{207}Pb, and ^{208}Pb) to one another in a given sample it is possible to compare archaeological samples to known ore sources and make inferences on the origin of the archaeological sample (Schooler 2009:8).

These ratios are a result of differences in the composition of the source material within which the lead mineralized and the age of the deposit. Materials made

from lead can be matched to their geological source using this lead isotopic fingerprint, because it is shown that there is no significant isotopic fractionation of lead during either the production or subsequent weathering of these materials (Brill and Wampler 1967). In other words, the ratios of isotopes do not alter during these processes. The use of isotopic analysis of lead greatly increases the lead shot's interpretive value as it can evidence where the lead ore was mined as well as the cultural context in which it was distributed. Isotopic and chemical studies of lead bullets and lead shot strengthen traditional morphological studies and aid in understanding the complex colonial landscape of trade and distribution. Overall, the provenance of the lead shot from the presidios and missions in West Florida will ultimately inform whether the Spanish were getting their supply from Spanish (legal) networks or not, and whether the missions were supplied the same way or by some other means. Such an analysis of lead can help clarify questions relating to the supply and trade of lead and finished ammunition, as well as conflict and competition among colonial-era Native polities (Schooler 2009:2).

Lead Shot Traditional Studies

Traditional studies of firearms and munitions on colonial sites have largely focused on the types of weapons used, and what they were used for. Weapons found on Native American sites have provided information on European trade networks and the nature of goods offered to indigenous peoples (Branstner 2008:168). The presence of lead balls and shot is rarely interpreted beyond the conclusion that hunting and shooting was taking place and whether it was used in a pistol, musket, rifle, or shotgun. Some studies have used spent ammunition to plot various combatant

positions and reconstruct battles (Branstner 2008:169). Additionally, musket ball data in particular can serve as a proxy for weaponry when there is a lack of weapon parts at a particular archaeological site (Farry 2005a). For example, the traditional British gun was the Brown Bess (0.75 caliber), which used a different caliber of bullet from the French Charleville musket (0.69 caliber). The first standardized infantry musket for the Spanish was introduced in 1752, however, as early as 1702, Spanish muskets were made to shoot lead balls comparable to the British model (0.73 and 0.78 caliber). Unfortunately, a great number of lead balls and shot are distorted from storage, handling, abandonment, or use, making accurate measurement of ball caliber very difficult (Branstner 2008:170). Several researchers have used a combination of historical data and empirical measurements and equations to aid in the measurement of distorted lead balls and shot; however, the degree of accuracy varies widely when used on severely damaged bullets and other factors. Other studies have used the malformation of bullets as a means to understand cultural or biological modifications to the bullets like bullets exhibiting chew marks from humans or pigs (Sivilich 2016). Overall traditional studies of musket balls offer insight into the types of weapons used, how certain battles progressed, and potential uses other than hunting or fighting.

Manufacture and Distribution

During the colonial period, lead bound for Spanish colonies came predominantly from both silver and lead mines in Mexico, but also from Europe, particularly Britain and France in the eighteenth and nineteenth centuries. In general, nearly all of the American silver has been found in the great chain of mountain ranges

that stretch from Chile to Canada. Mexican silver ores were deposited in highland uplift areas by upwellings of mineralized water containing sulfides of silver and other minerals (Schooler 2009:71). In order for silver to be processed correctly it needed to be smelted and lead was the obvious choice as it lowered the melting temperature of the silver and was readily available as a byproduct of silver mining. Lead was conveniently found with silver in most silver mines. Smelting in New Spain was introduced by a group of German miners in the 1530s and required large quantities of lead oxide (litharge) to coax the trapped silver into a more manageable alloy (Brading and Cross 1972:552; Schooler 2009). In 1555, a new method called the patio process was invented that used mercury instead of lead. The patio process was greatly improved upon in the coming decade and this flux-free process allowed for the extraction of silver from poor-grade ores (Schooler 2009:72). Soon after its invention the Spanish Crown created a monopoly to control the production, sale, and distribution of mercury; the necessary component in the silver refining process (Brading and Cross 1972:547; Garner 1988:915). Prior to 1800, over 430 silver mines were discovered and utilized in New Spain (Schooler 2009:70). By the eighteenth century lead was starting to make a comeback in the silver refining process, and Mexico emerged as the world's chief producer of silver, which funded Spanish colonies in the Caribbean and North America (Brading 1970:665–666). Lead rarely occurs as pure lead and needs to be extracted through smelting as well, a process that involve heading the ore in a furnace to separate the lead from other minerals. The molten lead is solidified into blocks called pigs (Elliot and Seibert 2017). Galena, or

lead sulfide was the principal lead-bearing ore, but various other lead carbonates, oxides, and sulfates were exploited for their lead content. Lead was not only used for silver mining but also to produce ammunition needed for hunting and war.

War required an increased expenditure on, and consumption of lead, especially for projectiles. Hand-held firearms relied on lead projectiles because lead was malleable yet hard enough to cause damage. Its softness was less damaging to iron gun barrels, its high density slowed for better velocities, and its low meting point facilitated production using wood fires (Elliot and Siebert 2017:10). Due to lead's distortion upon impact and relatively small size, it was too difficult to recover. At the same time, both the increasing popularity and availability of firearms created a new market for a largely non-recycled consumption, which also created an increasing drain on accumulated stocks of lead in colonial countries (Burt 1995:32; Schooler 2009). This became extremely problematic as guns evolved in efficiency and proficiency over time. By the eighteenth century, guns could fire around four rounds per minute, which significantly increased the consumption and wastage of lead during battle (Burt 1995).

Just as the Spanish colonies in the Americans were primarily supplied from New Spain, the ever-growing English colonies relied on their mother country for lead ammunition (Figure 5.1). By the early eighteenth century, the lead industry in England was the largest and most important part of the non-ferrous mining sector, especially since tin (the major non-ferrous metal export during the sixteenth century) suffered severe shortages (Burt 1995:35; Elliot and Seibert 2017). As a side note that

relates to glass bead opacification, the decrease in availability of tin from Britain was most likely the main cause for the adoption of antimony for opacifying glass. Lead mining in North America was extremely limited. Lead mining within British colonies was constrained to a few mines in Virginia, so it is probable that the colonies got most of their supply from England (Sivilich 2016:18). Exports of lead from 1705 to 1769 reached industrial scale, increasing from 15,000 tons to nearly 20,000 tons, predominantly leaving ports in England and Wales (Burt 1969:259).

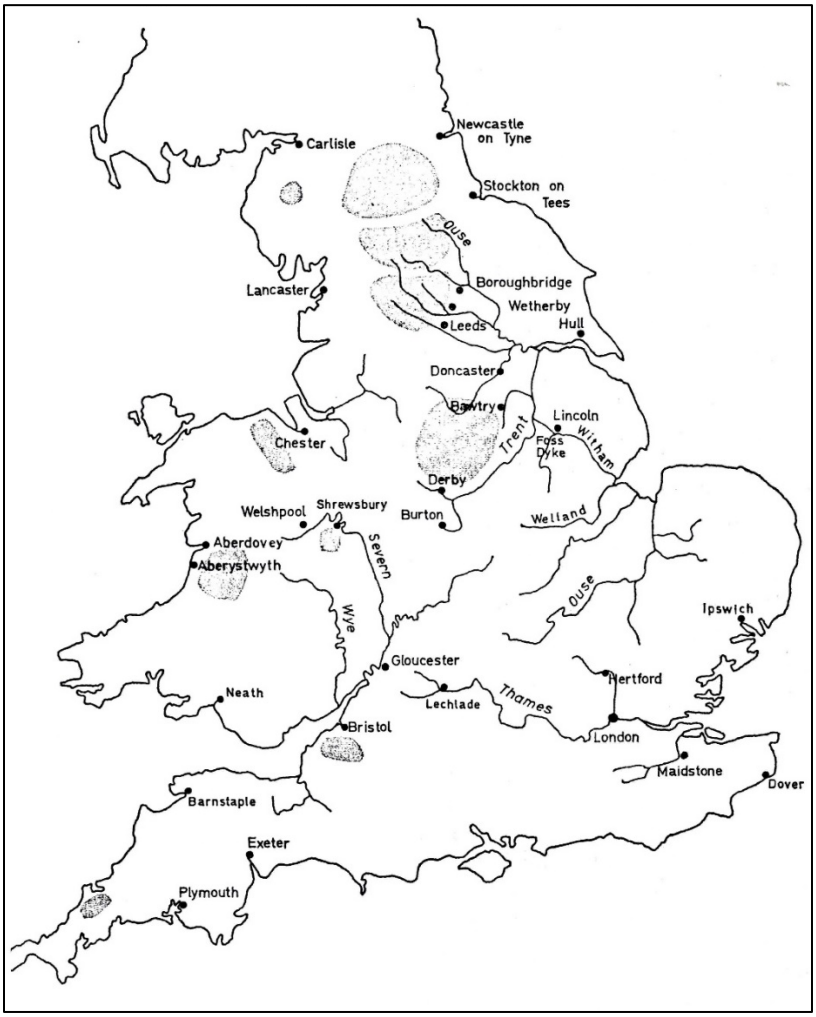


FIGURE 5.1. Grayed areas represent major lead mining districts in the United Kingdom (Burt 1969:252).

Even though Virginia served as a major source of lead in eastern North America during the eighteenth century, a boom in lead mining in the Mississippi River Valley followed the Louisiana purchase in 1803 (Elliot and Seibert 2017:4). Lead mines were established by the French and their Native allies in the upper Mississippi watershed as early as 1680 and in French Louisiana as early as 1721 when French explorers began mining near present-day Potosi, Missouri (Schooler 2009; Elliot and Seibert 2017:7-8). Although the French actively used these mines during the eighteenth century, they also relied heavily on lead and finished ammunition imported directly from Europe (Schooler 2009). In 1733, the governor of New Orleans wrote a letter complaining about the lack of lead in all of Louisiana, proving that French colonies supplemented the local lead with imports.

Nature of Trade

The nature of colonial supply and trade during the eighteenth century was extremely complex, with lead serving as an essential supply and commodity within this complicated framework that was distributed widely throughout the colonial world (Schooler 2009:144). As discussed in Chapters 2 and 3, French-origin artifacts entered Spanish-supply chains in interactions with Pensacola, St. Augustine, and Veracruz. Lead would enter colonial commerce either by importation through Europe, or from domestic production. Under certain circumstances the Spanish sometimes acquired ammunition from the French, and more rarely the reverse occurred with the French acquiring guns from Mexico (Schooler 2009). Guns and ammunition found within non-Spanish contexts were more likely from French or English sources as the

Spanish tended not to engage in a firearms trade in general, and specifically restricted trade of such firearms to Native groups. However, “no amount of government decree would prevent the parties from carrying on a vigorous trade,” especially if the cost of breaking those laws did not outweigh the benefits (Schooler 2009:145).

Musket balls and shot were both imported and locally made, whether cast in molds or dropped from a sieve. Single-shot balls were usually cast in molds, and archaeological evidence of molds made from iron, brass, and soapstone have been recovered (Deagan 2002:287; Sivilich 2016:17). Before 1550 lead shot was also cast in gang molds which left excess lead at the opening of the mold called sprue (Figure 5.2). Ball and shot produced by casting have a distinctive mold seam around their circumference as well as a small raised cylinder from the lead inlet channel in the mold (Figure 5.3) (Sivilich 2016). After 1550 lead shot was commonly made *en masse* using a trencher or shot colander, also known as the Rupert process. Named after Price Rupert of England, beginning in 1664 a special plate with a dish-shaped concavity in the center was used to make shot (Brain 1979:208). The concavity was similar to a colander and had holes to match the diameter of the shot being made and was substantially thinner than the surrounding rim of the plate. The brass plate was held above a tub of water and heated by placing burning charcoal in the concavity (Brain 1979). The lead melted with the addition of arsenic flux and was poured through the coal and sieve and upon impact with the water, formed more or less round pellets (Figure 5.4). The Rupert process leaves a distinct dimple on the side of the shot that hits the water first as well as a small tag at the opposite end where the shot

left the sieve and was stretched by gravity as it cooled slightly on its way to the water (Figure 5.5). The projectile produced is spheroid resembling an apple or tear drop shape (Sivilich 2016). The Rupert process was used until the shot tower was invented in 1769 in England. In a shot tower, the molten lead was poured through a perforated trencher, and the long fall (roughly 45 meters) produced a nearly spherical shape before the shot came in contact with the water at the bottom of the tower (Deagan 2002:288).



FIGURE 5.2. Lead sprue from the Pensacola presidios (Prov. #4849-70, Photo by author, 2020).



FIGURE 5.3. Lead musket from the Pensacola presidios (Prov. #4529-5, Photo by author, 2020).

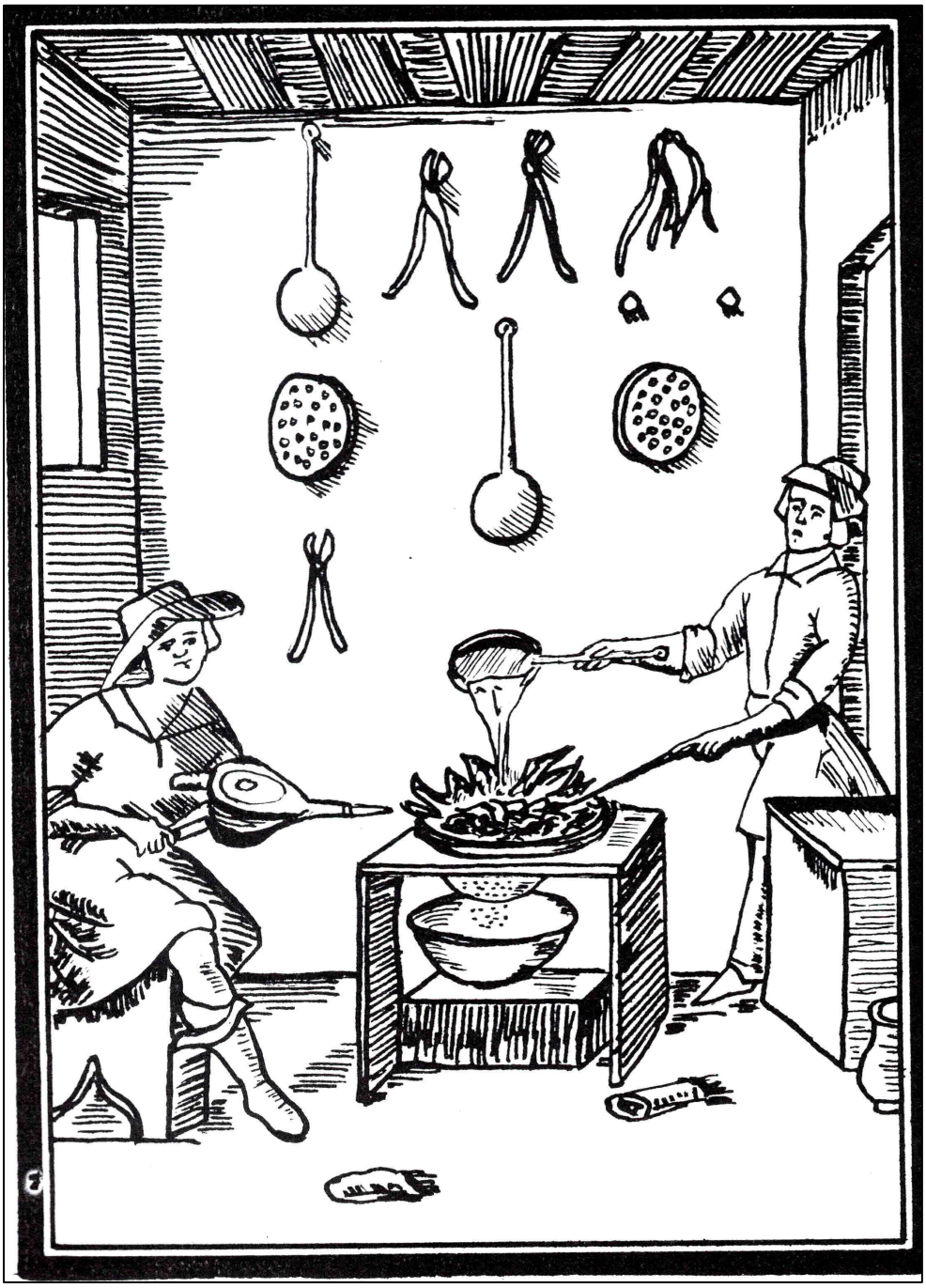


FIGURE 5.4. How lead shot is made (Brown 1980:64).



FIGURE 5.5. Dropped lead shot from the study sites exhibiting dimple (Prov. #1154-9, Photo by author, 2020).

Lead balls and shot come in a variety of standard sizes. It was necessary to cast lead projectile smaller than the bore size of the weapons so that they would not just stick in the barrel. This size difference created a windage typically between 0.05 and 1 inches in the musket (Farry 2005b:462; Sivilich 2016:18). Shot came in all sizes ranging from 2.97-4.67 mm and the sizes corresponded with the type of game they were typically used for (i.e. buck or bird). There was no problem with windage with small shot so they could be made more crudely than musket balls (Figure 5.6). Small shot could either be used by itself or with lead balls. The latter combination is called a buck and ball charge, which consisted of a large ball and several smaller buckshot (Branstner 2008). This produced a shotgun blast providing a wider arc of damage at close range. Smaller diameter balls in Chareville muskets were about 0.28 caliber in comparison to the large caliber balls (0.31) used in a Brown Bess

(Branstner 2008). The French had a different naming system for their lead shot sizes, including wild goose, duck, dove, royal, and ½ royal (Brain 1979). Spanish names for shot sizes include *posta* and *perdigón*.

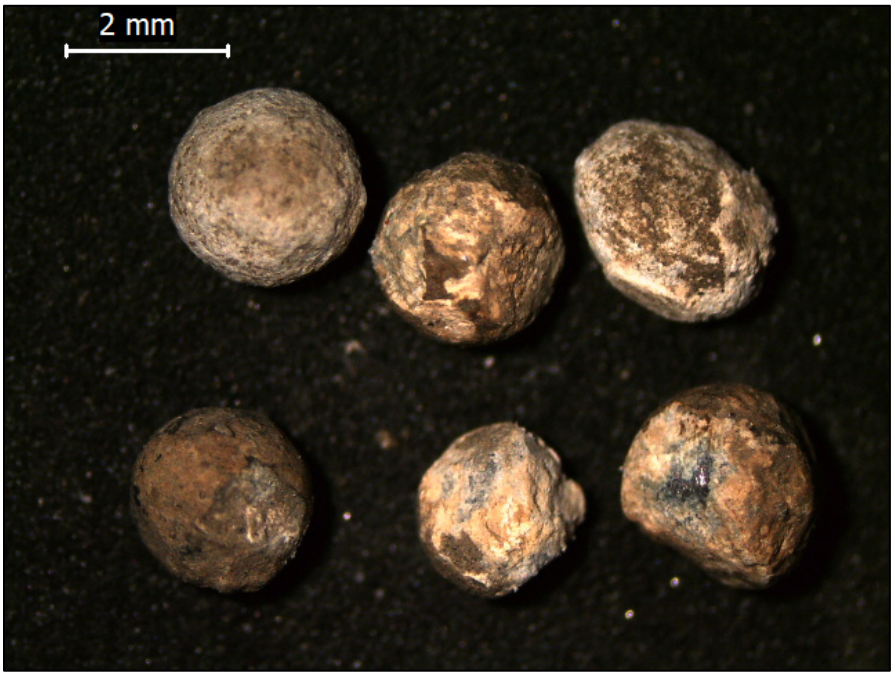


FIGURE 5.6. Lead shot from the study sites exhibiting a range in shapes (Prov. #350-7, Photo by author, 2020).

Gun styles and sizes changed during the eighteenth century as new firing mechanisms were invented; however, replacement and standardization in the colonies was delayed. The proportion of cavalry in armies declined as the flintlock muskets and bayonet used by the infantry increased in effectiveness (Black 2013:92). The replacement of the matchlock took about 35 years to be phased out of use in the French military. The Spanish took even longer to replace their matchlock arquebus (*arcabuz*) and musket (*mosquete*) with the flintlock infantry *fusil* and *escopeta* (Brown 1980:173). Additionally, a shorter-barreled gun called *carabina* (carbine) was

purchased in the 1750s for the Pensacola cavalry (John E. Worth 2020, pers. comm.) The military transition to flintlock firearms was completed in Spanish Florida either before or during the War of Jenkin's Ear (1739-1743).

Methods for Lead ore and Lead Shot Isotopic Studies

Chemical Properties of Lead

Lead isotopes have been studied over the past 50 years both in geochronology and isotope geochemistry, so their nature of their variations is well understood (Stos-Gale et al. 1995:471). The isotopic composition of lead present in rocks and minerals is related to its total geochemical and geological history. This provides a unique 'fingerprint' of mineral formation and ore deposits, which are based on the ratios of the four stable isotopes of lead (Stos-Gale at al. 1995). Furthermore, the ratios of lead isotopes do not change during metallurgical processes or chemical reactions making lead an element that is ideal for isotope provenance studies of artifactual metals, glazes, and glasses that contain lead (Durali-Mueller et al. 2006:1555). Even when lead ores from different locations are mixed, the data will fall on a 'mixing line' where the endpoints of the line are uniquely defined ore deposits (Durali-Mueller et al 2006). Moreover, if separate regions have similar isotopic ratios, the use of contextual historical information will help delineate sources from one another. For example, French and Australian sources are similar, but it is highly unlikely that the French were getting lead from Australia during the eighteenth century (Schooler 2009:8). The success of this method is dependent on having extensive information about lead isotope compositions of ore deposits relevant to the archaeological research in question. Unfortunately, most geological reports and publications focus on lead

measurements that are used either for dating geological formations or for mineral prospecting (Stos-Gale et al. 1995:407). These studies tend to focus on large, well-known, heavily exploited deposits, and tend to neglect small, un-economic occurrences, which may have been important in the past.

As mentioned earlier, lead has four stable isotopes, designated as ^{204}Pb, ^{206}Pb, ^{207}Pb, and ^{208}Pb which represent atoms weighing 204, 206, 207, and 208 atomic mass units (Brill and Wampler 1967:63). Lead isotopes 206, 207, and 208 are formed as the end products of the radioactive decay series of uranium (^{238}U and ^{235}U) and thorium (^{232}Th), while ^{204}Pb is completely primordial (Brill and Wampler 1967). The isotopic composition of lead observed in nature will reflect the concentration of uranium and thorium in the source material as well as its age (Rosman et al. 1997:3414). To clarify, the lead in the crustal rock steadily changes over geological time as uranium and thorium decay (with long half-lives), but the lead in ores remains constant because the lead was already separated from the uranium and thorium at the time of the ore formation. The least abundant isotope is ^{204}Pb, which is inherited from the original lead of the solar system (Cannon and Pierce 1969:2). The lead isotope 204 makes up less than two percent of the world's stockpile, but it is also the most sensitive indicator used in lead isotope analysis (Schooler 2009:6). The other three lead isotopes are the more abundant and are part original and part radiogenic.

Lead isotopic analyses have been successfully applied to studies involving Old World and ancient uses of lead and other metals in the past (Brill and Wampler 1967; Gale and Stos-Gale 2000). However, only recently have lead isotopes been

utilized in North American studies. Most studies using lead isotopes have focused on analyzing lead found in bone tissue to answer questions of cultural affinity, migration patterns, and health effects of pollution from historic lead smelters (Reinard and Ghazi 1992; Augustine 2002; Rabinowitz 2005). In addition, extensive work has been done on tracing lead isotopes in Pueblo IV Southwestern U.S. glaze paints to their geological origins (Habicht-Mauche and Huntley 2005; Fenn et al. 2006; Huntley 2006; Huntley et al. 2007). Limited studies have focused on historic lead mining and ammunition production (Cannon and Pierce 1969; Cumming et al. 1981; Farquhar et al. 1995; Bonine et al. 2009; Potra et al. 2018). Cumming et al. (1979) were able to identify nine geographically distinct clusters in Mexican lead mineral deposits based on lead isotopic concentrations. Research from Cannon and Pierce (1969) and Potra et al. (2018) show that the lead isotopic compositions of ores from the Upper Mississippi Valley, southeast Missouri, Illinois-Kentucky, Northern Arkansas, and Appalachian region districts are significantly variable and define linear trends (Figure 5.7). Additionally, the ores from the Tri-State, central Missouri, Central and East Tennessee, and South-Central Kentucky mining districts define tight clusters (Potra et al. 2018:183). Studies found that the leads from the districts of the Mississippi Valley are unique in that they are exceptionally enriched in radiogenic isotopes 206, 207, and 208 (J-lead) or abnormally enriched in the decay products of uranium (U-lead) (Cannon and Peirce 1969:5-6; Schooler 2009). Equally scarce are studies concerning the elemental composition and provenance of colonial era lead-based ammunition in North America (Schooler 2009; Elliot and Seibert 2017).

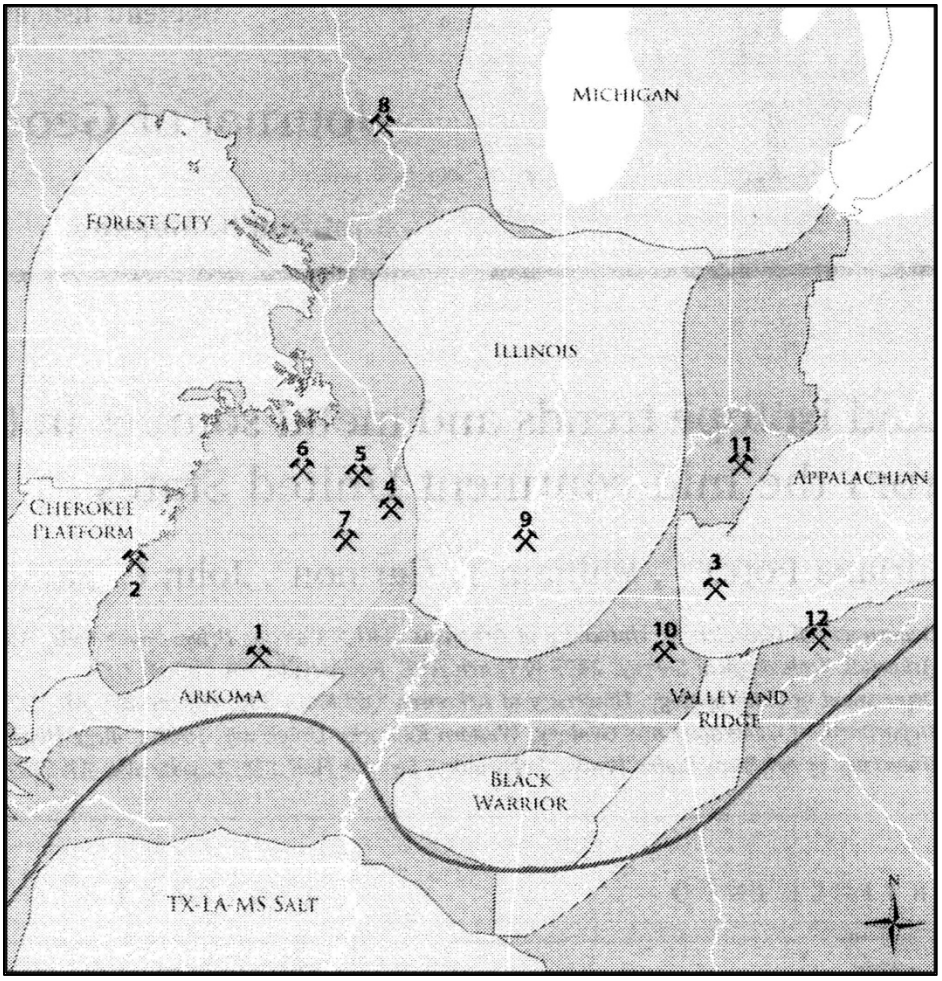


FIGURE 5.7. Mining locations for Mississippi Valley Type (MVT) lead (Potra et al. 2018:175).

XRF, TIMS, and MC-ICPMS

Although XRF cannot be used to determine the relative ratios of lead isotopes, it can detect minor elemental impurities in the lead, which could be used to determine regional or even local differences in archaeological lead. Common impurities measured with XRF include arsenic, antimony, bismuth, gold, silver, copper, tin, cadmium, hafnium, zinc, nickel, uranium, and thorium. In an earlier study by Seibert et al. (2015), the authors were able to differentiate between Mexican and US small

arms round balls based on the presence/absence of copper. It was determined that Mexican ammunition in the nineteenth century contained significant amounts of copper, while ammunition from the US did not (Elliot and Siebert 2017).

Originally the dominant technique used to determine the relative ratio of lead isotopes in geological contexts was Thermal Ionization Mass Spectrometry (TIMS), which is extremely accurate. However, sample preparation is time-consuming and complex, and it is difficult to process multiple samples, making this technique less than optimal for archaeological provenance studies. In the 1990s, with the development of more reliable high resolution and multi-collector instruments, inductively couple plasma mass spectroscopy began to replace TIMS in archaeometric applications of lead isotope analysis. These instruments allow for a greater number of samples to be run more efficiently. Multi-collector ICP-MS instruments can achieve results that are very comparable to TIMS, but even high resolution single collector instruments can be used effectively to isotopically characterize distinct lead sources and determine the provenance of lead used in archaeological materials (Habicht-Mauche et al. 2002).

The master's thesis by Schooler (2009) uses TIMS and MC-ICP-MS to identify and source lead artifacts found in Spanish and French archaeological sites in Texas. He tested 110 lead artifacts from different eighteenth-century colonial sites in Texas and Oklahoma to determine whether French sources of lead could be distinguished from Spanish sources, at least at a continent-wide scale. The analysis was highly successful despite lead source mixing and recycling, and lead artifacts

were attributed with 92.4 percent accuracy to either European, Mexican, or French occupied Mississippi Valley sources (Schooler 2009).

The results of Schooler's study show that lead from both Europe and southeastern Missouri entered into the French colonial trade system in such a way that it was eventually deposited at sites far removed from its origins. Schooler was only able to draw this conclusion by considering the full historical, archaeological, and geological context of the lead artifacts. The main difference between the French and Spanish sources is that the Mexican silver-lead mines in New Spain appear to have produced massive amounts of lead as a by-product, and that lead was used exclusively to supply Spanish endeavors throughout Mexico and North America, even as early as the Coronado expeditions (Schooler 2009:166). How do the lead artifacts from West Pensacola fit into this narrative?

Analytical Protocol and Methods

Sampling Strategy

A total of 1,611 lead ball and shot were selected from First Spanish period features within the missions and presidios (Table 5.1). Lead ball and shot were sampled only from features with good integrity for the presidios Santa Maria, Santa Rosa, and San Miguel. Lead shot were also sampled from intact mission midden deposits at Escambe since there were so few features. At Punta Rasa, all lead shot were sampled because no features were discovered during excavations, and only a very small assemblage of shot was recovered. A subset of 150 lead ball and shot were selected for isotopic analysis (n=50 per site). Due to time and budget constraints lead shot from only presidios Santa Rosa and San Miguel as well as mission Escambe

were selected for isotopic analysis. These three sites also represent the most contemporary occupation and Punta Rasa did not have a large enough sample size to produce statistically significant data. In the future I would like to test lead ball and shot from Santa Maria, as well as increase the sample size for all sites. Additionally, mostly buck and bird shot were selected for analysis since they are the most abundant yet offer the least visual interpretive value. The size range for buck shot is 6.1-9.1 mm and birdshot ranges from 1.3-5.8 mm, although there is some discrepancy in size ranges discussed later in the chapter (Sivilich 2016)

TABLE 5.1. Lead round ball sampled from study sites.

Site	**Bullets/shot Sampled**
Santa Maria	802
Santa Rosa	264
San Miguel	198
Escambe	347
Total	1611

Morphometric

The morphometric analysis of musket balls and lead shot is much less complicated than that of glass beads. All bullets and shot were weighed, and the manufacture method (cast or dropped) was determined. For bullets and shot that were not damaged, the diameter was taken with Mititoyo Digimatic calipers to the nearest tenth of a millimeter. Additional information such as completeness and condition were recorded as well. For damaged or non-spherical projectiles, Sivilich (1996) created a formula that calculates the expected diameter based on the weight of the

bullet since those two factors are positively correlated. Branstner (2008:174–179) improved upon this method significantly and provides a summary data table with calculations already complete for round balls ranging from 1-gauge through 200-gauge (1.67-0.29 caliber). Calibers were historically characterized in terms of gauge, where the gauge referred to the maximum number of identically sized bullets that could be cast from one pound of lead (Branstner 2008:171). This formula has not proved reliable on severely damaged bullets but does show that meaningful minimum diameter data can be extrapolated from round ball weights. The weight of the projectile does not change significantly over time due to the malleability of the raw material and its general resistance to significant erosion (Branstner 2008:182). The standard Spanish colonial era-method for both shot and bullets specifically used the weight of the projectile (John E. Worth 2020 pers. comm.).

Isotopic Analysis

Stable isotope analysis of lead shot will create a baseline for direct linkages to production origins as well as distribution patterns. Meaning, the isotopic fingerprints of the lead shot should cluster within known sources (based on previously compiled geologic research) from Mexico, Mississippi Valley, or a particular European country, or fall on distinct mixing lines between known sources. If predominantly French- or British-sourced bullets are found within the presidios or missions under a strict Spanish mercantile policy, that would suggest the settlers and Native groups were acquiring their ammunition in un-sanctioned venues.

Lead isotopes were measured via acid dissolution and aqueous induction using high resolution ICP-MS, following well-established and previously published laboratory procedures developed Judith Habicht-Mauche (Habicht-Mauche et al. 2000) in the Plasma Analytical Laboratory of the Marine Sciences Institute at the University of California, Santa Cruz. The process begins with swabbing each lead shot sample with 1% trace metal grade nitric acid and then soaking the swab for a set period in 10-15 ml of nitric acid. The lead concentration in each sample is then measured using a Perkin-Elmer ICP-OES. If the samples contain more than 25 parts per billion of lead, they are diluted with more nitric acid (1 %) to achieve a relatively consistent lead concentration of around 15-25 ppb. In the next step, the samples were analyzed with the Thermo Element XR magnetic sector high-resolution ICP-MS to determine the concentrations of the four stable isotopes of lead ratios. Each of the measured lead isotope intensities were blank subtracted and corrected using concurrent measurements of NIST standard reference common lead (SRM 981) for each run. The measured intensity of ^{204}Pb was also corrected for isobaric interference from ^{204}Hg. Ratios were then calculated using the corrected intensities for each isotope.

Data Analysis and Interpretation

Most of the data will be analyzed using simple biplots because the relationship between two measurement variables is best illustrated by a scatter or biplot. This technique shows variables that are strongly similar to each other by displaying clusters, while those that are more different from each other will wind up in different

clusters (Drennan 2009:309). Lead isotope data is traditional presented in paired biplots where the X axis of both plots are the same. This allows three-dimensional data to be presented in two dimensional plots. In addition to visually identifying distinct clusters of samples and matching these with known source data, it is important to consider the historical and archaeological context of the sample in question. We must not make premature conclusions about the cultural provenance of the artifacts based solely on the context of geologic origins revealed in the lead isotope analysis (Schooler 2009:147). For instance, lead mined in France could have been used in the manufacture of French-made ammunition, but the French also frequently imported lead from England and Germany to a lesser extent. Given the abundance and proximity of European lead sources, it is quite reasonable that sources from Germany and eastern Europe supplemented French and English domestic production. In contrast, the Mississippi Valley lead has a very distinct isotopic signature and was mined in French territory signaling a more clear-cut cultural provenance when found in Spanish or Native archaeological contexts. Furthermore, since the Spanish rarely traded guns and ammunition, an abundance of Mexican lead in French or Native archaeological contexts is also telling. Once distinct lead sources are identified with isotopic analysis, it is necessary to compare those results to the historical context of lead supply and trade.

Results of Analysis

Morphometric

Round Ball Types and Weapons

All sizes of lead round balls were recovered from the three presidios and two missions (Figure 5.8, Appendix E). However, the sample size from Punta Rasa was too small (n=4) and was excluded from analysis. Additionally, several artifacts in the assemblage were incorrectly identified as lead bullets. These artifacts are also excluded from analyses. For the most part, nearly all the lead shot was produced by dropping, either through a standard colander or with the Rupert process based on the distinctive morphology of that shot. Based on previous research there are some discrepancies on what sizes constitute different types of shot as well as historical differences in shot type names and associated sizes for the French, English, and Spanish. For example, Sivilich (2016) mentions that buckshot diameters range from 0.24-0.36 inches (6.1-9.1 mm), birdshot ranges from 0.05-0.23 inches (1.3-5.8 mm), and rat or dust shot is anything under 0.04 inches (1 mm). Farry (2005b) argues that lead shot can range from 0.12-0.18 inches (3-4.6 mm) in diameter. This range excludes several other smaller and larger sizes of shot. A quick glance at standard shot sizes used today indicates that rat shot diameters are 0.05 inches (1.3 mm), birdshot ranges from 0.18-0.20 inches (4.6-5.1 mm), and buckshot ranges from 0.30-0.33 inches (7.6-8.4 mm). Overall, the assemblage of lead shot from the selected sites ranges widely from 0.05-0.35 inches (1.3-8.9 mm) in diameter. The lead musket balls range from 0.40-0.75 inches (10.2-19 mm). There are also two grapeshot that have a caliber of 0.84-0.86 inches (21.3-21.8 mm). Based the data presented above, the lead

shot sampled from the site includes rat shot, birdshot, and buckshot; however, the exact cut off caliber cannot be determined since size ranges could not be determined from previous studies. Moreover, lead shot is not useful for the identification of weapon types that were used on the archaeological sites. The exception is the buck and ball charge used by the British Brown Bess and French Chareville muskets. Two buckshot from Escambe have the exact caliber used in a buck and ball shot for the Chareville and three buckshot from Santa Maria correspond with the caliber used by the Brown Bess. Another four buckshot match the caliber used in the Spanish musket buck and ball shot (0.33 inches).

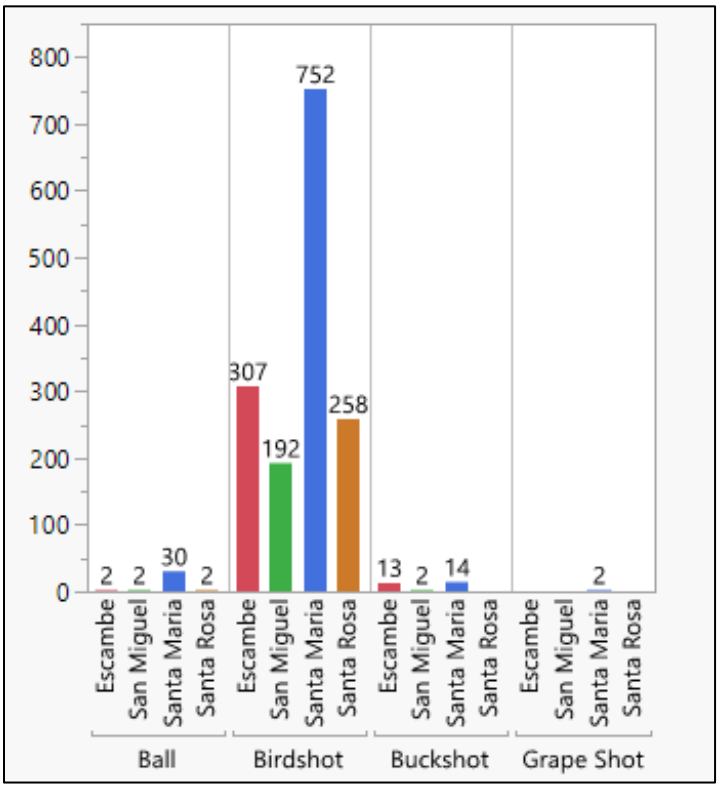


FIGURE 5.8. Round ball sizes from the study sites.

The larger lead balls offer more evidence of which weapons they were used in. Only one musket ball from Santa Maria matched the caliber used in the Brown Bess musket. Many of the other lead balls (all recovered from Santa Maria) matched the caliber of ammunition used in the Spanish musket or *fusile*, as well as their *carabinas* (carbines) and *pistolas* (pistols). Ball diameters for these weapons include 0.60-0.66 inches (*fúsil*), 0.53-0.60 inches (*carabina* and *pistola*) (John E. Worth 2014, pers. comm.). The *fúsil* was used exclusively by the Spanish infantry, and the *carabina* and *pistola* were used by both the light cavalry and dragoons. The lead balls smaller than 0.60 caliber were fired either in groups of three or six or in paper cartridges. The two grapeshot recovered from Santa Maria would also have been fired in a paper cartridge in groups. With the exception of three bullets, all the lead musket balls were cast in molds. It is expected that the round ball types at the presidios would be for Spanish weapons, more standardized than that of the missions, and possibly have larger calibers due to the military function of the presidios and residential nature of the missions.

Site Trends

A total of 802 lead ball and shot were sampled from features within Santa Maria de Galve. Regardless of its larger sample size, Santa Maria had the highest percentage of large lead balls and birdshot (Figure 5.9). Type sizes include birdshot, buckshot, musket ball, and grapeshot. Most of the lead shot ranged from 0.06 to 0.21 inches in diameter and were produced by dropping; however, the musket balls were cast in molds (Figures 5.10-5.11). A total of 264 lead ball and shot were sampled from features within Isla de Santa Rosa (Figure 5.12). Type sizes include birdshot and

musket ball. Most of the lead shot ranged from 0.07 to 0.20 inches in diameter and were produced by dropping. The variety of sizes in and presence of large round ball is significantly less than at Santa Maria (Figures 5.13-5.14). A total of 198 lead ball and shot were sampled from features within San Miguel de Panzacola (Figure 5.15). Type sizes include birdshot, buckshot, and musket ball. Most of the lead shot ranged from 0.11 to 0.19 inches in diameter and were produced by dropping. The variety of sizes in and presence of large round ball is significantly less than at Santa Maria, but more than at Santa Rosa (Figures 5.16-5.17). A total of 347 lead ball and shot were sampled from features and midden within San Joseph de Escambe (Figure 5.18). Type sizes include birdshot, buckshot, and musket ball. Most of the lead shot ranged from 0.09 to 0.19 inches in diameter and were produced by dropping. The variety of sizes in and presence of large round ball is comparable to the San Miguel assemblage (Figures 5.19-5.20).

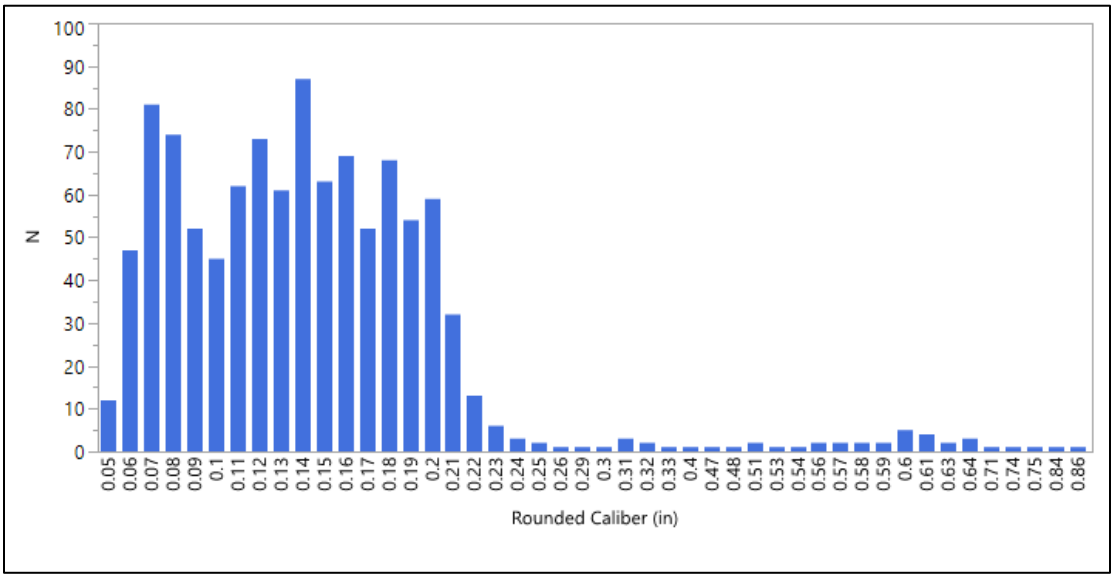


FIGURE 5.9. Round ball sizes and counts from Santa Maria.

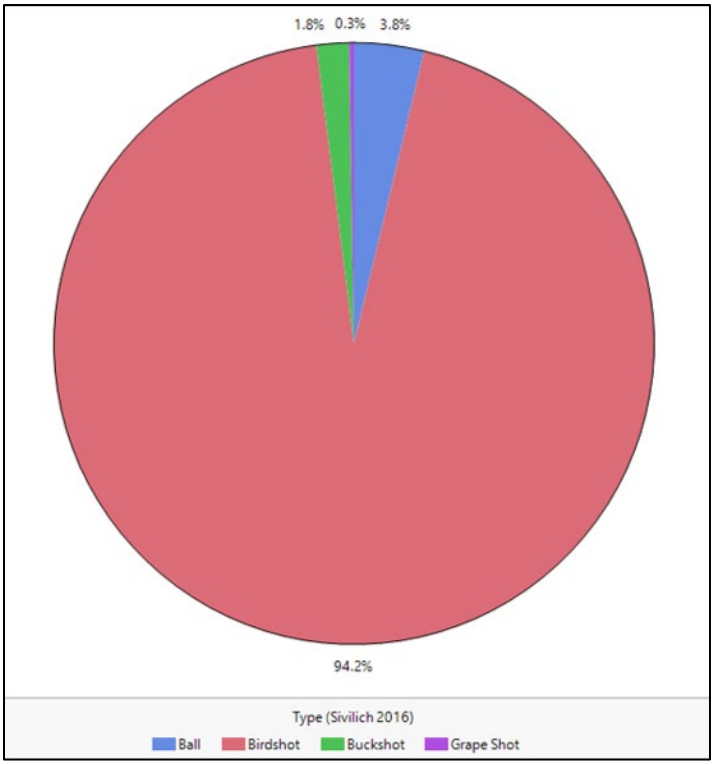


FIGURE 5.10. Round ball types from Santa Maria.

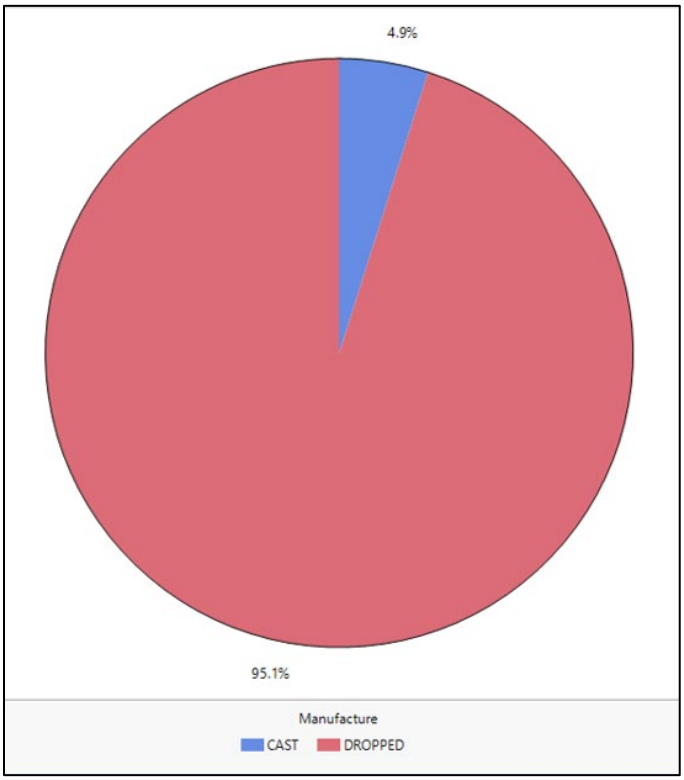


FIGURE 5.11. Percentage of cast and dropped ammunition from Santa Maria.

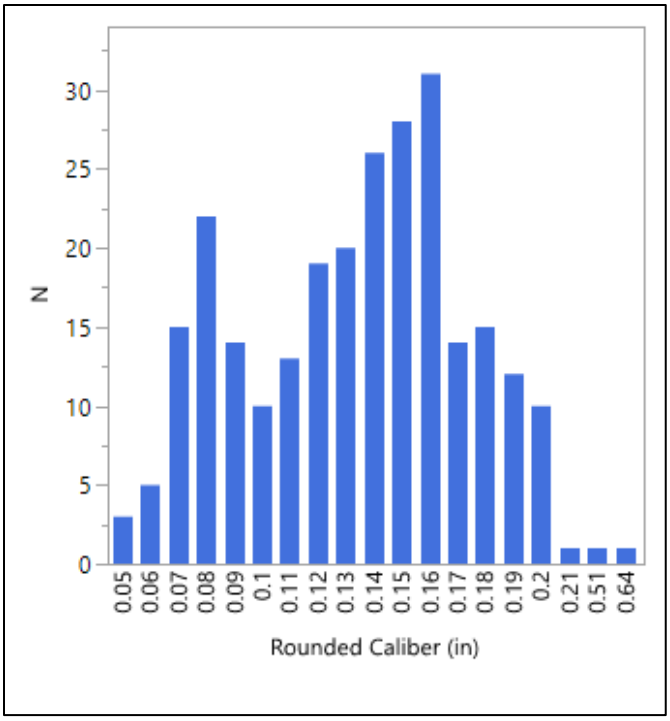


FIGURE 5.12. Round ball sizes and counts from Santa Rosa.

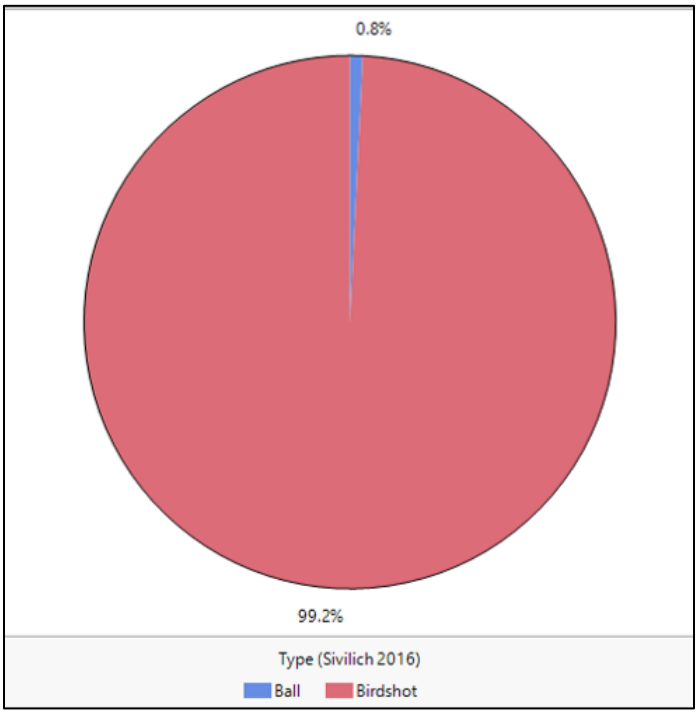


FIGURE 5.13. Round ball types from Santa Rosa.

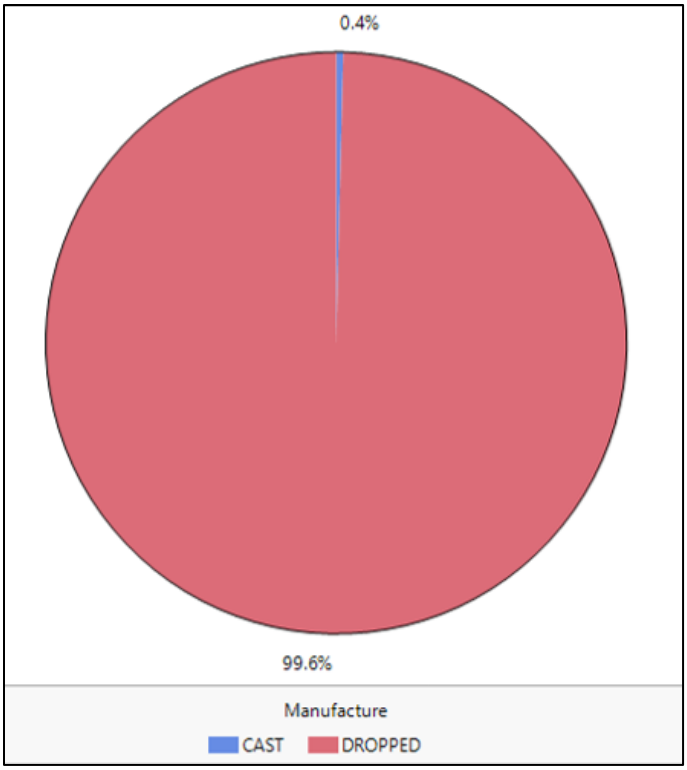


FIGURE 5.14. Percentage of cast and dropped ammunition from Santa Rosa.

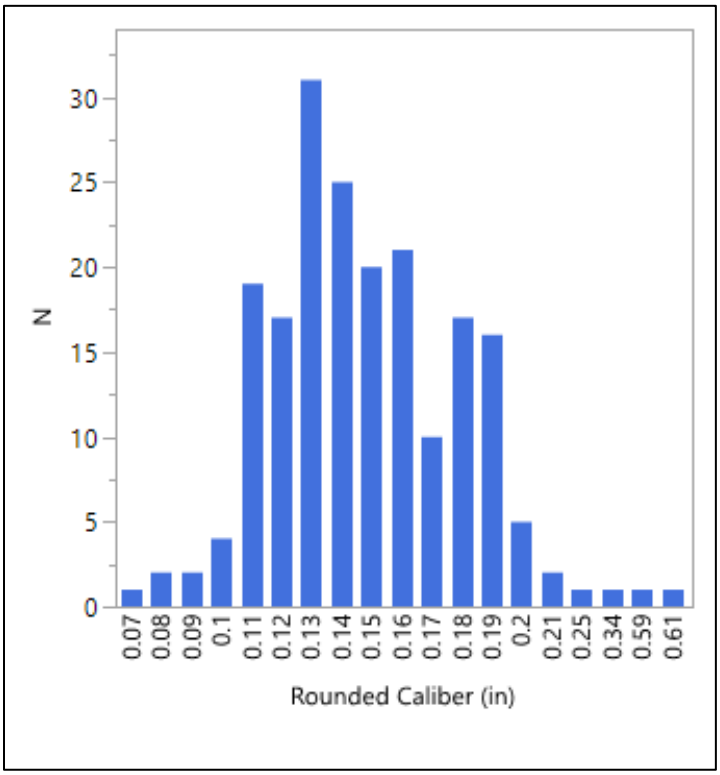


FIGURE 5.15. Round ball sizes and counts from San Miguel.

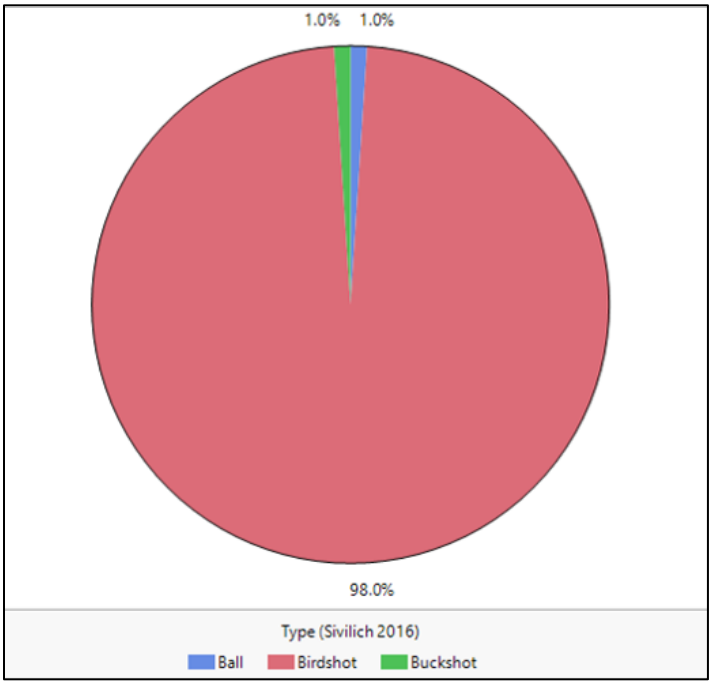


FIGURE 5.16. Round ball types from San Miguel.

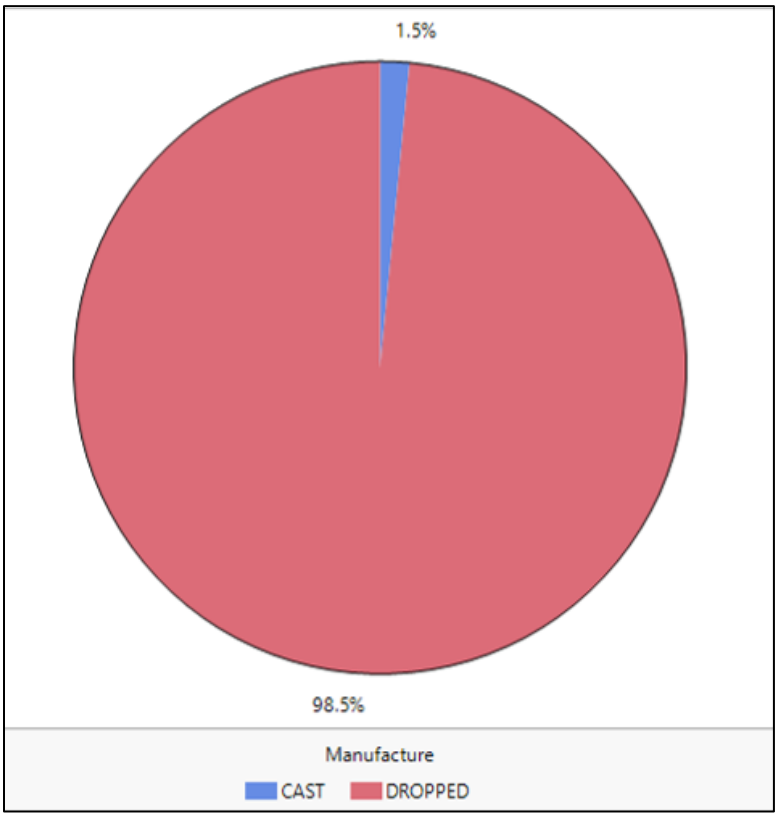


FIGURE 5.17. Percentage of cast and dropped ammunition from San Miguel.

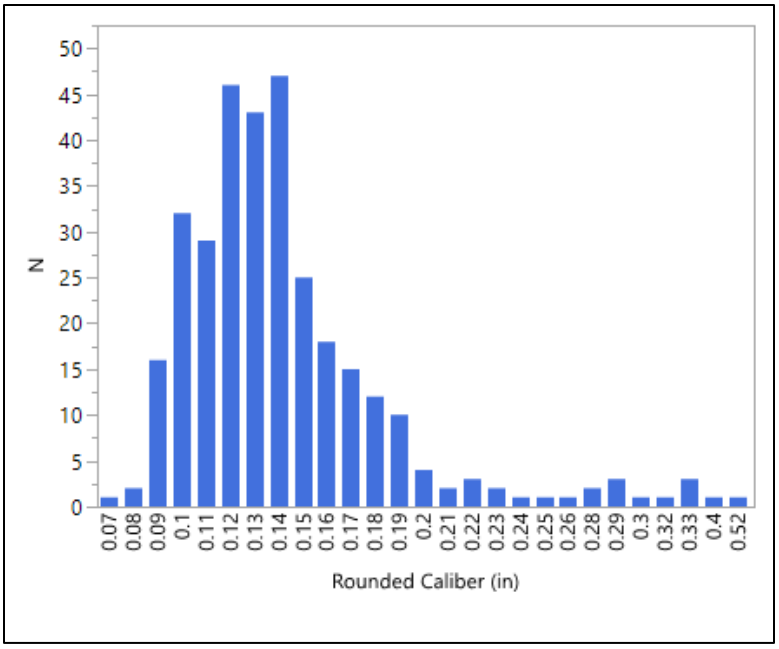


FIGURE 5.18. Round ball sizes and counts from Escambe.

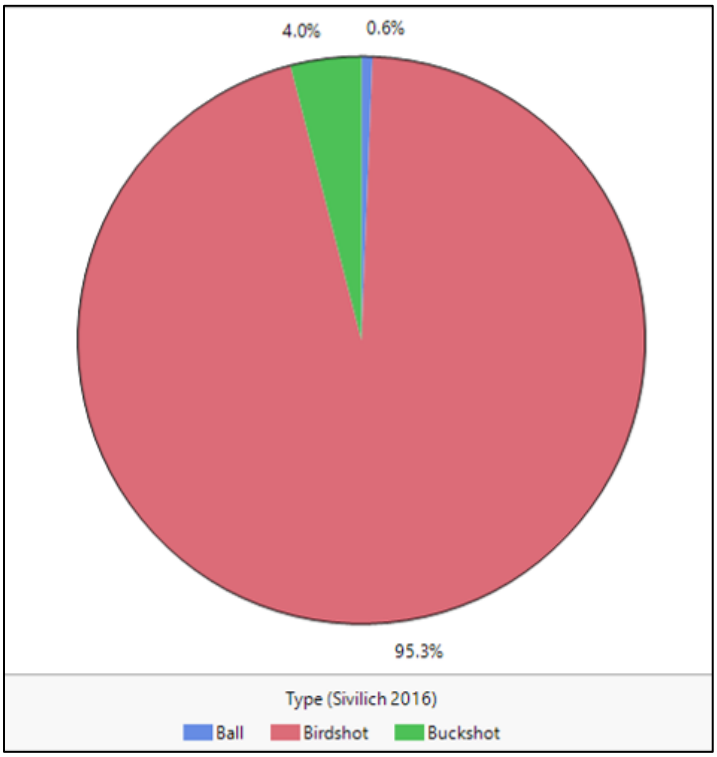


FIGURE 5.19. Round ball types from Escambe.

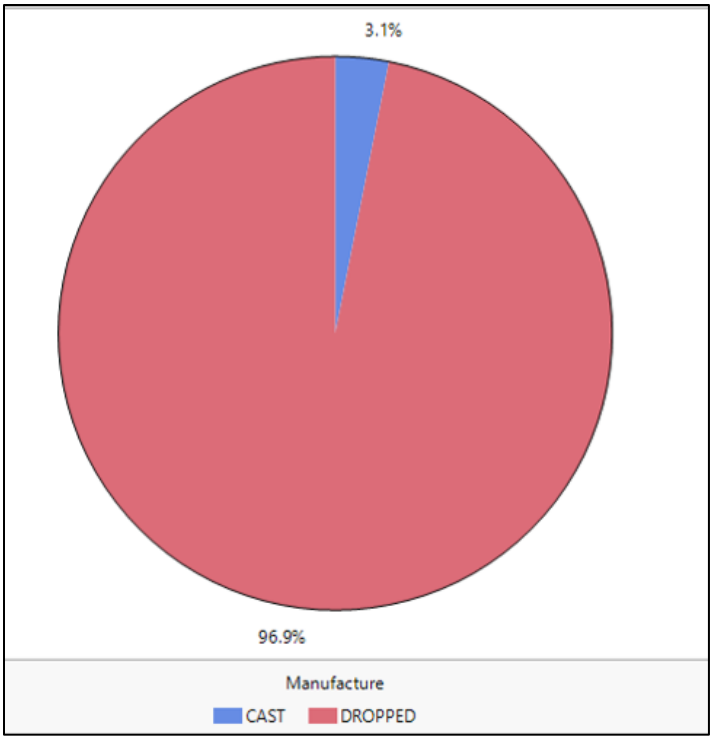


FIGURE 5.20. Percentage of cast and dropped ammunition from Escambe.

Overall, the musket balls came predominantly from Santa Maria. This correlates with the nature of the site with its fortifications needing large munitions for defense and offense. During its occupation Santa Maria was constantly attacked by hostile Native groups like the Creek and later by the French. However, it is interesting that more large round balls were not recovered from the other two presidios, or at the missions since they had cavalry and infantry stationed there during the last two years of occupation. The lack of large munitions could be from a variety of factors including sampling strategies, spent bullets that would be found outside the site, or insufficient supply. Due to the wide range of caliber sizes, it is difficult to assign French or British weapon types to the bullet assemblage with the exception of a few bullets that can be tentatively attributed to those weapon types (Figure 5.21). The

shape, weight, and size of the lead ball and shot also does not offer evidence of trade or supply from non-Spanish network for the presidios or missions. Fortunately, isotopic data should reveal where the lead was coming from and offer more insight into supply and trade at the presidios and missions. Furthermore, the data could speak to the legality of the trade, especially if sources indicate non-Spanish origins.

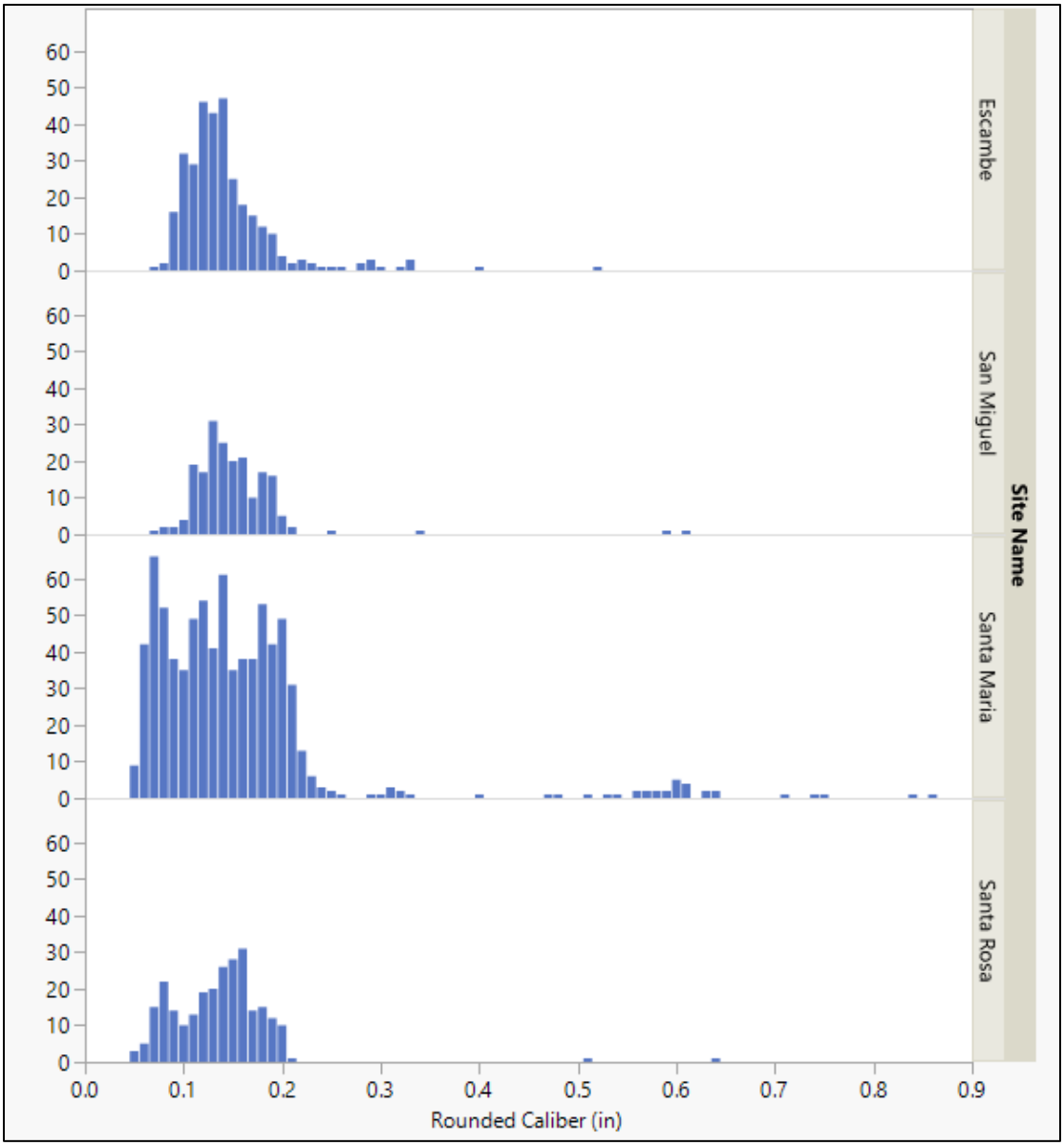


FIGURE 5.21. Distribution of bullet caliber sizes for each site.

Isotopic Ratios

Within and Between Assemblages

Identifying isotopic groups within each assemblage is the first step to understanding similarities or variability within and between each site (Appendix F). This step facilitates identifying if the presidios and missions were supplied with ammunition from similar or different lead ore sources. The sample bullet assemblage from Santa Rosa is variable. Two, possibly three loosely similar isotopic groups are distinguishable. The bullet assemblage from San Miguel is much more uniform, with one isotopic group and a few outliers. At Escambe, the isotopic compositions form two very distinct groups with two-three possible subgroups in the larger isotopic grouping. This data shows us that both Santa Rosa and Escambe contained ammunition from multiple sources; however, Escambe's assemblage has more distinct groupings as opposed to the highly variable isotopic signature of Santa Rosa's lead.

Taken together, the isotopic signatures of both presidios and missions overlap in some places and are divergent in others (Figures 5.22–5.23). For the most part, the bulk of the bullets from San Miguel and all the bullets from Santa Rosa cluster with one of the subgroups from Escambe. This indicates that all three sites were partially supplied with this one source for lead ammunition. The outliers from San Miguel actually cluster with the other Escambe isotopic groups indicating that those particular bullets were supplied from a source other than the main cluster source. Aside from the few outliers from San Miguel, Escambe has isotopic groupings that

are distinct from those of the presidios. The next step is to identify the lead sources for the archaeological samples by comparing them to known reference data collected over the last seventy years.

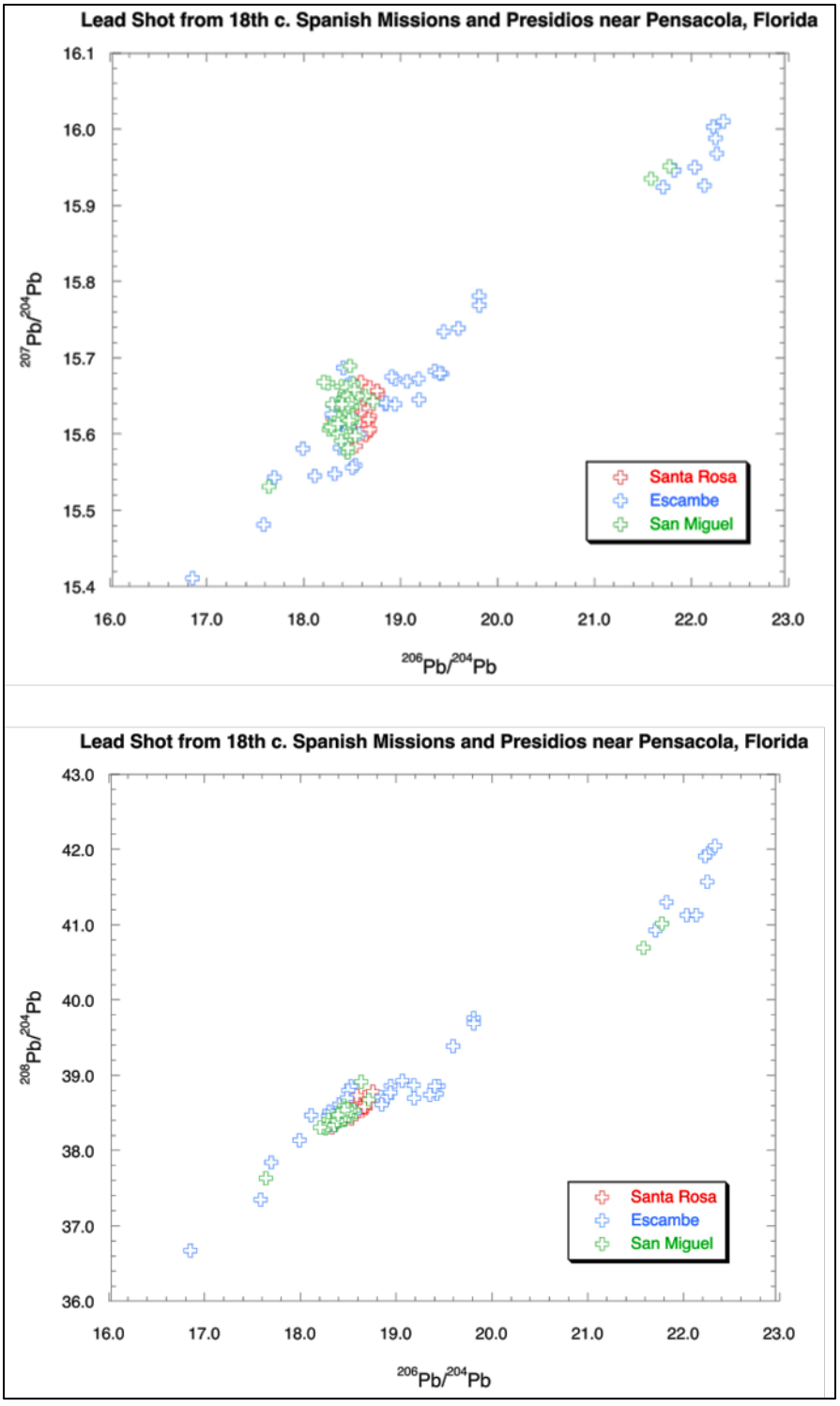


FIGURE 5.22. Paired plots of lead isotope ratios for the two presidios and mission.

Comparison with Source Data

Although sufficient reference data exists for comparison, much of the data is reported in varying formats making it difficult to analyze as a whole. For example, lead isotopic data from France is reported with different ratios than that of data reported from Great Britain. The archaeological samples from the two presidios and missions were analyzed and report all variations of isotopic ratios including $^{204}Pb/^{206}Pb$, $^{207}Pb/^{206}Pb$, $^{208}Pb/^{206}Pb$, $^{206}Pb/^{204}Pb$, $^{207}Pb/^{204}Pb$, and $^{208}Pb/^{204}Pb$ (Appendix F). This reporting allows me to compare to individually reported sources even if they are using different ratios from another report analyzing the same region. It also facilitates comparison with any future acquired isotopic data, whether from archaeological samples or lead sources. Lead isotope data from the following regions and countries were used to compare to the archaeological assemblage in Pensacola (see Appendix F): New Mexico (McMillan et al 2000; Habicht-Mauche et al. 2002; Thibodeau et al. 2013), Mexico (Cummin et al. 1979; James and Henry 1993; Luhr et al. 2001; Verma et al. 2005), Spain (Stos-Gale et al. 1995; Velasco et al. 1996; Canals and Cardellach 1997; Marcoux et al. 1998; Santos et al. 2004), Mississippi Valley (Farquar et al. 1995; Field et al. 2018; Potra et al. 2018), Canada (Farquar and Fletcher 1980), France (Sinclair et al. 1993; Trincherini et al. 2001; Baron et al. 2006), Great Britain (Rohl 1996), Italy (Stos-Gale et al. 1995), the Caribbean and Greater Antilles (Cummin et al. 1981) and Bohemia-Germany (Hohndorf and Dill 1986; Mona et al. 2000; Niederschlag et al. 2003; Durali-Mueller et al. 2006).

When all the source regions and archaeological assemblages are mapped together, clear distinctions can be seen in some areas while other areas are obscured due to overlapping isotopic signatures (Figure 5.23).

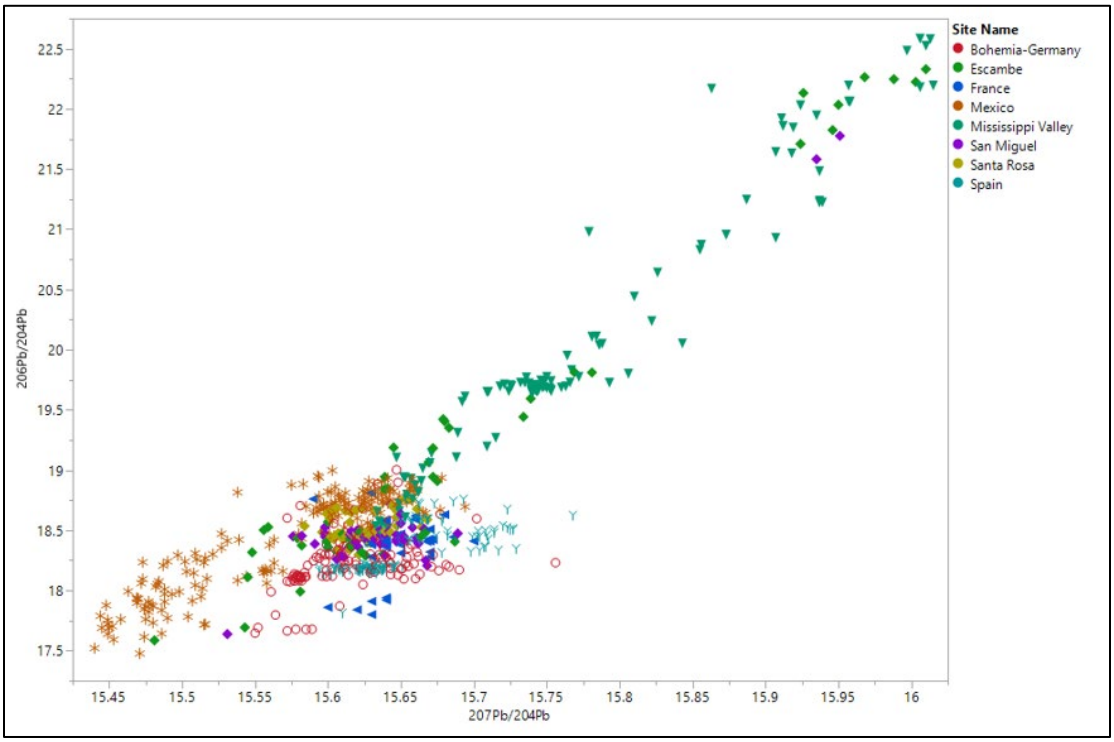


FIGURE 5.23. Plot of isotopic ratios of all sites and potential lead sources.

The lead sources from Mexico are highly variable but form two large clusters. The data show that the Mexican sources overlap predominantly with one site (Santa Rosa), and to a much lesser extent with San Miguel and Escambe (Figures 5.24–25). Santa Rosa also shows significant overlap with sources from the Cerrillos district in New Mexico, as do lead samples from San Miguel and Escambe to a much lesser extent (Figures 5.26–5.27). Surprisingly, none of the three sites appear to have been getting much of their lead from Mexico as would have been expected based on historical sources. The well-defined Cerrillos District in the Rio Grande Valley of

New Mexico appears to be a solid match for a cluster of samples from Santa Rosa. This source was heavily exploited by Southwestern Native people for both turquoise and lead (to make ceramic glaze-paints) from precontact times and was the focus of Spanish mining efforts beginning in the seventeenth century. However, that lead from this source would have found its way to a Pensacola presidio in the eighteenth century was quite unexpected and the mechanism and route for how it might have got there is unclear. Minor amounts of lead could have come from the Greater Antilles and Central America (Figures 5.28–5.29) and possibly Spain (Figures 5.30–5.31). Overall, Santa Rosa was the only site that appears to have been getting most of its lead from Spanish networks (Figures 5.32–5.33). In particular, the most prominent cluster of lead shot samples from the tested Pensacola presidios and mission do not match any of these known Spanish sources (see Figure 5.33).

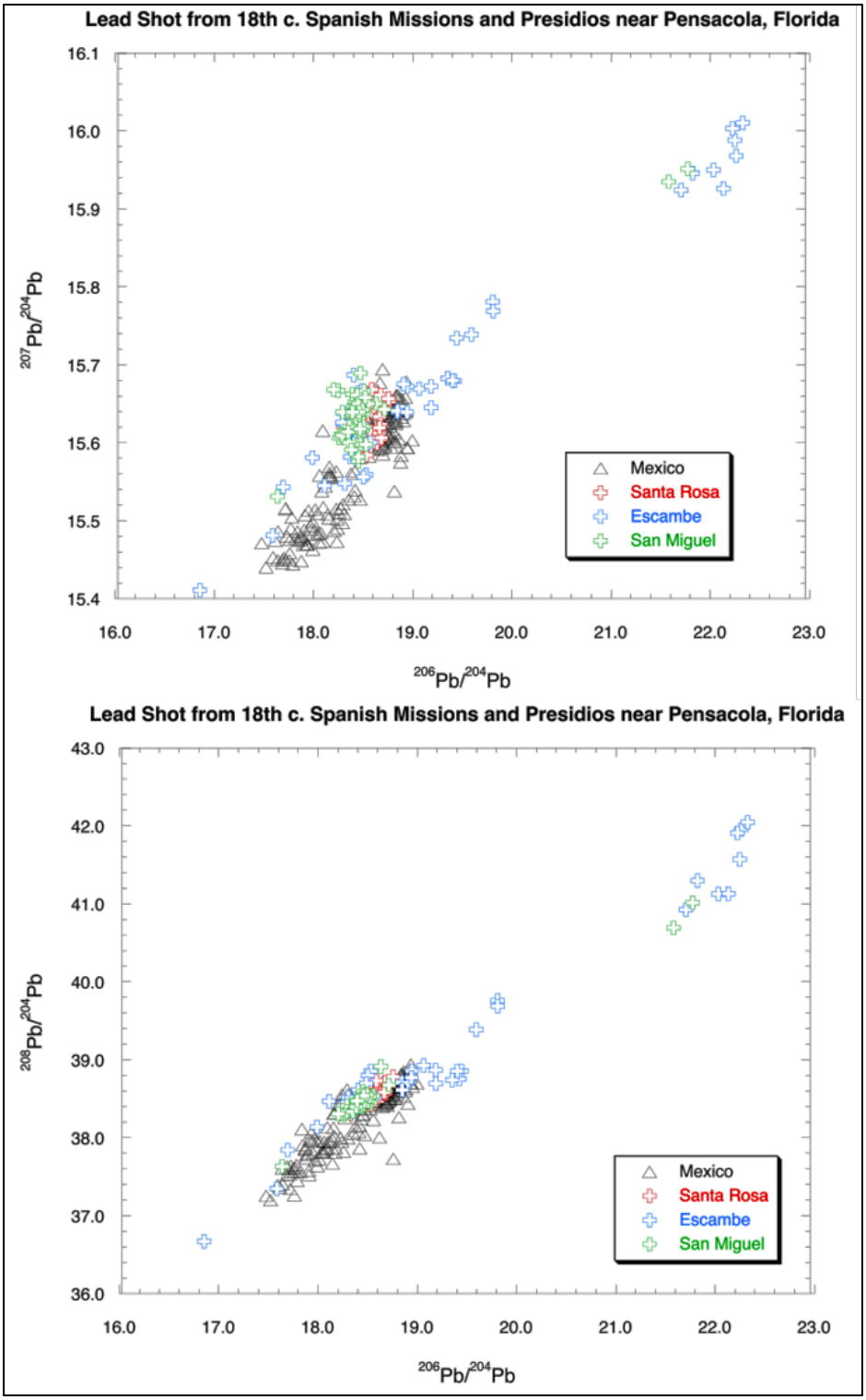


FIGURE 5.24. Paired biplots of lead isotope ratios of study sites Mexican sources.

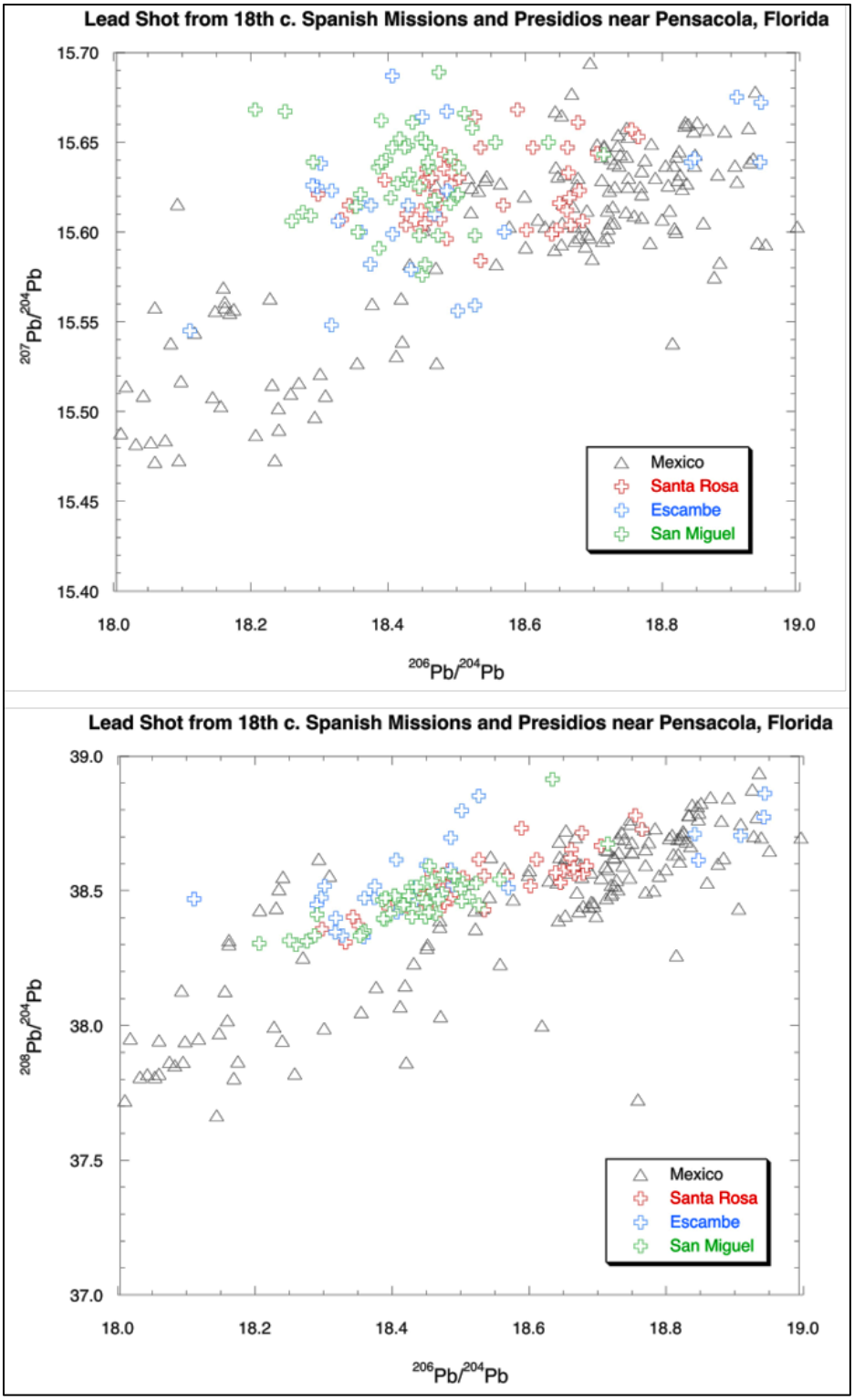


FIGURE 5.25. Close up of lead isotope ratios from study sites and Mexican sources.

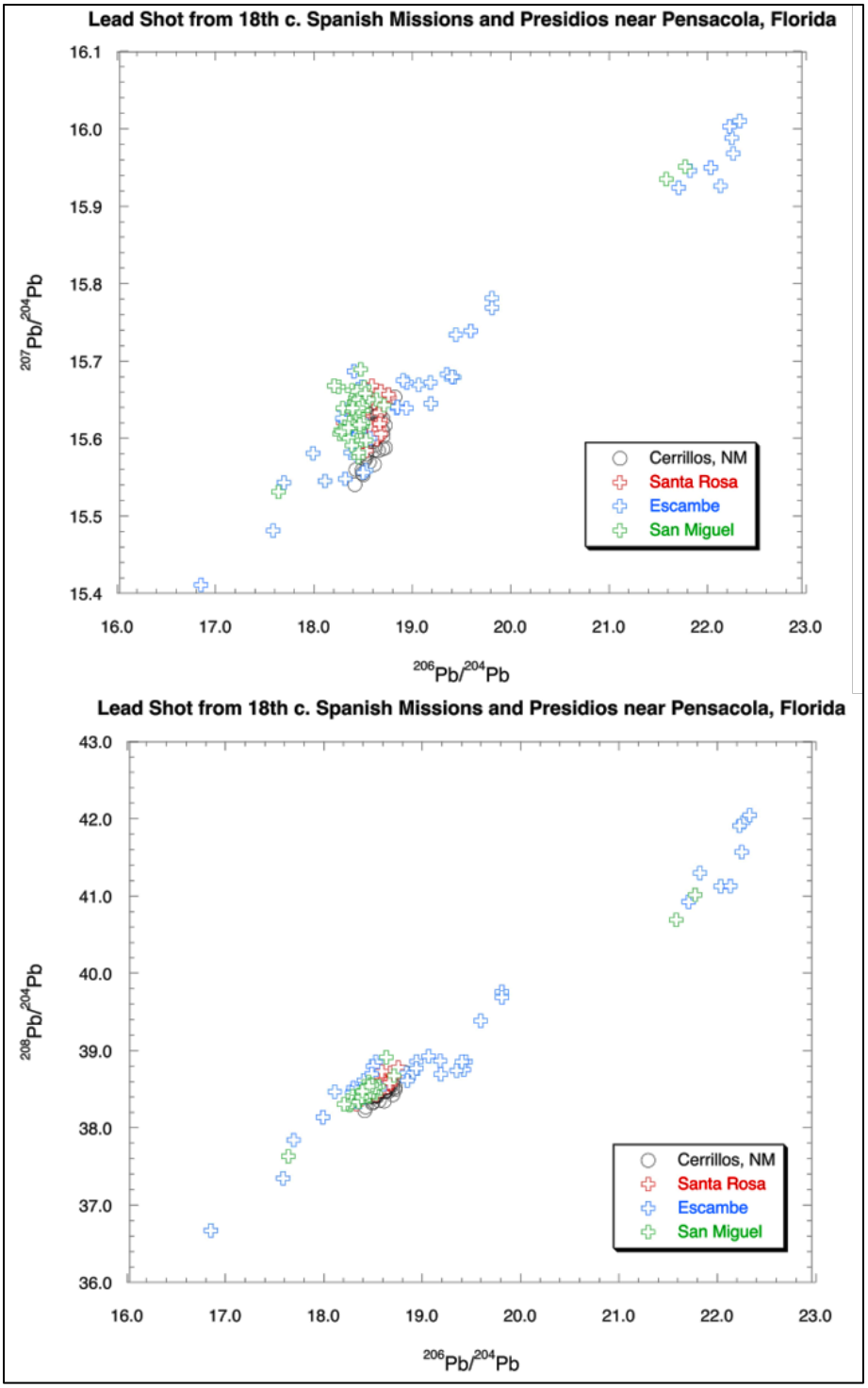


FIGURE 5.26. Paired biplots of lead isotope ratios from study sites and Cerrillos District lead from New Mexico (Cerrillos lead data from Habicht-Mauche personal communication).

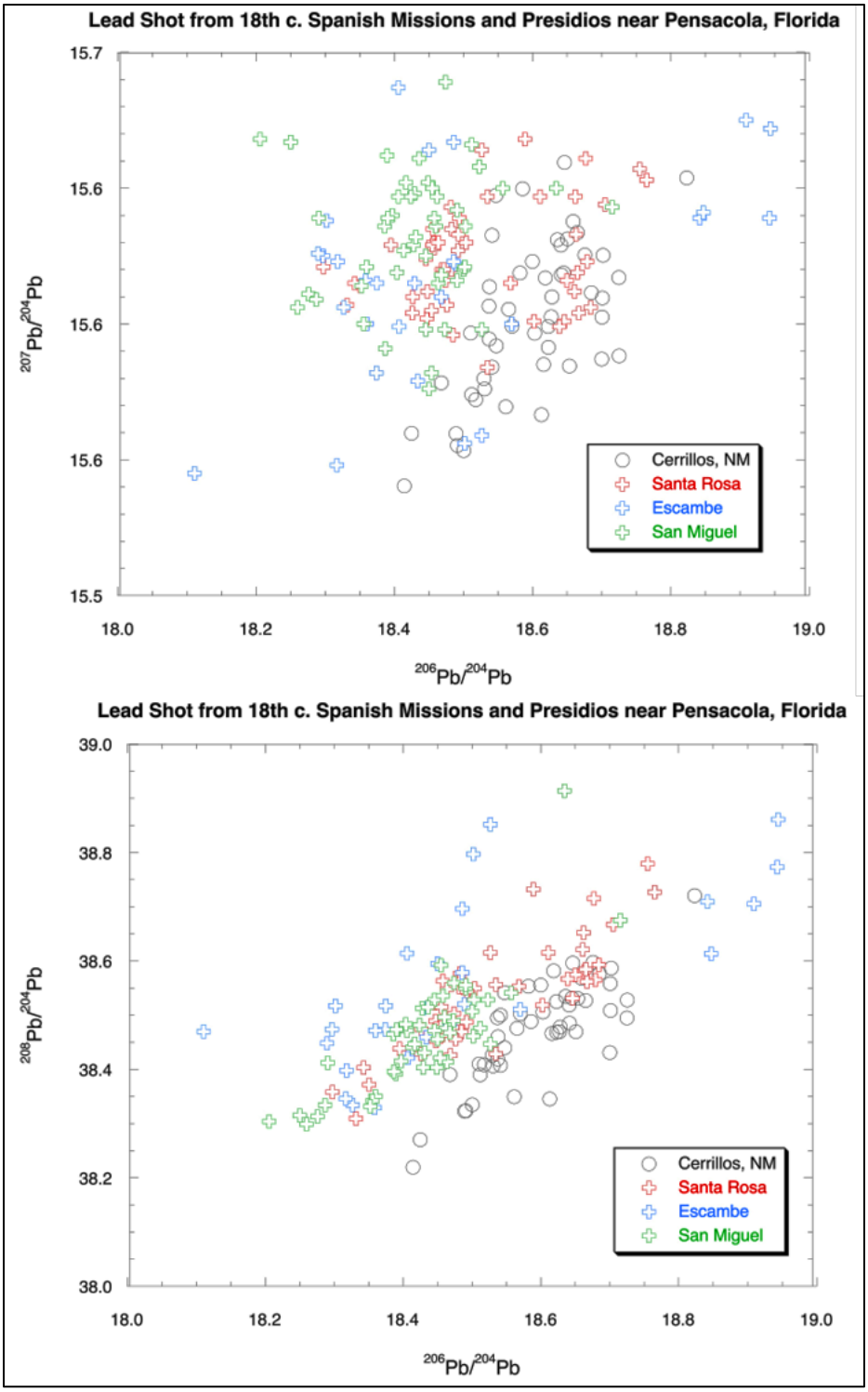


FIGURE 5.27. Close up of paired biplot of lead isotope ratios from study sites and Cerrillos District, New Mexico (Cerrillos data from Habicht-Mauche, personal communication).

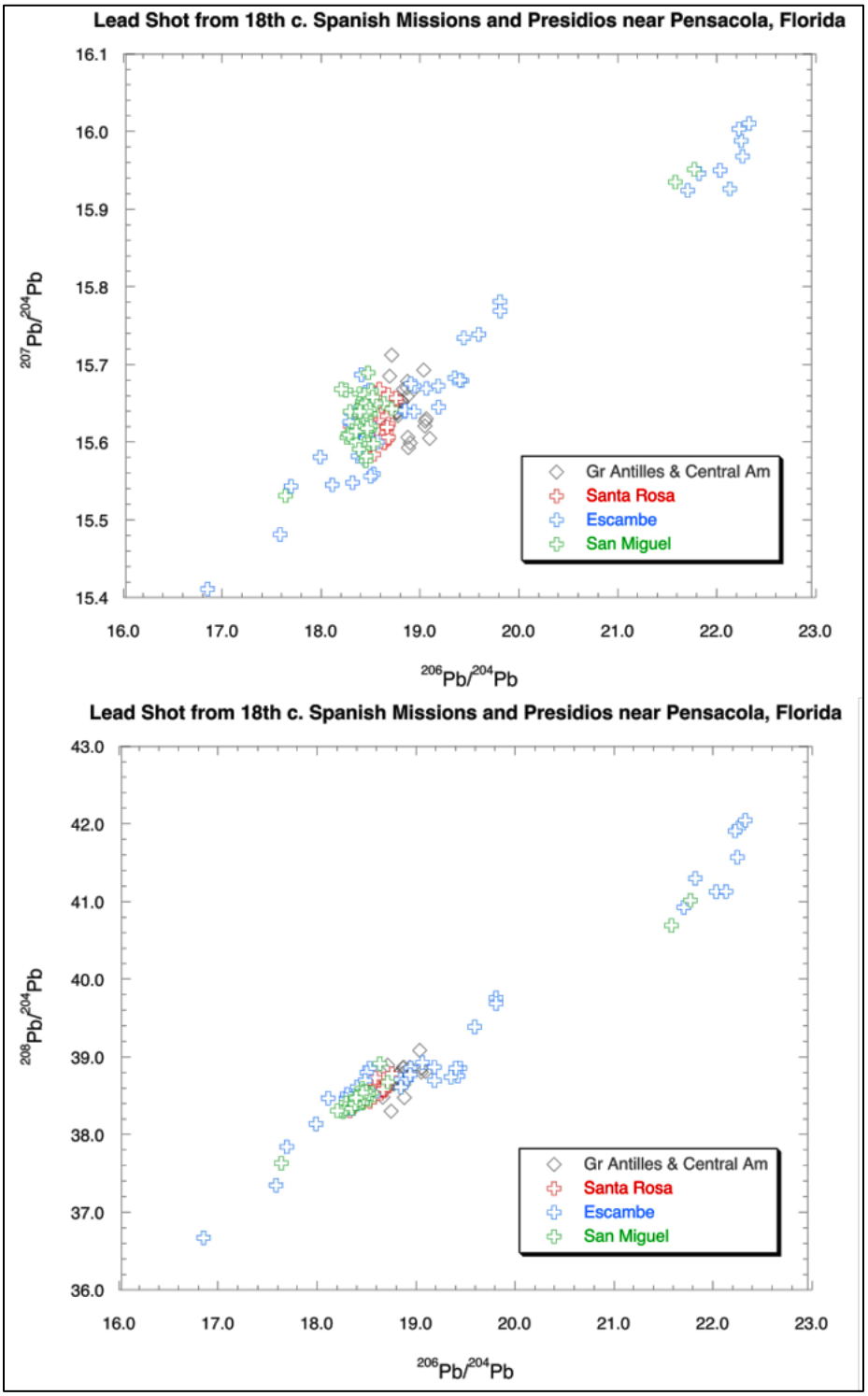


FIGURE 5.28. Paired biplots of lead isotope ratios from study sites and published sources in Greater Antilles and Central America.

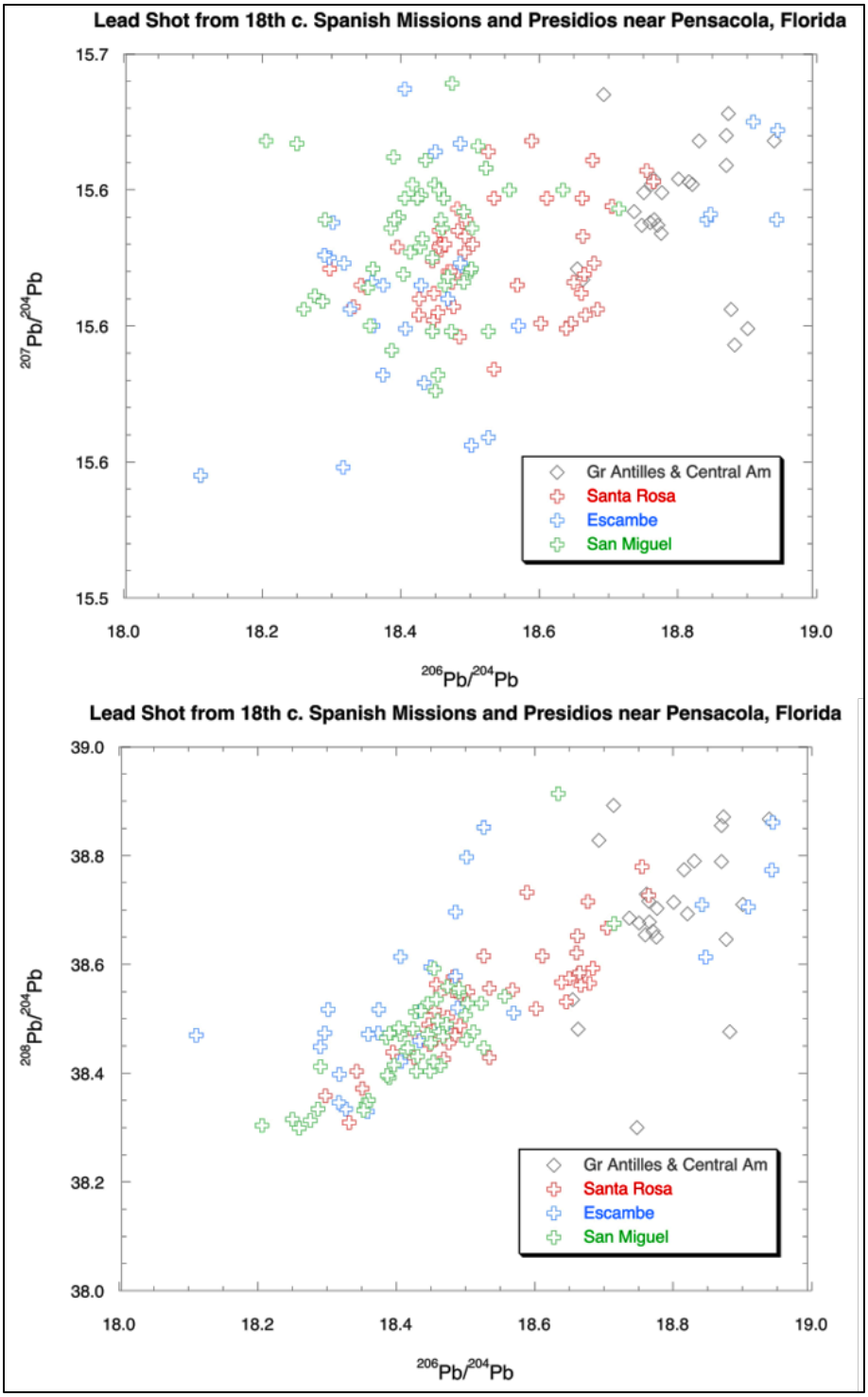


FIGURE 5.29. Close up of paired biplots of lead isotope ratios from study sites and published sources in Greater Antilles and Central America.

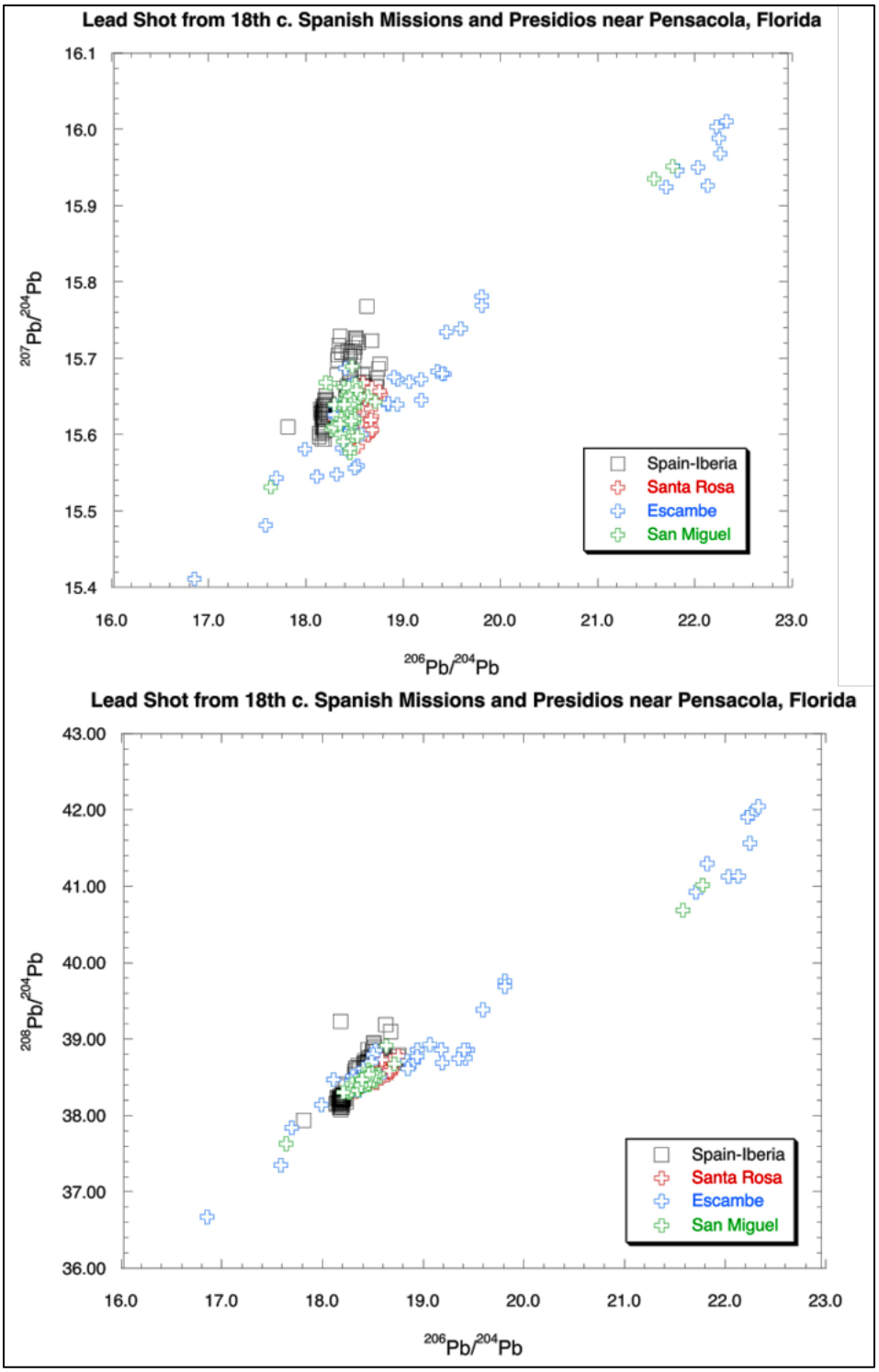


FIGURE 5.30. Paired biplots of lead isotope ratios from study sites and published sources in Spain-Iberia.

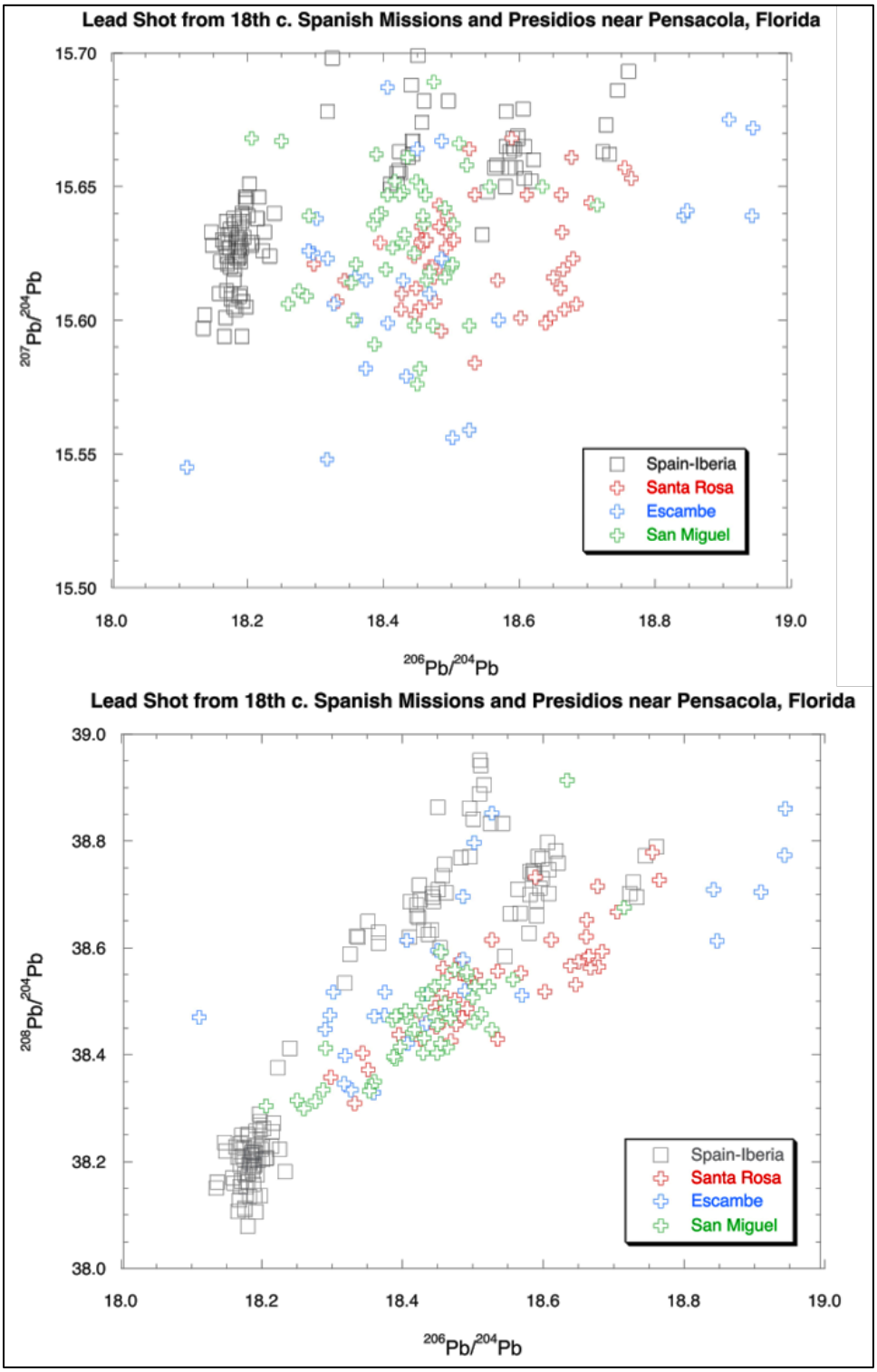


FIGURE 5.31. Paired biplot of lead isotope ratios from study sites and published sources in Spain-Iberia.

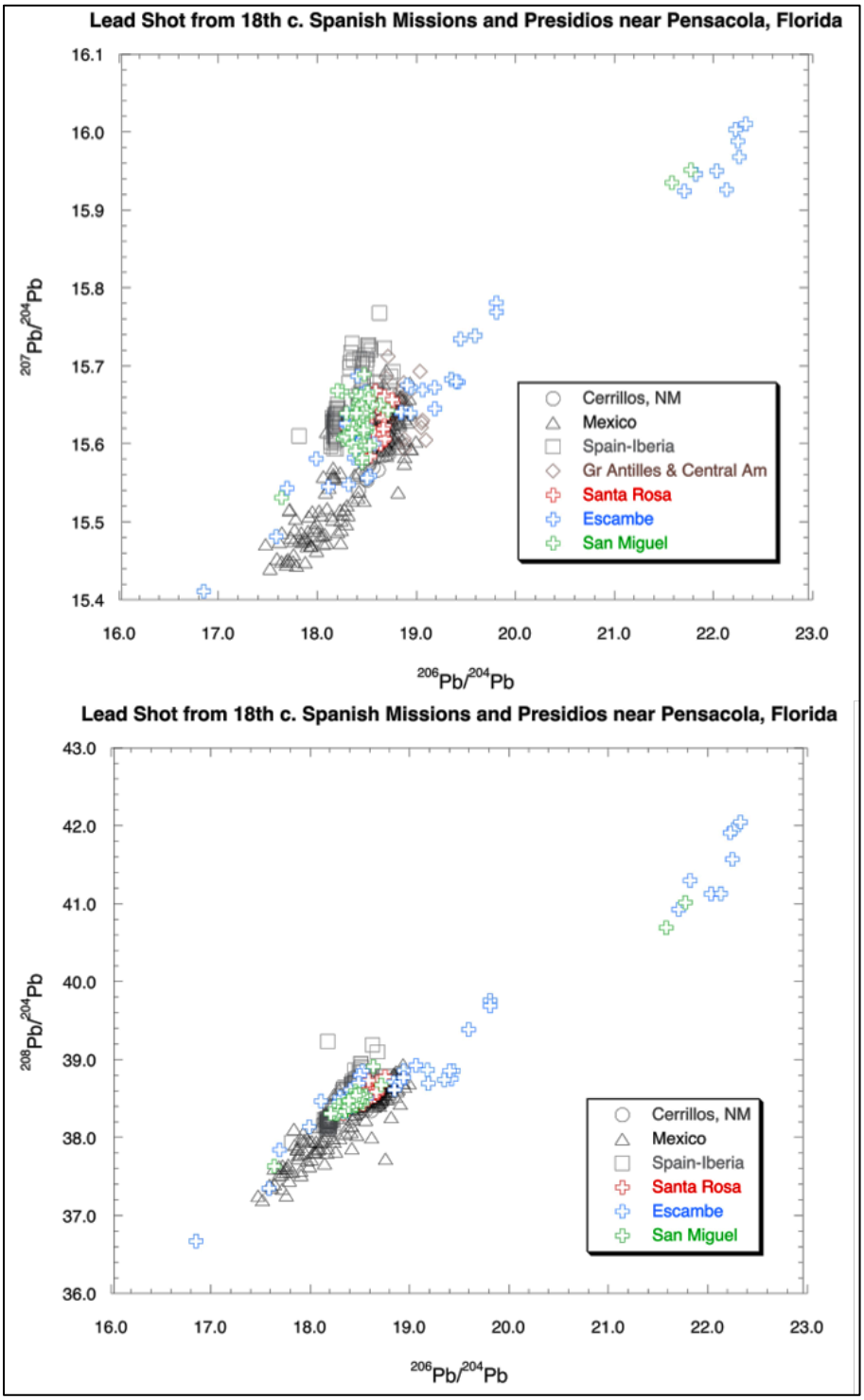


FIGURE 5.32. Paired biplots of lead isotope ratios for study sites and combined Spanish sources.

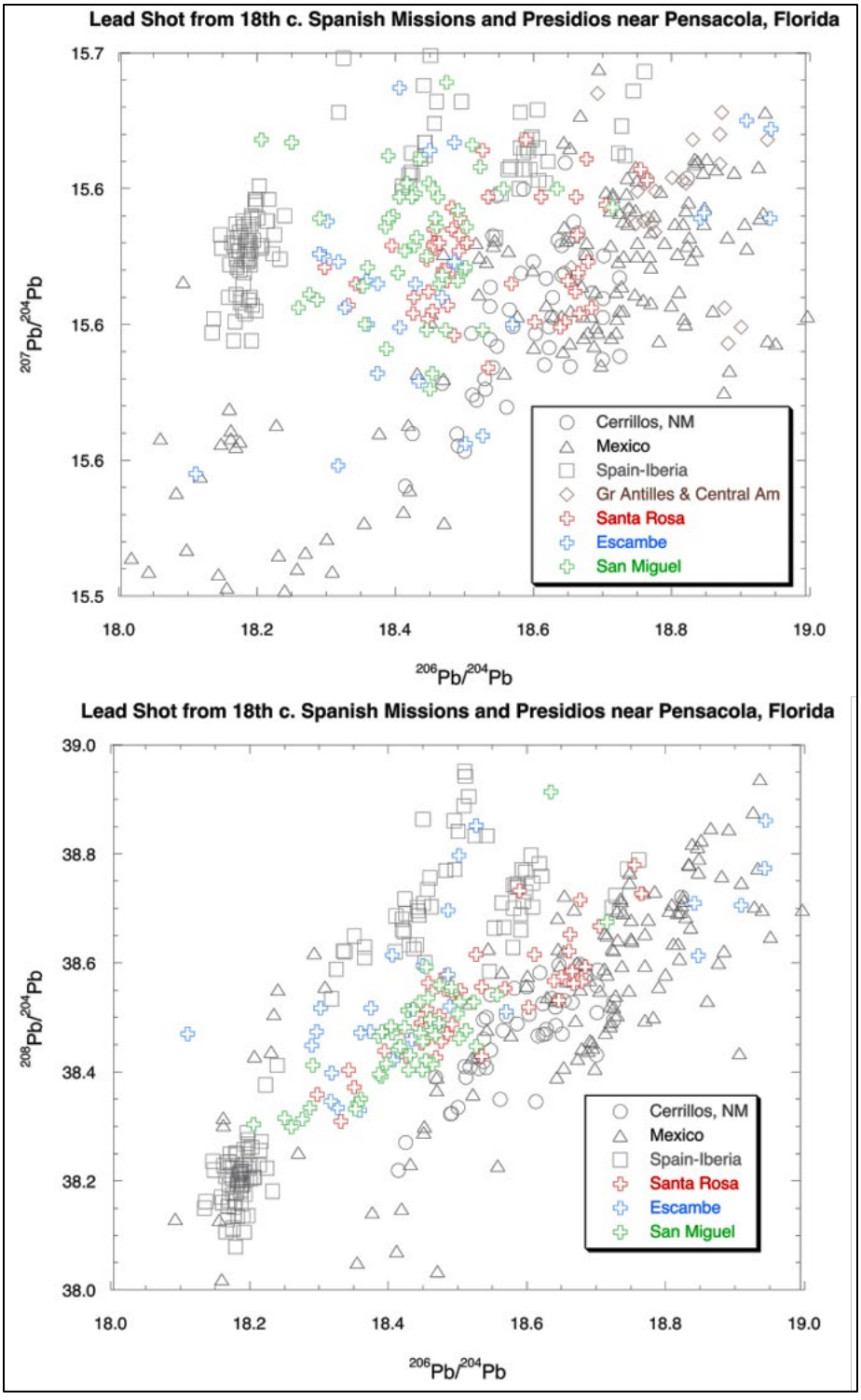


FIGURE 5.33. Close up of paired biplot of lead isotope ratios from study sites and combined Spanish sources. (Note that the main cluster of samples with 206Pb/204PB ratios between 18.2-18.5 do not match any of these sources).

The Mississippi Valley region produces the greatest variety of isotopic signatures as evidenced by the linear projection as opposed to a cluster. When mapped with the two presidios and mission little overlap is depicted with the presidios, but some overlap in isotopic signatures can be seen with the mission at Escambe (Figure 5.34). It becomes very clear that Escambe, in-part, is getting lead ammunition from the Mississippi Valley, most likely through informal or illicit interactions with the Upper and Lower Creek or possibly directly from sanctioned or unsanctioned trade with Mobile or Fort Toulouse. To a lesser extent San Miguel also has bullets that match Mississippi Valley lead which could have been obtained via informal channels with the Creek and French. Alternatively, the lead isotope signatures of published ore sources from France overlap considerably with those from Spain and can be lumped together as "Western Europe or Iberia" sources (Figures 5.35–5.36). While San Miguel may have been getting some lead from Spain-Iberia or France, possibly through Seville, the main cluster of samples from the Pensacola presidios and mission do not match well with any of these combined Western European sources.

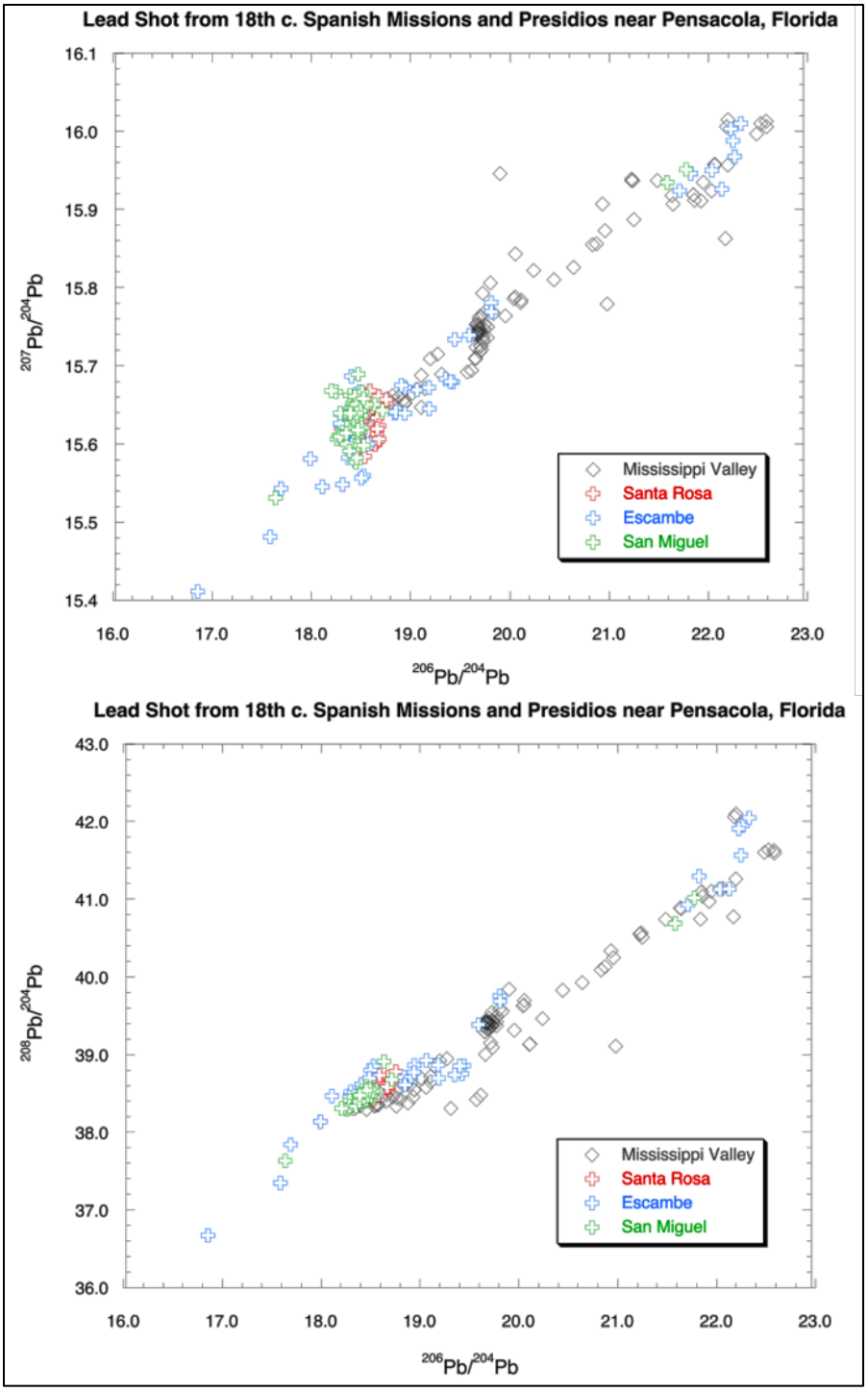


FIGURE 5.34. Paired biplots of lead isotope ratios from study sites and published Mississippi sources (Note strong overlap of Mississippi Valley lead signatures with samples from Escambe mission and a few from San Miguel presidio with 206Pb/204Pb ratios > 19.0).

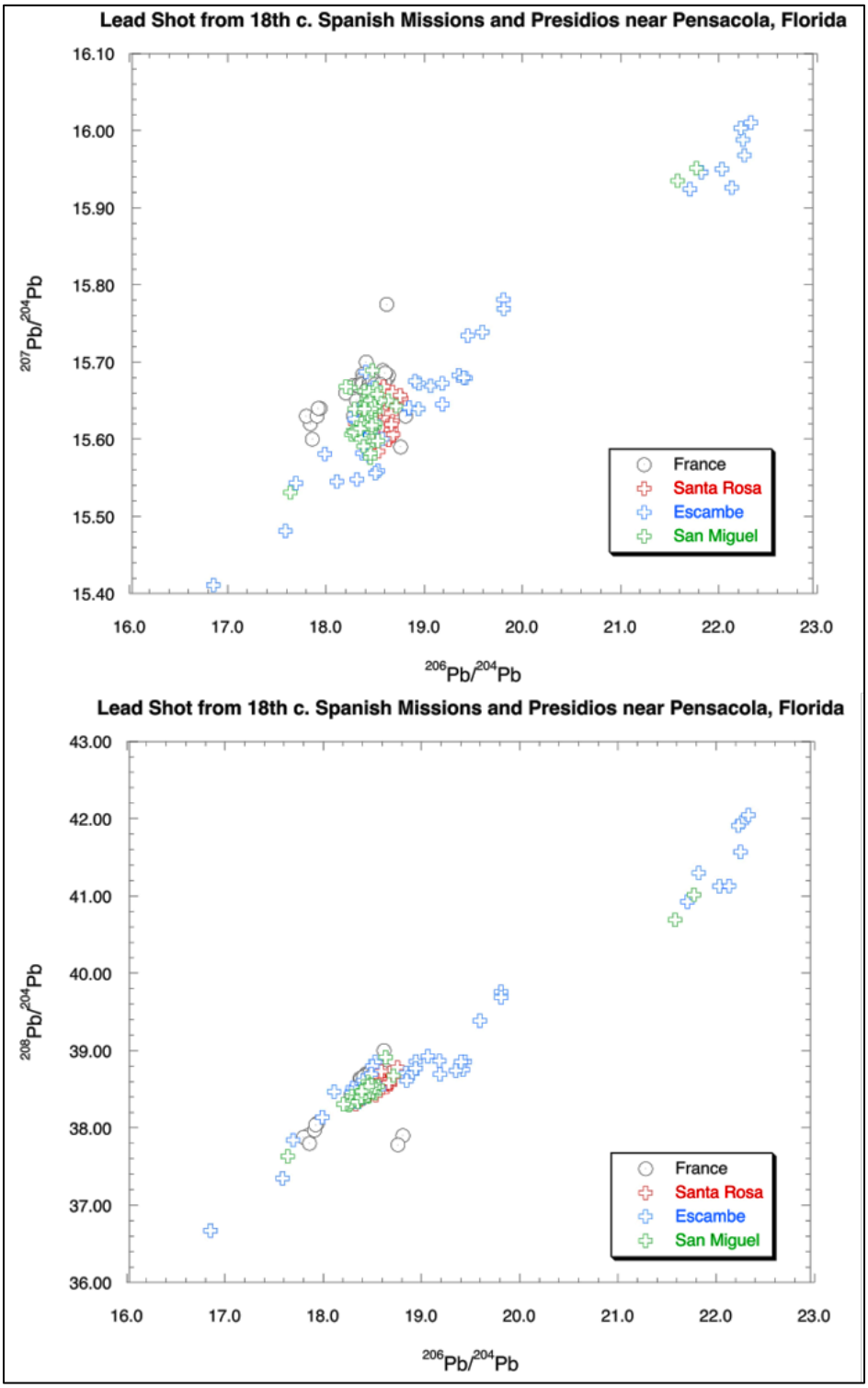


FIGURE 5.35. Paired biplot of lead isotope ratios from study sites and published sources from France.

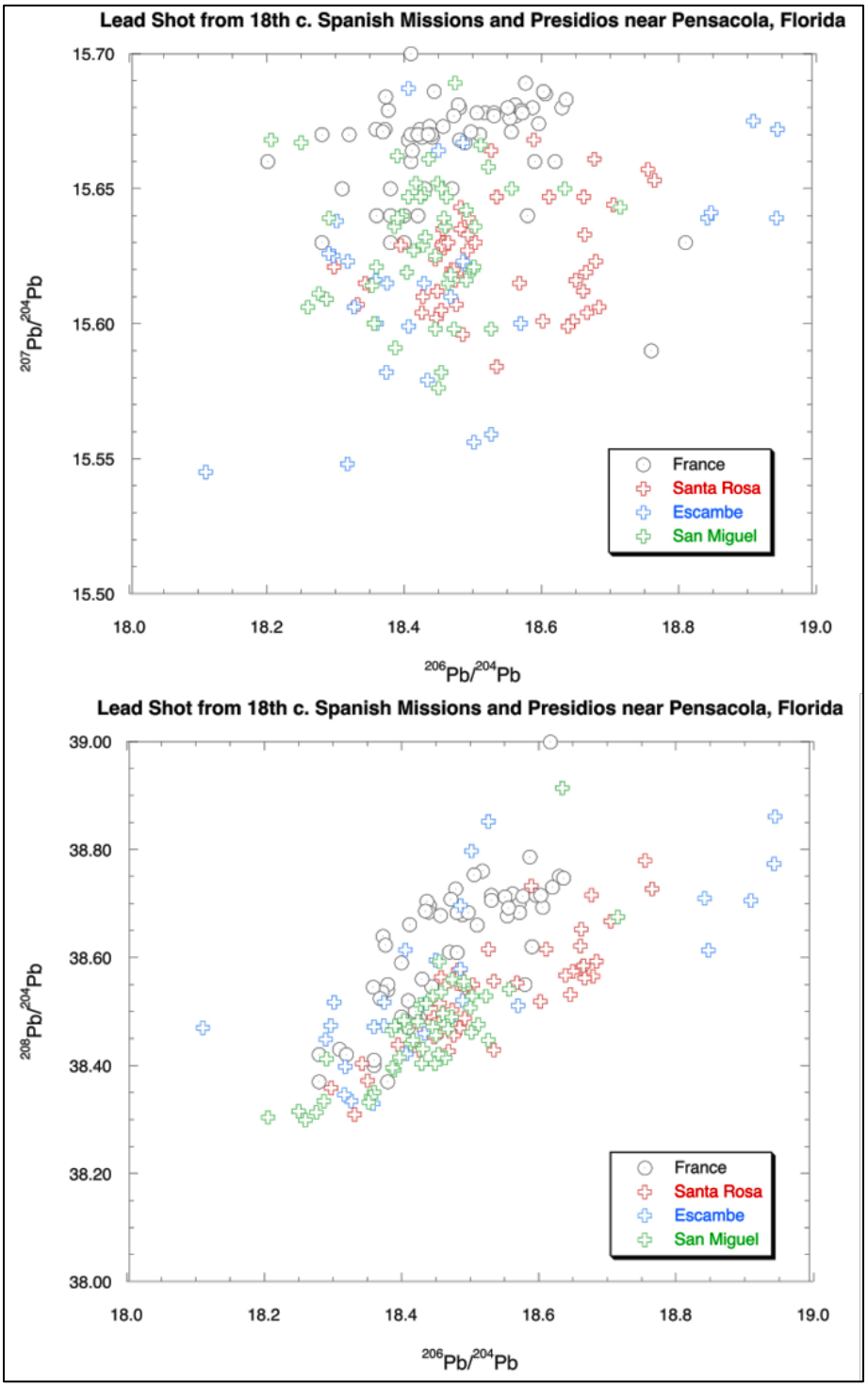


FIGURE 5.36. Close up of paired biplot of lead isotope ratios from study sites and published sources from France.

The extensive isotopic data from Bohemia-Germany and Great Britain reveals the most overlap with all three Pensacola area sites, although more lead samples from San Miguel cluster with the Great Britain lead (Figures 5.37–5.38). The lead isotope signatures from Spain, France, Great Britain, and Bohemia-Germany all overlap to some degree making it somewhat difficult to determine exact source of every specific sample analyzed. However, it is quite clear that much of the lead shot supplied to the eighteenth-century Pensacola presidios and missions came from sources in Central Europe (Bohemia-Germany), and to a lesser extent, Western Europe. This European sourced lead could have been supplied through legitimate channels controlled by Spain. Both supply lines through both Seville and Veracruz had access to a wide array of European sourced goods that could have come to Pensacola by means of the *situado*. Or this European lead could have been obtained through more informal or illicit channels, either directly or indirectly, by tapping into French or British supply lines to their North American colonies and Native allies. Some of the isotopic clusters from the presidios and missions do not match perfectly with regional-specific sources, indicating that lead recycling and mixing may have occurred, at least to an extent. However, it is still clear which sources were most likely mixed and which were not. For example, a cluster of lead samples from the two presidios are clustered between lead from Mexico, France, and Great Britain, suggesting that some of the ammunition originally supplied from these distinct sources was recycled. Recycling lead for ammunition was not a common practice during colonial times (though it does occur), but isotopic data facilitates its identification when it does occur.

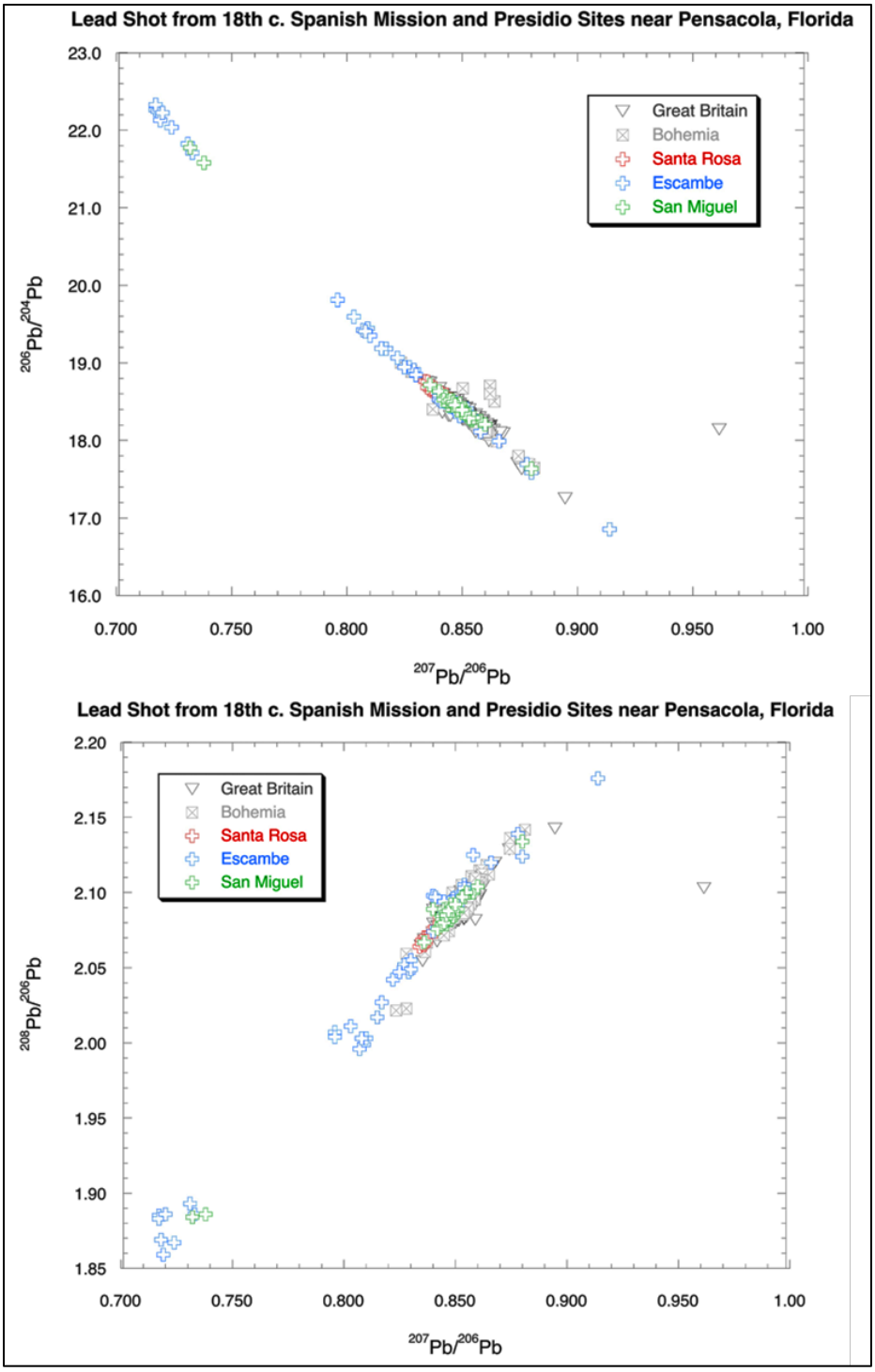


FIGURE 5.37. Paired biplots of lead isotope ratios from study sites and published sources from Great Britain and Central Europe (Bohemia-Germany). (Note that these data are presented as ratios over 206Pb to conform with published values)

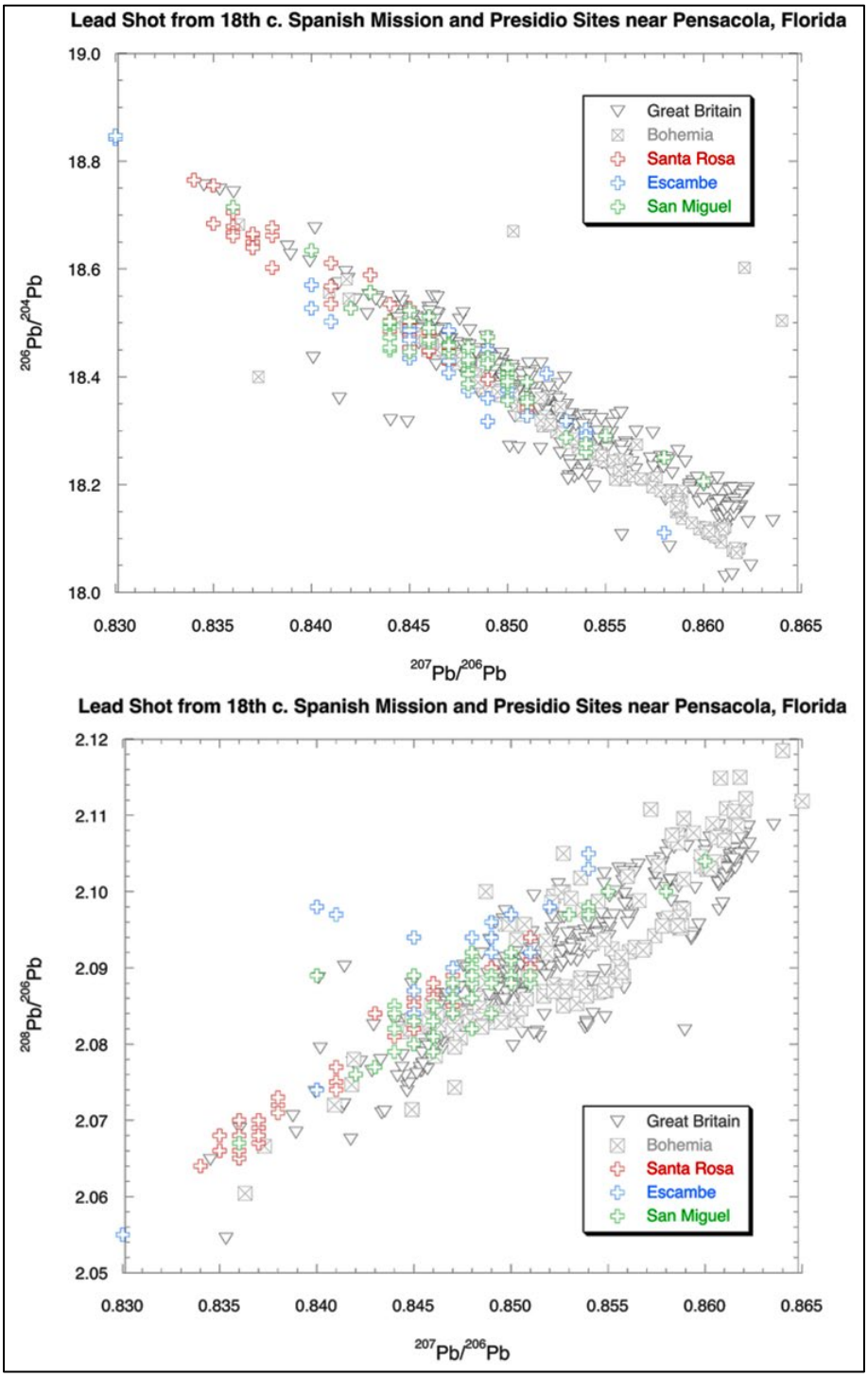


FIGURE 5.38. Close up of lead isotope ratios from study sites and published sources from Great Britain and Central Europe (Bohemia-Germany).

Discussion

The data presented above reveals several details that could not have been discovered with morphometrics alone. Based on the metrics of the musket balls and buckshot it appears that several weapon types including French and British standards were in use at the presidios. Although the presence of ammunition matching the caliber of a foreign weapon is not conclusive, the fact that the lead balls were unfired strengthens the argument. What is more telling of the complicated exchange networks present at these sites is the isotopic signatures of the lead shot. The hypothesis that the presidios would have more standardized sizes of bullets is not easily garnered from the assemblage with the exception that the musket balls are predominantly found at the presidios. The hypothesis of increased variability in missions as opposed to presidios is supported when comparing the lead isotope ratios of the assemblages. Escambe was getting lead ammunition from a greater variety of sources, whereas the presidios were receiving shipments of lead bars or ammunition predominately from European sources, augmented to a lesser degree by lead from Spanish colonial sources.

Additionally, the cultural context in which they were receiving these supplies reveals both legal and illegal avenues in regard to Spain's mercantile policy. Based on the data, Santa Rosa appears to have been receiving lead armaments predominantly through legitimate Spanish supply lines (e.g. Europe, Mexico, New Mexico, and the Caribbean), but that supply chain shifted after San Miguel was established back on the mainland. It appears that after 1750, San Miguel was getting lead primarily from central and western Europe (e.g. Great Britain, Bohemia-Germany, and possibly

France), and after 1756 those channels expanded (both licit and illicit). This does not automatically indicate that the presidio was supplied illegally from British and French sources, but it does show that global supply chains were shifting at this point and New Spain was no longer the main source of lead armaments for the more peripheral Spanish colonies, at least in West Pensacola. Interestingly, throughout the period from 1720 to 1763, very little lead was supplied from Mexico; the main cluster for all three sites matches with sources from either Bohemia-Germany or Great Britain. Based on documentary accounts Pensacola should have been getting their lead armaments primarily from New Spain, but only Santa Rosa lead has some overlap with sources from Mexico and New Mexico, particularly the Cerrillos District region in New Mexico, another remote frontier colony. This fact raises a whole new set of questions regarding the supply chain to colonies in Florida. The real evidence for illicit trade or supply comes from the assemblage at Escambe.

The Escambe sample contained a considerable amount of lead ammunition that matched lead sources primarily from the Mississippi Valley region. During the time that the Pensacola missions and presidios examined in this dissertation were occupied, this region was exclusively occupied by the French and diverse Native groups living all along the Mississippi River. The fact that Mississippi Valley sourced lead was found in abundance at Escambe is testament to the intensive trade networks the Apalachee maintained with the French-allied Creek living in present-day Alabama and Louisiana. Additionally, some of the lead from the San Miguel presidio matches the lead from Mississippi Valley indicating that this presidio had some connections,

either directly or indirectly, to French trade networks. When the isotopic, chemical, and documentary evidence are analyzed together the results map out a complex network of supply and trade.

Chapter 6: Summary and Conclusions

The research presented in the previous chapters answered many questions but created a plethora of new and interesting queries. Documentary, artifactual, and chemical evidence all inform questions concerning the effectiveness of Spanish or imperial economic institutions in borderland colonial regions as well as highlight specific actions that individuals, groups, and communities took to support, disrupt, and subvert those economic institutions. Through these evidentiary datasets we are able to highlight the economic agency of not only the Apalachee, Yamasee, and Creek, but also that of the Spanish officials and settlers, and French and English merchants; an economic agency that dismantled and reconstituted European and Indigenous political economies into something novel.

Eighteenth-century West Florida proved an interesting and informative region to study the economic interactions of both Native groups and European powers. Examining the distribution of certain goods via Spanish supply and indigenous exchange networks transforms perspectives of colonial economic interactions, the degree of economic agency enacted daily, and demonstrates how these concepts are enmeshed within illicit economies. Moreover, the colonial economy was not just trade regulations and governmental ideals, but a conglomeration of survival tactics on both sides of the encounter that relied on different economic strategies. Just as the Europeans had diverse reasons for interacting with and influencing Native groups, those groups had equally valid motives behind, engaging, negotiating, resisting, or outright opposing European aims and attempts.

Although not all my original research questions were answered fully, some understanding was gained pertaining to the core focus of this research: What was the nature of economic interactions between Spanish settlers, mission inhabitants, and interior Native groups with British and French alliances? To what degree did these economic interactions disrupt or maintain the imperially sanctioned mercantile system. What was the degree of access to illicit or unsanctioned trade goods at both presidios and missions? Non-Spanish, European goods could have entered presidios in a variety of ways, including (1) mission inhabitants were moving goods they acquired from interior Native groups or undocumented European traders/merchants into presidios; (2) interior Creek groups were trading directly with inhabitants of the presidios; (3) French, British, and other European exports were brought in legally via Havana or Veracruz ports that were supplied with multi-European sourced goods in Seville; or (4) Spanish officials in presidios directly (informally and discretely) were trading with the French and British for supplies to supplement the *situado* that was perpetually lacking. Chemical composition of certain artifacts like lead shot or glass beads coupled with documentary evidence facilitated discerning which of these scenarios were most likely. Any scenario other than (3) would demonstrate that the mercantile system was not very effective in this borderland region, and inhabitants were participating in a wide array of economic activities that either disrupted or undermined Spanish imperial economic institutions. What we see is a complicated mix of the hypotheses posited in Chapter 1.

Hypotheses and Datasets

Understanding how monolithic mercantile policies functioned in frontier and borderland colonies requires a more nuanced understanding of local colonial economies and their influence on the regional economic landscape. A focus on exchange systems and economic institutions gives an artifact multiple meanings and sheds light on the complexities of interaction. Three general hypotheses were posited at the beginning of this dissertation.

At one extreme, if the missions and presidios relied solely on Spanish supply networks then items mentioned in presidio warehouse records and other supply inventories would be represented in the archaeological record at both presidios and missions. There would be well defined chemical composition groups among beads and lead shot because they would be coming from limited/similar sources. These data would suggest that the Spanish mercantile system was highly effective in a borderland region and was largely undisrupted by illicit or informal economic activity that was known to be occurring via historical testimony. Summarized evidence would suggest that both the presidios and missions were primarily supplied by Spanish networks, thus negating the need for informal or illegal acquisition of goods and supplies.

Alternatively, items mentioned in supply inventories would be represented minimally in comparison to what we might expect in the archaeological record at either presidios or missions because they were consumed, rarely preserved, or were lost. Conversely, documents pertaining to illicit or informal exchange activities would correlate with artifacts found on sites. Additionally, chemical groups of glass beads

would be more diverse and lead sources would not come primarily from Spanish spheres of influence. This would have facilitated the movement of French goods into Spanish territories in direct contradiction to legal trading policies formulated and regulated by Spanish officials. Summarized data would show that either or both presidios and missions were getting their supplies only partially from Spanish networks, and substantially supplemented from non-Spanish networks.

At the other extreme, items mentioned in presidio supply inventories would be represented in the archaeological record at presidios, but to a much lesser extent at missions. There would be well defined chemical composition groups among beads and lead shot within the presidios because they would be coming from limited/similar sources. Conversely, mission contexts would have much greater variability of types and chemical composition of those types because they would be obtaining them from non-Spanish economic networks. There should be little evidence of chemical groupings among bead assemblages both between missions and presidios *and* within missions due to the nature of bead trade among Native groups that functioned independently of European alliances and trade regulations. The same could be said for the lead shot. Data would suggest that the Spanish mercantile system was effective in a borderland region, but only within contexts predominantly populated by Spanish officials. Presidios would have been largely undisrupted by the scale of frequency of illicit or informal economic activity that was known to be occurring within mission contexts. Historical documents would discuss illicit or informal trading activities occurring at the missions and not within the presidio context. The

results of the integrated documentary and chemical analyses presented in this dissertation suggest a scenario that was even more complicated and more interesting than any of these proposed hypotheses.

Documents, Beads, and Bullets

Not only is there evidence of rampant and unchecked illicit trade from the inception of Spain's Florida colonies at the end of the sixteenth century, but documentary evidence also reveals the actors behind this informal economy. After reviewing several documents pertaining to trade and supply in eighteenth-century Pensacola it is apparent that illicit trade and corruption were integral parts of daily life in the region. Most accounts of illicit trade were complaints from Spanish officials concerning interactions between neighboring Creek groups and the British. No legal action or restrictions were ever enforced, however, and the Creeks usually got off with a warning. This lenient treatment was partially due to the fact that the Spanish wanted to maintain peaceful and profitable relationships with interior Creek groups. The relationship was not for conversion since they made no further attempts to establish missions among them, nor was it for increased military protection from the French or British since the Spanish did not engage in any sort of substantial commercial exchange of munitions to Natives. What was the reason for the willingness of the Spanish to overlook and sometimes allow English trade with Creek groups and indirectly with the Yamasee at Punta Rasa? One possibility is that the Spanish could not afford to lose trade allies that brought deer skins, victuals, and other supplies not provisioned through the *situado* or other Spanish networks. Another possibility was that the Spanish wanted to keep a close eye on the Creek who

were allied with their enemies and competitors. By tolerating, placating, and trading with visiting Creek they maintained an indirect link to information and goods from British and French colonies. Conversely, the Apalachee, Yamasee, and Creek all benefited from European competition because they had access to a wider variety of goods and the social perks that came from maintaining and playing off these multiple alliances.

The documents also reveal extensive corruption within the Spanish ranks. To some extent, military authority throughout presidios both facilitated and constrained illegal actions based on the community or personal benefit gained from each action. The lead antagonist in this corruption was governor Román (1750s). Documentary evidence brought forth against Román was overwhelming, coming from both Spanish and Yamasee accusers. Román tried to implicate others, but none of his claims were sustained. The repeated abuses and mistreatment of Creek traders, gambling, storing contraband in his house, and coercion are just a few of the charges brought against him. In contrast to how illicit activity was treated among Native groups, the full force of the Spanish legal system was brought down on Román. He was essentially brought to court, removed from his station as governor, and exiled to New Spain to live out his life in shame. One of the reasons as to why his actions were judged so harshly is because his mistreatment of the Creeks undermined the Spanish's goal to remain on good terms with these groups. After several years of ephemeral peace treaties and continued abuses the Creek finally retaliated, essentially breaking ties with the

Spanish and leaving them without defense against British and French encroachment, as well as isolated from much needed supplies for survival.

Documents provide clear evidence of illicit trade, but archaeologically the evidence is more elusive. Direct correlation of the archaeological record to formal and illicit economic activities is difficult to interpret. We know from numerous historical records that trade within the colonies was, in theory, also highly regulated. These strict commercial policies were responsible, at least in part, for the shortages of imported Spanish goods in the colonies attested to by both historical and archaeological data. Combining historical documents relating to when it was quasi-legal to stretch the rules of Spain's mercantile policy with archaeological evidence is possible, but only in tightly dated contexts. For example, during the twelve years of the War of Spanish Succession (1702-1713) trade with France was legal to an extent. Unfortunately, without tightly dated features and contexts it is difficult to tease out which imported items were brought legally or through other means based on presence alone. However, it is possible to look at the level of access to foreign goods in the missions as opposed to the presidios. Glass seed beads and lead shot are ubiquitous items on colonial sites and offer much more evidence beyond what the eye can see.

Patterns revealed through chemical analysis of the black, blue, and white glass seed beads include both variability and chemical similarities within and between the presidios and missions. A general trend that is seen for each color is that within Escambe (1741-1761) some beads form clearly distinct chemical groups, however, other beads from the mission overlap in chemical composition with beads from Santa

Rosa (1720-1754) primarily, and less so with San Miguel (1740-1763). This pattern could indicate two possibilities. One being that pre-1750, Escambe was mostly supplied by Spanish supply lines through the presidio at Santa Rosa, but shortly after 1750, supply chains shifted and Escambe residents started getting at least some beads from sources outside of Spanish influence (e.g., the French and British-allied Creek). A second possibility is that San Miguel was supplied by different sources coming from Campeche and Havana and thus had beads made with different recipes that came from different production house in Europe. Even though Spain and France were at odds after the Treaty of Utrecht in 1713, San Miguel residents appear to have been on peaceful terms with local French settlements and may have been getting a new supply of beads from either French traders at Toulouse or Mobile, or from English merchants coming from Havana, both avenues being less than completely legitimate.

Although we are not able to determine the production origin of the glass beads with absolute certainty, we can clearly see a shift in chemical variability in a short period of time between 1720 and 1750. Since glass seed beads were primarily used as trade items by Europeans with the main consumers being different Native groups, this artifact group is not only telling of consumer preference based on visual color, but also of distribution patterns based on chemical composition. The documents reviewed for this research do not explicitly mention glass beads in any detail, and mostly list perishable items. However, documentary evidence available for the colonial period in North America do list glass beads as shipment, trade, and payment items, particularly for Native groups. Rosary and jewelry beads like the Cornaline d'Aleppo were mostly

reserved for European settlers based on documentary sources. Taken together, documentary evidence of trade increasing with the Creek in the latter half of the eighteenth century and an increase in chemical variability among glass beads strengthen the argument that beyond the formally sanctioned Spanish supply routes, increasingly more diverse, and probably unsanctioned and informal, trade networks were being utilized to supply the Pensacola presidios and missions post-1740.

The isotopic analysis of the lead shot supports the bead and documentary data. The hypothesis of increased variability in missions as opposed to presidios appears to be confirmed when comparing the lead isotope ratios of the assemblages. Additionally, the cultural context in which they were receiving these supplies reveals both legal and illegal avenues in regard to Spain's mercantile policy. Based on the data, Santa Rosa was receiving lead armaments predominantly from Spanish sources (e.g. Europe, Mexico, New Mexico, and the Greater Antilles), but that supply chain shifted after San Miguel was established back on the mainland. It appears that after 1756 San Miguel was getting lead primarily from central and western Europe (e.g. Great Britain, Bohemia-Germany, or France). This does not automatically indicate that the presidio was supplied illegally from British and French sources, but it does show that global supply chains were shifting at this point and New Spain was no longer the main source of lead armaments for the more peripheral Spanish colonies, at least in West Pensacola. Interestingly, throughout the period 1720-1763, very little lead was supplied from Mexico; the main cluster for all three sites matches with sources from Bohemia-Germany or Great Britain. Based on documentary accounts

Pensacola should have been getting their lead armaments primarily from New Spain, but only Santa Rosa lead has some overlap with sources from Mexico and New Mexico, particularly the Cerrillos region in New Mexico, another remote frontier colony. This fact raises a whole new set of questions regarding the supply chain to colonies in Florida. The real evidence for illicit trade or supply comes from the assemblage from the interior Escambe mission.

Escambe contains a significant sample of lead ammunition that matches lead sources primarily from the Mississippi Valley region. During the time that the Pensacola missions and presidios examined in this dissertation were occupied, this region as exclusively occupied by the French and diverse Native groups living all along the Mississippi River. The fact that Mississippi Valley sourced lead was found in abundance at Escambe is probably testament to the intensive trade networks the Apalachee maintained with the French-allied Creek living in present-day Alabama. Additionally, some of the lead from the San Miguel presidio matches the lead from Mississippi Valley indicating some connection to French trade networks. When the isotopic, chemical, and documentary evidence are analyzed together the results map out a complex network of supply and trade. Based on the datasets it appears that from 1698 to1720 Pensacola was supplied by predominantly Spanish sources and occasionally by French sources both legally and illegally. From 1720 to 1740 Pensacola was supplied primarily by Spanish sources. After 1750, supply chains shifted almost entirely away from Spanish networks and encompassed French and British sources, both legally and illegally. Much of the previous data chapters have

focused on the artifacts, but we must turn our attention back to the economic actors. Two main questions emerge as all this data is considered: What label should we assign this economic activity in light of its nature, timing, and intent? What role did the Yamasee, Apalachee, and Creek have simultaneously facilitating this economic activity and restructuring the economic landscape of Pensacola?

Economic Agency

Informal Economies

The circumvention of mercantilist and other state policies, and particularly the role of contraband in local economies, is receiving more attention by archaeologists (Van Buren 2010:171). An informal economy is typically defined as "consisting of all accounts related to the illegal production, commerce, and/or transportation of goods that fall outside the formal economic systems" (Roberts-Thompson 2012:56). Informal economies can develop in response to limited access to or the shortage of goods, as well as the need for increased economic mobility. Informal economies operate simultaneously on multiple scales, which enables us a better understanding of the imperfect fit between local economic demands and the broader colonial landscape, especially within the realm of politics (Hauser 2008:53). The concepts of illicit and contraband are utilized in the space of informal economy. Illicit means against social norm and contraband refers either to the activities of illicit economic exchange or the exchanged goods themselves. The question of contraband “explicitly juxtaposes well-documented legal economic mandates at a government-administrative scale with illicit efforts to circumvent those mandates at the local community scale” (Deagan 2007:98).

The distribution of material goods in Spanish colonies was largely determined by Spain's mercantilist commercial policies for colonial supply and trade. Monopolies and regulations kept goods scarce at ports like St. Augustine and Pensacola which allowed merchants to unscrupulously charge what the market would bear (Weber 2009:133). For consumer and suppliers alike, these artificially high prices made smuggling an attractive alternative. Additionally, major shipping convoys often bypassed colonies resulting in requests for *sueltos*, or single, non-convoy ships to call at their ports for much needed supplies (Deagan 1987:19). Their requests were consistently denied, exacerbating the need for alternative means of supply. Spanish colonists began to procure essential goods from enterprising British, Dutch, French, or American merchants, goods that were "cheaper, better, and greater variety than those sold by the infrequent Spanish *flota* or *registros*" (Tepaske 1984:515).

Contraband became so chronic that historic documents suggest that almost two-thirds of all commerce throughout the Spanish empire consisted of illegal trade with foreign suppliers; a condition that was a distinguishing trait for the Florida and Caribbean colonies throughout much of their history (Deagan 1987:19; Weber 2009:133). Equally important are the political struggles embedded within the operation of these local economies. As Spanish trade declined and illicit trade increased, Spanish colonial governors not only began to tolerate illicit trade as a means of survival, but also encouraged it as a means of personal gain, sometimes accepting bribes and participating in buying and selling contraband goods (Johnson

2003:317). Due to the complexity of Pensacola's local economy and the varied actions that individuals participated in on a daily basis we cannot assign one label to describe this particular colonial economy. It consisted of a mix of both formal and informal activity taking place in multiple venues, which cannot be simply defined in terms of legality because that would place barriers on economic interactions that were necessarily fluid and had the potential of extending beyond colonial boundaries (Hauser 2008:52). Native groups like the Apalachee, Yamasee, and Creek did not consider their economic agency as illegal or illicit; they were continuing a tradition that was in place for thousands of years before Europeans arrived with their own economic structure. Even the Spanish, French, and British did not hold Native groups to the same standards in which they held their own people, though they tried and failed on several occasions. Groups like the Creek, Apalachee, and Yamasee worked through a mercantile system and shaped it to their own advantage. They became the primary producers, distributors, and consumers of information and goods, the essential commodities of Pensacola's colonial economy.

Brokerage

There is a long history of research in the social sciences focused on how social relations can enhance or diminish the ability of an individual or group to obtain power, influence, or other advantages (Peeples and Haas 2013:232). Brokerage is an extremely useful analytical tool when looking at the structure and interaction of economic networks, but more importantly, it allows us to see how individuals and groups navigate, strengthen, and influence those economic networks. Economic agency is expressed in brokerage, and can be applied to an individual, group,

community, or place (archaeological site). Brokerage refers to the process through which an actor or group in a network mediates interactions among other actors that would otherwise not be connected. Burt (2001) refers to this connection as a structural hole. Structural holes create opportunities for brokers to control the flow of information and objects between people as well as control the actions that bring people together from opposite sides of the hole (Burt 2001:35). Individuals acting as brokers are in this position because of the weaker connections (holes) between groups in the social structure of the market. With a foot in two worlds, brokers span structural holes giving them access to diverse sets of information and resources across that network (Peeples and Haas 2013:234). Communities and sites considered as middlemen or gateway communities were also active brokers in the colonial landscape. Gateway communities were typically located along important boundaries and physical barriers of transportation. Individuals and groups living in these communities were able to influence both directly and indirectly the production, accumulation, and flow of resources to disconnected groups (Hirth 1996:224). The mission communities living in Pensacola Florida during the eighteenth century are quintessential examples of brokers and gateway communities.

The Yamasee and Apalachee communities living at the two Spanish missions in Pensacola had long-standing connections with the Spanish, with each other, with other Apalachee living in French territory to the west, and with interior Native groups like the Upper and Lower Creek. The Spanish held tenuous networks with the Creek, thus relying on the Apalachee and Yamasee to broker political, social, and economic

projects. The Spanish were legally prohibited from trading with other European powers in the region but remained weakly connected to them via the Creek's connection with the Spanish missions. Archaeologically, we see that the missions and Creek towns were located on major confluences of waterways and trade routes creating nexus points along European and Creek borderlands. The missions were peripheral to the Spanish presidio network allowing them some autonomy and control over economic interactions with the Creek, but the Spanish also benefited from the position of the missions as goods from the interior flowed through the missions into the presidios. Additionally, Creek traders came directly to the presidios to trade, but only because the Apalachee and Yamasee brokered favorable terms for the exchange. Being a peripheral, frontier settlement located within an indigenous and European borderland strained the mercantilist structure imposed by the Spanish empire, and conversely facilitated greater economic autonomy expressed through illicit economic practices and brokerage.

Future Work and Other Research Avenues

Instead of answering all the questions set forth at the beginning of this dissertation, we are left with several new questions for every one answered. Revelations from documentary research highlighted gaps in the records that I did not consider at the onset of this research. Warehouse records were not consulted and are either damaged, missing, or sitting undiscovered in archives around the world. The fact that much of the lead for the presidios and mission were coming from New Mexico and Central Europe (Germany-Bohemia) raise several questions since Pensacola, and the Florida colonies in general, were generally believed to have been

supplied predominately from New Spain. Some new documents have recently come to light that mention the supply of goods to all missions and may mention where they were getting their lead and armaments. Much more work can be done with the documentary record.

More work can also be done with the glass beads and the lead shot. The collection from Santa Maria would greatly enhance this research. For example, one feature from Santa Maria has over 200 excavated fragments of lead shot. It would be interesting to test the lead shot from one feature to see if the lead was from one or multiple sources. If we really wanted to prove that glass beads and lead shot were entering the missions from interior Creek towns and French or British trade posts, then we need to test beads and lead shot from known archaeological sites in those areas. Much more chemical analysis of the present collection of beads as well as beads from French and English contexts would be needed to fully unravel the complexity of glass bead distribution and consumption in this region. For instance, if glass beads from Fort Toulouse or Tucabatchee matched chemically to those found in Escambe (the beads distinct from San Miguel and Santa Rosa beads), then one can assume that some of Escambe's beads were coming from French contexts. Similarly, if the chemical composition of those beads also matched those from the two presidios that would mean that beads were traveling down the line through the missions and into the presidios.

For the lead shot from the sites, I would like to delineate the sources coming from Europe as well as distinguish sources down to the exact mine they came from.

Additionally, using LA-ICP-MS to identify trace elemental impurities within the lead may facilitate regional and local distinctions as well. In addition, I identified 25 white glass beads that contained high amounts of lead. It should be possible to identify the source of lead in glass beads using lead isotope analysis like that employed on lead shot. Brill and Wampler (1967:71) were able to extract lead from ancient Roman glass (lead antimonate) and determine that the lead came from England. To my knowledge, not much has been done to source the lead in historic glass, never mind glass beads. The possibilities and research avenues are endless, and this research represents a lifetime of potential work.

Conclusions

This story begins and ends with the fateful attack on the missions of Escambe and Punta Rasa in 1761 thus signaling the end of the Spanish mission system in Florida as well as the conclusion of Spain's earliest hold on the Southeast. In just the span of one century the economic, political, social, and spiritual landscape of Pensacola, in particular, and Florida in general was reconstituted, restructured, and transformed into something based in tradition yet entirely novel. The combination of historical documents, trade artifacts, and archaeometry has allowed for a fuller glimpse into this tumultuous period often overlooked by archaeologist and historians alike due to its liminal nature; a time between a "typical" colonial past and a "modern" America. Equally fluid were choices of European and Native groups living during this time, struggling, negotiating, surviving, and sometimes thriving on the cusp of change. Today we use terms like informal, illegal, and illicit, but those concepts garnered vastly different meanings in the context of eighteenth-century

Pensacola. Time and time again we are reminded that economic principles and daily life in the past were far more complicated, dramatic, and dynamic than we hypothesized. Groups like the Apalachee and individuals like Escudero and Román were not just cogs in the colonial wheel, but rather the builders and reinventors of the economy we recognize today. This dissertation tells a fascinating story, one which grows and changes as new evidence and understanding presents itself.

Appendix A: Primary Documents

AGN Carceles y Presidios 114 Expediente 4, folios 1r-10v, 1749

Testimonio de la Junta Zelebrada en 14 de Hen[er]o para la expulsion de los Yngleses que se dixo estavan en esta jurisdiscion Y se Remito original al exc[elentisi]mo Virrey

[1]Don Juan de Yarza y Ascona commandante por Su Magestad de este Real Presidio de Santa Maria de Galves Ysla de Santa Rosa Punta de Siguenza y su jurisdiscion etc. por quanto el dia de oi catorce de el corriente mes tengo zelebrada junta con los señores oficiales y pagador sobre el asumpto que trata el Auto supra yncerto y en ella determinadose (como consta) Ser Combeniente la expulsion de d[ic]hos Yndios Yngleses Sin la bexacion de Decomisar los Paños toscos y otras menudencias de poca entidad pertencecienttes a el bestuario de los Yndios y demas. Mirando los incombenientes que por otro modo de proceder se pueden originar: Por la presente ordeno a el Theniente don Joseph de Escobar, pase a el paraje de Punta rraza y con sagasidad ni alteracion de los Yndios condusga con la guardia de seis ombres a el principal conductor de d[ic]hos generos y lo traiga a mi presencia. Asegurandole no padecera daño como assimismo a el casique don Adrian y a los principals Antonio el Micon, y Juan Joseph y todos los demas que puedan benir// para el fin que conduce a el servicio de el Rey y providencias nesesarias para lo qual y que sirva de Ynterprete en la lengua Ynglesa llevar consigo a el condestable Enrique Chandre executando estas diligencias d[ic]ho Theniente Don Joseph de Escobar con la Maior promptitud y celeridad posible y sentandolas con testigos de asistencia que es f[ec]ho como dicho es ut supra Don Juan de Yarza y Ascona.

[2]En obedecimiento de la orden antecedente passe a el Pueblo de Punta Raza en donde se hallan los Yndios de la Nacion Yamazes y recombiniendoles con la orden que antecede para que me pusiesen en el parage en donde se hallavan los Yngleses quienes me respondieron lo executarian y estando promptos para executar el Viaxe me representaron hallarse d[ic]hos Yngleses dos dias de camino distantes de d[ic]ho Pueblo en donde tenian poblado uno con la nacion Talapuzes y que para executarlo les avia de pagar y que de no no lo querian hacer en cuia bista passe con mi tripulazion a este Presidio a dar quenta a V. M. el Señor commandante para que en su

[1] Orden
[2] Obededim[ien]to

bista se sirva determinar lo que tubiere por mas combeniente= Punta de Siguenza y Henero Viente de mill setecientos quarenta y nuebe= Joseph de Escobar

[3]Isla de Santa Rosa y henero viente y uno de mill setecientos quarenta y nuebe= en vista de la orden por mi prebenida el dia catorse de el corriente y minstrada a el Theniente Don Joseph de escobar que lo es de la compañia de el capitan Don Nicolas Ximenes para el fin que en ella se expressa y que en su consequencia passo d[ic]ho oficial a el Pueblo de Punta rraza para adquirir la noticia de el paraje en donde se hallan los enunciados Yngleses y que los Yndios parziales Nuestros no quissieron acompañar a d[ic]ho theniente motibando la paga y el que de no hacerseles no querian ir y con efecto no fueron por este motibo faltando a la subordinacion y lealtad de el cervicio de el Rey no se efectuo la diligencia a que fue destinado d[ic]ho official Y assimismo haver declarado d[ic]hos Yndios haver dos dias de camino distante de este poblason en donde tienen ya formado un pueblo de Yndios de la nazion Talapuz paricales Nuestros y a donde de dice estar d[ic]hos Yngleses. para mexor cerziorarme y considerando hallarse unos y otros Cituados en tierras de el Rey mi Señor sin que a ninguno de los de este Presidio se le aya hecho saver y assimismo que desde aqui a Abalache y desde// alli a la Florida se deve tener presente ser dominios de Su Magestad en los que no se deve permitir a d[ic]hos Yngleses: ordeno a dicho oficial D[o]n Joseph de Escobar reitera otra vez su viaxe a d[ic]ho Pueblo Punta Rasa y exsorte de parte de el Rey a el Casique don Adrian y demas principales condusgan a d[ic]ho Theniente Don Joseph de Escobar a el paraje en donde se hallan d[ic]hos Yngleses para que bien ynstruido de lo dilatado de el paraje y situacion de el Pueblo y asistencia de Yngleses con lo demas ordenado en el Auto de el dia catorce pase luego y sin dilacion a executar lo por mi ordenado en d[ic]ho auto para en su bista probeer las diligencias que combengan a la expulcion de d[ic]hoYngleses de terminos y tierras de Su Magestad= Don Juan de Yarza y Ascona=

[4]En obedecimiento de el auto y orden que antecede passe al Pueblo de Punta Rasa en donde llegado que fui exsorte a los Yndios de parte de Su Magestad ofreciendolos la paga segun orden Verbal del Señor commandante para el fin de que pasasen conmigo a la situacion e morada de los Yngleses o Pueblo de Yndios donde se hallavan quienes se me negaron en el todo hasta que me bi presisado a decirles que si dudavan de la paga por parte de Su Magestad que Yo me obligava a la satisfacsion en cuia vista condesendieron a llevarme al d[ic]ho paraje// como con efecto lo executaron aunque dudosos de el berdadero camino por cuio motibo retarde hasta el referido paraje diez dias con dos que demore en la rancheria de Antonio el Micon para

[3] [o]rd[e]n
[4] Dilig[enci]as

providenciarme de uno poca de carne y probeydo de ella segui mi viaxe con d[ic]ho Micon hasta el Pueblo que de nuebo an formado los Yndios Talapuzes los que se componen de quince ombres segun me ynformo d[ic]ho Micon y algunas mugeres por [no?] aver allado en d[ic]ho Pueblo mas que a un Yndio que me dixeron ser el casique por estar los demas en cazerias Y un Yngles que me dixeron ser criado de un otro que conducia los xeneros para los Yndios y se havia ydo a la provincia de los mismos Talapuzes a buscar sus mercancias por cuio motibo no le pude hablar ni traer conmigo segun la orden y me bolui haviendo gastado en mi debuelta quatro dias hasta llegar a el paraxe en donde havia dexado la canoa en que fui y alli me encontre con el Theniente Don Pedro Ximenes de Florencia=el Pueblo se compone de seis casas ynclusa la de la asistencia de el Yngles en la que bi diferentes Vagatelas de mercanzia como eran pedazos de paño algunas Yndianas sintas// y cuchillos que es quanto me a passado y e visto: Punta de Siguenza y febrero diez de mill setecientos quarenta y nuebe= Joseph de Escobar --- emendado= decomisar=Dicho=Vale

Certifico ser copia a la letra sacada de su original que para en este Archivo. Ysla de Santa Rosa y febrero viente y seis de mill setecientos quarenta y nuebe a[ño]s

D[o]n Juan de Yarza y Ascona

[5]Don Juan de Yarza y Ascona Commandante por Su Magestad de este Real Presidio de Santa Maria de Galves Ysla de Santa Rosa Punta de Siguenza y su Jurisdicion etc. Por quanto el dia de õi trece de el corriente mes de Henero de este presente año de mill setecientos quarenta y nuebe años; Don Joseph de Escobar Theniente de la Compañia de el capitan D[o]n Nicolas Ximenez de Florencia me dió notizia por haverse la participado un Yndio de que en la cituacion de Punta Raza donde tienen los Yndios Yamazes se hallan algunos Yndios Yngleses con algunos cavallos cargados de rropa de la que usan para su bestuiario d[ic]hos Yndios y el de sus mugeres y Creaturas y que con osado atrevimiento faltando a lo que deben les permiten la entrada para que se hagan capases de las tierras de S[u] M[agestad] lo que puede resultar en grave perjuicio a este Presidio y para que en ningun tiempo se pueda berificar la permission de el Yngresso a d[ic]hos Yndios Yngleses por que con este motibo de yntroducir ropa para a los Yndios pueden yntroducir otros generos de rropas que berifiquen trato Ylicito contra la mente de S[u] M[agestad] que priba todo trato para que tenga devido efecto lo mandado por S[u] M[agestad] y se ponga el remedio conducente a este fin teniendo presente los//Yndios Parciales nuestros pueden tener a mal y causar grave extrepito por no tener otra parte a donde ocurrir para tapar sus carnes las de sus mugeres e yxos sin otros muchos motibos que pueden

[5] Auto para _ junta

dar margen a alterar la quietud y sosiego con que se mantienen d[ic]hos nuestros Yndios para que con mexor asierto de mi conducta pueda proceder a lo que conduce al servicio del Rey y lo mandado ordeno a el official que hace de ordenes el dia de oy Don Ygnacio Camino y Frias passe a citar a los Señores oficiales de este Presidio y pagador para que Juntos todos cada uno de por si exponga y firme lo que tubiere por combeniente sobre el particular para dar la prompta Providencia que se requiere: f[ec]ho en esta Ysla de Santa Rosa en catorce de henero de mill setesientos quarenta y nuebe = Don Juan de Yarza y Ascona

[6]En d[ic]ho dia mes y año yo el Alferez Don Ygancio Camino y Frias que hago de ordenes en obedicimiento de lo ordenado por el señor commandante en el Auto que antecede hizo la citazion que por el se me ordena para el fin que se prebiene en d[ic]ho Auto f[ec]ho utsupra = Ygnacio camino y Frias

[7]En d[ic]ho dia, mes, y año Yo d[ic]ho commandante hallandose Juntos en la cassa de mi morada los señores oficiales y pagador a de mi// commando para zelebrar la junta que tengo de terminada se les hizo saver el Autto por mi probeido y enterados de su contenido Dixeron = Yarza

[8]Yo el Alferez Don Ygnacio Camino y Frias en ynteligencia de el Auto que antecede el Señor commandante sobre lo que expresa Digo que me conformo en todo y por todo en lo que d[ic]ho señor commandante con su maduro acuerdo tubiere por combeniente practicar sobre el asumpto que expone y lo firme = Ygnacio Camino y Frias

[9]Yo el Theniente Don Joseph de Uriza en ynteligencia de el auto que antecede de el Señor commandante. Sobre lo que expresa Digo que en atencion a la noticia con que su merced se halla es mi parecer que se manden traer dic]hos Yndios y a los Yngleses y que con exsorto de el Señor commandante a unos y a otros se les haga saver para el fin de quitar el trato que estos Ylicitamente tienen y lo firme = J[ose]ph Sanchez de Uriza

[10]Yo el Then[ien]te D[o]n Joseph de Escobar Digo que me conformo en todo con el parecer que antecede y lo firme= Joseph de Escobar

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[6] cit[aci]on
[7] dilig[enci]a
[8] Parecer de alf[e]r[e]z D[o]n Yg[naci]o camino y frias
[9] Pare[ce]r del Then[ien]te D[o]n J[ose]ph de Uriza
[10] Then[ien]te D[o]n J[ose]ph de Escobar

[11]Yo el Theniente Don Pedro Ximenez de Florencia Digo me comformo con los pareseres que anteceden y lo firme = Pedro Ximenez de Florencia//

[12]Yo el Pagador D[o]n Joseph de Yberri Digo que respecto de el Auto que antecede de el Señor commandante y la noticia de estar en esta Jurisdicion los de la nacion Ynglesa sin permiso de este Gobierno soy de parezer se traigan (si puede ser) a este Real en donde exsaminados y conocido su mente se proseda segun las ordenes de el Rey y lo firme = Joseph de Yberri

[13]El Capitan Don Nicolas Ximenez de Florencia que repecto a lo que el Señor commandante expone. Soi de pareser mande su merced las personas que tubiere por mas combeniente al fin de ber Si es berdad estar los Yngleses comerziantes de que se le a avisado en el Pueblo de Punta rraza y de ser sierto con la maior sagazidad y seguro (el que se les devera guardar) de que no se les seguira detrimento assi en sus personas como en sus bienes (respecto a la suspension de Armas que ay oi entre las dos coronas: como el que los Yndios nuestros Amigos ni los que ellos puedan traer de su parte se ymmuten de la buena correspondiencia en que biven) bengan a este presidio a donde por el Señor commandante se les pregunta se debuelta y que no practiquen para otra vez el transitar los dominios de su Magestad Catholica que custodiamos en este territorio; Y a los Yndios nuestros aliados Se les prebenga no ser les licito el admitir sin Licencia de su Merced el Señor commandante a ningun estranxero en sus poblados ymponiendoles la Pena para en lo adelante que tubiere su Merced por co[n]beniente y lo firme = Nicolas Ximenez de Florencia

[14] E Yo el commandante en vista de lo deducido// Por los señores oficiales y pagador en esta junta Ordeno a el Theniente Don Joseph de Escobar passe a la cituacion de Punta rraza en compañia de el condestable para ynteligencia de la Lengua Ynglesa y siendo cierto hallarse en d[ic]ho Territorio los Yndios Yngleses enunciados con d[ic]has ropas. Conducir a este Presidio a el Principal Tratante como asimismo a el casique Don Adrian, a Antonio el Micon y a Juan Joseph. Principales y los demas que sea posible asegurandoles con modo mui suabe no padeceran pereJuizio alguno en su benida ni a los Yngleses en su ropa sin que ninguno sea ossado a quitarles cosa alguna y para que tenga el devido efecto lo por mi ordenado estoi prompto a dar las providencias que correspondan a el fin de el servicio de el Rey = D[o]n Juan de Yarxa y Ascona

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[11] Then[ien]te D[o]n Pedro Ximenez
[12] el pag[ad]or D[o]n J[ose]ph de Yberri
[13] el cap[ita]n D[o]n Nicolas Ximenez
[14] El s[eño]r com[mandan]te

[15]Don Juan de Yarza y Ascona commandante por su magestad de este Real Presidio de Santa Maria de Galves Ysla de Santa Rosa Punta siguenza y su Jurisdicion [etc.] =Por quanto el dia de Oi catorce de el corriente mes tengo zelebrada junta con los señores oficiales y pagador sobre el asumpto que trata el auto Supra ynserto y en ella determinadose (como consta) ser combeniente la expulcion de d[ic]hos Yndios Yngleses sin la bexacion de decomisar los paños toscos y otras menudendias de poca entidad portenecientes a el bestuario// de los Yndios y demas mirando los y[n]combenientes que por otro modo de proceder se pueden orijinar: por el presente ordeno a el Theniente Don Joseph de Escobar passe a el paraje de Punta rraza y con sagasidad ni alteracion de los Yndios condusga con la guardia de sies ombres a el principal conductor de d[ic]hos generos y lo traiga a mi presencia aseguarandole no padecer a Daño como assimismo a el Casique Don Adrian y a los Principales Antonio el Micon Juan Joseph y todos los demas que puedan benir para el fin que conduce a el cervicio de el Rey y providencias necesarias para lo qual y que sirva de ynterprete en la Lengua Ynglesa llevara consigo a el condestable Enrrique Chandre executando estas Diligencias d[ic]ho Theniente Don Joseph de Escobar con la maior promptitud y zeleridad posible y sentandolas con testigos de Asistencia: que es f[ec]ho como d[ic]ho es Vt supra = Don Juan de Yarza y Ascona

[16]En obedecimiento de la orden antecedente passe al Pueblo de Punta rraza en donde se hallan los Yndios de la Nacion Yamazes y recombiniendoles sobre la orden que antecede para que me pusiesen en el paraje donde se hallaban los Yngleses quienes me respondieron lo executavian y estando proptos para executar el viaxe me representaron hallarse d[ic]hos Yngleses don dias de camino de d[ic]ho pueblo en donde tenian poblado uno con lo de la nacion Talapuzes y que para executarlo// les havia de pagar y que de no no lo querian hacer en cuia vista passe con mi tripulacion a este presidio a dar quenta a V.M. el Señor commandante para que en su vista se sirvia determinar lo que tubiere Por mas combeniente Punta de Siguenza y henero viente de mill setecientos quarenta y nuebe = Joseph de Escobar

[17]Ysla de santa Rosa y henero viente y uno de mill setecientos quarenta y nuebe = en vista de la orden por mi prebenida el dia catorce de el corriente y ministrada a el Theniente Don Joseph de Escobar que lo es de la compañia de el capitan Don Nicolas Ximenez para el fin que en ella se expresa y que su consequencia passo d[ic]ho oficial a el Puebla de Punta rraza para adquirir la noticia de el paraje en donde se hallan los enunciados Yngleses y que los Yndios principales nuestros no quissieron a

[15] or[de]n
[16] obedecim[ien]to
[17] or[de]n

compañar a d[ic]ho Theniente motibando la paga y el que de no hacerseles no querian ir y con efecto no fueron por este motibo faltando a la subordinacion y lealtad de el cervicio de el Rey no se efecto la diligencia a que fue destinado d[ic]ho oficial: y assimi[s]mo haver declarado d[ic]hos Yndios haver dos dias de camino un Pueblo de Yndios de la nacion Talapuz en donde tienen ya formado un Pueblo parciales nuestros ya donde se dice estar d[ic]hos Ingleses: para mexor cerrioxarme y considerando hallarse unos y otros cituados en tierras de el Rey mi Señor sin que// a ninguno de los de este Presidio se le aya hecho saver y assimismo que des[de] aqui a Aba[la]che y desde alli a la Florida se deve tener presente ser dominios de su Magestad en los que no se deve permitir a d[ic]hos Yngleses ordeno a d[ic]ho oficial Don Joseph de Escobar reitera otra vez su viaxe a d[ic]ho Pueblo de Punta raza y exsorte de parte de el Rey a el casique don Adrian y demas Principales condusgan a d[ic]ho Theniente Don Joseph de Escobar a el paraxe en donde se hallan d[ic]hos Yngleses para que bien ynstruido de lo dilatado de el paraje y cituacion de el Pueblo y asistencia de Yngleses; con lo demas ordenado en el auto de el dia catorce passe luego y sin dilacion a executar lo por mi ordenado en d[ic]ho auto para en su vista probeer las diligencias que combengan a la expulcion de d[ic]hos Yngleses de los terminos y tierras de su magestad= D[o]n Juan de Yarza y Ascona

[18]En obedecimiento de el auto y orden que antecede passe al pueblo de Punta rraza en donde llegado que fui exsorte a los Yndios departe de su Magestad ofriciendoles la paga segun orden verbal. de el Señor commandante para el fin de que passasen conmigo. a la cituacion o morada de los Ynglese o Pueblo de Yndios donde se hallaban quienes// se me negaron en el todo. hasta que me bi presisado a decirles que si dudaban la paga por parte de su magestad que yo me obligava a la satisfacion, en cuia vista condecendieron a llebarme al d[ic]ho paraje como con efecto lo executaron: aunque dudosos de el berdadero camino por cuio motibo retarde hasta el referido paraje diez dias con dos que demore en la rancheria de Antonio el Micon. Para providenciarme de una poca de carne y probeido en ella segui mi viaxe con d[ic]ho Micon hasta en Pueblo que de nuebo an formado los Yndios Talapuzes los que se componen de quinse ombres segun mi ynformo d[ic]ho Micon y algunes mugeres por [no?] haver hallado en d[ic]ho Pueblo mas que a un Yndio. que me dixeron ser el casique por estar los demas en cazerias y un Yngles que me dixeron ser ciado de un otro que conducia los generos para los Yndios y se avia ydo a la Provincia de los mismos Talapuzes a buscar sus mercancias por cuio motibo no le pude hablar ni traer conmigo segun la orden y me bolui haviendo gastado en mi debuelta quatro dias. hasta llegar al paraxe en donde havia dexado la canoa// en que fui y alli me encontre

[18] Dilig[enci]a

con el Theniente don Pedro Ximenez de Florencia = el Pueblo se compone de seis casa Ynclusa la de la asistencia de el Yngles en la que vi diferentes vagatelas a mercancia como eran pedazos de paño algunas yndianas sintas, i cuchullos que es quanto me a passado y e visto Punta de siguenza y febrero diez de mill setesientos quarenta y nuebe =Joseph de Escobar

[19]Ysla de Santa Rosa y febrero once de mill setecientos quarenta y nuebe = ponganse estas diligencias con la junta selebrada para este fin para en caso que se ofresca dar quenta con todo a el exc[elentisi]mo Señor Virrey de esta Nueba españa en primera ocasion Yarza

Certifico ser copia a la letra sa[ca]da se su original que se remite a el exc[elentisi]mo Señor Virrey Ysla de Santa Rosa y Febrero Viente y siete de mill setecientos quarenta y nuebe a[ño]s.

Don Juan de Yarza y Ascona

Testimony of the junta celebrated on [the] 14th of January for the expulsion of the English that were said to be in this jurisdiction and the original was sent to the most excellent Viceroy.

Don Juan de Yarza y Ascona, commandant for his Majesty of this Royal Presidio of Santa Maria de Galves, Isla de Santa Rosa, Punta de Siguenza, and its jurisdiction, etc. Inasmuch as the day of today, [the] 14th of the current month, I have celebrated a junta with the *señores* officers and paymaster about the affair that the auto inserted above deals with, and in it was determined (as is evident) that the expulsion of the said English Indians would be suitable, without the irritation from confiscating the rough clothes and other trifles of little value to the wardrobe of the Indians and the rest, seeing the inconveniences that could originate from another manner of proceeding. For the present, I order that Lieutenant Don Joseph de Escobar should pass to the place of Punta Rasa and with shrewdness and without disturbance to the Indians, with a guard of six men he should lead the trafficker of the said goods and bring him to my presence, assuring him he will not suffer harm, and likewise [bring] the cacique Don Adrian and the principals Antonio the Micon, and Juan Joseph and all the rest that are able to come, for the goal that is suitable to the service of the King, and necessary measures. For this, he should take with him constable Henry Chandre as interpreter of the English language. The said Lieutenant Don Joseph de Escobar should carry out these tasks with the greatest promptness and all possible

[19] D[e]c[re]to

speed possible and recording them with witnesses in attendance. Dated as above, Don Juan Yarza y Ascona.

In obedience the preceding order, I passed to the Pueblo of Punta Raza where the Indians of the Yamasee Nation are found, and reprimanding them with the order that precedes, so that they should put me in the place where the English usually find themselves, they responded to me that they would do it. Being ready to execute the journey, they explained to me that the said Englishmen found themselves two days by road distant from the said Pueblo, where they have settled one [Englishman] with the Talapuzes Nation, and that to execute it I had to pay them, and if not, they did not want to do it. In view of this, I passed with my crew to this presidio to give account to Your Grace the Señor Commandant, so that in his view of their refusal, he is served to determine what holds to be most suitable = Punta de Siguenza and January 20 of 1749 = Joseph de Escobar

Isla de Santa Rosa and January 21 of 1749 = in view of the order prepared by me on the 14th day of the current month given to the Lieutenant Don Joseph de Escobar, who is [active lieutenant] of the company of the Capitan don Nicolas Ximenes, for the goal that is expressed in it, subsequently said official traveled to the Pueblo of Punta Rasa to acquire the news of the place where the aforementioned Englishmen find themselves, and the Indians partial to us did not want to accompany the said Lieutenant, motivated by payment; not making it to them, they did not wish to go. In effect, they did not go to this place. For this reason, lacking subordination, and loyalty in the service of the King, they did not carry out the task, so that the errand that the said official was assigned was not implemented. The said Indians had declared there to be two days by road distant from this settlement where they have now formed a pueblo of Indians of the Talapuze nation partial to us, and where the said Englishmen are said to be. In order to make myself more certain, and considering they find themselves one and others situated on the lands of the King my Lord, without having made it known to anyone of this presidio, and likewise from here to Apalache and from there to Florida, one ought to keep in mind that it is dominion of his Majesty, which the said Englishmen should not be permitted [to do]: I order the said officer Don Joseph de Escobar to repeat his journey again to the said Pueblo Punta Rasa and on behalf of the King to exhort the *casique*[20] Don Adrian and the rest of the *principales*[21] to lead the said Lieutenant Don Joseph de Escobar to the place where the said English find themselves, so that, well instructed of its distance of the place, and the location of the Pueblo and residence of the Englishmen, with the rest of it

[20] Chief
[21] Leading men or secondary chiefs

ordered in the Auto of the 14th, that he should pass immediately to execute what I have ordered in the said auto so that in view of it I may provide the tasks that are suitable for the expulsion of the said English from districts and lands of his Majesty = Don Juan de Yarza y Ascona =

In obedience with the preceding auto and order, I passed to the Pueblo of Punta Rasa, where, having arrived, I exhorted the Indians on behalf of his Majesty to offer them the payment according to the verbal order of the *señor* commandant for the aim that they should pass with me to the location and dwelling of the English or Pueblo of Indians where they find themselves. They refused whole thing to me, until I found myself forced to tell them that if they doubted the payment on behalf of his Majesty, that I obliged myself to satisfy it, in view of which they consented to take me to the said place, as in effect they executed, although doubtful of the true path, for which motive I delayed ten days in reaching the referred place, with two that were delayed in the ranch of Antonio the Micon to provide myself a little meat. Having provided it, then I continued my voyage with the said Micon as far as the Pueblo newly formed by the Talapuzes Indians, who are comprised of 15 men and some women, according to what the said Micon informed me, because of not finding in the said Pueblo more than one Indian, whom they told me was the cacique, on account of the rest being out hunting, and one Englishman whom they tell me is a servant of another Englishman who brought the goods, he having gone to the province of the same Talapuzes to look for his merchandise. On account of this, I was not able to speak to him nor bring him with me in accordance with the order. I returned, having spent four days until arriving at the place where I left the canoe in which I went, and there I met with Lieutenant Don Pedro Ximenes de Florencia.

The pueblo was comprised of six houses, including that where the Englishman resides, in which I saw different trifles of merchandise such as pieces of cloth, printed calico, ribbons, and knives. This is what has happened to me and what I have seen: Punta de Siguenza and February 10 of 1749 = Joseph de Escobar. Amended = to confiscate = said = valid.

I certify that [this] to be a copy of the letter taken from its original which remains in this archive. Ysla de Santa Rosa and February 26, 1749.

Don Juan Yarza y Ascona

Don Juan de Yarza y Ascona, commandant for his Majesty of this Royal Presidio of Santa Maria de Galves, Isla de Santa Rosa Punta de Siguenza and its jurisdiction, etc. Inasmuch as today, [the] 13th of the current month of January of this present year 1749; Don Joseph de Escobar, Lieutenant of the company of the Capitan Don Nicolas

Ximenez de Florencia, gave me news about an Indian having informed him, that in the location of Punta Rasa where they have the Yamasee Indians, some English Indians find themselves with some horses loaded with clothes that the said Indians and their women and children use for clothing, and that it is with daring nerve, not doing what they ought to, they permit them entrance, so that they make themselves owners of the lands of his Majesty, which could result in grave damage to this presidio. And that at no time should it ever occur that permission is given to the said English Indians to enter, because with motive of introducing clothing for the Indians, they would introduce other kinds of goods which are illicit trade against the mind of his Majesty who prohibits all trade. And so that that which is mandated by his Majesty has the proper effect, and the remedy conducive to this goal is emplaced, keeping in mind that our allied Indians could take offense, and causing serious uproar by not having another source from which they can get clothing for covering the skin of their women and children, not counting many other reasons that they could give cause to agitate the quietude and calm which our said Indians maintained themselves, so that my conduct can proceed with great skill to what is suitable to the service of the King and that which he has ordered, I order the officer who makes orders today, Don Ygnacio Camino y Frias, to pass to summon the *señores* officers of this presidio and paymaster, so that together and each one on his own, explain and sign that which they hold appropriate about this particular [case] in order to give the prompt measure that is required: made in this Ysla de Santa Rosa on 14th of January of 1749 = Don Juan de Yarza y Ascona

On the said day, month, and year, I, the Ensign Don Ygnacio Camino y Frias, who makes orders, in obedience of what was ordered by the *señor* commandant in the preceding autos, I made the summons that was ordered to me by him for the aim that is explained in the said auto, shown above = Ygnacio Camino y Frias

On the said day, month, and year I, the said commandant, the *señores* officers, and my paymaster, finding themselves together in my dwelling at my command to celebrate the meeting which I have determined, it was made known to them [the auto] provided by me, and informed about its content, they said = Yarza

I, the Alferez Don Ygnacio Camino y Frias, in understanding of the preceding auto of the *señor* commandant about what he expresses, I say that I agree in everything and for everything with what the said *señor* commandant with his mature understanding holds as suitable to practice about the task that he presents, and I signed it = Ygnacio Camino y Frias

I, the Lieutenant Don Joseph de Uriza, in understanding of the preceding auto from the *señor* commandant, about what it expresses, I say that in attention to the news with which his Grace he finds himself, it is my opinion that the said Indians and the Englishman should be ordered to be brought, and with the urging from the *señor* commandant to one and the other it be known to them the aim of eliminating the trade that these [groups] illicitly have, and I signed it = Joseph Sanchez de Uriza

I, the Lieutenant Don Joseph de Escobar I say that I agree completely with the opinion that which precedes, and I sign it = Joseph de Escobar

I, the Theniente Don Pedro Ximenez de Florencia, state my endorsement with the preceding opinion, and I signed it = Pedro Ximenez de Florencia

I, the paymaster Don Joseph de Yberri, say that with regard to the preceding auto from the *señor* commandant and the news of those of the English nation being in this jurisdiction without permission from this government, I am of opinion they be brought (it can be) to this military establishment, where, once they have been questioned and their intentions have become known, we should proceed according to the orders of the King, and I signed = Joseph de Yberri

The Capitan Don Nicolas Ximenez de Florencia, with regard to what the *señor* commandant explains, I am of the opinion that his grace should order the people he holds to be most suitable with the aim of seeing if it is true that the English merchants he has been advised of are in the Pueblo of Punta Rasa, and if found to be true, with greatest wisdom and security (that which ought to be maintained), so that there will not follow a detriment to their persons or to their goods (with respect to the suspension of the hostilities that there is today between the two Crowns and our Indian friends, nor those who they might bring on their behalf not to disrupt the good relations in which they have with them in which they live), they should come to this presidio where the *señor* commandant should question them about their return, so they should not practice another time crossing the dominions of his Catholic Majesty which we guard in this territory; and to our Indian allies it should be explained to them that it is not legal for them to admit without license of his Grace the *señor* commandant any foreigner in their settlements, imposing on them the punishment for in any future interactions that he holds most suitable, and I signed = Nicolas Ximenez de Florencia

And I, the commandant, in view of that which is deduced from the *señor* officers and paymaster in this meeting, I order the Lieutenant Don Joseph de Escobar to pass to the location of Punta Raza in company of the constable, for understanding the English language, and if it is certain that the aforementioned English Indians are found in the

said territory with said goods, he should lead to this Presidio the principal [English] trader, and likewise the cacique Don Adrian, Antonio the Micon, and Juan Joseph, principles [Indians], and the rest who are able [to be brought], assuring them in a very delicate way that upon coming, they will not experience any harm to their goods, nor will the Englishmen, and that nobody will dare to take away a single thing from them, and so that that which is ordered by me has proper effect,, I am prepared to give measures that correspond to the aim of the service of the King = Don Juan de Yarza y Ascona

[Next four sections are a repeat of the beginning of this letter]

Ysla de Santa Rosa and February 11 of 1749 = These proceedings should be placed with the junta celebrated for this goal in case that it occurs to give an account with everything to the most excellent senior viceroy of this New Spain in first chance Yarza =

I certify it to be a copy to the letter, drawn from the original which I forward to the most excellent Senior Viceroy, Isla de Santa Rosa and February 27 of 1749

Don Juan de Yarza Ascona

AGN Historia 571 f. 365r, 1757

Copia del Memorial que presente a este Cavallero Gov[ernad]or Andrés de Escudero Casique actual del Pueblo de Punta rraza uno de los de esta Juricdision Gov[ernad]or G[e]n[e]ra[l] de las dos Provincias de los Talapuses, y Apiscas electo por los Principales Casiques, y Capitanes de Guerra, y por el Superior Jefe de dhas Provincias, Acmuacache el dia 14 de Abril del año pasado de [17]57[22] en el mismo acto en que selebraron la pas G[ene]ral con los españoles en esta plaza em precencia de V[uestra] S[eñoria] por mi, y en nombre de mi Pueblo, y de mis provincias. Yo como como Gov[ernad]or G[ene]ral, y haver quedado em precencia de V[uestra] S[eñoria] con todos los encargos segun las petisiones que yso [hizo] el referido Acmucayche en Junta G[ene]ral de capitanes, y ofisiales de esta Plaza p[ar]a los Ynformes q[u]e V[uestra] S[eñoria] havia de haser á su ex[celenci]a para mayor providencia pertenecientes a dhas nasiones, por ser los Gastos tan cortos q[u]e ay [alli] tiene S[u] Mag[esta]d en esta Plaza que no alcanza p[ar]a la mantencion de estos dos Pueblos que tiene su Mag[esta]d a su cargo menos se podra subsistir los muchos Yndios q[u]e bajan ha esta Plaza, como recien establacidos a nuestra alianza, y considerando yo como Practico en sus modales sobre puede sobrebenir faltando le a la palabra referida muchos daños q[u]e pueden haver como barbaros que son, viendo el referido Acmucayche como Jefe de dhos Provincias el poco aprecio que se ha

[22] The actual treaty was dated to April 14, 1758.

hecho en sus peticiones Baliendose el Patrocinio de N[uest]ro Rey g[uard]e dios que como subordinados ha esta Plaza me presento con este escrito ante V[uestra] S[eñoria] p[ar]a q[u]e en ley de Justisia [h]aga su ex[celenci]a los Ynformes como las dhas nasiones piden como basallos suios, y p[ar]a q[u]e V[uestra] S[eñoria] tenga Yntrodusion entre los Ynfieles, y los traiga a el conosim[ien]to N[uestra] S[ant]a Fee pues pues no es otro fin por q[u]e de lo contrario se perdera lo q[u]e se havia de ganar entre estas Ynfelises Almas y traer las a el conosim[ien]to de nuestra S[ant]a Ley p[o]r lo tanto pido y suplico a V[uestra] S[eñoria] q[u]e se digne q[u]e en este cituado me permita lisencia p[ar]a pasar a la Nueba España y Ynformar a su ex[celenci]a todo lo q[u]e pasa p[o]r aca con los Yndios Ynfieles que espero de la notoria clemencia de V[uestra] S[eñoria] a q[uie]n dios p[o]r m[uchos] a[ños] gu[ard]e = Andrés Escudero

Copy of the report that I presented to this Gentlemen Governor: Andrés de Escudero, current *casique* of the town of Punta Rasa, [which is] one of [the towns] of this jurisdiction; Governor General of the two Provinces of the Talapuses and Apiscas, elected by the Principal *Casiques* and the War Captains, and by Acmucayche, the Superior Chief of the said Provinces.

[on] The 14[th] day of April this past year of 1757 in the same ceremony in which the general peace with the Spaniards was celebrated in this post in the presence of Your Lordship, by me, and in the name of my town, and of my provinces. I, as Governor General, and having met in [the] presence of Your Lordship with all the tasks according [to] the petitions that the aforementioned Acmucayche made in the general junta of [the] captains and officials of this post for the reports that Your Lordship had to make to His Excellency for greater understanding pertaining to the said nations, on account of the expenditures Your Majesty has in this post being so limited that they are insufficient for the maintenance of these two pueblos which Your Majesty [has] at his care, even less could subsistence be provided for the many Indians that descend to this post , as recently established allies, and I, as familiar with their customs, considering the many damages that could happen if the aforementioned agreement were violated, if Acmucayche, as chief of said provinces, sees the little appreciation that has been made of their petitions in taking advantage the patronage of Your King, God guard [him] as subordinates to this post, I present myself before Your Lordship with this writing, so that in law of justice His Excellency makes investigations as the said nations request as his vassals, and so that Your Lordship has an introduction among the Infidels, and brings them to the knowledge [of] our holy faith, since there is no other goal, because in not [achieving this goal], what was gained among these unhappy souls would be lost and bringing them to the knowledge of our holy faith, therefore I ask and beg Your Lordship that you deign that when this *situado* arrives, you permit me license to go to New Spain and to inform to His Excellency everything that is happening here with the Infidel Indians, which I hope from the well-known clemency of Your Lordship, whom God guards for many years=Andrés Escudero

AGN Historia 571 f. 362-363r, 1757

S[eñ]or Gov[ernad]or e Ynspector

Despues de poner me a los p[ies] de V[uestra] S[eñoria] paso por esta a partisiparle como haviendo salido de ese Presidio de S[a]n Mig[ue]lde las Amarillas de orden de V[uestra] S[eñoria] para estas Provincias de los yndios talapuses acompañado con siete Yndios Compañeros de mi Pueblo Nombrado Punta rasa el dia dies de Sep[tiemb]re p[o]r las notisias que antesedente havian precidido de nobedad de enemigo que se havia sonado q[u]e hiban a caer a ese precidio por la qual fue la determinasion de V[uestra] S[eñoria] el haver me despachado a estas Provincias a el fin de saber lo siento, y es q[u]e haviendo yo gastado dose dias en llegar a el primer pueblo llamado tuquipache donde fui bien recivido por haver sido yncontinenti preguntado por los principales a lo que yba y haviendo yo repondido dejaron todos a mi elecion las providencias, y yo viendo esto tam begnino dispuse p[ar]a el dia sig[uen]te concurrieran todos los principales de los Pueblos mas ymmediatos p[o]r haser Junta, de todos los que vinieron prontamente q[u]e fueron por todos dose pueblos menos el q[u]e estaba mas ynmediato nombrado talsi que, no concurrio p[ar]a ser el adolorido y es q[u]e estaba mancomunado con toda la jurisdision de los yufalas por el agravio q[u]e tenian de la muerte de su cap[ita]n que havian echo en S[a]n Marcos de Apalache por que estaban serrados ha que havian de bengarla donde primero encontraran españoles matando los q[u]e pudieran tanto en S[an] Mig[ue]l de las Amarillas como en apalache ó Florida supuesto que tenian sufisiencia de jente de Armas p[ar]a poder ympedir que se pudieren socorrer unos a otros, y voliviendo a la Junta que mande haser salio de ella que el pueblo mismo donde yo llegue y me allo era el primero q[u]e estaba lebantado menos los principales: esto fue dia 23 de Sep[tiemb]re viendo yo esto yse haser otra Junta el dia sig[uen]te 24 oblig[a]do a todos los principales del referido pueblo de talsi lo que se iso viniendo ellos a el punto donde seguimos la Junta como ba dho el dia signado donde trabaje q[uan]to pude con los q[u]e me ayudaban que fueron los dose Pueblos que alle a mi favor porque los de talsi estaban mui rebeldes pero por suplica de todos los principales y mia a favor de ese presidio hubieron de bencerce y prometer no darian mas paso a la empresa pero que ya tenian barias tropas despachadas p[ar]a ese S[a]n Mig[ue]l de la[s] Amarillas Apalache y Florida// de la qual tropa q[u]e yba destinada para ese precidio fue aquel yndio q[u]e V[uestra] S[eñoria] vido q[u]e llego hasiendo y disiendo que no savia de tal rebolusion q[u]e se isiese en la Provincia por lo qual fiado nosotros en su palabra lo llebamos a nuestro pueblo p[ar]a yrnos con el pero siendo espia como lo era nos engaño y urtandanos camino se fue a encontrar con su tropa pero no por eso llego a el pueblo primero que nosotros pues despues de dos dias despues de haver llegado nosotros llego la tropa en la qual, yba el dho Yndio, y luego supe de sierto q[u]e era espia y q[u]e este mirando la buena disposision y guarnision de precidio, y mirando ser descubiertas sus macim[o] ysto a sus cap[itane]s, y principales q[u]e seboliviesen

pues estaban los españoles havisados, y fortalecidos y se por los mios que seis dias les faltaban le camino p[ar]a llegare a ese Precidio, y hubiera recivido much daño, y estando, ya aquietados por ynstancias mias y de los principales q[u]e alle a mi favor determinamos nombrar la Jente q[u]e fuere mas combieniente y desatisfasion para q[u]e fuere conmigo del fin de rebolber las tropas que havian salido a Apalache, y Florida a lo q[u]e unanimes, conformes determinaron nombrase yo asi de los principales de mi satisfasion lo q[ua]l yse elijiendo a tascaya mico hombre respectado entre ellos, y muy conosido mio el q[ua]l estando ya dispuesto q[u]e saliera acordaron mandara yo una muestra de Pas a los yufalas lo q[u]e execute com prontitude dandole a el referido tascaya mico una gamusa blanca llena de tabaco picado para q[u]e lo chuparan los yufalas principales a la salud de los españoles y el pueblo de punta rrasa, y un abanico blanco q[u]e mande p[ar]a el motor q[u]e havia sido como su maior causa de todo lo antesedente fue mandado esto en señal de Paz como es constumbre en estas provincias, y V[uestra] S[eñoria] puede creer que si no hubiera andado tan dilig[en]te en a pasiguar, y aquietar a los pueblos rebueltos// no nos vieramos seguros por que siempre en estos barbaros la memoria de la muerte de su Cap[ita]n y havian de procurar bengarla pero mis ruegos los persuadieron a dejar el odio, y admitir la pas, y amistad, de tal manera que dieron palabra de sujetarce como subditos, y para que le confirmara esta palabra determinaron pasar a este precidio p[o]r el año q[u]e viene el mes de feb[rer]o de [17]58 y viendo yo sosegado todo a mi disposion determine notisiar a V[uestra] S[eñoria] todo lo q[u]e haca ha pasado nombrando para conducir esta a las manos de V[uestra] S[eñoria] a Juan J[ose]ph Micon quedando yo con sies de los mios acabando de una bes de confirmar la pas es q[uan]to se ofrese notisiar a V[uestra] S[eñoria] y solo pido a dios n[uest]ro S[eñ]or le G[uarde] m[uchos] a[ños] Tuquipache Sep[tiemb]re 28 de 1757=B[eso] L[a] M[ano] de V[uestra] S[eñoria] su humilde subdito=Andres de Escudero

Sir Governor and Inspector

After placing myself at the feet of Your Lordship, I proceed with this [letter] to inform you how since having left from that Presidio of San Miguel de las Amarillas by order of Your Lordship for these Provinces of the Talapuses Indians, accompanied by seven Indian companions from my Pueblo named Punta Rasa, [on] the 10th day of September on account of the news that preceded before about news of the enemy that had announced that they were going to fall upon this presidio, because of which it was the determination of Your Lordship to have me dispatched to these Provinces in order to find out the truth, and [my report] is that I spent 12 days in arriving to the first Pueblo called Tuquipache, where I was well received for having been immediately asked by the *principales* for what reason I was going, and having answered, they all left the measures up to my choice and I, seeing this so benign, I decreed for the following day that all the principals of the nearest towns should come to make a Junta, all of whom came promptly, which were in all 12 pueblos lacking

that which was closest named Talsi, which did not attend, being aggrieved, and it is that they were united with all the jurisdiction of the Yufalas on account of the grievance they had as a result of the death of their captain which was done in San Marcos de Apalachee, because they were sworn that they knew they would have to avenge it wherever they encountered the Spanish first, killing as many of those that they could, whether in San Miguel de las Amarillas or in Apalachee or Florida, supposing that they had sufficiency of people of arms in order to impede that they [the presidios] could help each other, and returning to the Junta I command to be made, it came forth from the meeting that very same Pueblo where I arrived and found myself was the first that had risen up, minus the *principales*: this was day 23 of September. Seeing this, I had another Junta made the next day, the 24th, forcing all the *principales* of the aforementioned Pueblo of Talsi [to attend], which was done, as soon as they were called they came immediately where we continued the Junta, as is said, on the assigned day, where I worked as much as I could with those that were helping me, which were the 12 towns that I found in my favor, because of those from Talsi were very rebellious, but by appeal of all the principals and mine in favor of this presidio, they had to give in and promised not make further steps in the endeavor, but they already had dispatched several troops to San Miguel de las Amarillas, Apalachee, and Florida. Within the troop destined for that Presidio [San Miguel] was that Indian which Your Lordship saw, who having arrived and saying that he did not know of any such revolution being made in the Province, on account of which, trusting in his word, we carried him to our Pueblo in order to go with him, but being a spy as he was, he deceived us, and running away on the road, he went to join up with his troops. Despite this, he did not arrive at the town before us, since after two days after we had arrived, the troop in which the said Indian was going arrived, and then I found out for certain that he was a spy and that he was watching the preparations and garrison of [the] presidio and when he saw that their machinations were discovered, their captains and *principales* decided that they should return since the Spaniards were warned and fortified. And I know from my [sources] that they only lacked 6 days by road to arrive at that Presidio, and it would have received much damage. Once they were quieted by my requests and by the *principales* that I found in my favor, we determined to name the people that were most suitable and satisfactory to go with me with the aim to return the troops which had left for Apalachee and Florida, to which in unanimous agreement they determined to name me and the *principales* of my satisfaction, which I did, electing Tascaya Mico, a man respected among them, and well known by me. When he was ready, they decided that I should send a sign of peace to the Yufalas, which I executed with promptness, giving to the aforementioned Tascaya Mico a white buckskin full of chopped tobacco which the Yufalas *principales* smoked to the health of the Spanish and the Pueblo of Punta Rasa, and a white fan that I sent for the instigator that had been the principal cause of all that came before. This was sent to that [place] as a sign of peace as is customary in

these Provinces, and Your Lordship could believe that if I had not proceeded so diligently to pacify and calm down the rebellious towns, we would not see ourselves secure, because always among these pagans [is] the memory of the murder of their captain, and that they had to try to avenge it, but my pleas persuaded them to abandon hate, and to admit peace and amnesty, in such a manner they gave their word to hold themselves as subjects, and in order to confirm this word, they decided to pass to this presidio in the coming year in the month of February of 1758. And seeing everything calmed in my favor, I determined to notify Your Lordship all which has happened here, naming Juan Joseph Micon to conduct it to Your Lordship's hands, remaining myself with six of mine to definitively finish off confirming the peace. This is as much as offers itself to notify Your Lordship, and I only ask God our Lord to guard you many years. Tuiquipache September 28 of 1757 = I kiss the hand of Your Lordship, your humble servant = Andres de Escudero

AGN Historia 571 f. 361r/v, 1758

Copia de las Juntas que se han echo en este Pueblo de tuquipache desde el dia 17 de Mayo. [h]an dicho en la Junta q[u]e hizo amucayche de todos los Pueblos casiques Principales y capitanes de Guerra y siguieron la Junta en esta forma y fue preguntado el dicho Amucayche p[o]r sus Principales q[u]e q[u]e querian saver lo que havia hablado a el Presidio de S[a]n Mig[ue]l y respondio q[u]e lo que el havia hablado havia sido procurando la pas y quietud de este Presidio, y q[u]e los españoles los mirasen a ellos como ha hijos ya q[u]e se balian del Patrosinio del Rey, y que ellos coresponderian en las mismas coraspondiensias, y para esto [h]avi[a] entregada a el s[eño]r Gov[ernad]or un Abanico Blanco con que habrio el camino de la Paz y una pipa colorada en nombre de los Capitanes de Guerra p[ar]a que reciviera los entrantes, y salientes, y hubiese una buena corespondiencia y no se bolvio hablar sobre el adsunto hasta el dia 29 donde se yso [hizo] la segunda Junta, y me preguntaron si el s[eñ]or Gov[ernad]or, y sus ofisiales miraban a los yndios como a hijos, y les respondi q[u]e si los miraba pues no procuraba el [h]aser les daño como lo havia representado en la Junta antesedente y me respondio el primer voto q[u]e como si se cumplia todo lo q[u]e yo representaba en las Juntas, como ellos no ben el cariño la Buena correspondencia entre los españoles, y entonces me isieron estas relaciones como quando ban algunos de los capitanes que hisieron en la Junta no se les atiende como se debe sino que se miran como unos forsados, como quando se embriagan algunos en ese Presidio los meten en el cepo, y los Muelen a palos como q[uan]do se asercan a el Principal mas q[u]e sean los casiques los echan a rempujones como los recive el gov[ernad]or qu[and]o quiere, y quando no quiere no les [h]ase caso ni los deja asercar a su casa como quando ban por la calle o por que ban xipando les cae la Guardia y los muele a palos, como q[uan]do llegan por tierra los recive la Guardia con ballonetas caladas, y los lleba con toda prisa sin dejar los descargar sus caballos llebandolos a rempujones p[o]r mandado de V[uestra] S[eñoria] como luego que

llegan los recive V[uestra] S[eñoria] con la compra de los cavallos y si no quieren benderlos se enoja V[uestra] S[eñori]a con ellos ni les preg[un]ta V[uestra] S[eñori]a por los casiques como si algunos bende algunos caballos, y piden dos u tres Anclotes de Ag[uardien]te por los suios les a V[uestra] S[eñori]a dos por los chicos que no componen uno por los suios eso no es comprar sino quitar los por fuerza, y se dejo esta hasta el dia 1 [or4] de Julio; tercera Junta Bolviose aseguir la Junta y hablaron lo siguiente, que lo que conbiene es q[u]e se pida el Abanico Blanco y la pipa que tiene el s[eñ]or gov[ernad]or y se le entrieguen las Patentes de todos los capitanes q[u]e se hisieron en// la Junta por q[u]e ya los españoles q[u]e eran los que les havian de enseñar atenciones, y llamar los a su amistad como nuebos basallos, y ber el cariño de el Frances, y del Yngles parese ser q[u]e mas amigos eran las naciones que los españoles por que lo q[u]e hasen los españoles es señal de que no quieren su amistad, y considerando yo el fin que ellos lleban, y se q[uan]to esfuerso pude, por que este era el punto mas fuerte de todo pero Amucayche siempre faborable ha este Presidio, y entre estas Batallas estaba abanico Blanco que los capitanes de Guerra lo Havian pintado colorado, y esta tercera Junta no se pudo difinirse todo quedaba algu[nas] esperanzas quarta Junta dia 28 en donde se difinio de esta manera ya que Acmucayche, y sus Principales en el empeño admitirian las Pazes, y se labase el Abanico lo que se executo el dia 30 con esta condision q[u]e a [h]ora mirase el s[eñ]or gov[ernad]or por el vienestar de ese Presidio y a ellos los miren como a hijos por q[u]e es menester tener un poco de paciencia, para mantener la pas y sufrirse unos a otros sus ympertencias unos a los otros ya que los españoles estan en sus tierras por que no pueden desir q[u]e las tierras son del Rey I por q[u]e si sobre este punto llegaran a defender lo llebaran ellos mas razon q[u]e los españoles por q[u]e para que fueran sus tierras del Rey era menester que las hubiese Ganado a fuersa de sangre y fuego que ellos pueden decir que son suyas por haber sido de su Natividad tierra de Yndios. Tuquipachi, 28 de Julio de 1758 = Andrés de Escudero

Copy of the meetings that have been held in this Pueblo of Tuquipache from the 17th of May.

They have said in the meeting that Amucayche made of all the towns, *casiques*, *principales*, and War Captains and they continued the meeting in this manner: and the said Amucayche was asked by his principal men that they were wanting to know what he had spoken to the Presidio of San Miguel, and he responded that what he had said had been procuring the peace and quietude of this Presidio, and the Spaniards should look upon them like sons since they were making use of the patronage of the King, and that they would correspond in the same correspondences [manners], and for this he had delivered to the *Señor* Governor a white fan with which he opened the road to peace, and a red pipe in [the] name of the War Captains so that he would receive those arriving and those departing, and there would be a good correspondence

[good relations]. And the affair was not spoken about again until the 29th day [of May] when the second meeting was held, and they asked me if the *Señor* Governor and his officials were looking at the Indians like sons, and I responded to them that yes, he did look at them [as sons] since he was not trying to do damage to them, as he had represented it in the preceding meeting. The first response was that how, if everything that I was representing in the meetings came about, how is it that they do not see the affection [or] the good relations among the Spaniards? And then they made me these relations, like when some of the captains go, which they did in the meeting, they are not attended to as they ought to be, but rather that they were seen as some forced laborers; like when some [of them] became inebriated in that Presidio, they put them in the stocks and they thrash them; like when they approach the principal [Indian], even more if they are *casiques*, they throw them out by pushing; like [when] the governor receives them when he wants, and when he does not want to, he pays no attention to them, nor does he let them approach his house; like when they are going through the street or because they are yelling, the guard falls upon them and thrashes them; like when they arrive by land and the guard receives them with fixed bayonets, and leads them with all speed without letting them unload their horses; leading them by pushing, by order of Your Lordship; like [when] as soon as they arrive Your Lordship receives them with the purchase of the horses, and if they do not want to sell them Your Lordship gets angry with them nor does Your Lordship ask them about the *casiques*; like [when] if some [Indians] sell some horses, and they ask for two or three *anclotes*[23] of brandy for their[horses], Your Lordship gives them two for the little [horses] that do not make up for one for their horses. That is not buying, but rather taking them by force, and this [matter] was left until the 1st [or 4th] day of July.

[The] third meeting: the meeting was continued again and they said the following;

That what is suitable is that the white fan and the pipe that the *Señor* Governor has should be asked for and the patents of all the Captains that were made in the meeting should be delivered to him because now the Spaniards were those who should have to show attentions to them, and to call them to their friendship like new vassals, and they see the affection of the French and of the English, [and] it seems to be that those nations were better friends than the Spaniards, because what the Spaniards do is [a] sign that they do not want their friendship. I, considering the goal that they had, and I know how much force I could[apply], because this was the strongest [most important] point of everything, but Acmucayche [was] always favorable to this Presidio, and amongst these battles there was [the] white fan [that] the War Captains

[23] Barrel measuring approximately 37 liters.

had painted red. And [at] this third meeting everything could not be resolved, [and] there were some expectations remaining.

4th meeting day 28 [of July] it resolved itself in this manner: now that Acmucayche and his principal [men] in the pledge would admit the peace, and the fan should be washed, which was done the day 30 [of July] with this condition; that now the *Señor* Governor should look after the well being of that Presidio and he should look upon them as sons, because it is necessary to have a little patience to maintain the peace and [they] should tolerate one another their impertinences by each against each other, since the Spaniards are in their land, because they cannot say that the lands are of the King, because if about this point they have to defend it, they [the Indians] are more correct than the Spaniards, because for their land to be [owned by] the King it would be necessary that they [the lands] would have been won by a force of blood and fire, [and] they can say that they [the lands] are theirs for having been from their birth Indian land.

Tuquipache, 28th of July[24] 1758= Andrés de Escudero

AGN Marina 17, Expediente 19, f.30v-31v, 1758

…Señor Governador, e Ynspector- Adres Escudero casique actual de el Pueblo de Punta rrasa uno de los de esta Jurdicaccion Governador General de las dos Provincias de los Talapuses, y Apiscas electo[25] por los principales casiques y capittanes de Guerra, y por el superior Geje de dhas naciones Acmucaiche el dia cattorse de Abril de el año pasado de cinquenta, y siete en el mismo acto en// que selebraron la pas General con los españoles en esta Plasa en presencia de V[uestra] S[eñoria] por mi, y en nombre de mi Pueblo con la mas humilde veneracion digo: que ha-viendome ordenado V[uestra] S[eñoria] luego que me eligieron por casique el cuidado de congregar a dho, mi pueblo los muchos Yndios que andaban dispersos, y familias que se havian mudado a vibir a ottra partte, considerando lo que importta al servicio de Dios, y de el Rey el adelanttamiento de dicho Pueblo, por ser uno de los mas immediattos a estta Plasa, y esttar en cituaccion que le sirve de antemural entre los Yndios Uchises, y provincias de los Yngleses, por cuio paraje se han ido adelanttando tantto que se hallan ya como sesenta leguas de disttancia de estte Precidio; y haviendo conseguido el comgregarlos, y unir los todos como actualmente se hallan demodo que sin duda volver a ponerse este Pueblo en el esttado en que estaba anttes, pues agradacidos todos al buen trattamiento, y agrado con que V[uestra] S[eñoria] los trata, no ha havido dificultad en conseguir lo que; en ottros tiempos ha sido tan difficulttoso, y ofreciendose con el motibo de la nueva aliansa y comercio que tenemos con los Talapuses, y Apiscas haser muchos gastos en hospedar a los que

[24] May not be correct date.
[25] Refers to April 14, 1757 election as Governor General and peace treaty.

bienen de dhas, Provincias expecialmente de los Uchises que pasan a esta Plasa siendo lo mas la comunicación que tenemos con el nuevo pueblo nombrado Talaglache que a solicitud de V[uestra] S[eñoria] se ha fundado trienta leguas de Punta rrasa hacia el camino de Apalache con el animo de ir facilitando la facil communicaccion por tierra con aquel Precidio, y el de la Florida cuio casique llamado Annatiche a quien V[uestra] S[eñoria] hiso capitan de mas de vientte Yndios de Guerra que se hallan ya en dho Pueblo haunque todos Ynfieles como nuevos basallos de S[u] M[ajestad] y sujettos a este Gobierno, nos comunicarn// con frequencia, y como recien establecidos es menestter agasajarlos para que se vaian alentando[26] a aquel Pueblo tan importante a fomento y seguridad de este Gobierno: Y como para haser esttos gasttos no nos alcansa el Mays que nos suele dar, en este R[ea]l Almacen para ayuda de nuestra manuttencion, que cada ves sera menos por los mas Yndios, y familias que se nos van congregando buscando muchos el bastimentto como a V[uestra] S[eñoria] le constta haviendo apadrinado a algunos. Ocurimos a la piedad a V[uestra] S[eñoria] para que hecho cargo de nuestra excases, y de haver sido V[uestra] S[eñoria] el principal mobil de hallarse este Pueblo con el vecindario que tiene de la fundacion de el referido Talaglache se sirva mandar se nos provea de el Real Almacen con Alguna mas porcion de Mays con que anualmente podamos subvenir a tan indispensables gastos y conseguir el fomenttar esttos Pueblos, y logar V[uestra] S[eñoria] la introduccion de nuestro Santo evangelio en los Ynfieles de dho Pueblo nuevamente fundado adelantandose con esto la Juridiccion de este Gobierno, y Dominios de S[u] M[ajestad] por lo qual—a V[uestra] S[eñoria] suplico nos favoresca con lo que en nombre de mi Pueblo esperamos de su nottoria justificacion—Andres Escudero_____

…Sir Governor and Inspector,
Andres Escudero, current *casique* of the Pueblo of Punta Rasa one of those of this jurisdiction, elected Governor General of the two Provinces of the Talapuses and Apiscas by the principal *casiques* and captains of war, and by the superior Jefe of the said nations, Acmucaiche, the day 14 of April of the past year of [17]57[8] in the same act in which they celebrated the general peace with the Spanish in this plaza in presence of Your Lordship, for me and in [the] name of my Pueblo with most humble veneration I say: Your Lordship having ordered me as soon as they elected me as *casique*, to take charge of congregating to the said [place], my pueblo, the many Indians that were walking scattered, and families that had moved to live in another place, considering how important it is to the service to God, and of the King, of the growth of the said pueblo, by being one of the closest to this post, and to be in [the] location that serves as a bulwark against the Uchises Indians, and the provinces of the English, through which place that have advanced so much that they are now found

[26] Escudero may mean adelantando.

about 60 leagues distant from this presidio. Having achieved the aggregation and uniting all those who currently are found here in such a manner so that without doubt this town will once again return to the state in which it was before, all of them thankful for the Good treatment, kindness with which Your Lordship treats them, there has been no difficulty achieving what, in other times has been so difficult, and with the motive of the new Alliance and commerce that we have with the Talapuses and Apiscas, making many expenses in hosting those who come from the said Provinces, especially the Uchises that pass to this plaza. We have the greatest communication that with the new Pueblo named Talaglache which has been founded at the invitation of Your Lordship 30 leagues from Punta Rasa toward the road from Apalache with the intent of facilitating the easy communication by land with that Presidio, and the [presidio] of Florida, whose *casique* named Annatiche, whom Your Lordship made captain of more than 20 Indians of War that they find themselves now in the said Pueblo, although all are pagan, as new vassals of Your Majesty and subjects of this government, they communicate with us frequently. And as newly established, it is necessary to regale them so that they are attracted to that Pueblo so important to the growth and security in this government; and since, in order to make these expenses, the maize that is usually given in the royal warehouse to help our maintenance is not enough, and every time will be less for the Indians and families that are gathering with us, many looking for the provisions, as Your Lordship knows, having become godfather of some. We entreat to the piety of Your Lordship so that having taken charge of our scarcity [of food], and Your Lordship having been the principal instigator of this Pueblo having found itself with the residents that is has from the foundation of the aforementioned Talaglache, you are served to order that we be provided from the royal warehouse with increased portions of maize so that we are able to subsidize annually the indispensable expenses, and achieve the growth of these Pueblos, and so that Your Lordship achieves the introduction of our holy gospel to the pagans of the said Pueblo, newly founded, expanding with this the jurisdiction of this government, and dominion of Your Majesty, for this I beg Your Lordship to favor us in [the] name of my Pueblo we hope from your well-known justification—Andres Escudero

AGN Historia 571 f. 364r/v, 1759

Muy s[eño]r mio recivi la de V[uestra] S[eñoria], y respondo que haviendo escrito la carta con toda claridad para q[u]e no hubiese equibocos en la compra de dhos cavallos, y adbirtiendo en la carta que el Yndio no tenia anclotes para recivir el Ag[uardient]e Juntam[en]te en el papel que le escrivi a Juan Delgado el Avitante adbirtiendole lo mismo en donde recivo el papel de Juan no haverse cojido el cavallo del Yndio por no haverse fasilitado los anclotes, y ser el Yndio que bendio el cavallo canelo que de lo que trujo Anclote y me dijo que se le dio por el canelo, y medio

q[u]e se llebaba la Yegua por no haver tenido anclotes para recivir el Aguardiente, y yo en esta confianza y por el papel que recivi de Juan Delgado consenti comprasen la yegua por la claridad de mi carta antesedente, y por esta me paresio no ser razon de que yo le quite la yegua ã Thomas ni el la quiere entregar pues los Yndios Uchises no trajeron mas anclotes que los que llebaron de aqui los talapuses por lo con siguiente en donde no puede dar Don Viz[en]te la cuenta clara del Ag[uardien]te por q[u]e V[uestra] S[eñoria] no lesdio los anclotes a el Yndio ellos no los llebaron de aqui ni alla los pidieron ni los pueden adquirir por que no los ay con que ha vista de esto no puede D[o]n Viz[en]te sacar la cuenta por caval por que yo quiero con toda clarida con V[uestra] S[eñoria] y mas en cosas de Rey por que no quiero que en V[uestra] S[eñoria] aya cargos de consiencia ni que las aya en mi como tambien me a salido Manuel del Rancho de Gov[ernad]or no haberse le paga//do un cavallo q[u]e le dio a es Rey los q[u]e se pagaron a plata y este haver pasaron unos de Pancho Mono los quales se les pagaron por mi mano, y del de Manuel se lo deje en cargado a Thomas q[u]e quando binieron por los cavallos pasasen el de Manuel, abirtiendo qué no estaba pagado esto fue quando me fui a los talapuses e y[n]stando a V[uestra] S[eñoria] me a dho, q[u]e se a pagado Man[ue]l me cobra a mi el cavallo, y esta en entender de que yo e rrecevido el dinero, y lo [h]e botado don Vizente saca la cuenta que todos, los cavallos que coxio el Rey en Punta rraza sean pagado, y no haviendose pagado este, y yo lo siento por q[u]e he hecho las diligencias para q[u]e estos cavallos se les bendiesen a el Rey: estas son pesadumbre p[ar]a mi, ystorias, cuidados, y contratiempo que se me ofresen por solo servir a V[uestra] S[eñoria] a quien pido a dios le gu[ard]e m[uchos] a[ños]. Punta Rraza 16 de Mayo de 1759 B[eso] l[a] M[ano] de V[uestra] S[eñoria] su mas rendido subdito=Andrés escudero=

Dear sir, I received the [letter] from Your Lordship and I respond that having written the letter with all clarity so that there would not be errors in the purchase of the said horses, and notifying in the letter that the Indian did not have *anclotes* to receive the brandy. Together, in the paper that I wrote to Juan Delgado, the resident, I notified him the same in which I received [in the same manner] the paper from Juan about not having obtained the horse from the Indian on account of not having supplied the *anclotes*, and being the Indian who sold the cinnamon horse for which he bought [an] Anclote and a half, which was given to him for the cinnamon [horse], and he told me he was taking the mare on account of not having had *anclotes* to receive the brandy. And in this confidence, and on account of the paper which I received from Juan Delgado, I permitted the mare be purchased by the clarity of the previous letter, and concerning this, it seemed to me not to be a reason for which I should take away the mare [from] Thomas, nor does he want to hand it over, since the Uchises Indians did not bring more *anclotes* than those which the Talapuses carried from here; as a result he could not give Don Vizente the clear account about the brandy for which Your

Lordship did not give the *anclotes* to the Indian, they did not carry them from here [Punta Rasa], nor did they ask for them there [San Miguel], nor can they acquire them, because there are none. With which Don Vizente cannot produce the account in full [perfectly]. Because I want all clarity with Your Lordship and even more in the affairs of [the] King because I do not want [the possibility of] burdens of conscience on Your Lordship, nor [the possibility] of having them on me. Likewise for it has turned out that Manuel of the Ranch of [the] Governor has not been paid for a horse that he gave to the King, those which were paid in silver, and this having passed some horses of Pancho Mono which were paid for by my own hand, and those of Manuel were entrusted to Thomas, which when they came for the horses, they would give away the horse of Manuel. Notifying that it was not paid for, this happened when I went to the Talapuses, and urging Your Lordship myself about the aforementioned. When Manuel is paid, [and] he collects the horse from me, he is in understanding that I have received the money, and I put it on Don Vizente to draw out the account that all the horses that the King seized in Punta Raza should be paid [for], and not having paid this, and I am sorry, because I have done the tasks so that these horses would be sold to the king, these are sorrows for me, sagas, cares, and the misfortunes that are presented to me only by serving Your Lordship, whom I beg to God to guard for many years. Punta Raza 16 of May of 1759

I kiss the hand of Your Lordship
Your most rendered servant,
Andres Escudero

AGN Historia 571 f. 366r, 1759

Es copia de la que Orijinal queda en mi poder S[a]n Mig[ue]l de Panzacola 21 de Diz[iemb]re de 1759.

Por q[uant]o D[o]n Andrés de Escudero Casique del Pueblo de Punta Rraza me [h]á representado los daños que se orijinan en su Pueblo y causan en los Yndios el ag[uardient]e que lleban á bender algunos besinos de esta Plaza pidiendo me lo proyba, y por lo proficuo que es a dichos naturales el benderlo con moderacion le permita Lizencia para poner una tienda en su casa en que pueda distribuir lo sin exseso con otros comestibles que nesesitan para su alimento, y atendiendo a los motibos referidos, y a lo mandado por mi decreto del dia de ayer le concedo Lizencia para que pueda habrir tienda Publica en su casa, y bender los dhos generos arreglados en los pesos, y medidas a lo que tengo otorgado por el Bando promulgado, en esta referida Plaza en 19 de Abril del año pasado de 57, que esta puesto en el Principal de ella, y con la obligasion de refrendar cada año esta Lizencia para su Balidasion [et cetera]=Roman=…

[This] is a copy of the Original, which remains in my possession, San Miguel of Pensacola, 21 of December of 1759

Inasmuch as Don Andrés de Escudero, *casique* of the village of Punta Raza, having stated to me the damages, which originate in his village and are caused upon the Indians by the liquor that some citizens carry to sell from this Presidio[27], asking me to prohibit it, and on account of the profitable that it is for the said natives to sell liquor with moderation, I permit him license to place a store in his house, in which he may to distribute it without excess with the other edibles that are necessary for their subsistence, and paying attention to the aforementioned motives, and that which was ordered by my decree yesterday, I concede him the license so that he would be able to open a Public store in his house, and to sell the said goods in agreement with weights and measurements, which I have granted by the proclamation issued in this previously mentioned Plaza on the 19th of April of the past year of 1757, that is placed in its principal plaza, and with the obligation to endorse this license for its validation each year [and the rest] = Roman =

AGN Marina 17, Expediente 19, f. 46r-49r, 1759

S[eño]r Governador mui S[eño]r mio: en vista de la cartta q[u]e condusi a esa plaza con Fran[cis]co Micon el dia onse de Mayo, como iba dicho, q[u]e yo pasaba al pueblo de Ymuclasa, por hallarse la cabeza principal de todo lo que va practicada en la cartta antecendentte; y haviendo llegado al pueblo de Julibale el dia nuebe supe q[u]e un capittan de Guerra estaba prevenido por mandado de capi[ta]n Pajiche para salir a hostilizar ese pressidio, sabido esto despache un principal, q[u]e lo llamase a las casas r[eale]s para veer si podia conseguir lo q[u]e prettendia, y me dixo el principal, q[u]e no estaba en su cassa; y conciderando q[u]e este cap[ita]n no seria tan prompta su violencia, por hallarse los hijos de Acmucayche en essa plaza, y no haber havido ninguno para semejantte alebantam[ien]to dispuse el q[u]e quedara el cazique Chattupi con el encargo, q[u]e hiziera la diligenica con todo empeño si lo podia reducir a dho cap[ita]n por ser combeniente el q[u]e yo passe al Pueblo de Ymuclassa , lo q[u]e executtamos // y entramos el dia dies en dho pueblo, y en la junta q[u]e se hizo respondió el dicho Pajiche lo siguiente: lo primero, y principal q[u]e el no hera de la Jurisd[isio]n de Acmucayche, y q[u]e en vista de esso, no tenian q[u]e reprehender lo, y verse Acmucayche con esta respuestta determinó q[u]e pasasemos al pueblo de fusjachi y habiendo le practicado a dho casique, dispusso, q[u]e en una gamuza blanca se llevase la casina, y se le entregase en nombre de los caziques, pues los españoles no procuraban hazerles daño, ny el S[eño]r Governador pues los miraba como a hijos, procurando el hazerles, quanto bien podia, en donde admitti asistir a la

[27] *Plaza* has three primary translations to English depending on context. In this case, *Plaza* is referring to the Presidio of San Miguel de Panzacola.

segunda Juntta, en donde fueron concurridos casiques, capitanes de G[ue]rra, y principales, en donde pregunto a la Junta el dho Acmucayche, queria sabeer, q[u]e motivo habian dado los españoles para semejantte alebanttam[ien]to en donde el S[eño]r Governador miraba como a hijos dandoles gusto en todo lo possible, y una ves q[u]e los españoles tenian esta buena correspondencia, no seria rason q[u]e executtasen semejantte accion, en donde se difinió este punto en esta conformidad, q[u]e, la causa de su alebanttam[ien]to hera q[u]e havian sabido por un Mercader Yngles, q[u]e se hallaba en sus provincias de q[u]e la Yntte[nzi]on de los españoles hera, el q[u]e una ves que // se hallesen con golpe de gentte en ese pressidio, habian de procurar el destruir los, y esta habia sido la primer baza para su adelanttam[ien]to, en donde se les hizo veer lo contario, y hubieron de reducirse; y entre estas batallas tenian los capittanes de Guerra un Abanico blanco teñido de colorado, q[u]e hera señal de Guerra; y en aquel dia labaron el abanico con la casina, y hablaron lo siguientte: q[u]e conocian por mis representtaciones, q[u]e los españoles no procuraban el hazerlos daño alguno, q[u]e sabian q[u]e habian sido aquellas finxidas vozes del Yngles; pero q[u]e este abanico se le entragase al S[eño]r Governador dandosele sattisfaccion a su persona, para q[u]e no crean en lo de adelante vozes de ninguna persona, y siempre quedarian al reconozim[ien]to de essa plaza. Pero q[u]e para esto seria necessario el q[u]e me quedase detenido en dho pueblo, y tranporttase una cartta a las manos de V[uestra] S[eñoria] partticipandole todo lo q[u]e pasa por estas provincias, y mandase V[uestra] S[eñoria] ocho anclottes de Aguardiente para q[u]e en Juntta se brindase en nombre del Rey; y conciderando la dilacion de my viage, me precisso ocurrir a el fuertte de los Alibamons, y representé a dho commandante q[u]e me halittase en quattro anclottes de Aguardiente, y me respondió q[u]e si my// Governador no sabi escribir, q[u]e sin pasaportte de V[uestra] S[eñoria] no podia habilittarme, y le respondi q[u]e no sabia my Governador, si se me habian de ofrecer estos lanzes, en donde me oblique a pasar al pueblo de Tuquipache, y representte todo lo q[u]e me passaba con el Frances, y medixo Acmucayche q[u]e no me apurara q[u]e lo dexara para otra ocassion, por tener noticias, q[u]e entraba en sus provincias un ofical yngles, el qual entro en el pueblo de Tuquipache el dia veintte y nuebe de Junio, y fue recibido como dos Quadras del pueblo en esta conformidad; salieron de las casas r[eale]s todo el concurso de gentte con dos plumas de paz, y la cazina por delantte, y le hizieron el recebimiento con todas las ceremonias acostumbradas en estas provincias, y le llevaron a las casas R[eale]s iba acompañado el dho oficial con nueve soldados de caualleria, un capitan, un alferez, q[u]e hera el q[u]e llevana una bandera con un brazo de un yndio, y el brazo del rey de Yngalaterra, mostrando q[u]e el rey de Yngalaterra los desampararia; y se le hizo Juntta al dia siguientte; y habiendoles hecho bezar un libro q[u]e llebaba a todos los yndios, hablo lo siguiente: de q[u]e si les tenia a nobedad el q[u]e el hubiesse entrado en sus provincias con aquel Aparatto, y respondieron // q[u]e si, y entonces les dixo, q[u]e el traia or[de]n de su rey, para vicittar a todos los pueblos, para sabeer quienes

heran sus amigos, q[u]e el no benia a hazerles daño alguno, sino mucho bien, q[u]e todos aquellos generos q[u]e traia hera para regalarlos, y s[ie]mpre al Yngles lo tendria de su partte, lo q[u]e no berian en las otras naciones y a este t[ie]mpo se hallan quatrocientos chattas , solicittando la amistad del Yngles, q[u]e ya los tiene por suyos: lo q[u]e se ynfiere q[u]e una ves, q[u]e tenga el Yngles a todas estas naciones de su partte, es para coger a el Nuevo Orleans y la Movila, por q[u]e dize el yngles, q[u]e por la Mar del Nortte esta el Yngles mettiendo golpe de gentte q[u]e por las costta de Nuevo Orleans haria lo mismo: y en fin aunque queda esto compuesto, no tengo sattisfaccion de ellos, solamente de Acmucayche, q[u]e es el q[u]e le ha costado gran trabajo, favorables a esse pressidio, por q[u]e estas naciones a puras dadibas rebuelben estos yndios, assi no se debe tener fee de ellos, por q[u]e estos se ban donde les dan mas; y assi me hallo en detterminacion de irme, por q[u]e todo queda socegado, y transporttando esta carta a manos de V[uestra] S[eñoria] partticipandole, lo q[u]e pasa por aca; pero s[iem]pre es menestter tener algun ciudado // por q[u]e ya sabe V[uestra] S[eñoria] q[u]e anttes q[u]e yo hubiesse entrado en estas provincias havia enttrado un ofizial yngles con cinquentta caballos cargados de generos p[ar]a regalarles a estos yndios Talapuzes y no les permittieron q[u]e entraran en sus tierras por la palabra q[u]e le havian dado a V[uestra] S[eñoria] quando hizieron las pazes en essa plaza; y ahora ha entrado este ofizial con mas ostentta y con muchos mas generos para regarlos, y ser estta una nacion tan amiga del Yntterez, no dudo q[u]e hara el Yngles, lo q[u]e quiziere, con los Yndios; assi es menestter vivir con gran ciudado con ellos, por q[u]e no podemos dezir que estamos en pas con ellos; solam[en]te de Acmucayche, y sus principales, q[u]e es el q[u]e la ha costtado gran trabajo para el sossiego de estos barbaros por q[u]e aunque es cabeza de estas provincias, no tenien las faculttades q[u]e n[uest]ros Governadores tienen, por q[u]e entre estos los superiores en un alborotto de estos es menester q[u]e ande con suplicas, y alagos, para qualquier alborotto de estos, y por aquí se pueden conciderar q[u]e sugession pueden tener entre estos barbaros, en donde no se puede tener fee de ellos, en donde me hallo en detterminacion de salir de estos pueblos, lo mas brebe q[u]e se pueda por q[u]e ya queda // por q[u]e ya queda todo esto sossegado; y queda Acmucayche de q[u]e partticipe qualquiera ebidencia q[u]e se ofresca pues no se le paga al dho Acmucayche aunque se le haga el bien q[u]e se le hiziere, por su lealidad en donde se hallaba el dho Acmucayche en detterminacion de salir en my compañ[i]a, y no se determina por no dexar sus provincias desamparadas, el qual dize q[u]e ira a essa plaza por el mes de Septiembre, con algunos pueblos en su compañía, y no ofreciendose otra cosa, si que dios G[uard]e a V[uestra] S[eñoria] la vida m[uchos] a[ños] Tuquipache seis de Julio de mill, settecientos, cinquentta y nueve- B[eso] L[a] M[ano] de V[uestra] S[eñoria] su mas humilde subditto- Andrés escudero

Señor Governor, my dearest Sir: in view of the letter that I sent to this plaza with Francisco Micon, the day 11 of May, as I was saying that I was passing to the Pueblo of Ymuclasa by finding it the principal head of everything that is described in the preceding letter; and having arrived to the Pueblo of Julibale on the 9th I found out a captain of war was prepared by order of captain Pajiche to go forth to attack this presidio. Having found this out, I dispatched a *principal* to call him to the royal houses in order to see if I could learn what he intended, and the *principal* told me that he was not in his house; and considering that this captain would not be so prompt in his violence because the sons of Acmucayche found themselves in this plaza and there had not been any violence for such an uprising, I arranged that the *casique* Chattupi would remain with the charge that he would do the task with all effort, if he could, to subdue the said captain, because it was suitable that I pass to the Pueblo of Ymuclasa, which we did, and we entered the Pueblo on the 10th. And in the junta that was made: the said Pajiche responded the following: the first and principal was that he was not of the jurisdiction of Acmucayche, and in view of that, they should not reprimand him, and Acmucayche, seeing himself with the answer, determined that we should pass to the Pueblo of Fusjachi. Having talked about it with the said *casique*, he arranged that *casina* should be carried in a white buckskin and delivered in [the] name of the *casiques*, since the Spanish were not trying to harm him, nor was the *Señor* Governor, since he viewed them as children, endeavoring to do them as much good as he could. He accepted to attend the second junta, attended by *casiques*, captains of war, and *principales*, where the said Acmucayche asked the junta that he wanted to know what motive the Spaniards had given for the said uprising, where the *Señor* Governor was seeing them as sons/children giving them pleasure in everything that is possible, and once the Spaniards had this good correspondence, there would not be reason to execute such an action. This point was defined in this way, that the cause of their uprising was that they have found out from an English merchant, that found himself in their provinces, that the intention of the Spaniards was that once they found themselves with enough people in this presidio, they would endeavor to destroy them, and this had been the first trick of their uprising, in which they were made to see otherwise, and they had to subdue themselves; and among these debates the captains of war had a white fan colored red, which was the sign of war; and on that day they washed the fan with the *casina* and they spoke the following: that they knew from my explanations that the Spanish were not trying to do them any harm, that they knew that it had been those false rumors of the English, but this fan should be given to the *Señor* Governor giving satisfaction to his person, that they would not believe in future rumors from any person, and they would always be indebted to this plaza. But for this it would be necessary that I remain detained in the said pueblo, and send a letter to the hand of Your Lordship recounting everything that happens from these provinces, and Your Lordship should send 8 *anclotes* of Brandy so that in the junta they would toast in the name of the King. And considering the delay of my

voyage, it was necessary for me to go to the fort of the Alibamos, and I explained to the said commandant that he should provide me with 4 *anclotes* of Brandy, and he asked me whether my Governor does not know how to write, that without passport from Your Lordship he would not be able to provide it to me, and I told him that my governor did not know. If these difficulties were to be presented to me, I forced myself to pass to the Pueblo of Tuquipachi, and explain all that was happening to me with the French, and Acmucayche said to me that I should not hurry, that I should leave it for another occasion, on account of having news that an English officer was entering their provinces, who entered in the Pueblo of Tuquipache the 29th of June, and was received about two squares[28] distant from the Pueblo in this way; all the crowd of people came forth from the square ground[29], with two feathers of peace, and the *casina* in front, and they made him welcome with all the customary ceremonies of these provinces, and they led him to the square ground. The said officer was accompanied by nine soldiers of cavalry, a captain, an *alférez*, who was the one that carried a flag with one arm of an Indian and the arm of the King of England, showing that the King of England would [not] abandon them; and having made them kiss a book that he carried to all the Indians, he asked the following: did they hold it as a novelty that he entered their provinces with that delegation, and they responded yes that it was, and so he told them that he brought an order from his King to visit all the pueblos, to find out who were their friends, that he does not come to harm anyone, but rather to do much good, that all those goods that he brought were to give away, and always the English would be on their side, which they would not see in the other nations, and at this time there are 400 Choctaws soliciting friendship from the English, that now they have them as theirs. What can be inferred is that once the English have all these nations on their side, it is to take New Orleans and Mobile, because the Englishman says that because the English is settling a flood of people on the northern coast, and along the coasts of New Orleans it will do the same. And in the end, even though this affair is settled, I do not have satisfaction from them, only from Acmucayche, who is the one that has favored this presidio at great cost, because among these nations these Indians respond purely to gifts, so one should not have faith in them, because they go where they are given more. And so I find myself in determination to go, because everything is pacified, and transporting this letter to the hands of Your Lordship explaining what is happening here, but always it is necessary

[28] The term "quadra" would seem in this instance to refer to a distance, estimated as the size of a "square" plot of land. This might have been something akin to a Spanish land lot or plaza, or it might instead be a reference to the square ground documented for Creek villages.

[29] the Spanish says "Royal Houses" but it seems most likely to refer to the public meeting space of the Creeks, commonly referred to as the square ground, which was comprised of four open structures arranged around a square central court. It might also simply be a reference to the enclosed council house or town house commonly present in Creek villages.

to have some caution, because Your Lordship already knows that before I entered these provinces an English officer entered with 50 horses carrying goods to give out to these Talapuzes Indians, and they did not permit them to enter in their land because of the word that they had given to Your Lordship when they made peace in this plaza, and now this officer has entered with more ostentation and with many more goods to give out, and since this nation is such a friend to self-interest, I do not doubt what the English will do what they want with the Indians. So it is necessary to live with great caution with them, because we are not able to say that we are at peace with them, only with Acmucayche and his *principales*, and it is he who has spent great labor for the pacification of these barbarians, because even though he is head of these provinces, they do not have the faculties that our governors have, because among these Indians in an uprising of them, their superiors are obligated to walk around with pleading and gifts, and by this one can consider what subjection they can exert among these barbarians, and that you cannot have faith in them. As a result, I find myself determined to leave from these pueblos as quickly as possible because everything remains pacified, and Acmucayche has agreed to report to me any evidence that is offered, since Acmucayche has not been paid despite the good that was done to him for his loyalty, because of which the said Acmucayche found himself with the determination to leave in my company, but he determined not to in order to not leave his provinces abandoned, and he says he will go in the month of September to the plaza, with some pueblos in his company. And nothing else offering itself, there not being anything else to report, except that God guard the life of Your Lordship many years, Tuquipache 6 of July 1759. I kiss the hand of Your Lordship your very humble subject—Andres Escudero

AGN Historia 571, f. 367r, 1760[1759]

Es Copia de la que original queda en mi poder

Muy señor mio en vista de lo que V[uestra] M[erced] me dise en su carta del equiboco q[u]e havido en orden ha no haverse pagado la Yegua que compro Thomas: Digo que Yo ni del Ag[uardien]te ni lo vi dar que asi Viz[en]te como el Sarg[en]to y Juan Delgado me dijeron havian dado el Ag[uardien]te en la misma forma que contenia su carta de V[uestra] M[erced] para siete cauallos pero respecto de lo que V[uestra] M[erced] me dise veo se equibocaron todos, y no ay que hablar en la Yegua lo que no susedio en el otro Cauallo q[u]e V[uestra] M[erced] me expresa por hauer lo pagado Yo por mi mano, y q[ue]do rog[an]do a Dios gu[ard]e a V[uesrta] M[erced] m[uchos] a[ños] S[a]n Miguel y Mayo 4 de 1760= de V[uestra] M[erced] Roman= S[eñ]or D[o]n Andres de Escudero=

[This] is a copy of the original which remains in my power

Dear, sir, in view of what Your Grace says to me in your letter regarding the mistakes that there have been in regard to payment not having been given for the mare that Thomas bought: I say that I saw neither the brandy nor [the mare] given, that both Vizente and the sergeant, and Juan Delgado, told me [they] had given the Brandy in the same manner that your Grace's letter contained for 7 horses, but with regard to what Your Grace tells me, I see everybody was wrong, and there is nothing to speak of with regard to the mare, [regarding] what did not happen with the other horse that Your Grace expresses to me, on account of me having paid for it by my own hand, and I remain praying to God he guard Your Grace many years.

San Miguel and May 4 1760 [1759] = from Your Grace, Roman = *Señor* Don Andres de Escudero

AGN Historia 571 f. 353-355r, 1761

Mui s[eñ]or m[i]o [h]e visto la de V[uestra] M[erced] con fecha de 14 de Mayo en la que me suplica le diga la realidad de lo que se por los Yndios talapuses y demas Nasiones que motibos les han ocasionado a Romper Guerra contra nosotros causando estragos asi em punta raza con las muertes q[u]e hisieron como las q[u]e berificamos en el asalto q[u]e hisieron en escambe, y las que bimos q[u]e quasi serca de esta plaza executaron teniendonos en gran conflito en la pequeñes de este Castillo estreñados siendo nosotros ygualm[en]te por d[ic]hos Yndios agraviados pues no an recervado la dentruccion de n[uest]ro Pueblo con de molimiento de casas, y consumision de Ganados obligandonos hacer retirados a esta Plaza practicando ygual trabajo en nosotros q[u]e no puede menos que ser graves õ muchos los agravios q[u]e los Yndios de esta Plaza an recivido supuesto lo encarnisidos q[u]e se hallan, y q[u]e yo no puedo ygnorar sus fundam[en]tos por haverlos comunicado en la actualidad respecto ha hacabar de llegar de entre ellos q[u]e por ser le a V[uestra] M[erced] combeniente p[ar]a cierta reprecentasion en sus defensas, y benefisio N[uest]ro me suplica no le oculte lo q[u]e supiere en el adsunto: A lo que digo que lo q[u]e tengo savido en la presente rebolusion que supe havia en esta Plaza a el regreso que ise// de las Provincias quando fui por orden del S[eñ]or Gov[ernado]r h[a in]dagar los motibos q[u]e tubieron los yndios de dichas Provincias para las muertes q[u]e hisieron em punta raza supe p[o]r l[os] correos franceses es que medijeron que los alibamos llebaban [qu]atro prisioneros y tres pelucas de los soldados de escambe cuio destacam[ien]to havian consumido y solisitando l[os] motibos, asi de unas como de otras muertes de la subl[e]basion tan acre que veya avia contra nosotros pue[s] tope Barias Tropas de Guerra (de las q[u]e me liberte a di[os] gracias mediante, yndustria manteniendome dose di[as] con solo agua, y por caminos destraviados) por los ali[a]dos supe que por estar d[ic]has nasiones del Gov[ernado]r de est[a] plaza mui agraviados, asi por los malos tratamientos que esperimentaban quando benian acomerciar sus carnes pieles, y cavallos pues a mas de recibir los con [?]penesa

Ballonetas caladas barios esperimentaron algunos golpes, y les compraban dhos generos no se a menos presios si tambien a feria de Ag[uardien]te mesclado con agua de tal manera q[u]e se les asia ymbeble, y confirmasen esto sierto, y no haver dado otro alguno ocasión a la presente Guerra respecto a que por este Jenero de comercio desde antes q[u]e la comp[añi]a de V[uestra] M[erced] fuese lebantado hestaban quejosos todos los yndios pues savian que los cavallos que de quenta del Rey compraba d[ic]ho Gov[ernado]r havia orden para que los pagase a viente p[eso]s y a ellos se les satisfasia en ag[uardien]te, y em presio mui escaso, yo soy testigo de Barias compras q[u]e por mi mano pasaron como lo testifican barios borradores, y papeles orixinales que paran en mi poder (que a el ociaso que tengo animo de aser a su Ex[celenci]a el que espero sea condusido por mano de V[uestra] M[erced] para sus seguridad) mandare// como tambien en la cecretaria de dho S[eño]r Ex[celentisi]mo puede hallarse una carta que a el Ex[celentisi]mo S[eño]r Marques de las amarillas el año de [17]59 por Agosto remiti sobre este adsunto dandole notisia de la queja de los yndios que tenian fundada sobre la compra de los cavallos por Ag[uardien]te Aguado la que supe el mes de Mayo de este año por haver estado en sus provincias, y en tres Juntas que ysieron no trataron de otra cosa, y me fue presiso exforsarme gravem[en]te a contener los por que querian romper las Pases desde cuios Pueblos escrevi a el S[eñ]or Gov[ernado]r lo ocasionado y a mi benida me iso reformar la carta ocultando estas notisias, para yncluir la en una que a dho S[eño]r Ex[celentisi]mo escrivio; y notisioso yo como leal basallo procure partisipar la berdad a su Ex[celenci]a quien quizas por sus notorias enfermedades, no providencio lo combeniente para q[u]e hasi benga su Ex[celenci]a en la realidad y entre d[ic]hos papeles e allado esa Licencia q[u]e remito a V[uestra] M[erced] en la que me permite expediese publicam[en]te Ag[uardien]te simulando con esto las compras, y tratos con los Ynfieles, y no solo en este t[iem]po se aquejaban d[ic]hos yndios, sino tambien los nuestros que estos han vivido muy mortificados que a no contener los yo barias ocasiones se hubiera experimentado alguna fatalidad, ya la presente no lo estan menos pero como Leales Basallos de su Mag[esta]d toleran con la experanza de nuevo gobierno, y juntam[en]te confian en mis ocursos p[ar]a la quietud de ellos, y como esots Yndios Ynfieles, ya no pudieron tolerar los repetidos agravios, tres dellas que el dia 11 de feb[rer]o de este año estubieron en esta plaza ha vender sus carnes de Benado cojiendolas en si todas con el estilo corriente uno de ellos fue com palo lastimado p[o]r su mayordomo los que// no pudiendo tomar benga[n]za ni en su persona ni en otra alguna de la plaza, a el regreso que hisieron a punta raza la misma noche executaron las muertas deste detacam[en]to (cuia adsion anteriormente y repetidas beses hubieran executado ha haver faltado yo de mi pueblo como en esa ocasión susedio por estar fuera del con toda mi jente en el monte) y siendo d[ic]has muertes ocasión de mis salidas a las Provinsias dieron motibo ha sersiorarme de los que tenian para la presente Guerra, bajo cuio supuesto puede V[uestra] M[erced] estar cierto que ningun particular puede haver echo agravio especial para la ruina que se nos a

ocasionado pues entre ellos es constumbre (y lo vevian por haverlos comunicado mucho) que por grave que sea la ynjuria echa por persona ynferior no les es sencible, y lo es mucho por lo be q[u]e sea q[uan]do es por superior como casique jefe etc y mas q[uan]do emos esperimentado que ya sus bendimias escusaban mostrarlas a el superior, y ocultam[en]te procurban espender las entre los soldados, y lo confirmo por ellos mismos que medijeron no tener queja de ofisial alguno, y si V[uestra] M[erced] teme ser por esto en algo calveriado por el t[iem]po q[u]e en escambe los manejo, este V[uestra] M[erced] si tener alguno pues con espesialidad me hablaron vienes de V[uestra] M[erced] a mas de que no creible que por un lijero agravio o ynjuria q[u]e de V[uestra] M[erced] u de uno u de otro hubieran recivido, y mas quando no se ocasiono muerte ni erida etc se allan de conspirar con tanto ardimiento las Provincias que sabemos por los franseses que ni por dadibas ofertas ni suplicas// los ham podido contener sino que cada dia estan mas enardesidos con que es prueba que solo agravio, y ofensa de persona publica, y de autoridad le halla movido ha hestar contra nosotros con tanta furia

V[uestra] M[erced] descuide en todo que yo procurare ymponer a su Ex[celensi]a la realidad de lo acaesido, y mas si se digna de mandarme poner en su presencia, y mande V[uestra] M[erced] q[uan]tos precetos sean de su maior agrado que le servire con toda boluntad con la que quedo pidiendo a N[uest]ro S[eñ]or Gu[ard]e su vida m[uchos] a[ños] de [e]sta suia 15 de Mayo de 1761

B[eso] l[a] M[ano] de V[uestra] M[erced
Su mas amig[able], serbidor
Andrés escudero
S[eñ]or D[o]n Pedro Ximeno

My dear Sir, I have seen that [letter] of Your Grace with the date of 14 of May in which you request I tell you the reality of what I know from the Talapuse Indians and the rest [of the] nations which reasons have caused them to break war against us causing havoc here, both in Punta Rasa with the deaths that they committed, and those we can verify with the assault that they made in Escambe, and the ones we saw that [were] almost close by this plaza which they executed, holding us in great conflict stuck in the confines of this Castillo, us being equally aggrieved by the aggrieved Indians, since they have not held back the destruction of our pueblo with the demolishing of houses, and consumption of cattle, forcing us to retreat to this plaza, and practicing equal hardship on us that was not less grave or numerous grievances than that the Indians of this Plaza have received, considering how bloodied they find themselves, and that I cannot be ignorant of the origins of these offences on account of having communicated currently, with respect to just having returned from among them, that because it is suitable to Your Grace for certain

representation in your defense, and our benefit, you ask me not to hide what I know about the affair: I say to this that what I have found out of the present revolution that I found out about in this plaza upon the returning that I made from the Provinces when I went by order of the *Señor* Governor to find out the motives that the Indians of the said Provinces had for the murders that they committed in Punta Rasa. I found out from the French messengers, who told me the Alibamos had four prisoners and three scalps from the soldiers of Escambe whose detachment was destroyed, and inquiring about the motives of these as well as other deaths of such an acrid uprising that I saw there was against us, then I ran across various troops of war (from which I liberated myself thanks to God's grace and my own industry I maintained myself 12 days with only water, and by lost roads), through my allies I found out that it was because the said nations were very aggrieved of the Governor of this plaza, both on account of the bad treatments that they were experiencing when they came to trade their meat, skins, and horses, since in addition to receiving them with fixed bayonets they experienced some blows, and I do not know if they bought the said goods at lower prices, or if it was also exchanged for aguardiente mixed with water in such a manner that made it undrinkable to them, and they confirmed this true. They did not give any other reason for the present war, with respect to the fact that by this type of commerce from before the company of Your Grace was raised, all the Indians were complaining since they found out that for the horses the said Governor bought on account of the King, there was an order that they be paid 20 pesos, and they were satisfied in aguardiente, and in a very low price. I am witness of the various purchases that passed by my hand, as are testified to by the various drafts and original papers that have ended up in my power that I will send (for the petition that I have the intention of making to his Excellency, I hope that it will be carried by [the] hand of Your Grace for their security). and also in the secretariat of the said most excellent *Señor* can be found a letter that I sent to the most excellent Lord Marqués de las Amarillas the year of 1759 in August about this matter giving him news of the complaint that the Indians that had initiated about the purchase of the horses for watered down aguardiente, which I found out about in the month of May of this year because of having been in their provinces, and in three Juntas that they made they did not discuss anything else, and it was necessary to gravely assert myself to hold them back because they wanted to break the peace. From those Pueblos I wrote to the *señor* Governor that which had occurred, and upon my return he made me rewrite the letter hiding this news, in order to include it in one that he was writing to the said Excellency. And being informed of this, as a loyal vassal I endeavored to share the truth to his Excellency, and perhaps on account his well-known illnesses, [the Governor] did not ordain it suitable that his Excellency should be made aware of the truth. And among the said papers and I have found that License, which I send to Your Grace, in which it permits me to publicly sell brandy implying with this the purchases and dealings with the pagans. Not only did the said Indians complain in this time, but also mine, who have lived very tormented, so that if

I had not restrained them on various occasions, some fatality would have happened, and at the present they are no less [tormented], but also as loyal vassals of Your Majesty they tolerate this with the hope of new government and together they trust in my petitions for their quietude. And as these pagan Indians, now could no longer tolerate the repeated offenses, three of them, who on the day 11 of February of this year were in this plaza to sell their deer meat, gathering them all together as is currently the manner, one of them was injured with a stick by his mayordomo, since they were not able to take vengeance either on his person, nor in another one of this plaza, on their return that they made to Punta Raza the same night they committed the murders of this garrison (an action they could have committed before, and many times if I had not been in my pueblo, as on that occasion happened by being outside with all my people in the woods). And since the said murders gave occasion for my trips to the Provinces, they gave motive for me to investigate the motives for the present war, under the supposition of which Your Grace can be certain that no individual could have done offense for the ruin that has occasioned upon us, since among them it is customary (I know well because of communicating much with them), however grave the insult is made by [an] inferior person, it is not as resentful to them, but very offensive no matter how light it is when it is by a superior such as *casique*, jefe, etc., and even more when we experienced that now they avoid showing their products to the superior [i.e. the Governor] and secretly endeavor to sell them among the soldiers, and I confirmed it from them, as they tell me they do not have any complaint of any officer, and if Your Grace fears it to be for this, in some torment during the time that you managed them in Escambe, if Your Grace has some [trepidation] in particular, they speak well of Your Grace. Beyond that, it is not credible from a light offense or injury from Your Grace (or from one or another), and even more when it did not occasion death or injury etc., that the provinces find themselves conspiring with such passion, since we know from the French that they have not been able to contain them with gifts, offers, nor pleas, but rather that every day they are more fired up, with which it is proof that only grievance and offense from a public person, and of authority, has motivated them to be against us with so much fury. Your Grace should not worry about anything, I will endeavor to impress upon His Excellency the reality of what happened. Your Grace should tell me whatever orders are in your greatest pleasure and I will serve you with all willingness. with which I remain asking our Lord to guard your life many years. From this [your Plaza][30], 15 of May of 1761

I kiss the hand of Your Grace
Your most friendly, servant
Andres Escudero

Señor Don Pedro Ximeno

[30] Escudero commonly signs off by saying the location he is writing from. At this point he would have been staying at San Miguel since Punta Rasa was attacked.

AGN Historia 571, f. 359r-360v, 1761

Ex[celentisi]mo S[eñ]or
Don Andres de escudero, Yndio Principal, y casique del Pueblo de Punta rraza Gov[ernad]or G[ene]ral de Provincias de Apiscas, y talapuses cristiano viejo, y fiel basallo del rey de españa con el rendimiento que debo a L[a] P[ersona] de V[uestra] Ex[celenci]a compadesco, y ago precente q[u]e a la plaza, y precidio de S[a]n M[igu]el de Panzacola esta o[y] padesiendo en la actualidad, el major conflito q[u]e se puede esperimentar (y en su consorcio los de mi Pueblo conmigo) estrechados a la pequeñes de este castillo (que asi yndefensas) de esta Plaza todo motivado q[u]e desde el año de sesetecientos sinq[uen]ta y ocho por el mes de Abril q[u]e fui electo por casique de dho Pueblo se procuro (no se el motibo particular q[u[e habra p[o]r el S[eñ]or Gov[ernad]or de esta Plaza) comerciar con los Yndios Nasiones Feriandoles sus jeneros con Ag[uardien]te mesclado con agua con lo que sea adquirieron los mas de los cavallos de la Comp[añi]a de cav[alleri]a q[u]e oy exsiste en esta Plaza q[u]e el major no merese ni lo q[u]e come causa por q[u]e el Cap[ita]n de dha Plaza, y comp[añi]a nunca podra dar cump[limien]to a el servicio corespondiente aun con las exsatitud, que se le a conosido y este dho ag[uardien]te como a sido con agua mesclado, y los Yndios no Ygnoraban y como em barias Juntas en q[u]e concurri el año de cinq[uen]ta y nueve se dejaron desir q[u]e Romperian las pases celebradas, el año de cinq[uen]ta, y ocho motibados a que este jenero de comercio les era mui, ynicuo a mas de q[u]e han esperimentado mui malos tratamientos pues se recivian p[o]r orden de dho Gov[ernad]or a los Yndios comerciantes con bayonetas caladas mui Ynjurioso p[ar]a ellos se les dava de Palos, y sus jeneros dho Gov[ernad]or en ci los recivia a menos precio por el ag[uardien]te expresado, y con la mescla dha y los expresados cavallos fueron comprados con dho ag[uardien]te ya pagados p[o]r mi mano mediante una lisencia (q[u]e p[o]r simulo se me dio) para comerciar, ya por diversos sujetos, ya por la suia, ya p[o]r sus mayordamos, y el ultimo de ellas comerciando con unos Yndios alibamos a el recibir sus carnes q[u]e traian (y otras cosas q[u]e Ygnoro) a uno // de ellos le castigo grabem[en]te con um palo, y a todos les satisfiso la compra con Ag[uardien]te mas agua que nunca p[o]r cuio motibo, yritados dhos Yndios en su regreso del Pueblo de Punta rrasa ysieron un grave estrago y mui lastimoso como fue matar dos soldados un cavo una mujer preñada y una nina dando los motibos a una Yndia de dho Pueblo haver cido ynjuriados en el modo dho, y como estos no se solisito tubieron hueco de yr a sus provincias, y partisipar lo subsedido, con lo que todos se irritaron contra nosotros, y el dia nuebe de Abril del presente año dio asalto una tropa de ellos a el destacam[en]to de cavalleria q[u]e en el Pueblo nombrado escambe de allaba sin defensa alguna pues no tenia alojam[ien]to ni aun para el equipaje en donde hisieron dos muertes aprisionaron quatro, y a otro dejaron ynservible pues quitaron todo el cutis de la causa dejandole el casco descubierto q[u]e p[o]r mi lagro vive en cuio t[iem]po me hallaba, yo en las Provincias de dhos Yndios p[o]r or[de]n de este gov[ernad]or en solisitar de los motibos q[u]e ocasionaron a dhos tres Yndios p[ar]a la execusion de las muertes de

Punta rraza, y entonces p[o]r notisias de unos correos franceses me liberte ha hesmeros de mi dilijencia varias ocasiones de muchas tropas de guerra q[u]e subsesibam[en]te encontre, y estos mismos correos de los aliados n[uest[ros disiendome que los havia movido a la precente guerra los malos tratam[ien]tos q[u]e havian experimentado en el precidio de Panzacola el comercio ynicuo q[u]e s[iem]pre se les havia hecho, y aun la fuerza con q[u]e sus jeneros se les cojian p[o]r ord[e]n del q[u]e dha Plaza comandaba motibo p[o]r q[u]e muchas ocasiones procuraron ocultam[en]te entre los soldados expender sus generos, y q[u]e a lo presente no pudieron tolerar los q[u]e primeros hizieron el ynsulto em Punta rraza y de ningun otro tube notisia se quejasen antes si de barios ofisiales se q[u]e estan agradesidos

Ex creible Ex[celentisi]mo S[eñ]or sea este el motibo de tanto estrago pues cuasi viente son los muertos el ruesgo en q[u]e en vivimos es notable las yncomodidades las yncomodidades q[u]e padesemos son muchas las perdidas de casas ganados, y viveres q[u]e en mi Pueblo y las hasiendas se han berificado es de algun quantia y los costos q[u]e a el rey se les an yrogado no son pocos, con la multidud de Yndios q[u]e nos tienen sercados, pues estos solo se mueben para adsion de esta naturalesa quando alguno sujeto de la gerarquia de este cavallero de ocasión correspondiente, y muchos dias S[eñ]or yo temeroso de esto mismo, y movido de la lealdad// con que prosedo estando en el Pueblo de Tuchipache el año de cinquenta y nuebe escrevi a este Gov[ernad]or q[u]e en tres juntas hisieron conmigo los Yndios procuraron romper las pazes tan solo p[o]r la compra de los cavallos del Rey q[u]e en este t[iem]po se estaban haciendo por que desian saver q[u]e el Rey de España librava viente pesos para cada uno, y q[u]e a ellos no solo no se les dava plata p[o]r q[u]e el Ag[uardien]te p[o]r q[u]e se feriaban era mui poco e inservible de manera q[u]e regulaban el precio de cada cavallo el q[u]e mas p[o]r seis p[eso]s q[u]e p[o]r ese motibo nunca traian cavallo de mayor precio cuia carta a mi benida me yso mudar para remitir la a el Ex[celentisi]mo S[eñ]or Marques de Amarillas, y visto yo que no era correspondiente ocultam[en]te a dho Ex[celentisi]mo S[eñ]or escrevi la realidad solisitando (como otras beses lo e echo[)] poner me em precencia de las antesesores Ex[celentisi]mos de V[uestra] Ex[celenci]a p[ar]a q[u]e vivan, yntelijenciados en tanta falsedad de que estan ynstruidos por Ynformes falsos los q[u]e ocasiona el estar este Precidio en el precente estado pues haviendo yo conseguido este yntento tal bes tuviera esto algun adelante, y se hubiera escusado la precente trajedia, a el Rey muchos costos y a todas nosotros las penalidades q[u]e emos pasado pues berbalm[en]te hubiera ympuesto a el Ex[celentisi]mo S[eñ]or q[u]e hubiese governado lo a esto correspondiente, y aunque desde aquí pudiera haverlo echo no lo executo justificando todo lo que dijera con ynstrum[en]tos que pararan en mi poder de barios adsuntos q[u]e ha esto tienen perdido ha sido p[o]r no molestar la atencion de su Ex[celenci]a y viendo me haora tan comprimido de ber a mi pueblo perdido los mios peresiendo atenidos a la racion (q[u]e p[o]r providencia a aora se les da) todo el precidio q[u]e muebe a compasion no puedo menos q[u]e a V[uestra] Ex[celenci]a moleste con unos papeles q[u]e adjuntos ban p[ar]a q[u]e en su bista, y esta mi relacion la discreta compreencion de V[uestra] Ex[celenci]a conosca un diseño de lo

q[u]e aquí acaese, y no relato lo ynfinito q[u]e diariam[en]te acontece todo mui yregular p[o]r q[u]e no me parece ser me corespondiente orijinar displicencia a V[uestra] Ex[celenci]a con relacion tan dilatada ni menos con comulo de papeles q[u]e esto solo me persuado mueba a piedad de V[uestra] Ex[celenci]a p[ar]a q[u]e ponga el remedio ha esto correspondiente q[u]e solo siendo de la aseptacion de V[uestra] Ex[celenci]a yo pase ha esa con quatro principales de los mios expresare con justificasion, y verdad todo q[uan]to expusiere con justificasion y berdad todo q[uan]to expusiere a V[uestra] Ex[celenci]a

Al precente se allan todos los Yndios mios conmigo // dentro este castillo aun si[n] viviendas, y respecto a q[u]e n[uest]ro pueblo no se podra formar p[o]r el temor de los Ynfieles, y lo yndefenso q[u]e alli estamos suplico a V[uestra] Ex[celenci]a en nombre de todos se digne viendo nos con piedad conceder su licencia p[ar]a que nos situemos en un lugar llamado punta blanca que dista un tiro de cañon de dho castillo bajo cuia hartilleria estaremos defendidos, y nosotros qual auxilio daremos a la plaza cuio favor espero de la piedad de V[uestra] Ex[celenci]a

Por tanto a V[uestra] Ex[celenci]a pido se digne atender a mis suplicas q[u]e es justicia, y todos reciviremos especial merced --Andrés escudero

Most Excellent Sir,
Don Andres de Escudero, noble Indian and *casique* of the Pueblo of Punta Rasa, Governor General of the provinces of the Apiscas and Talapuses, old Christian, and faithful vassal of the King of Spain, with the devotion that I owe to the person of Your Excellency I am sorry to notify that today the plaza and the presidio of San Miguel de Panzacola is suffering at the present time the greatest conflict that can be experienced (and in conjunction with it, those of my Pueblo with me), confined to the smallness of this fort (that is undefended) of this plaza, all motivated [by the fact] that since the year 1758 in the month of April, when I was elected as *casique* of the said Pueblo, it was endeavored (I do not know the particular motive that the *Señor* Governor of this plaza had) to trade with the Indian nations, selling their goods for Brandy mixed with water, with which the greater part of horses of the cavalry company that today exists in this plaza were acquired, [and] the best is not worth even what it eats, the reason for which the Captain of the said Plaza and company can never fulfill the appropriate service, even with the exactitude that he has been known for. And this aforementioned brandy, since it has been mixed with water, the Indians were not ignorant of this, and since in various juntas in which I attended the year [17]59 they said themselves that they would break the peace celebrated in the year of [17]58, motivated by the fact that this type of commerce was unfair, beyond which that they have experienced very bad treatment, since the Indian traders were received by order of the said Governor with fixed bayonets, very insulting to them, they were beaten, and the said Governor himself received their goods at less price on account of the aforementioned brandy, and with the said mix, and the aforementioned horses that were purchased with the said brandy already paid for by my hand by means of a

license (that I was given as cover[31]) to trade, one time by diverse subjects, another time by him, another time by his mayordomo, and the last of them, while trading with some Alibamo Indians, upon receiving their meats that they brought (and other things I am ignorant of), one of them was punished gravely with a stick, and the purchase was satisfied with the brandy with more water than ever, on account of which, the said Indians being irritated, on their return to the Pueblo of Punta Rasa, they made a grave ruin and very shameful which was to kill two soldiers, a corporal, a pregnant woman, and a girl, explaining the reasons to an Indian [woman] of the said Pueblo to have been injured in the said manner, and since these Indians were not sought, they had time to go to their provinces, and to explain what happened, with which all of them became angry at us. On the 9th of April of the present year a troop of them assaulted the detachment of cavalry in the Pueblo named Escambe, which found itself without any defense, since it had no accommodation, not even for the equipment, where they committed two murders, imprisoned four, and left another useless because they removed all of the scalp from his head leaving the skull uncovered, who by a miracle is living. During this I found myself in the provinces of the said Indians by order of this governor to solicit the reasons that caused the aforementioned three Indians to execute the murders at Punta Rasa, and then on account of news from some French messengers, I liberated myself from my errand [and] kept running across war parties on various occasions, and these same messengers of our allies told me that the poor treatments that they have experienced in the presidio of Panzacola had moved them to the present war, the unfair trade that always had been made with them, and even the force with which their goods were taken by order of he who commanded the said plaza, reasons for which on many occasions they endeavored to sell their goods secretly among the soldiers, and that at the time those who made the first attack in Punta Rasa could not tolerate it, and from nobody else did I have news of complaints, but instead I know that they are grateful of various officers.

It is believable, most excellent Sir, that this is the reason of so much havoc, since almost twenty [men] have been murdered. The risk in which we live is notable, the discomforts that we suffer are many, the losses of houses, livestock, and provisions that have been verified in my Pueblo and the ranches, is of some quantity, and the costs to the King have occurred are not small, with the multitude of Indians that have us surrounded. They only get stirred up for an action of this nature when someone subject to the hierarchy of this gentleman [the Governor] gives corresponding reason. And many days Sir I [was] fearful this exact thing, and moved by the loyalty with which I proceed, having been in the Pueblo of Tuchipache the

[31] Note that the phrase "por simulo" corresponds to what Escudero said in the other letter (ff. 353r-355r), and there it is clearly meant to imply fraud and fakery, because he says the license to operate the store was was cover for the illicit trade with the pagans (i.e. the Creeks). This is important, as it would seem to confirm what Escudero is saying about the fact that this was the first time that the Spanish governor of Pensacola actually traded directly with the Creeks (which we know was prohibited explicitly in 1749-1750 during the investigatory mission that passed right through Punta Rasa, where Escudero lived).

year of [17]59 I wrote to this Governor that in three juntas the Indians had with me they tried to break the peace just for sale of those horses of the King that in this time they were making, because they said to know that the King of Spain delivered 20 pesos for each one, and that to them not only were they not given silver, because of the brandy that they were trading was very weak and unservable, in such a manner that they figured out the price of each horse, the most expensive for 6 pesos, [and] for this reason they never brought a horse of a higher price. Upon my arrival he made me change my letter to send it to the most excellent Lord Marqués de las Amarillas, and seeing that it did not correspond, I secretly wrote to the said most excellent *Señor* with the reality, soliciting (as other times I have done) to place myself in the presence of the most excellent predecessors to your Excellency, so that they live fully informed of such falsehood that they were instructed by false reports, which causes this presidio to be in the present state, since if I had achieved this, perhaps this would have moved forward and the present tragedy would have been excused, and also the many costs to the King and the penalties to all of us that we have experienced, because verbally I would have conferred it to the Most Excellent Sir, who would have governed that which corresponded. And although from here I could have done it, I did not execute it, justifying everything said with the [legal] instruments that wound up in my power of various affairs that have been lost, it has been to not disturb the attention of Your Excellency. And seeing me now so pressured from seeing my lost pueblo and my people perishing, all the presidio tied to the ration (which by providence is now given to them) , which moves one to compassion, I can do no less than to bother Your Excellency with some papers that are attached, so that in view of them, and of this my relation, the discreet understanding of Your Excellency will know a summary of what is happening here, and I do not relate the infinity of what happens very regularly daily, because it does not seem to me suitable to originate displeasure to Your Excellency with such a detailed report, even less with an accumulation of papers, that I am persuaded that this alone will move the piety of Your Excellency so that you will place the remedy that corresponds to this. Only if it is acceptable to Your Excellency, I will go with my four *principales*, [and] I will express with justification and truth everything I can explain to Your Excellency.

At the present all of my Indians find themselves with me inside this *castillo*, even without homes, and with respect to the fact that our pueblo cannot be formed for the fear of the heathens, and the indefensible that we are there, I supplicate Your Excellency, in the name of everyone, seeing us with piety, to deign to grant your license so that we place ourselves in a place called Punta Blanca, which is a cannon shot from the said *castillo*, under whose artillery we will be defended, and we will give what help we can to the plaza. I hope for this favor from the piety of Your Excellency, for which I ask Your Excellency to deign to attend to my pleading, which is justice, and we will all receive special mercy—Andres Escudero

AGN Marina 17, Expediente 11, 1761
Excerpts from John E. Worth transcriptions

[The] year 1761
Copy of the statement of the Captain of Cavalry Don Luis de Ullate, which he expressed by order of the Governor of Pensacola Don Diego Ortiz Parrilla about the state of [the] Presidio and of his company

f. 245r-248r [Capitulo 6]

I say that for the celebration of the Jura [oath] to our King and Lord, the governor determined to make the Provinces of the Talapuzes and [the] Aspicas come [here], as in effect was done, and believing they would be given gifts, and that perhaps it would be in order to give them that which so many times they have been promised by the account of the King, they believed it, [instead] experiencing that was not to the measure of their thoughts, and they returned not very satisfied, and in particular the War Captains, since he gave the *Casiques* a medallion of silver with the effigy of the King, and a hat, and nothing to the said [war] captains, they having the most [control..political voice] among them. Based on which was found out after their departure, they were not going in agreement, and if anything displeased, as they manifested to the Indian *Casique* of Punta Rasa Don Andres de Escudero, who tried to satisfy them with the good reasons that were customary. After this, it occurred that two Indian men and a boy came with some *tercios* [measurement of 150lbs] of meat in order to sell [the *tercios*] openly, and the governor seized the *tercios* with the pretext of [it] being for the Hospital by means of Pedro de Goycochea, who was his *mayordomo*, and this is on record. He seized the *tercios* from them at a lesser price than they wanted for each *tercio*, [which was] eight bottles of brandy, and he gave them no more than the rate of four, and upon the resistance that the said Indians made for the reduced price they were given, he mistreated them by words (and even by deeds), and I swear that his master [the Governor] could not have known, since he would have fixed it, although afterward he was told [this] and he tried to free himself from blame. The said Indians resented this, declaring their feelings to an Indian [woman] from here, and that if they were not able to take vengeance on the Mico (which is what they call he who commands), this his soldiers would have to pay, and they were told by the said Indian [woman] the number of people that the garrison of Escambe comprised, and if the women went to wash at the stream. The said two Indian men and the boy returned to the Pueblo of Punta Rasa, where they carried out the promised vengeance on the garrison that found itself there, and they went away to their nations, exaggerating the horrors and offenses received in this Presidio against their nations, with which they succeeded in stirring up all their Provinces. And afterwards, there occurred the surprise [attack] on Escambe, and the remaining murders that [occurred] in these environs were carried out, with which the declared war was confirmed, which, although the motive was minimal, their natural fickleness, inclined that they are to robbery and murders, moved them with ease to that which

they executed, as I manifest in this declaration, and if it forced all of us to the little preparations that were taken, it was that exaggerated.

AGN Marina 17 [Capitulo 7]

…I declare: that the first murder that the Indians did were those executed in the town of Punta Rasa, which were where the murders of the *Cabo*[32] who found himself there, the [murders] of two soldiers, the [murders] of the wife of the said *Cabo*, and a daughter that was five years old, another that was in the womb, since she was pregnant, which makes six murders, freeing themselves from this misfortune another two soldiers of the garrison because of having come for the conveyance of the aforementioned Indians who brought the *tercios* of meat, since it was the order that they had so that they should bring it without diversion, and [that] it be brought directly to his [the Governor's] house. Afterward, there followed the murders of two soldiers of my company in the garrison of Escambe, and the scalping, as well as the four prisoners that were carried off. Afterward, they killed another two of my company who were found grazing the horses half a league from this Presidio, and the remaining [horses] placed in these environs, since they did not go far from them, but the daring of the Indians made them come nearer, and even more when they lived in certainty that they would not be followed, since the governor gave no more preparation than to protect that which was within the *recinto*[33], since he said it was the obligation that he had; because they were not ordering him to conquer but rather to protect the Plaza, as he publicly announced.

AGN Marina 17 f. 255r [Capitulo 16]

I declare: that we the captains see ourselves forced to provide for the soldier what he needs, and also to their wives and children, from stipend to stipend, because these poor wretches do not have more than the ration of wheat and ham that is constant, and in order to spend the human life, other things are made necessary which they provide for them, and that some of the captains perhaps implement this at the cost of much embarrassment, but the need that this poor troop suffers it is clear to him, and he who has no other refuge apart from that of his captain, obligates him to aid him, providing him [with] money when his wife is ill; the goods for him to clothe his nakedness [and] that of his children, providing them drinking chocolate, soap for their toilet; likewise other things like this, which is recorded in the company books that Your Lordship has seen, at the cost of no small hardship, since it is necessary to supply them 2 or 3 thousand pesos, which obligates him to indebt his credit for these supplements. For those that were not feasible, someone from this presidio could make themselves a merchant with the small principal of their wealth, and even more when

[32] *Cabo* is considered a military position similar to a Corporal.
[33] *Recinto* is translated as fort or enclosed precinct.

its stores are comprised of liquor and other sweets that are not for the decency of the said soldiers, nor for the aid of his wife and children., For his honor, the captain endeavors to take the greatest care, and it is always routine that he looks upon [them] with more love and compassion than a stranger. On account of [all this], I swear that we have proceeded in accordance with all our consciences, certifying to Your Lordship that greater are the hardships that are suffered as a result of the poorly provided that this Presidio is, than [as a result of] the utility they [the captains] provide, since in practice I have experienced that the delays [in the stipends] are greater than the utilities.

f. 255r-257r [Capitulo 17]

…I declare: that I have not heard, nor is it evident to me, that any official has a tavern, store, or wine shop other than that which the majordomo and *compadre* of the Governor had, through which the said [majordomo] collected the debts incurred in it by the soldiers, which they preferred to their daily pay [Pre], even though the soldier might go without eating, as is evident to all the people, and in particular, to the Captains, who although they made repeated reports, they were not appreciated. And if his [the Governor's] commands were implemented, like a public game that the said Governor placed in the quarters of the *Presidarios*,[34] in which one can understand the disorders that could have been committed with such dissolute people (as are those of this Presidio), and even though it was made known to him the inconsistencies that would result from this disorder, he pretended not to know anything, and that he would remedy it later, but this was not executed until Captain Don Santiago Eraso went to the said game, and broke it up, punishing those who were in it. Passing to give a report of what happened, he happened to be in front of the officials of the Marina who conducted to this Presidio the auxiliary troops from Havana, and as they were astonished by the disorder that the said Captain referred to him [the Governor], then the Governor saw himself obliged to tell them that he [Eraso] had done well, and since then the game has remained disbanded, thwarting the intention that he had for it, since it was the time that the troop was given (in place of ham) the *real* of daily pay that was customary, he intended to become owner of this money.

f. 257v-259r [Capitulo 18]

I declare: that the trade that Don Miguel Roman has had with the Indians has been that of the purchase of horses in exchange for watered down brandy, through which the Indians manifested their complaint long before the war, and with the said brandy that he paid those that were bringing hens, deer meat, fruit, and other edible things, etc., all for the provision of his house, making use of the authority as a superior for

[34] *Galera de los Presidiarios* refers to the location within the Presidio of San Miguel where the convicts or forced laborers lived.

this privilege. This was so sensitive to the Indians that they ultimately bringing [their goods] to sell in secret, and even [this] same practice was executed with our Indians, since they fled from the Governor finding out on account at the extent to which he was tyrannizing them, as all of them declare, and in particular the Indian *casique* Don Andrés de Escudero, and to the repeated complaints that the non-Christian Indians gave him, he satisfied and calmed them in his [own] way, because of which they did not break their friendship even long before they executed it, as is apparent to the said *casique*. Acamucayche also manifested this complaint by means of two ambassadors that he sent to the Governor, and seeing the little appreciation that he made of [the case], and that he continued in his misguided purchases, Amucayche came himself and foresaw everything that happened. At the same time [the Governor] has had in his house Presidiarios [forced laborers] and free workers [soldiers] who have worked for him in order to make knee length pants, shoes, half boots, and other similar things for the use of the troop, without having paid these workers for any of their work, nor to another Presidiary silversmith, whose many pieces made by his own hand are evident. And he [the Governor] executed the same thing in the rest of his affairs, since it is well-known that he never paid anything to the man who fished for him, who was Joseph Thomas, in more than 4 years that he provided fish for him that was necessary for the expenditure of his house, and this with great abundance, with the exact circumstance that for no reason should he fail to bring it, and whenever he became sick, and seeing himself obligated to pay another who might bring it, in order to not experience the rigors of the mandated task, in that which he paid with his life[35] as I have said above.

[35] Joseph Thomas was attacked and killed by Native Americans on Sunday June 22, 1761.

Appendix B: Features Sampled

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Santa Maria	117	Unknown	Y	
Santa Maria	118	Unknown	Y	
Santa Maria	119	Unknown	Y	Y
Santa Maria	121	Unknown	Y	
Santa Maria	133	Unknown		Y
Santa Maria	137	Unknown	Y	Y
Santa Maria	141	Refuse Pit		Y
Santa Maria	143	Brick Hearth	Y	Y
Santa Maria	145	Posthole	Y	
Santa Maria	150	Construction Trench	Y	
Santa Maria	170	Construction Trench		Y
Santa Maria	188	Construction Trench	Y	Y
Santa Maria	189	Posthole	Y	Y
Santa Maria	190	Burial	Y	
Santa Maria	193	Posthole	Y	
Santa Maria	198	Sill	Y	Y
Santa Maria	202	Unknown		Y
Santa Maria	216	Construction Trench	Y	Y
Santa Maria	220	Posthole		Y
Santa Maria	221	Unknown	Y	Y
Santa Maria	238	Posthole		Y
Santa Maria	243	Posthole		Y
Santa Maria	247	Posthole		Y
Santa Maria	249	Refuse Pit	Y	
Santa Maria	250	Construction Trench	Y	Y
Santa Maria	251	Construction Trench	Y	
Santa Maria	253	Refuse Pit	Y	
Santa Maria	254	Refuse Pit	Y	Y
Santa Maria	259	Refuse Pit	Y	
Santa Maria	260	Refuse Pit	Y	Y
Santa Maria	261	Construction Trench	Y	Y
Santa Maria	262	Refuse Pit	Y	Y
Santa Maria	263	Refuse Pit	Y	Y
Santa Maria	268	Refuse Pit	Y	Y
Santa Maria	269	Burned Timber		Y
Santa Maria	270	Construction Trench	Y	Y
Santa Maria	277	Smudge Pit	Y	
Santa Maria	278	Refuse Pit	Y	
Santa Maria	279	Sill Trench	Y	Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Santa Maria	283	Refuse Pit		Y
Santa Maria	289	Posthole	Y	
Santa Maria	291	Refuse Pit		Y
Santa Maria	292	Refuse Pit	Y	
Santa Maria	302	Unknown	Y	
Santa Maria	313	Unknown	Y	
Santa Maria	314	Unknown	Y	
Santa Maria	315	Unknown	Y	
Santa Maria	363	Refuse Pit		Y
Santa Maria	387	Construction Trench	Y	Y
Santa Maria	390	Construction Trench	Y	Y
Santa Maria	396	Construction Trench		Y
Santa Maria	397	Unknown	Y	
Santa Maria	427	Refuse Pit	Y	Y
Santa Maria	429	Unknown	Y	Y
Santa Maria	435	Construction Trench	Y	
Santa Maria	442	Unknown	Y	
Santa Maria	452	Refuse Pit	Y	
Santa Maria	453	Posthole	Y	Y
Santa Maria	454	Posthole	Y	Y
Santa Maria	455	Refuse Pit	Y	Y
Santa Maria	456	Unknown	Y	Y
Santa Maria	457	Refuse Pit	Y	
Santa Maria	458	Refuse Pit	Y	Y
Santa Maria	459	Posthole	Y	
Santa Maria	465	Construction Trench	Y	
Santa Maria	466	Construction Trench	Y	
Santa Maria	475	Posthole		Y
Santa Maria	485	Refuse Pit		Y
Santa Maria	486	Refuse Pit	Y	Y
Santa Maria	487	Construction Trench	Y	Y
Santa Maria	493	Posthole	Y	Y
Santa Maria	495	Posthole	Y	Y
Santa Maria	496	Refuse Pit		Y
Santa Maria	498	Posthole	Y	
Santa Maria	502	Posthole	Y	Y
Santa Maria	504	Construction Trench	Y	Y
Santa Maria	506	Posthole	Y	Y
Santa Maria	507	Unknown	Y	Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Santa Maria	508	Posthole	Y	Y
Santa Maria	510	Posthole	Y	
Santa Maria	512	Unknown	Y	Y
Santa Maria	513	Unknown	Y	
Santa Maria	522	Refuse Pit		Y
Santa Maria	524	Construction Trench	Y	Y
Santa Maria	529	Refuse Pit	Y	Y
Santa Maria	531	Posthole	Y	Y
Santa Maria	532	Posthole	Y	Y
Santa Maria	535	Unknown	Y	Y
Santa Maria	544	Burial		Y
Santa Maria	556	Refuse Pit	Y	
Santa Maria	559	Refuse Pit	Y	Y
Santa Maria	562	Refuse Pit		Y
Santa Maria	570	Posthole	Y	
Santa Maria	576	Construction Trench	Y	Y
Santa Maria	578	Refuse Pit	Y	Y
Santa Maria	588	Refuse Pit	Y	
Santa Maria	599	Burial	Y	Y
Santa Maria	600	Unknown		Y
Santa Maria	602	Possible Burial Pit	Y	Y
Santa Maria	603	Unknown	Y	Y
Santa Maria	608	Refuse Pit	Y	
Santa Maria	609	Refuse Pit	Y	
Santa Maria	610	Unknown	Y	
Santa Maria	617	Posthole	Y	
Santa Maria	618	Posthole	Y	Y
Santa Maria	621	Refuse Pit	Y	
Santa Maria	622	Posthole	Y	Y
Santa Maria	623	Refuse Pit	Y	
Santa Maria	625	Posthole		Y
Santa Maria	629	Posthole	Y	
Santa Maria	631	Refuse Pit		Y
Santa Maria	634	Construction Trench	Y	Y
Santa Maria	638	Burial		Y
Santa Maria	640	Burial	Y	Y
Santa Maria	641	Refuse Pit	Y	Y
Santa Maria	642	Unknown	Y	Y
Santa Maria	643	Refuse Pit	Y	Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Santa Maria	646	Refuse Pit	Y	
Santa Maria	655	Burial		Y
Santa Maria	660	Construction Trench	Y	
Santa Rosa	20	Posthole		Y
Santa Rosa	22	Posthole	Y	
Santa Rosa	23	Ash Deposit		Y
Santa Rosa	27	Wall Trench	Y	Y
Santa Rosa	32	Wall Trench	Y	Y
Santa Rosa	35	Indeterminate	Y	Y
Santa Rosa	36	Wall Trench	Y	
Santa Rosa	37	Indeterminate	Y	Y
Santa Rosa	38	Posthole	Y	
Santa Rosa	40	Wall Trench	Y	
Santa Rosa	41	Posthole		Y
Santa Rosa	42	Posthole	Y	
Santa Rosa	44	Indeterminate		Y
Santa Rosa	47	Burned Structure	Y	Y
Santa Rosa	48	Posthole	Y	
Santa Rosa	50	Refuse Pit	Y	Y
Santa Rosa	51	Posthole	Y	
Santa Rosa	52	Posthole	Y	
Santa Rosa	57	Wall Trench	Y	Y
Santa Rosa	59	Posthole	Y	Y
Santa Rosa	60	Wall Trench	Y	Y
Santa Rosa	61	Wall Trench	Y	Y
Santa Rosa	62	Wall Trench	Y	Y
Santa Rosa	70	Indeterminate	Y	
Santa Rosa	77	Posthole	Y	Y
Santa Rosa	78	Tree/Bush	Y	Y
Santa Rosa	79	Wall Trench	Y	Y
Santa Rosa	81	Indeterminate	Y	Y
Santa Rosa	82	Posthole	Y	
Santa Rosa	83	Indeterminate	Y	
Santa Rosa	86	Indeterminate	Y	Y
Santa Rosa	103	Root Stain	Y	
Santa Rosa	105	Wall Trench		Y
Santa Rosa	111	Refuse Pit	Y	Y
Santa Rosa	116	Wall Trench	Y	
Santa Rosa	121	Wall Trench	Y	Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Santa Rosa	122	Wall Trench		Y
Santa Rosa	123	Posthole	Y	Y
Santa Rosa	128	Wall Trench	Y	Y
Santa Rosa	129	Wall Trench	Y	Y
Santa Rosa	136	Wall Trench	Y	Y
Santa Rosa	138	Wall Trench	Y	Y
Santa Rosa	153	Storm Surge	Y	Y
Santa Rosa	154	Burned Floor	Y	Y
Santa Rosa	156	Wall Trench	Y	Y
Santa Rosa	159	Posthole	Y	Y
Santa Rosa	160	Post mold	Y	
Santa Rosa	161	Wall Trench	Y	
Santa Rosa	164	Root Push	Y	
Santa Rosa	165	Wall Trench		Y
Santa Rosa	172	Burned Feature		Y
Santa Rosa	173	Posthole	Y	Y
Santa Rosa	179	Posthole	Y	Y
Santa Rosa	180	Posthole	Y	
Santa Rosa	183	Posthole		Y
Santa Rosa	184	Posthole	Y	
Santa Rosa	186	Push Pile	Y	Y
Santa Rosa	187	Posthole		Y
Santa Rosa	188	Posthole		Y
Santa Rosa	189	Refuse Pit	Y	Y
Santa Rosa	190	Wall Trench		Y
Santa Rosa	191	Posthole		Y
Santa Rosa	194	Refuse Pit	Y	Y
Santa Rosa	200	Wall Trench	Y	Y
Santa Rosa	205	Modern Disturbance	Y	
Santa Rosa	210	Refuse Pit		Y
Santa Rosa	211	Posthole Complex		Y
Santa Rosa	214	Wall Trench		Y
Santa Rosa	215	Wall Trench	Y	Y
Santa Rosa	219	Wall Trench		Y
Santa Rosa	228	Wall Trench		Y
Santa Rosa	231	Wall Trench	Y	Y
Santa Rosa	234	Dirt Floor of Structure	Y	Y
San Miguel	55	Brick Hearth	Y	
San Miguel	91	Refuse Pit		Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
San Miguel	103	Refuse Pit	Y	Y
San Miguel	112	Wall Trench	Y	Y
San Miguel	117	Refuse Pit		Y
San Miguel	118	Refuse Pit		Y
San Miguel	122	Post	Y	Y
San Miguel	124	Uknown		Y
San Miguel	128	Refuse Pit		Y
San Miguel	129	Post		Y
San Miguel	134	Refuse Pit		Y
San Miguel	135	Post	Y	Y
San Miguel	136	Barrel Well	Y	Y
San Miguel	146	Construction Trench	Y	
San Miguel	149	Refuse Pit	Y	Y
San Miguel	150	Wall Trench	Y	Y
San Miguel	151	Post Hole	Y	
San Miguel	154	Refuse Pit	Y	Y
San Miguel	158	Post Hole	Y	Y
San Miguel	164	Barrel Well	Y	
San Miguel	167	Cold Storage Barrel		Y
San Miguel	168	Wall Trench	Y	
San Miguel	170	Burn pit		Y
San Miguel	171	Post Mold	Y	
San Miguel	172	Refuse Pit		Y
San Miguel	173	Post Hole and Mold	Y	
San Miguel	179	Post Hole	Y	
San Miguel	181	Wall Trench	Y	Y
San Miguel	184	Refuse Pit	Y	
San Miguel	185	Post Hole		Y
San Miguel	186	Post Hole and Mold	Y	
San Miguel	187	Post Hole		Y
San Miguel	188	Wall Trench		Y
San Miguel	193	Post Hole	Y	
San Miguel	196	Post Mold		Y
San Miguel	203	Refuse Pit	Y	
San Miguel	204	Refuse Pit	Y	
San Miguel	206	Post Mold		Y
San Miguel	207	Post Mold		Y
San Miguel	208	Wall Trench	Y	Y
San Miguel	223	Post Hole and Mold	Y	

Site	Feature #	Feature Type	Lead Shot	Glass Beads
San Miguel	227	Refuse Pit	Y	Y
San Miguel	233	Well Construction Pit		Y
San Miguel	235	Construction Pit	Y	Y
San Miguel	236	Barrel Well	Y	Y
San Miguel	239	Post Hole	Y	
San Miguel	241	Refuse Pit		Y
San Miguel	243	Cold Storage Unit	Y	
San Miguel	244	Refuse Pit		Y
San Miguel	253	Post Mold	Y	Y
San Miguel	304	Refuse Pit		Y
San Miguel	306	Post		Y
San Miguel	308	Posthole	Y	
San Miguel	321	Refuse Pit	Y	
San Miguel	340	Trench		Y
San Miguel	348	Black Soil		Y
San Miguel	353	Refuse Pit		Y
San Miguel	356	Wall Trench		Y
San Miguel	357	Wall Trench		Y
San Miguel	370	Post		Y
San Miguel	375	Palisade Wall Trench	Y	
San Miguel	400	Well Fill		Y
San Miguel	401	Post	Y	Y
San Miguel	403	Moat Fill	Y	
San Miguel	408	Well Fill	Y	
San Miguel	422	Well Fill		Y
San Miguel	432	Post		Y
Escambe	10	Trench		Y
Escambe	11	Corn Cob Smudge Pit		Y
Escambe	16	Hearth	Y	Y
Escambe	17	Unknown	Y	Y
Escambe	19	Wall Trench		Y
Escambe	20	Wall Trench	Y	
Escambe	32	Clay Capping		Y
Escambe	105	Pit	Y	
Escambe	109	Pit	Y	Y
Escambe	122	Trench	Y	Y
Escambe	131	Brick Trench	Y	Y
Escambe	139	Post		Y
Escambe	149	Brick Pile		Y

Site	Feature #	Feature Type	Lead Shot	Glass Beads
Escambe	213	Well	Y	
Escambe	215	Post		Y
Escambe	249	Wall Trench	Y	Y
Escambe	250	Pit		Y
Escambe	251	Wall Trench		Y
Escambe	412	Wall Trench		Y
Escambe	422	Wall Trench		Y
Escambe	425	Pit		Y
Escambe	427	Wall Trench	Y	
Escambe	429	Unknown		Y
Escambe	432	Wall Trench	Y	
Escambe	504	Burned Clay		Y
Escambe	511	Wall Trench	Y	
Escambe	520	Burned Clay		Y
Escambe	527	Wall Trench	Y	Y

Appendix C: Glass Bead Morphometric Data

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
1	8ES1354	95N	1439	9	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
2	8ES1354	95N	1439	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
3	8ES1354	95N	1439	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
4	8ES1354	95N	1439	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
5	8ES1354	95N	1439	12	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
6	8ES1354	95N	1499	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
7	8ES1354	95N	1528	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
8	8ES1354	95N	1528	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
9	8ES1354	95N	1529	23	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
10	8ES1354	95N	1529	23	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
11	8ES1354	95N	1530	2	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
12	8ES1354	95N	1530	5	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
13	8ES1354	95N	1577	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
14	8ES1354	95N	1577	29	GLASS	WOUND	INCOMPLETE	SIMPLE	CONICAL
15	8ES1354	95N	1795	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
16	8ES1354	95N	1795	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
17	8ES1354	95N	1795	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
18	8ES1354	96N	2127	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
19	8ES1354	96N	2129	23	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
20	8ES1354	96N	2129	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
21	8ES1354	96N	2129	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
22	8ES1354	96N	2129	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
23	8ES1354	96N	2129	24	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
24	8ES1354	96N	2129	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
25	8ES1354	96N	2129	25	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
26	8ES1354	96N	2129	40	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
27	8ES1354	96N	2129	40	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
28	8ES1354	96N	2129	40	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
29	8ES1354	96N	2129	40	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
30	8ES1354	96N	2129	40	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
31	8ES1354	96N	2129	41	GLASS	DRAWN	COMPLETE	SIMPLE	SUBSPHERICAL
32	8ES1354	96N	2149	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
33	8ES1354	96N	2150	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
34	8ES1354	96N	2754	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
35	8ES1354	96N	4473	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
36	8ES1354	96N	4473	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
37	8ES1354	96N	4473	12	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
38	8ES1354	96N	4527	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
39	8ES1354	96N	4527	7	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
40	8ES1354	96N	4528	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
41	8ES1354	96N	4528	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
42	8ES1354	96N	4528	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
43	8ES1354	96N	4528	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
44	8ES1354	96N	4528	4	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
45	8ES1354	96N	4528	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
46	8ES1354	96N	4528	6	GLASS	WOUND	COMPLETE	SIMPLE	TUBULAR
47	8ES1354	96N	4529	7	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
48	8ES1354	96N	4529	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
49	8ES1354	96N	4529	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
50	8ES1354	96N	4529	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
51	8ES1354	96N	4529	9	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
52	8ES1354	96N	4529	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
53	8ES1354	96N	4529	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
54	8ES1354	96N	4539	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
55	8ES1354	96N	4549	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
56	8ES1354	96N	4610	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
57	8ES1354	96N	4673	15	GLASS	WOUND	INCOMPLETE	SIMPLE	RASPBERRY
58	8ES1354	96N	4673	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
59	8ES1354	96N	4673	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
60	8ES1354	96N	4673	18	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
61	8ES1354	96N	4673	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
1	2.5B 6/4	AQUA BLUE	TRANSLUCENT	NA	NA	NA
2	5.0B 6/6	ROBIN'S EGG BLUE	TRANSLUCENT	NA	NA	NA
3	10.0YR 7/14	MARIGOLD	OPAQUE	NA	NA	NA
4	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
5	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
6	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
7	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
8	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
9	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
10	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
11	7.5BG 6/6	AQUA GREEN	TRANSLUCENT	NA	NA	NA
12	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
13	7.5G 3/8	DARK EMERALD GREEN	TRANSLUCENT	NA	NA	NA
14	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
15	5.0PB 6/8	TWILIGHT BLUE	TRANSLUCENT	NA	NA	NA
16	5.0PB 3/4	MOONSTONE BLUE	TRANSLUCENT	NA	NA	NA
17	5.0PB 3/4	MOONSTONE BLUE	TRANSLUCENT	NA	NA	NA
18	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
19	N 7	LIGHT GRAY	OPAQUE	NA	NA	NA
20	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
21	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
22	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
23	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
24	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
25	7.5B 4/8	CERULEAN BLUE	TRANSLUCENT	NA	NA	NA
26	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
27	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
28	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
29	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
30	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
31	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
32	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
33	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
34	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
35	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
36	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
37	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
38	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
39	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
40	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
41	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
42	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
43	5.0PB 3/6	MEDIUM BLUE	OPAQUE	NA	NA	NA
44	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
45	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
46	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
47	10.0B 2/4	DARK NAVY	TRANSLUCENT	NA	NA	NA
48	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
49	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
50	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
51	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
52	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
53	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
54	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
55	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
56	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
57	5.0PB 6/8	TWILIGHT BLUE	TRANSLUCENT	NA	NA	NA
58	2.5B 6/7	BRIGHT AQUA BLUE	OPAQUE	NA	NA	NA
59	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
60	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
61	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
1	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
2	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
3	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
4	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
5	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
6	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
7	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
8	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
9	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
10	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
11	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
12	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
13	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
14	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
15	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
16	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
17	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
18	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
19	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
20	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
21	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
22	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
23	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
24	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
25	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
26	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
27	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
28	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
29	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
30	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
31	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
32	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
33	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
34	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
35	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
36	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
37	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
38	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
39	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
40	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
41	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
42	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
43	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
44	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
45	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
46	NA	NA	NA	GROUND	HEAT ROUNDED	GOOD
47	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
48	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
49	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
50	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
51	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
52	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
53	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
54	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
55	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
56	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
57	NA	NA	NA	RASPBERRY	HEAT ROUNDED	FAIR
58	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
59	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
60	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
61	NA	NA	NA	NONE	HEAT ROUNDED	FAIR

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
1	SMALL	1.93	3.24	0.9	IIa
2	SMALL	2.55	3.51	0.9	IIa
3	SMALL	3.63	4.21	1	IIa
4	SMALL	2.2	3.09	0.8	IIa
5	SMALL	1.59	2.96	0.9	IIa
6	SMALL	2.32	3.81	1	IIa
7	SMALL	2.04	3.08	1	IVa
8	SMALL	1.78	2.98	1.2	IIa
9	MEDIUM	3.29	5.03	1.9	IIa
10	SMALL	2.25	3.05	0.7	IIa
11	SMALL	1.54	3.19	1	IIa
12	SMALL	2.12	3.24	1	IVa
13	VERY SMALL	1.41	2.22	0.9	IIa
14	MEDIUM	NA	5.65	2.1	WIb
15	SMALL	1.31	2.83	1.9	IIa
16	SMALL	1.94	3.54	0.9	IIa
17	SMALL	2.07	3.08	0.8	IIa
18	MEDIUM	3.4	4.93	1.5	IIa
19	SMALL	2.22	3.24	0.8	IIa
20	SMALL	1.76	2.7	0.7	IIa
21	SMALL	1.7	2.92	0.6	IIa
22	SMALL	1.74	2.98	0.9	IIa
23	SMALL	1.48	3.41	1	IIa
24	SMALL	1.7	2.96	0.8	IIa
25	LARGE	13.36	9.9	1.9	IIa
26	SMALL	2.31	4.06	0.9	IIa
27	SMALL	2.57	3.2	0.8	IIa
28	SMALL	2.31	3.78	1	IIa
29	SMALL	2.42	3.69	1.2	IIa
30	SMALL	2.24	4.02	1.2	IIa
31	SMALL	3.6	4.3	0.7	IIa
32	SMALL	1.95	3.22	0.9	IIa
33	SMALL	1.9	3.25	1	IIa
34	SMALL	1.93	3.6	1.1	IIa
35	MEDIUM	3.83	5.22	1.9	IIa
36	SMALL	2.12	3.24	1	IVa
37	MEDIUM	6.53	5.46	1.7	WIIj
38	SMALL	2.3	3.6	0.5	IIa
39	MEDIUM	6.85	4.77	1.7	WIIj
40	SMALL	2.71	2.93	0.9	IIa
41	SMALL	2.34	2.92	0.9	IIa
42	SMALL	1.52	2.47	1.2	IIa
43	SMALL	2.79	3.78	0.9	IIa
44	SMALL	2.08	4.07	1.1	IIa
45	SMALL	2.43	4.15	1	IIa
46	LARGE	12.59	6.5	1.6	WIb
47	LARGE	9.34	7.26	2.5	IIa
48	SMALL	2.17	3.52	0.8	IIa
49	SMALL	2.42	4.05	1	IIa
50	SMALL	2.6	3.38	0.9	IIa
51	MEDIUM	6.13	4.87	1.7	WIIj
52	SMALL	2.04	2.3	1	IIa
53	MEDIUM	4.39	6.45	1.3	IIa
54	SMALL	2.17	4.12	1	IIa
55	SMALL	2.09	3.71	1.2	IIa
56	SMALL	1.68	3.3	1	IIa
57	LARGE	NA	NA	NA	WIId
58	SMALL	1.75	3.35	0.9	IIa
59	SMALL	1.63	2.83	0.9	IIa
60	SMALL	1.26	3.3	1	IIa
61	SMALL	2.41	3.21	0.7	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
62	8ES1354	96N	4673	19	GLASS	DRAWN	BROKEN	SIMPLE	CYLINDRICAL
63	8ES1354	96N	4674	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
64	8ES1354	96N	4674	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
65	8ES1354	96N	4674	9	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
66	8ES1354	96N	4717	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
67	8ES1354	96N	4720	7	GLASS	WOUND	INCOMPLETE	SIMPLE	MELON
68	8ES1354	96N	4720	7	GLASS	WOUND	INCOMPLETE	SIMPLE	MELON
69	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
70	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
71	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
72	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
73	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
74	8ES1354	96N	4795	13	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
75	8ES1354	96N	4795	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
76	8ES1354	96N	4796	4	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
77	8ES1354	96N	4796	9	GLASS	DRAWN	MENDED	COMPLEX	OVOID
78	8ES1354	96N	4797	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
79	8ES1354	96N	4797	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
80	8ES1354	96N	4798	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
81	8ES1354	96N	4798	9	GLASS	DRAWN	INCOMPLETE	COMPLEX	OVOID
82	8ES1354	96N	4801	4	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
83	8ES1354	96N	4801	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
84	8ES1354	96N	4801	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
85	8ES1354	96N	4801	7	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
86	8ES1354	96N	4819	4	GLASS	DRAWN	INCOMPLETE	COMPOUND	CYLINDRICAL
87	8ES1354	96N	4821	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
88	8ES1354	96N	4845	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
89	8ES1354	96N	4847	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
90	8ES1354	96N	4848	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
91	8ES1354	96N	4848	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
92	8ES1354	96N	4848	13	GLASS	DRAWN	COMPLETE	COMPOUND	TOROIDAL
93	8ES1354	96N	4849	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
94	8ES1354	96N	4849	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
95	8ES1354	96N	4849	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
96	8ES1354	96N	4849	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
97	8ES1354	96N	4849	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
98	8ES1354	96N	4849	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
99	8ES1354	96N	4849	19	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
100	8ES1354	96N	4850	52	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
101	8ES1354	96N	4850	52	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
102	8ES1354	96N	4850	53	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
103	8ES1354	96N	4850	58	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
104	8ES1354	96N	4877	15	GLASS	WOUND	COMPLETE	SIMPLE	SUBSPHERICAL
105	8ES1354	96N	4877	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
106	8ES1354	96N	4878	3	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
107	8ES1354	96N	4878	5	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
108	8ES1354	96N	4878	5	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
109	8ES1354	96N	4878	6	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
110	8ES1354	96N	4878	6	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
111	8ES1354	96N	4878	6	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
112	8ES1354	96N	4888	17	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
113	8ES1354	96N	4888	17	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
114	8ES1354	96N	4888	17	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
115	8ES1354	96N	4888	17	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
116	8ES1354	96N	4888	17	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
117	8ES1354	96N	4888	18	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
118	8ES1354	96N	4888	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
119	8ES1354	96N	4891	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
120	8ES1354	96N	4891	11	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
121	8ES1354	96N	4900	10	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
122	8ES1354	96N	4900	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
62	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
63	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
64	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
65	2.5G 7/8	BRIGHT MINT GREEN	TRANSLUCENT	NA	NA	NA
66	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
67	5.0Y 8/10	DAFFODIL	TRANSLUCENT	NA	NA	NA
68	5.0Y 8/10	DAFFODIL	TRANSLUCENT	NA	NA	NA
69	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
70	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
71	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
72	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
73	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
74	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
75	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
76	NA	CLEAR	TRANSPARENT	NA	NA	NA
77	N 8	OYSTER WHITE	OPAQUE	5.0PB 6/8	TWILIGHT BLUE	TRANSLUCENT
78	10GY 4/6	DARK PALM GREEN	TRANSLUCENT	NA	NA	NA
79	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
80	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
81	2.5PB 5/2	DUSTY BLUE	OPAQUE	N 9.5	BRIGHT WHITE	OPAQUE
82	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
83	10GY 4/6	DARK PALM GREEN	TRANSLUCENT	NA	NA	NA
84	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
85	7.5R 2/6	MAHOGANY	TRANSLUCENT	NA	NA	NA
86	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
87	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
88	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
89	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
90	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
91	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
92	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
93	2.5PB 5/4	SHADOW BLUE	OPAQUE	NA	NA	NA
94	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
95	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
96	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
97	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
98	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
99	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
100	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
101	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
102	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
103	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
104	NA	CLEAR	TRANSPARENT	NA	NA	NA
105	NA	CLEAR	TRANSPARENT	NA	NA	NA
106	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
107	10.0B 5/6	HORIZON BLUE	TRANSLUCENT	NA	NA	NA
108	2.5B 6/4	AQUA BLUE	TRANSLUCENT	NA	NA	NA
109	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
110	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
111	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
112	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
113	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
114	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
115	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
116	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
117	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
118	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
119	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
120	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
121	N 9.5	BRIGHT WHITE	TRANSLUCENT	NA	NA	NA
122	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
62	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
63	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
64	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
65	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
66	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
67	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
68	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
69	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
70	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
71	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
72	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
73	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
74	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
75	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
76	NA	NA	NA	FACETED	HEAT ROUNDED	FAIR
77	NA	NA	NA	STRIPED	HEAT ROUNDED	FAIR
78	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
79	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
80	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
81	10.0R 4/8	REDWOOD	OPAQUE	STRIPED	HEAT ROUNDED	GOOD
82	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
83	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
84	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
85	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
86	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
87	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
88	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
89	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
90	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
91	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
92	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
93	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
94	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
95	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
96	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
97	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
98	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
99	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
100	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
101	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
102	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
103	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
104	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
105	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
106	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
107	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
108	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
109	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
110	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
111	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
112	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
113	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
114	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
115	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
116	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
117	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
118	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
119	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
120	NA	NA	NA	FACETED	HEAT ROUNDED	FAIR
121	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
122	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
62	LARGE	6.47	7.1	1.8	IIa
63	SMALL	1.71	2.31	0.8	IIa
64	SMALL	1.37	2.57	0.9	IIa
65	SMALL	1.06	2.33	0.8	IIa
66	SMALL	2.08	3.67	0.9	IIa
67	MEDIUM	4.4	4.96	1.4	WIIe
68	MEDIUM	4.41	4.71	1.4	WIIe
69	SMALL	2.42	3.13	0.8	IIa
70	SMALL	1.69	3.46	0.9	IIa
71	SMALL	2.42	3.48	0.8	IIa
72	SMALL	1.66	3.13	0.8	IIa
73	SMALL	1.9	2.63	0.6	IIa
74	SMALL	1.39	2.89	0.8	IIa
75	SMALL	1.87	3.02	0.8	Iia
76	LARGE	8.23	10.26	3.2	WIIj
77	LARGE	14.04	5.55	1.5	IIb
78	SMALL	2.15	3.11	0.9	IIa
79	SMALL	2.02	2.95	0.7	IIa
80	SMALL	2.42	3.97	0.8	IIa
81	LARGE	NA	8.84	2.7	IIbb
82	SMALL	1	3.07	1	IIa
83	SMALL	2.07	2.97	0.7	IIa
84	SMALL	1.96	3.11	1.1	IIa
85	SMALL	0.98	2.76	0.9	IIa
86	SMALL	NA	NA	NA	IVa
87	SMALL	1.72	2.85	0.8	IIa
88	VERY SMALL	1.58	2.16	0.9	IIa
89	SMALL	2.38	3.58	0.9	IIa
90	SMALL	2.05	3.82	1.2	IIa
91	SMALL	2.17	3.89	0.9	IIa
92	SMALL	1.26	3.84	1.1	IVa
93	MEDIUM	3.17	5.21	1.1	IIa
94	SMALL	2.14	3.46	1	IIa
95	SMALL	2.29	4.03	1.1	IIa
96	SMALL	2.41	4.11	1.1	IIa
97	SMALL	2.57	3.66	1.1	IIa
98	SMALL	2.11	3.3	0.8	IIa
99	SMALL	1.86	3.48	1	IVa
100	SMALL	2.08	3.4	0.9	IIa
101	SMALL	1.99	3.13	0.9	IIa
102	SMALL	1.02	3.03	1	IIa
103	SMALL	2.28	3.13	1.3	IIa
104	LARGE	8.88	11.2	3.1	WIIj
105	SMALL	1.55	3.02	1.1	IIa
106	SMALL	2.5	3.66	1	IVa
107	SMALL	1.32	2.69	0.7	IIa
108	SMALL	1.05	2.46	0.6	IIa
109	SMALL	1.16	2.85	0.9	IIa
110	SMALL	1.12	2.2	0.8	IIa
111	SMALL	1.26	2.95	0.6	IIa
112	SMALL	2.47	3.46	0.9	IVa
113	SMALL	1.77	3.36	0.7	IVa
114	SMALL	1.78	3.46	0.7	IVa
115	SMALL	2.29	3.4	0.8	IVa
116	SMALL	2.04	3.25	0.9	IVa
117	SMALL	1.47	3.54	1.1	IIa
118	SMALL	2.16	4.11	1.2	IIa
119	SMALL	2.12	3.77	1.2	IIa
120	MEDIUM	4.91	4.85	1.3	WIIj
121	SMALL	1.34	2.51	0.7	IIa
122	SMALL	2.13	3.94	1.2	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
123	8ES1354	96N	4900	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
124	8ES1354	96N	4900	12	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
125	8ES1354	96N	4900	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
126	8ES1354	96N	4905	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
127	8ES1354	96N	4905	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
128	8ES1354	96N	4905	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
129	8ES1354	96N	4905	25	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
130	8ES1354	96N	4906	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
131	8ES1354	96N	4906	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
132	8ES1354	96N	4906	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
133	8ES1354	96N	4906	10	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
134	8ES1354	96N	4906	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
135	8ES1354	96N	4906	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
136	8ES1354	96N	4906	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
137	8ES1354	96N	4907	4	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
138	8ES1354	96N	4907	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
139	8ES1354	96N	4907	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
140	8ES1354	96N	4912	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
141	8ES1354	96N	4920	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
142	8ES1354	96N	4920	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
143	8ES1354	96N	4920	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
144	8ES1354	96N	4923	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
145	8ES1354	96N	4923	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
146	8ES1354	96N	4923	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
147	8ES1354	96N	4923	3	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
148	8ES1354	96N	4934	096	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
149	8ES1354	96N	4934	097	GLASS	DRAWN	COMPLETE	COMPOUND	TOROIDAL
150	8ES1354	96N	4934	097	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
151	8ES1354	96N	4934	098	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
152	8ES1354	96N	4934	099	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
153	8ES1354	96N	4934	100	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
154	8ES1354	96N	4934	100	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
155	8ES1354	96N	4934	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
156	8ES1354	96N	4934	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
157	8ES1354	96N	4934	101	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
158	8ES1354	96N	4934	102	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
159	8ES1354	96N	4934	103	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
160	8ES1354	96N	4934	104	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
161	8ES1354	96N	4934	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
162	8ES1354	96N	4934	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
163	8ES1354	96N	4934	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
164	8ES1354	96N	4934	107	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
165	8ES1354	96N	4934	107	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
166	8ES1354	96N	4934	108	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
167	8ES1354	96N	4934	108	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
168	8ES1354	96N	4934	108	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
169	8ES1354	96N	4934	108	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
170	8ES1354	96N	4934	108	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
171	8ES1354	96N	4934	109	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
172	8ES1354	96N	4935	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
173	8ES1354	96N	4935	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
174	8ES1354	96N	4935	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
175	8ES1354	96N	4935	11	GLASS	WOUND	INCOMPLETE	SIMPLE	CYLINDRICAL
176	8ES1354	96N	4935	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
177	8ES1354	96N	4935	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
178	8ES1354	96N	4935	26	GLASS	DRAWN	INCOMPLETE	SIMPLE	OVOID
179	8ES1354	96N	4936	11	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
180	8ES1354	96N	4936	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
181	8ES1354	96N	4936	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
182	8ES1354	96N	4936	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
183	8ES1354	96N	4936	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
123	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
124	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
125	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
126	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
127	2.5GY 7/10	BRIGHT CHARTREUSE	OPAQUE	NA	NA	NA
128	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
129	7.5B 6/4	LIGHT BLUE	TRANSLUCENT	NA	NA	NA
130	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
131	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
132	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
133	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
134	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
135	2.5GY 7/10	BRIGHT CHARTREUSE	TRANSLUCENT	NA	NA	NA
136	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
137	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
138	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
139	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
140	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
141	2.5G 7/8	BRIGHT MINT GREEN	TRANSLUCENT	NA	NA	NA
142	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
143	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
144	5.0PB 4/4	LIGHT NAVY	TRANSLUCENT	NA	NA	NA
145	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
146	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
147	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
148	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
149	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
150	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
151	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
152	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
153	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
154	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
155	7.5B 6/4	LIGHT BLUE	TRANSLUCENT	NA	NA	NA
156	7.5B 6/4	LIGHT BLUE	TRANSLUCENT	NA	NA	NA
157	7.5B 6/4	LIGHT BLUE	TRANSLUCENT	NA	NA	NA
158	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
159	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
160	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
161	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
162	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
163	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
164	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
165	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
166	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
167	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
168	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
169	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
170	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
171	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
172	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
173	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
174	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
175	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
176	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
177	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
178	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
179	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
180	2.5Y 7/8	LIGHT GOLD	OPAQUE	NA	NA	NA
181	2.5Y 7/8	LIGHT GOLD	OPAQUE	NA	NA	NA
182	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
183	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
123	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
124	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
125	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
126	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
127	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
128	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
129	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
130	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
131	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
132	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
133	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
134	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
135	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
136	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
137	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
138	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
139	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
140	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
141	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
142	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
143	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
144	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
145	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
146	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
147	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
148	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
149	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
150	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
151	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
152	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
153	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
154	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
155	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
156	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
157	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
158	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
159	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
160	NA	NA	NA	NONE	NA	GOOD
161	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
162	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
163	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
164	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
165	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
166	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
167	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
168	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
169	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
170	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
171	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
172	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
173	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
174	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
175	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
176	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
177	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
178	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
179	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
180	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
181	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
182	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
183	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
123	SMALL	2.26	3.9	1	IIa
124	SMALL	2.23	3.44	1	IVa
125	SMALL	2.14	4.44	2.1	IIa
126	SMALL	2.58	4.25	1.5	IIa
127	SMALL	2.41	4.05	1.5	IIa
128	LARGE	7.26	9.22	2.4	IIa
129	SMALL	2.15	2.92	0.7	IIa
130	SMALL	2.7	3.84	0.7	IIa
131	SMALL	2.37	3	0.9	IIa
132	SMALL	2.36	3.2	0.6	IIa
133	MEDIUM	7.28	5.49	1.4	WIc
134	SMALL	2.16	3.16	0.9	IVa
135	MEDIUM	2.61	4.71	1.1	IIa
136	SMALL	2.81	3.58	0.8	IIa
137	SMALL	0.87	2.71	1	IIa
138	SMALL	1.88	3.25	1	IIa
139	SMALL	1.93	2.95	0.6	IIa
140	LARGE	7.55	7.17	1.4	IIa
141	SMALL	1.68	2.77	0.7	IIa
142	SMALL	1.41	2.61	0.6	IIa
143	SMALL	1.34	3.39	0.9	IIa
144	SMALL	2.13	3.05	1	IIa
145	SMALL	2.2	3.96	1.4	IIa
146	SMALL	1.53	3.2	0.9	IIa
147	SMALL	1.1	3.05	1	IIa
148	LARGE	11.5	6.29	1.7	IIa
149	SMALL	1.28	3.64	1.2	IVa
150	SMALL	2.29	3.3	1	IVa
151	LARGE	6.13	7.33	1.4	IIa
152	SMALL	2.46	4.33	1	IIa
153	SMALL	2.03	3.37	1.1	IIa
154	SMALL	2.16	3.28	0.7	IIa
155	SMALL	2.2	2.95	0.7	IIa
156	SMALL	1.17	2.54	0.9	IIa
157	SMALL	NA	NA	NA	IIa
158	SMALL	0.76	2.34	0.8	IIa
159	SMALL	2.27	3.71	1	IIa
160	SMALL	5.34	2.48	1	Ia
161	SMALL	1.89	3.12	0.9	IIa
162	SMALL	1.38	2.94	0.7	IIa
163	SMALL	1.43	2.66	0.7	IIa
164	VERY SMALL	1.59	2.36	0.6	IIa
165	VERY SMALL	1.68	2.32	0.6	IIa
166	SMALL	2.23	3.33	0.7	IIa
167	SMALL	2.28	3.34	0.7	IIa
168	SMALL	2.11	3.16	0.6	IIa
169	SMALL	2.23	2.96	0.8	IIa
170	SMALL	1.1	3.13	1.2	IIa
171	VERY SMALL	0.98	1.93	0.5	IIa
172	LARGE	5.43	7.91	1.5	IIa
173	LARGE	5.48	7.1	1.5	IIa
174	LARGE	4.75	6.69	1.5	IIa
175	MEDIUM	NA	4.86	1.7	WIIj
176	SMALL	2.21	3.78	0.9	IIa
177	SMALL	1.74	3.71	0.9	IIa
178	LARGE	NA	7.15	1.4	IIa
179	LARGE	11.09	6.8	1.7	IIa
180	MEDIUM	2.92	4.5	1.2	IIa
181	MEDIUM	2.86	4.39	1.2	IIa
182	MEDIUM	5.39	6.68	1.4	IIa
183	LARGE	5.03	8.64	2.3	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
184	8ES1354	96N	4936	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
185	8ES1354	96N	4936	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
186	8ES1354	96N	4936	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
187	8ES1354	96N	4936	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
188	8ES1354	96N	4937	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
189	8ES1354	96N	4937	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
190	8ES1354	96N	4937	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
191	8ES1354	96N	4937	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
192	8ES1354	96N	4937	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
193	8ES1354	96N	4937	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
194	8ES1354	96N	4997	22	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
195	8ES1354	96N	4997	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
196	8ES1354	96N	4998	10	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
197	8ES1354	96N	5001	5	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
198	8ES1354	96N	5002	11	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
199	8ES1354	96N	5002	12	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
200	8ES1354	96N	5003	04	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
201	8ES1354	96N	5007	4	GLASS	WOUND	COMPLETE	SIMPLE	RASPBERRY
202	8ES1354	96N	5009	4	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
203	8ES1354	96N	5052	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
204	8ES1354	96N	5061	09	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
205	8ES1354	96N	5100	12	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
206	8ES1354	96N	5101	14	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
207	8ES1354	97N	6120	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
208	8ES1354	97N	6147	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
209	8ES1354	97N	6147	13	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
210	8ES1354	97N	6150	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
211	8ES1354	97N	6150	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
212	8ES1354	98N	6590	7	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
213	8ES1354	98N	6995	98	GLASS	DRAWN	INCOMPLETE	COMPOUND	OVOID
214	8ES1354	98N	6995	99	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
215	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
216	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
217	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
218	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
219	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
220	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
221	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
222	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
223	8ES1354	98N	6995	101	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
224	8ES1354	98N	6995	102	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
225	8ES1354	98N	6995	103	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
226	8ES1354	98N	6995	103	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
227	8ES1354	98N	6995	104	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
228	8ES1354	98N	6995	104	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
229	8ES1354	98N	6995	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
230	8ES1354	98N	6995	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
231	8ES1354	98N	6995	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
232	8ES1354	98N	6995	105	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
233	8ES1354	98N	6995	105	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
234	8ES1354	98N	6995	106	GLASS	NA	BROKEN	SIMPLE	NA
235	8ES1354	98N	6996	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
236	8ES1354	98N	6996	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
237	8ES1354	98N	6997	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
238	8ES1354	98N	6997	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
239	8ES1354	98N	6997	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
240	8ES1354	98N	6997	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
241	8ES1354	98N	6997	14	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
242	8ES1354	98N	7156	6	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
243	8ES1354	98N	7164	15	GLASS	DRAWN	INCOMPLETE	COMPOUND	CYLINDRICAL
244	8ES1354	98N	7164	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
184	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
185	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
186	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
187	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
188	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
189	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
190	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
191	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
192	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
193	10.0B 6/3	MIST BLUE	OPAQUE	NA	NA	NA
194	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
195	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
196	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
197	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
198	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
199	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
200	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
201	NA	CLEAR	TRANSLUCENT	NA	NA	NA
202	NA	CLEAR	TRANSPARENT	N 9.5	BRIGHT WHITE	OPAQUE
203	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
204	NA	CLEAR	TRANSPARENT	N 9.5	BRIGHT WHITE	OPAQUE
205	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
206	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
207	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
208	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
209	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
210	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
211	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
212	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
213	N 9.5	BRIGHT WHITE	OPAQUE	7.5R 6/12	RIGHT CORAL ROS	OPAQUE
214	10.0Y 7/5	CITRON	OPAQUE		NA	NA
215	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
216	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
217	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
218	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
219	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
220	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
221	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
222	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
223	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
224	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
225	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
226	10.0R 4/8	REDWOOD	OPAQUE	10.0R 2/4	DEEP RED BROWN	TRANSLUCENT
227	7.5B 7/6	LIGHT SKY BLUE	TRANSLUCENT	NA	NA	NA
228	7.5B 7/6	LIGHT SKY BLUE	TRANSLUCENT	NA	NA	NA
229	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
230	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
231	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
232	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
233	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
234	10.0R 3/8	BARN RED	NA	NA	NA	NA
235	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
236	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
237	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
238	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
239	10.0R 5/6	RUST TAN	TRANSLUCENT	NA	NA	NA
240	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
241	10.0YR 5/8	BUTTERSCOTCH	OPAQUE	NA	NA	NA
242	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
243	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
244	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
184	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
185	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
186	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
187	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
188	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
189	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
190	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
191	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
192	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
193	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
194	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
195	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
196	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
197	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
198	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
199	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
200	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
201	NA	NA	NA	RASPBERRY	HEAT ROUNDED	FAIR
202	NA	NA	NA	STRIPED	HEAT ROUNDED	GOOD
203	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
204	NA	NA	NA	STRIPED	HEAT ROUNDED	FAIR
205	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
206	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
207	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
208	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
209	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
210	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
211	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
212	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
213	5.0PB 4/10	BRIGHT COPEN BLUE	NA	)MPOUND STRIP	HEAT ROUNDED	GOOD
214	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
215	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
216	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
217	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
218	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
219	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
220	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
221	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
222	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
223	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
224	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
225	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
226	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
227	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
228	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
229	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
230	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
231	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
232	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
233	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
234	NA	NA	NA	NONE	NA	POOR
235	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
236	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
237	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
238	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
239	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
240	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
241	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
242	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
243	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
244	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
184	LARGE	6.17	7.19	1.9	IIa
185	SMALL	2.34	3.64	1	IIa
186	SMALL	2.46	3.95	1.4	IIa
187	SMALL	1.94	3.46	1.2	IIa
188	SMALL	2.3	3.13	1.2	IIa
189	SMALL	2.42	2.89	0.7	IIa
190	VERY SMALL	1.29	2.34	0.5	IIa
191	SMALL	2.32	3.23	1	IIa
192	SMALL	2.23	4.15	1.3	IIa
193	SMALL	1.72	2.64	1.2	IIa
194	SMALL	1.86	3.2	1	IIa
195	SMALL	3.09	3.29	0.9	IIa
196	SMALL	1.78	3.69	1.2	IIa
197	SMALL	1.92	2.93	1	IIa
198	SMALL	2.13	3.88	1.3	IIa
199	MEDIUM	11.84	6.08	1.6	IIa
200	SMALL	1.22	2.89	1	IIa
201	LARGE	9.02	10.4	3.2	WIId
202	SMALL	3.03	4.4	1.5	IIb
203	SMALL	2.3	3.31	1.2	IIa
204	SMALL	2.49	3.97	1.1	IIb
205	MEDIUM	4.7	5.64	1.7	WIIj
206	SMALL	2.24	3.65	1	IVa
207	SMALL	1.33	2.85	1	IIa
208	SMALL	1.83	3.16	0.8	IIa
209	SMALL	1.01	3.08	0.8	IIa
210	SMALL	1.79	3.27	0.9	IIa
211	SMALL	2.17	3.27	0.8	IIa
212	SMALL	0.79	4.14	1.2	IIa
213	LARGE	11.13	8.9	2.2	IIbb
214	SMALL	2.59	4.03	1.5	IIa
215	SMALL	2.86	3.42	1	IIa
216	SMALL	2.16	3.46	1	IIa
217	SMALL	2.3	3.09	0.9	IIa
218	SMALL	1.84	2.94	0.8	IIa
219	SMALL	1.66	3	1	IIa
220	SMALL	1.67	2.71	0.8	IIa
221	SMALL	1.72	2.77	0.7	IIa
222	SMALL	1.62	3.09	0.9	IIa
223	SMALL	1.71	3.02	1	IIa
224	SMALL	3	2.99	1.3	IIf
225	SMALL	2.2	3.3	0.5	IVa
226	SMALL	2.34	3.07	1	IVa
227	SMALL	1.52	2.91	0.7	IIa
228	SMALL	NA	NA	NA	IIa
229	SMALL	2.3	3.53	1.1	IIa
230	SMALL	2.55	3.17	0.9	IIa
231	SMALL	1.85	3.7	1.2	IIa
232	SMALL	2.03	3.23	0.8	IIa
233	SMALL	0.94	2.63	0.8	IIa
234	SMALL	NA	NA	NA	NA
235	SMALL	1.89	3.29	0.9	IIa
236	SMALL	1.65	2.86	1	IIa
237	SMALL	1.85	2.92	0.7	IIa
238	SMALL	1.58	3.08	1	IIa
239	SMALL	1.76	3.24	0.9	IIa
240	MEDIUM	4.92	4.25	1.6	IIf
241	SMALL	5.25	3.04	1	IIa
242	SMALL	1.66	3.43	0.9	IVa
243	SMALL	NA	NA	NA	IVa
244	SMALL	1.64	3.03	0.9	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
245	8ES1354	98N	7164	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
246	8ES1354	98N	7164	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
247	8ES1354	98N	7200	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
248	8ES1354	98N	7200	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
249	8ES1354	98N	7200	14	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
250	8ES1354	98N	7281	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
251	8ES1354	98N	7284	23	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
252	8ES1354	98N	7284	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
253	8ES1354	98N	7285	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
254	8ES1354	98N	7292	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
255	8ES1354	98N	7332	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
256	8ES1354	98N	7334	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
257	8ES1354	98N	7338	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
258	8ES1354	98N	7338	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
259	8ES1354	98N	7338	8	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
260	8ES1354	98N	7341	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
261	8ES1354	98N	7346	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
262	8ES1354	98N	7351	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
263	8ES1354	98N	7360	25	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
264	8ES1354	98N	7360	26	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
265	8ES1354	98N	7360	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
266	8ES1354	98N	7360	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
267	8ES1354	98N	7456	9	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
268	8ES1354	98N	7456	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
269	8ES1354	98N	7456	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
270	8ES1354	98N	7456	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
271	8ES1354	98N	7456	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
272	8ES1354	98N	7456	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
273	8ES1354	98N	7456	13	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
274	8ES1354	98N	7457	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
275	8ES1354	98N	7459	14	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
276	8ES1354	98N	7462	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
277	8ES1354	98N	7462	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
278	8ES1354	98N	7462	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
279	8ES1354	98N	7470	20	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
280	8ES1354	98N	7470	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
281	8ES1354	98N	7470	23	GLASS	WOUND	COMPLETE	COMPOUND	SUB-DISK
282	8ES1354	98N	7471	44	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
283	8ES1354	98N	7471	46	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
284	8ES1354	98N	7471	46	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
285	8ES1354	98N	7520	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
286	8ES1354	98N	7693	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
287	8ES1354	98N	7710	29	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
288	8ES1354	98N	7711	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
289	8ES1354	98N	7712	9	GLASS	WOUND	COMPLETE	SIMPLE	MELON
290	8ES1354	98N	7713	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
291	8ES1354	98N	7715	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
292	8ES1354	98N	7715	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
293	8ES1354	98N	7715	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
294	8ES1354	98N	7743	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
295	8ES1354	98N	7744	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
296	8ES1354	98N	7745	41	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
297	8ES1354	98N	7745	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
298	8ES1354	98N	7745	42	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
299	8ES1354	98N	7759	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
300	8ES1354	98N	7760	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
301	8ES1354	98N	7760	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
302	8ES1354	98N	7760	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
303	8ES1354	98N	7761	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
304	8ES1354	98N	7761	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
305	8ES1354	98N	7761	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
245	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
246	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
247	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
248	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
249	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
250	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
251	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
252	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
253	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
254	10.0B 6/3	MIST BLUE	OPAQUE	NA	NA	NA
255	2.5G 7/8	BRIGHT MINT GREEN	TRANSLUCENT	NA	NA	NA
256	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
257	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
258	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
259	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
260	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
261	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
262	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
263	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
264	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
265	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
266	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
267	10.0YR 5/8	BUTTERSCOTCH	TRANSLUCENT	NA	NA	NA
268	7.5GY 5/8	FOLIAGE	OPAQUE	NA	NA	NA
269	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
270	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
271	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
272	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
273	5.0YR 2/4	FAWN	OPAQUE	NA	NA	NA
274	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
275	10.0R 4/8	REDWOOD	OPAQUE	10.0R 2/4	DEEP RED BROWN	TRANSLUCENT
276	7.5GY 5/8	FOLIAGE	TRANSLUCENT	NA	NA	NA
277	7.5GY 5/8	FOLIAGE	TRANSLUCENT	NA	NA	NA
278	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
279	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
280	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
281	2.5PB 5/4	SHADOW BLUE	TRANSLUCENT	NA	NA	NA
282	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
283	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
284	7.5GY 6/6	LEAF GREEN	OPAQUE	NA	NA	NA
285	10.0B 6/3	MIST BLUE	TRANSLUCENT	NA	NA	NA
286	2.5B 6/7	BRIGHT AQUA BLUE	OPAQUE	NA	NA	NA
287	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
288	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
289	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
290	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
291	7.5GY 5/8	FOLIAGE	OPAQUE	NA	NA	NA
292	7.5YR 4/4	MAPLE	OPAQUE	NA	NA	NA
293	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
294	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
295	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
296	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
297	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
298	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
299	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
300	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
301	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
302	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
303	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
304	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
305	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
245	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
246	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
247	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
248	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
249	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
250	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
251	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
252	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
253	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
254	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
255	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
256	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
257	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
258	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
259	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
260	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
261	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
262	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
263	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
264	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
265	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
266	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
267	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
268	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
269	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
270	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
271	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
272	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
273	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
274	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
275	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
276	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
277	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
278	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
279	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
280	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
281	NA	NA	NA	INLAID	HEAT ROUNDED	GOOD
282	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
283	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
284	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
285	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
286	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
287	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
288	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
289	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
290	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
291	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
292	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
293	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
294	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
295	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
296	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
297	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
298	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
299	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
300	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
301	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
302	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
303	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
304	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
305	NA	NA	NA	NONE	HEAT ROUNDED	FAIR

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
245	SMALL	1.84	2.74	0.7	IIa
246	SMALL	1.56	2.91	0.9	IIa
247	SMALL	2.59	3.31	0.9	IIa
248	LARGE	5.65	8.11	2.1	IIa
249	LARGE	6.44	7.41	1.8	IIa
250	SMALL	1.85	3.09	0.9	IIa
251	SMALL	1.26	2.69	1	IIa
252	SMALL	2.42	3.45	0.9	IIa
253	SMALL	1.44	2.77	0.8	IIa
254	SMALL	1.68	3.02	0.8	IIa
255	SMALL	1.97	2.53	1	IIa
256	SMALL	2.36	3.33	0.8	IIa
257	SMALL	1.93	2.95	1.2	IIa
258	SMALL	2.41	3.7	1.1	IIa
259	SMALL	1.67	3.47	1.1	IVa
260	MEDIUM	6.21	5.25	1.5	IIf
261	SMALL	2.47	3.23	0.8	IIa
262	VERY SMALL	1.3	1.8	0.4	IIa
263	MEDIUM	6.71	4.49	1.9	IIf
264	MEDIUM	4.52	5.69	1.5	IIa
265	SMALL	1.99	4.26	1.2	IIa
266	SMALL	2.3	3.75	0.8	IIa
267	SMALL	4.88	3.97	0.9	IIa
268	SMALL	1.66	2.93	1	IIa
269	SMALL	2.58	3.64	0.9	IVa
270	SMALL	2.21	3.52	1.1	IIa
271	SMALL	1.9	2.86	0.9	IIa
272	SMALL	1.71	3.03	1	IIa
273	SMALL	0.97	2.67	0.8	IIa
274	SMALL	3.55	3.95	0.7	IIa
275	SMALL	2.55	3.7	0.7	IVa
276	SMALL	2.15	2.8	0.6	IIa
277	SMALL	1.51	2.73	0.9	IIa
278	SMALL	2.27	3.39	0.9	IIa
279	MEDIUM	3.09	4.92	1.5	IVa
280	SMALL	2.73	3.72	1.1	IIa
281	LARGE	16.2	19.46	2.4	WIIIc
282	SMALL	2.33	4.01	1	IIa
283	SMALL	1.52	2.93	0.9	IIa
284	SMALL	1.62	2.53	0.8	IIa
285	SMALL	1.98	3.59	1.2	IIa
286	SMALL	2.35	3.65	0.8	IIa
287	MEDIUM	2.98	5.69	1.9	IIa
288	SMALL	2.84	3.52	1.2	IIa
289	LARGE	5.21	6.77	1.8	WIIe
290	SMALL	1.88	3.35	0.8	IIa
291	SMALL	1.43	2.95	1.3	IIa
292	SMALL	2.14	3.19	0.7	IIa
293	SMALL	1.76	2.94	0.9	IIa
294	SMALL	2.43	2.84	0.7	IIa
295	SMALL	1.64	2.64	0.6	IIa
296	SMALL	2.71	3.55	1.1	IIa
297	SMALL	2.17	4.09	1.3	IIa
298	SMALL	1.01	3.22	1.2	IIa
299	SMALL	2.58	3.15	0.7	IIa
300	SMALL	2.58	3.65	0.9	IIa
301	SMALL	2.02	3.29	0.9	IIa
302	SMALL	1.47	3.09	1	IIa
303	SMALL	3.02	4.66	1	IIa
304	SMALL	1.19	2.75	1	IIa
305	VERY SMALL	0.89	2.33	0.6	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
306	8ES1354	98N	7761	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
307	8ES1354	98N	7762	1	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
308	8ES1354	98N	7762	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
309	8ES1354	98N	7762	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
310	8ES1354	98N	7767	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
311	8ES1354	98N	7767	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
312	8ES1354	98N	7767	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
313	8ES1354	98N	7768	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
314	8ES1354	98N	7768	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
315	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
316	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
317	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
318	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
319	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
320	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
321	8ES1354	98N	7768	30	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
322	8ES1354	98N	7768	31	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
323	8ES1354	98N	7768	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
324	8ES1354	98N	7768	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
325	8ES1354	98N	7768	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
326	8ES1354	98N	7768	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
327	8ES1354	98N	7769	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
328	8ES1354	98N	7769	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
329	8ES1354	98N	7769	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
330	8ES1354	98N	7769	4	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
331	8ES1354	98N	7769	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
332	8ES1354	98N	7770	2	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
333	8ES1354	98N	7770	3	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
334	8ES1354	98N	7790	37	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
335	8ES1354	98N	7800	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
336	8ES1354	98N	7800	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
337	8ES1354	98N	7802	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
338	8ES1354	98N	7802	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
339	8ES1354	98N	7802	19	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
340	8ES1354	98N	7825	29	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
341	8ES1354	98N	7842	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
342	8ES1354	98N	7843	6	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
343	8ES1354	98N	7844	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
344	8ES1354	98N	7844	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
345	8ES1354	98N	7844	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
346	8ES1354	98N	7844	11	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
347	8ES1354	98N	7844	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
348	8ES1354	98N	7844	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
349	8ES1354	98N	7845	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
350	8ES1354	98N	7845	9	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
351	8ES1354	98N	7845	9	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
352	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
353	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
354	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
355	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
356	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
357	8ES1354	98N	7846	73	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
358	8ES1354	98N	7846	74	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
359	8ES1354	98N	7846	75	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
360	8ES1354	98N	7846	75	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
361	8ES1354	98N	7855	6	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
362	8ES1354	98N	7859	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
363	8ES1354	98N	7859	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
364	8ES1354	98N	7889	24	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
365	8ES1354	98N	7889	25	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
366	8ES1354	98N	8099	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
306	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
307	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
308	5.0Y 8/10	DAFFODIL	OPAQUE	NA	NA	NA
309	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
310	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
311	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
312	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
313	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
314	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
315	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
316	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
317	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
318	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
319	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
320	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
321	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
322	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
323	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
324	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
325	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
326	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
327	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
328	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
329	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
330	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
331	7.5BG 6/8	BRIGHT TURQUOISE	TRANSLUCENT	NA	NA	NA
332	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
333	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
334	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
335	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
336	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
337	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
338	10.0R 5/8	CORAL	TRANSLUCENT	NA	NA	NA
339	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
340	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
341	2.5Y 7/8	LIGHT GOLD	TRANSLUCENT	NA	NA	NA
342	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
343	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
344	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
345	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
346	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
347	7.5B 6/6	SKY BLUE	TRANSLUCENT	NA	NA	NA
348	NA	CLEAR	TRANSPARENT	NA	NA	NA
349	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
350	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
351	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
352	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
353	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
354	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
355	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
356	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
357	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 5/4	MISTLETOE GREEN	TRANSLUCENT
358	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
359	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
360	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
361	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
362	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
363	7.5BG 6/6	AQUA GREEN	TRANSLUCENT	NA	NA	NA
364	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
365	NA	CLEAR	TRANSPARENT	NA	NA	NA
366	2.5B 6/4	AQUA BLUE	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
306	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
307	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
308	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
309	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
310	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
311	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
312	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
313	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
314	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
315	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
316	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
317	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
318	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
319	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
320	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
321	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
322	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
323	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
324	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
325	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
326	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
327	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
328	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
329	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
330	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
331	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
332	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
333	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
334	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
335	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
336	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
337	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
338	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
339	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
340	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
341	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
342	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
343	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
344	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
345	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
346	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
347	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
348	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
349	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
350	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
351	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
352	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
353	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
354	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
355	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
356	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
357	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
358	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
359	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
360	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
361	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
362	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
363	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
364	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
365	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
366	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
306	SMALL	2.39	4.13	1.2	IIa
307	SMALL	4.44	2.18	0.8	Ia
308	VERY SMALL	1.18	1.97	0.9	IIa
309	SMALL	2.18	3.16	1	IIa
310	SMALL	2.26	3.55	1	IIa
311	SMALL	1.93	3.31	0.6	IIa
312	SMALL	2.74	2.9	1.2	IIf
313	MEDIUM	5.74	5.4	1.5	IIf
314	SMALL	2.71	3.93	1.3	IIf
315	SMALL	1.38	3.6	1	IIa
316	SMALL	2.15	3.27	0.7	IIa
317	SMALL	1.24	2.65	0.7	IIa
318	SMALL	1.59	2.92	0.9	IIa
319	SMALL	1.8	2.75	0.8	IIa
320	VERY SMALL	0.97	2.47	0.7	IIa
321	SMALL	0.88	2.74	0.9	IIa
322	SMALL	1.91	3.33	1	IVa
323	SMALL	2.08	3.86	1	IIa
324	SMALL	2.14	3.82	1.2	IIa
325	SMALL	2.34	3.09	0.6	IIa
326	SMALL	1.58	3.39	1	IIa
327	SMALL	2.51	4.1	1.2	IIa
328	SMALL	1.67	3.08	0.7	IIa
329	VERY SMALL	1.26	2.86	0.8	IIa
330	SMALL	0.85	2.89	0.9	IIa
331	SMALL	1.58	2.88	0.9	IIa
332	SMALL	0.56	2.46	1	IIa
333	SMALL	1.92	3.28	0.8	IVa
334	SMALL	2.19	3.31	1	IIa
335	SMALL	2.03	3.15	0.8	IIa
336	MEDIUM	4.12	6	1.4	IIa
337	SMALL	2.12	3.15	0.7	IIa
338	SMALL	1.97	3.06	0.7	IIa
339	SMALL	1.49	3.44	0.8	IVa
340	SMALL	6.52	3.49	0.8	IIa
341	SMALL	3.43	4.3	1	IIa
342	SMALL	2.03	3.43	1	IVa
343	SMALL	1.29	2.96	1	IIa
344	SMALL	2.41	4.08	1	IIa
345	SMALL	2.03	3.41	1	IVa
346	SMALL	2.55	3.8	0.7	IVa
347	SMALL	2.23	3.19	0.9	IIa
348	VERY SMALL	1.46	2	0.6	IIa
349	SMALL	3.72	5.33	1.4	IIa
350	SMALL	2.57	3.77	1	IVa
351	SMALL	2.07	3.37	0.6	IVa
352	SMALL	2.5	3.81	1	IVa
353	SMALL	2.6	3.6	0.7	IVa
354	SMALL	2.48	3.99	1.1	IVa
355	SMALL	1.97	3.07	1.1	IVa
356	SMALL	2.03	3.54	0.9	IVa
357	SMALL	2.11	3.14	0.9	IVa
358	SMALL	2.65	3.92	0.9	IIa
359	SMALL	2.73	3.75	0.7	IIa
360	SMALL	2.96	3.68	0.8	IIa
361	LARGE	6.13	7.08	1.9	IIa
362	SMALL	1.76	3.74	0.8	IIa
363	SMALL	2.07	2.93	0.9	IIa
364	VERY SMALL	1.41	2.46	0.6	IIa
365	SMALL	0.46	2.74	1.5	IIa
366	SMALL	1.71	3.59	1	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
367	8ES1354	98N	8114	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
368	8ES1354	98N	8116	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
369	8ES1354	98N	8219	16	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
370	8ES1354	98N	8219	17	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
371	8ES1354	98N	8221	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
372	8ES1354	98N	8224	25	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
373	8ES1354	98N	8224	30	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
374	8ES1354	98N	8224	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
375	8ES1354	98N	8224	32	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
376	8ES1354	98N	8224	44	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
377	8ES1354	98N	8225	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
378	8ES1354	98N	8225	34	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
379	8ES1354	98N	8225	34	GLASS	DRAWN	BROKEN	SIMPLE	CYLINDRICAL
380	8ES1354	98N	8225	36	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
381	8ES1354	98N	8225	36	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
382	8ES1354	98N	8243	8	GLASS	WOUND	COMPLETE	SIMPLE	MELON
383	8ES1354	98N	8247	24	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
384	8ES22	03P	0066	004	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
385	8ES22	03P	0593	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
386	8ES22	03P	0664	013	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
387	8ES22	03P	0664	013	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
388	8ES22	03P	0664	013	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
389	8ES22	03P	1061	058	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
390	8ES22	03P	1061	059	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
391	8ES22	03P	1061	059	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
392	8ES22	03P	1061	060	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
393	8ES22	03P	1084	038	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
394	8ES22	03P	1084	040	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
395	8ES22	03P	1084	040	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
396	8ES22	03P	1177	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
397	8ES22	03P	1204	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
398	8ES22	03P	1204	035	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
399	8ES22	03P	1228	007	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
400	8ES22	03P	1228	037	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
401	8ES22	03P	1228	037	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
402	8ES22	03P	1228	037	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
403	8ES22	03P	1232	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
404	8ES22	03P	1296	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
405	8ES22	03P	1296	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
406	8ES22	03P	1296	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
407	8ES22	03P	1310	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
408	8ES22	03P	1417	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
409	8ES22	03P	1422	005	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
410	8ES22	03P	1422	006	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
411	8ES22	03P	1422	007	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
412	8ES22	03P	1423	006	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
413	8ES22	03P	1490	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
414	8ES22	03P	1490	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
415	8ES22	03P	1549	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
416	8ES22	03P	1585	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
417	8ES22	03P	1585	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
418	8ES22	03P	1588	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
419	8ES22	03P	1671	015	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
420	8ES22	03P	1671	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
421	8ES22	03P	1690	056	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
422	8ES22	03P	1690	057	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
423	8ES22	03P	1702	023	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
424	8ES22	03P	1713	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
425	8ES22	04P	0021	003	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
426	8ES22	04P	0032	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
427	8ES22	04P	0032	005	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
367	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
368	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
369	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
370	5.0B 8/4	LIGHT AQUA BLUE	OPAQUE	NA	NA	NA
371	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
372	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
373	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
374	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
375	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
376	10.0GY 5/10	GRASS GREEN	TRANSLUCENT	NA	NA	NA
377	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
378	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
379	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
380	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
381	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
382	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
383	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
384	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
385	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
386	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
387	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
388	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
389	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
390	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
391	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
392	7.5GY 5/8	FOLIAGE	OPAQUE	NA	NA	NA
393	7.5B 8/4	LIGHT BLUE	OPAQUE	NA	NA	NA
394	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
395	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
396	7.5B 5/10	LIGHT GRAY BLUE	OPAQUE	NA	NA	NA
397	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
398	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
399	7.5YR 2/4	COCOA BROWN	TRANSLUCENT	NA	NA	NA
400	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
401	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
402	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
403	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
404	10.0GY 5/8	DEEP GRASS GREEN	TRANSLUCENT	NA	NA	NA
405	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
406	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
407	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
408	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
409	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
410	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
411	NA	CLEAR	TRANSPARENT	NA	NA	NA
412	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
413	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
414	10.0GY 5/8	DEEP GRASS GREEN	TRANSLUCENT	NA	NA	NA
415	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
416	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
417	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
418	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
419	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
420	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
421	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
422	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
423	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
424	NA	CLEAR	TRANSPARENT	NA	NA	NA
425	10.0R 4/8	REDWOOD	OPAQUE	10.0R 2/4	DEEP RED BROWN	TRANSLUCENT
426	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
427	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
367	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
368	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
369	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
370	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
371	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
372	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
373	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
374	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
375	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
376	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
377	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
378	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
379	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
380	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
381	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
382	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
383	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
384	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
385	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
386	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
387	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
388	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
389	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
390	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
391	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
392	NA	NA	NA	NONE	HEAT ROUNDED	POOR
393	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
394	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
395	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
396	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
397	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
398	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
399	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
400	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
401	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
402	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
403	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
404	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
405	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
406	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
407	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
408	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
409	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
410	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
411	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
412	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
413	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
414	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
415	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
416	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
417	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
418	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
419	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
420	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
421	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
422	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
423	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
424	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
425	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
426	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
427	NA	NA	NA	NONE	HEAT ROUNDED	FAIR

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
367	MEDIUM	3.46	6.42	1.6	IIa
368	SMALL	1.81	3.31	0.9	IIa
369	SMALL	1.17	2.71	0.7	IIa
370	SMALL	1.12	2.72	0.8	IIa
371	SMALL	1.47	3.16	1	IIa
372	SMALL	2.7	4.14	1	IIa
373	SMALL	2.11	3.74	1.3	IIa
374	LARGE	7.38	7.66	1.7	IIa
375	LARGE	6.58	7.45	1.9	IIa
376	VERY SMALL	1.98	2.33	1	IIa
377	VERY SMALL	1.14	2	0.5	IIa
378	LARGE	6.96	6.47	1.7	IIa
379	LARGE	6.18	7.45	1.9	IIa
380	SMALL	2.37	3.36	0.8	IIa
381	SMALL	2.25	3.62	0.9	IIa
382	LARGE	8.06	9.09	2.8	WIIe
383	SMALL	1.39	NA	NA	IIa
384	SMALL	1.38	3.11	0.8	IIa
385	SMALL	2.16	3.53	1	IIa
386	SMALL	1.58	2.23	0.8	IIa
387	SMALL	2.69	2.53	0.9	IIa
388	SMALL	1.29	2.77	0.8	IIa
389	VERY SMALL	0.96	1.54	0.5	IIa
390	SMALL	1.91	2.61	0.7	IIa
391	SMALL	1.73	2.12	0.6	IIa
392	SMALL	2.01	2.97	0.9	IIa
393	SMALL	2.2	3.03	0.9	IIa
394	SMALL	1.86	3.06	1	IIa
395	SMALL	2.59	3.13	1	IIa
396	SMALL	2.36	3.02	0.8	IIa
397	SMALL	1.51	2.93	1	IIa
398	SMALL	1.56	2.55	0.8	IIa
399	SMALL	3.17	3.22	1.6	WIa
400	SMALL	1.18	2.56	0.7	IIa
401	SMALL	2.22	2.56	0.7	IIa
402	SMALL	1.89	2.57	0.7	IIa
403	SMALL	1.66	2.9	1	IIa
404	SMALL	1.78	3.08	1	IIa
405	SMALL	2.85	2.64	0.6	IIa
406	SMALL	1.26	2.6	1	IIa
407	SMALL	1.47	3.58	0.9	IIa
408	SMALL	1.37	2.64	0.9	IIa
409	SMALL	1.58	2.57	0.8	IVa
410	SMALL	1.29	3.02	1	IIa
411	SMALL	2.07	3.27	0.9	IIa
412	SMALL	2.02	2.87	0.9	IIa
413	SMALL	1.8	2.89	1	IIa
414	SMALL	1.57	2.28	1	IIa
415	SMALL	1.67	3.44	1.1	IIa
416	SMALL	1.48	2.78	0.9	IIa
417	SMALL	1.69	2.66	0.7	IIa
418	SMALL	1.64	2.98	0.7	IIa
419	SMALL	1.15	2.92	1	IIa
420	SMALL	1.61	2.85	1	IIa
421	SMALL	0.8	2.57	1.2	IIa
422	VERY SMALL	0.97	1.48	0.4	IIa
423	SMALL	0.88	2.61	1.5	IIa
424	SMALL	1.93	3.39	0.9	IIa
425	SMALL	1.55	2.97	1	IVa
426	SMALL	1.85	2.39	0.9	IIa
427	SMALL	0.68	2.39	1.3	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
428	8ES22	04P	0119	015	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
429	8ES22	04P	0119	015	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
430	8ES22	04P	0124	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
431	8ES22	04P	0157	029	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
432	8ES22	04P	0157	029	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
433	8ES22	04P	0157	030	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
434	8ES22	04P	0157	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
435	8ES22	04P	0157	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
436	8ES22	04P	0157	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
437	8ES22	04P	0157	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
438	8ES22	04P	0163	006	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
439	8ES22	04P	0175	013	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
440	8ES22	04P	0176	007	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
441	8ES22	04P	0176	008	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
442	8ES22	04P	0176	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
443	8ES22	04P	0176	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
444	8ES22	04P	0176	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
445	8ES22	04P	0195	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
446	8ES22	04P	0221	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
447	8ES22	04P	0221	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
448	8ES22	04P	0221	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
449	8ES22	04P	0222	049	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
450	8ES22	04P	0222	049	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
451	8ES22	04P	0228	037	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
452	8ES22	04P	0228	038	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
453	8ES22	04P	0228	038	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
454	8ES22	04P	0228	038	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
455	8ES22	04P	0228	038	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
456	8ES22	04P	0228	039	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
457	8ES22	04P	0228	039	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
458	8ES22	04P	0228	039	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
459	8ES22	04P	0228	039	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
460	8ES22	04P	0229	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
461	8ES22	04P	0229	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
462	8ES22	04P	0229	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
463	8ES22	04P	0229	028	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
464	8ES22	04P	0230	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
465	8ES22	04P	0230	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
466	8ES22	04P	0236	042	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
467	8ES22	04P	0240	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
468	8ES22	04P	0244	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
469	8ES22	04P	0245	010	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
470	8ES22	04P	0251	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
471	8ES22	04P	0251	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
472	8ES22	04P	0251	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
473	8ES22	04P	0251	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
474	8ES22	04P	0251	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
475	8ES22	04P	0251	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
476	8ES22	04P	0251	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
477	8ES22	04P	0251	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
478	8ES22	04P	0251	018	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
479	8ES22	04P	0251	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
480	8ES22	04P	0251	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
481	8ES22	04P	0251	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
482	8ES22	04P	0252	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
483	8ES22	04P	0252	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
484	8ES22	04P	0293	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
485	8ES22	04P	0337	051	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
486	8ES22	04P	0344	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
487	8ES22	04P	0346	008	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
488	8ES22	04P	0365	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
428	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
429	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
430	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
431	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
432	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
433	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
434	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
435	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
436	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
437	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
438	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
439	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
440	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
441	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
442	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
443	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
444	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
445	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
446	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
447	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
448	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
449	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
450	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
451	NA	CLEAR	TRANSPARENT	NA	NA	NA
452	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
453	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
454	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
455	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
456	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
457	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
458	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
459	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
460	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
461	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
462	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
463	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
464	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
465	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
466	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
467	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
468	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
469	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
470	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
471	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
472	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
473	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
474	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
475	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
476	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
477	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
478	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
479	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
480	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
481	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
482	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
483	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
484	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
485	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
486	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
487	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
488	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
428	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
429	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
430	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
431	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
432	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
433	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
434	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
435	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
436	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
437	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
438	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
439	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
440	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
441	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
442	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
443	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
444	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
445	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
446	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
447	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
448	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
449	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
450	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
451	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
452	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
453	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
454	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
455	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
456	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
457	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
458	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
459	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
460	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
461	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
462	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
463	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
464	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
465	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
466	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
467	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
468	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
469	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
470	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
471	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
472	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
473	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
474	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
475	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
476	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
477	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
478	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
479	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
480	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
481	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
482	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
483	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
484	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
485	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
486	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
487	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
488	NA	NA	NA	NONE	HEAT ROUNDED	FAIR

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
428	SMALL	1.49	2.77	0.8	IIa
429	SMALL	1.03	2.41	0.9	IIa
430	SMALL	1.86	2.88	0.9	IIa
431	SMALL	2.05	2.11	0.7	IIa
432	SMALL	1.3	2.43	0.8	IIa
433	SMALL	1.14	2.65	0.8	IIa
434	SMALL	1.34	2.35	0.8	IIa
435	SMALL	1.99	2.41	0.8	IIa
436	SMALL	1.42	2.39	0.8	IIa
437	SMALL	1.22	2.61	0.8	IIa
438	SMALL	0.94	2.58	0.9	IIa
439	SMALL	NA	NA	NA	IIa
440	SMALL	2.85	3.4	1.2	IVa
441	SMALL	1.29	3.05	0.8	IIa
442	SMALL	2.49	3.22	0.9	IIa
443	SMALL	1.36	2.38	0.8	IIa
444	VERY SMALL	0.89	1.56	0.5	IIa
445	SMALL	1.26	2.45	0.8	IIa
446	SMALL	1.36	2.58	0.8	IIa
447	VERY SMALL	0.9	1.71	0.5	IIa
448	SMALL	1.82	2.41	0.8	IIa
449	SMALL	1.71	2.75	1	IIa
450	VERY SMALL	1.28	1.54	0.5	IIa
451	SMALL	2.04	2.6	0.9	IIa
452	SMALL	1.83	2.91	0.9	IIa
453	SMALL	1.74	2.58	0.8	IIa
454	SMALL	2.12	2.7	0.9	IIa
455	SMALL	0.96	2.74	1.2	IIa
456	SMALL	1.36	2.07	0.8	IIa
457	SMALL	1.48	2.68	0.8	IIa
458	SMALL	1.21	2.72	0.8	IIa
459	SMALL	0.94	2.69	0.8	IIa
460	SMALL	1.5	2.73	0.8	IIa
461	SMALL	1.67	2.79	0.8	IIa
462	SMALL	1.05	2.01	0.9	IIa
463	SMALL	1.91	2.59	0.9	IIa
464	SMALL	1.46	2.61	0.9	IIa
465	SMALL	1.42	3.28	1	IIa
466	VERY SMALL	1.35	1.7	0.6	IIa
467	SMALL	1.03	2.66	1	IIa
468	SMALL	1.48	2.74	1	IIa
469	SMALL	1.13	2.49	0.8	IIa
470	SMALL	1.99	2.87	0.9	IIa
471	SMALL	1.47	2.63	0.8	IIa
472	SMALL	1.44	2.52	0.8	IIa
473	SMALL	1.22	2.39	0.8	IIa
474	SMALL	2.72	3.05	1.1	IIa
475	SMALL	1.6	2.79	0.9	IIa
476	SMALL	1.81	3.07	1	IIa
477	SMALL	1.72	3	1.1	IIa
478	SMALL	0.94	1.91	1.2	IIa
479	SMALL	0.79	3.27	1	IIa
480	SMALL	0.96	2.63	1	IIa
481	SMALL	0.91	2.72	1	IIa
482	SMALL	1.14	2.64	0.9	IIa
483	SMALL	1.73	2.25	1	IIa
484	VERY SMALL	1.06	1.88	0.6	IIa
485	SMALL	2.22	2.73	0.9	IIa
486	SMALL	1.57	2.8	1	IIa
487	SMALL	1.11	2.45	0.9	IIa
488	SMALL	1.73	3.26	1	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
489	8ES22	04P	0412	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
490	8ES22	04P	0434	026	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
491	8ES22	04P	0435	021	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
492	8ES22	04P	0437	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
493	8ES22	04P	0455	033	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
494	8ES22	04P	0455	033	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
495	8ES22	04P	0465	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
496	8ES22	04P	0491	016	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
497	8ES22	04P	0557	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
498	8ES22	04P	0643	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
499	8ES22	04P	0645	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
500	8ES22	04P	0688	041	GLASS	DRAWN	INCOMPLETE	SIMPLE	TUBULAR
501	8ES22	04P	0699	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
502	8ES22	04P	0727	007	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
503	8ES22	04P	0727	008	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
504	8ES22	04P	0727	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
505	8ES22	04P	0727	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
506	8ES22	04P	0804	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
507	8ES22	04P	0804	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
508	8ES22	04P	0804	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
509	8ES22	04P	0804	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
510	8ES22	04P	0804	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
511	8ES22	04P	0804	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
512	8ES22	04P	0804	032	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
513	8ES22	04P	0839	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
514	8ES22	04P	0859	061	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
515	8ES22	04P	0859	061	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
516	8ES22	04P	0859	062	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
517	8ES22	04P	0859	062	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
518	8ES22	04P	0859	062	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
519	8ES22	04P	0875	020	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
520	8ES22	04P	0878	016	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
521	8ES22	04P	0911	028	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
522	8ES22	04P	0912	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
523	8ES22	04P	0950	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
524	8ES22	04P	0957	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
525	8ES22	04P	0958	006	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
526	8ES22	04P	0974	028	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
527	8ES22	04P	0986	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
528	8ES22	04P	0987	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
529	8ES22	04P	0993	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
530	8ES22	04P	0993	022	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
531	8ES22	04P	1026	016	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
532	8ES22	04P	1031	003	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
533	8ES22	04P	1071	049	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
534	8ES22	04P	1071	050	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
535	8ES22	04P	1076	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
536	8ES22	04P	1113	006	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
537	8ES22	04P	1119	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
538	8ES22	04P	1122	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
539	8ES22	04P	1152	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
540	8ES22	04P	1152	015	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
541	8ES22	04P	1200	007	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
542	8ES22	04P	1201	006	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
543	8ES22	04P	1254	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
544	8ES22	04P	1256	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
545	8ES22	04P	1256	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
546	8ES22	04P	1279	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
547	8ES22	04P	1289	036	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
548	8ES22	04P	1289	036	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
549	8ES22	04P	1291	033	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
489	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
490	2.5PB 5/2	DUSTY BLUE	TRANSLUCENT	NA	NA	NA
491	2.5PB 5/2	DUSTY BLUE	TRANSLUCENT	NA	NA	NA
492	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
493	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
494	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
495	2.5G 5/10	BRIGHT GREEN	TRANSLUCENT	NA	NA	NA
496	5.0PB 4/4	LIGHT NAVY	OPAQUE	NA	NA	NA
497	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
498	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
499	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
500	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
501	2.5G 5/10	BRIGHT GREEN	TRANSLUCENT	NA	NA	NA
502	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
503	2.5RP 7/4	ORCHID MIST	TRANSLUCENT	NA	NA	NA
504	NA	CLEAR	TRANSPARENT	NA	NA	NA
505	5.0PB 4/4	LIGHT NAVY	OPAQUE	NA	NA	NA
506	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
507	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
508	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
509	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
510	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
511	10.0Y 7/5	CITRON	TRANSPARENT	NA	NA	NA
512	2.5G 5/10	BRIGHT GREEN	TRANSLUCENT	NA	NA	NA
513	2.5PB 5/2	DUSTY BLUE	OPAQUE	NA	NA	NA
514	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
515	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
516	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
517	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
518	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
519	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
520	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
521	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
522	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
523	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
524	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
525	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
526	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
527	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
528	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
529	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
530	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
531	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
532	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
533	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
534	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
535	7.5PB 2/10	ROYAL BLUE	TRANSLUCENT	NA	NA	NA
536	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
537	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
538	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
539	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
540	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
541	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
542	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
543	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
544	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
545	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
546	5.0PB 4/8	DUSK BLUE	TRANSLUCENT	NA	NA	NA
547	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
548	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
549	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
489	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
490	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
491	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
492	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
493	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
494	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
495	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
496	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
497	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
498	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
499	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
500	NA	NA	NA	NONE	NA	POOR
501	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
502	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
503	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
504	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
505	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
506	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
507	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
508	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
509	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
510	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
511	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
512	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
513	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
514	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
515	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
516	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
517	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
518	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
519	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
520	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
521	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
522	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
523	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
524	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
525	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
526	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
527	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
528	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
529	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
530	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
531	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
532	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
533	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
534	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
535	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
536	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
537	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
538	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
539	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
540	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
541	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
542	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
543	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
544	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
545	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
546	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
547	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
548	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
549	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
489	SMALL	1.39	2.66	1	IIa
490	SMALL	1.32	2.88	1.1	IIa
491	SMALL	0.95	2.95	0.7	IIa
492	SMALL	1.77	2.42	0.7	IIa
493	VERY SMALL	1.22	1.9	0.5	IIa
494	VERY SMALL	1.1	1.71	0.5	IIa
495	SMALL	2.08	2.65	1.2	IIa
496	SMALL	1.66	3.59	1	IIa
497	SMALL	1.55	3.23	0.9	IIa
498	SMALL	2.25	3.18	0.9	IIa
499	SMALL	2.15	3.2	0.9	IIa
500	SMALL	NA	NA	NA	Ia
501	SMALL	1.78	2.72	1.1	IIa
502	MEDIUM	2.91	4.32	1	IIa
503	SMALL	0.74	2.41	1.2	IIa
504	SMALL	2.12	2.55	0.8	IIa
505	SMALL	2.04	2.83	0.8	IIa
506	SMALL	1.49	2.57	0.7	IIa
507	SMALL	1.49	2.84	0.6	IIa
508	SMALL	1.5	2.46	0.6	IIa
509	SMALL	1.65	2.71	0.6	IIa
510	VERY SMALL	1.06	1.46	0.5	IIa
511	VERY SMALL	1.18	1.98	1	IIa
512	SMALL	1.49	2.34	1.2	IIa
513	SMALL	1.88	2.86	0.8	IIa
514	SMALL	1.03	2.24	0.7	IIa
515	SMALL	0.88	2.54	0.7	IIa
516	SMALL	2.01	2.59	0.8	IIa
517	SMALL	1.06	2.83	1	IIa
518	VERY SMALL	0.81	1.59	0.5	IIa
519	SMALL	1.66	2.37	0.9	IIa
520	SMALL	1.98	2.77	1	IIa
521	SMALL	2.23	3.43	1	IIa
522	SMALL	2.14	3.17	0.9	IIa
523	SMALL	1.41	2.84	1	IIa
524	SMALL	1.49	2.94	1	IIa
525	SMALL	1.64	3.29	1	IIa
526	MEDIUM	2.19	4.49	1	IIa
527	SMALL	2.12	2.68	1	IIa
528	SMALL	2.53	2.97	0.9	IIa
529	SMALL	1.85	2.73	0.7	IIa
530	SMALL	1.11	2.61	0.7	IIa
531	SMALL	1.6	2.76	0.8	IIa
532	SMALL	1.34	3.2	1	IVa
533	SMALL	1.84	3.19	0.9	IIa
534	LARGE	9.64	7.32	1.7	WIc
535	SMALL	1.61	3.01	0.9	IIa
536	SMALL	4.13	2.67	0.8	IIa
537	SMALL	1.59	2.78	0.7	IIa
538	SMALL	2.14	2.63	0.6	IIa
539	SMALL	1.87	3.29	0.7	IIa
540	VERY SMALL	1.4	1.87	0.5	IIa
541	SMALL	1.17	2.44	0.8	IIa
542	SMALL	0.9	2.4	0.8	IIa
543	SMALL	1.85	2.67	0.7	IIa
544	SMALL	2.02	3.43	0.8	IIa
545	SMALL	2.3	3.14	0.8	IIa
546	SMALL	2.21	2.56	1	IIa
547	SMALL	2.18	3.52	1.1	IIa
548	SMALL	1.85	3.22	1	IIa
549	SMALL	1.61	2.78	0.8	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
550	8ES22	04P	1315	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
551	8ES22	04P	1335	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
552	8ES22	04P	1336	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
553	8ES22	04P	1337	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
554	8ES22	04P	1338	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
555	8ES22	04P	1339	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
556	8ES22	04P	1339	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
557	8ES22	04P	1346	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
558	8ES22	04P	1346	054	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
559	8ES22	04P	1346	055	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
560	8ES22	04P	1346	055	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
561	8ES22	04P	1346	056	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
562	8ES22	04P	1346	056	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
563	8ES22	04P	1346	056	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
564	8ES22	04P	1351	017	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
565	8ES22	04P	1388	030	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
566	8ES22	04P	1405	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
567	8ES22	04P	1406	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
568	8ES22	04P	1409	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
569	8ES22	04P	1409	009	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
570	8ES22	04P	1414	022	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
571	8ES22	04P	1437	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
572	8ES22	04P	1444	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
573	8ES22	04P	1498	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
574	8ES22	04P	1500	006	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
575	8ES22	04P	1557	007	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
576	8ES22	04P	1572	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
577	8ES22	04P	1575	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
578	8ES22	04P	1575	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
579	8ES22	04P	1575	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
580	8ES22	04P	1605	013	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
581	8ES22	04P	1605	016	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
582	8ES22	04P	1622	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
583	8ES22	04P	1622	012	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
584	8ES22	04P	1622	041	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
585	8ES22	04P	1622	042	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
586	8ES22	04P	1622	044	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
587	8ES22	04P	1627	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
588	8ES22	04P	1637	005	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
589	8ES22	04P	1643	015	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
590	8ES22	04P	1645	008	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
591	8ES22	04P	1655	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
592	8ES22	04P	1698	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
593	8ES22	04P	1698	020	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
594	8ES22	04P	1698	021	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
595	8ES22	04P	1722	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
596	8ES22	04P	1727	007	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
597	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
598	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
599	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
600	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
601	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
602	8ES22	04P	1784	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
603	8ES22	04P	1784	054	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
604	8ES22	04P	1784	054	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
605	8ES22	04P	1784	056	GLASS	DRAWN	COMPLETE	SIMPLE	BICONICAL
606	8ES22	04P	1791	021	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
607	8ES22	04P	1791	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
608	8ES22	04P	1791	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
609	8ES22	04P	1805	032	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
610	8ES22	04P	1895	004	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
550	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
551	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
552	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
553	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
554	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
555	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
556	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
557	NA	CLEAR	TRANSPARENT	NA	NA	NA
558	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
559	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
560	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
561	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
562	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
563	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
564	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
565	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
566	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
567	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
568	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
569	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
570	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
571	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
572	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
573	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
574	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
575	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
576	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
577	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
578	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
579	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
580	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
581	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
582	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
583	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
584	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
585	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
586	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
587	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
588	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
589	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
590	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
591	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
592	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
593	2.5B 6/4	AQUA BLUE	OPAQUE	NA	NA	NA
594	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
595	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
596	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
597	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
598	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
599	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
600	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
601	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
602	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
603	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
604	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
605	2.5Y 7/8	LIGHT GOLD	OPAQUE	NA	NA	NA
606	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
607	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
608	NA	CLEAR	TRANSPARENT	NA	NA	NA
609	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
610	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
550	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
551	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
552	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
553	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
554	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
555	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
556	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
557	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
558	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
559	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
560	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
561	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
562	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
563	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
564	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
565	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
566	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
567	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
568	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
569	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
570	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
571	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
572	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
573	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
574	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
575	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
576	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
577	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
578	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
579	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
580	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
581	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
582	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
583	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
584	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
585	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
586	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
587	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
588	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
589	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
590	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
591	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
592	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
593	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
594	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
595	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
596	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
597	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
598	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
599	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
600	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
601	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
602	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
603	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
604	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
605	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
606	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
607	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
608	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
609	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
610	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
550	SMALL	1.41	2.69	0.8	IIa
551	SMALL	1.75	2.79	0.9	IIa
552	SMALL	1.46	2.74	0.8	IIa
553	VERY SMALL	1.39	1.62	0.5	IIa
554	VERY SMALL	1.12	1.65	0.5	IIa
555	VERY SMALL	0.87	1.65	0.5	IIa
556	VERY SMALL	1.22	1.66	0.4	IIa
557	SMALL	1.99	3.07	0.9	IIa
558	SMALL	1.51	2.84	0.8	IIa
559	VERY SMALL	0.98	1.63	0.5	IIa
560	SMALL	0.98	2.33	0.8	IIa
561	SMALL	1.61	2.55	0.8	IIa
562	SMALL	1.87	2.87	0.8	IIa
563	SMALL	1.03	2.61	0.8	IIa
564	SMALL	1.24	2.91	0.8	IIa
565	SMALL	2.25	2.94	0.9	IIa
566	VERY SMALL	0.87	1.74	0.7	IIa
567	SMALL	1.58	2.32	0.9	IIa
568	SMALL	1.44	3.48	1.2	IIa
569	VERY SMALL	1.05	1.89	0.5	IIa
570	SMALL	1.7	2.66	0.8	IIa
571	SMALL	1.61	2.42	0.9	IIa
572	SMALL	1.55	2.72	0.8	IIa
573	SMALL	1.73	3.11	0.9	IIa
574	SMALL	1.85	2.84	1.1	IIa
575	MEDIUM	4.89	4.77	1.9	Wia
576	SMALL	1.66	3.05	1	IIa
577	SMALL	1.97	2.77	0.8	IIa
578	SMALL	1.6	3.16	0.8	IIa
579	SMALL	1.96	2.69	0.8	IIa
580	SMALL	1.82	3.02	1	IIa
581	SMALL	2.22	2.71	0.8	IIa
582	SMALL	2.31	3.16	0.9	IIa
583	SMALL	0.75	3.17	1.2	IIa
584	SMALL	1.53	2.66	1.1	IIa
585	SMALL	1.88	2.56	0.8	IIa
586	SMALL	0.94	2.65	1.4	IIa
587	SMALL	1.94	3.75	1	IIa
588	VERY SMALL	0.89	1.62	0.5	IIa
589	SMALL	0.9	2.46	1	IIa
590	SMALL	2.2	2.79	0.8	IIa
591	SMALL	1.62	2.98	1.1	IIa
592	SMALL	1.88	3.09	1	IIa
593	SMALL	1.79	2.49	0.9	IIa
594	SMALL	1.68	2.59	0.8	IIa
595	SMALL	1.17	2.72	0.8	IIa
596	SMALL	1.07	2.41	0.6	IIa
597	SMALL	1.03	1.71	0.8	IIa
598	SMALL	1.77	3.16	0.8	IIa
599	SMALL	1.94	2.74	0.8	IIa
600	SMALL	0.97	2.6	0.8	IIa
601	SMALL	1.26	3.06	0.8	IIa
602	SMALL	1.2	2.42	0.8	IIa
603	SMALL	1.09	2.93	0.7	IIa
604	SMALL	0.83	2.15	0.8	IIa
605	SMALL	6.56	3.13	1.2	IIa
606	SMALL	1.74	2.61	0.8	IIa
607	SMALL	1.61	2.54	0.9	IIa
608	SMALL	2.68	3.4	0.8	IIa
609	VERY SMALL	1.3	2.09	0.5	IIa
610	SMALL	0.94	2.45	0.7	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
611	8ES22	04P	1901	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
612	8ES22	04P	1905	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
613	8ES22	04P	1908	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
614	8ES22	04P	1909	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
615	8ES22	04P	1909	003	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
616	8ES22	04P	1927	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
617	8ES22	04P	1935	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
618	8ES22	04P	1936	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
619	8ES22	04P	1939	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
620	8ES22	04P	1939	019	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
621	8ES22	04P	1941	015	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
622	8ES22	04P	1942	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
623	8ES22	04P	1942	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
624	8ES22	04P	1942	013	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
625	8ES22	04P	1942	014	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
626	8ES22	04P	1986	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
627	8ES22	04P	1989	026	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
628	8ES115(	05F	0893	062	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
629	8ES115(	05F	0893	063	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
630	8ES115(	05F	0894	021	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
631	8ES115(	05F	0905	006	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
632	8ES115(	05F	0905	007	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
633	8ES115(	05F	1007	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
634	8ES115(	05F	1014	031	GLASS	WOUND	INCOMPLETE	SIMPLE	CYLINDRICAL
635	8ES115(	05F	1038	031	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
636	8ES115(	05F	1056	097	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
637	8ES115(	05F	1056	097	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
638	8ES115(	05F	1058	017	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
639	8ES115(	05F	1058	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
640	8ES115(	05F	1059	057	GLASS	WOUND	COMPLETE	SIMPLE	SUB-DISK
641	8ES115(	05F	1092	026	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
642	8ES115(	05F	1494	016	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
643	8ES115(	05F	1538	014	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
644	8ES115(	05F	1540	011	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
645	8ES115(	05F	1687	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
646	8ES115(	05F	1733	028	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
647	8ES115(	05F	1814	012	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
648	8ES115(	05F	1816	014	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
649	8ES115(	05F	1818	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
650	8ES115(	05F	1822	006	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
651	8ES115(	05F	1837	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
652	8ES115(	05F	1892	050	GLASS	WOUND	COMPLETE	SIMPLE	SUB-DISK
653	8ES115(	05F	1892	103	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
654	8ES115(	05F	1936	003	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
655	8ES115(	05F	1937	013	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
656	8ES115(	05F	1937	014	GLASS	DRAWN	COMPLETE	COMPOUND	TUBULAR
657	8ES115(	05F	1945	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
658	8ES115(	05F	2043	016	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
659	8ES115(	05F	2062	014	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
660	8ES115(	05F	2070	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
661	8ES115(	05F	2070	018	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
662	8ES115(	05F	2070	019	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
663	8ES115(	05F	2070	020	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
664	8ES115(	05F	2100	007	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
665	8ES115(	05F	2100	007	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
666	8ES115(	05F	2105	005	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
667	8ES115(	05F	2124	016	GLASS	WOUND	INCOMPLETE	SIMPLE	CYLINDRICAL
668	8ES115(	05F	2124	017	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
669	8ES115(	05F	2124	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
670	8ES115(	05F	2158	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
671	8ES115(	05F	2223	049	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
611	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
612	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
613	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
614	2.5B 6/4	AQUA BLUE	OPAQUE	NA	NA	NA
615	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
616	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
617	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
618	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
619	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
620	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
621	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
622	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
623	NA	NA	OPAQUE	NA	NA	NA
624	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
625	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
626	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
627	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
628	NA	NA	NA	NA	NA	NA
629	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
630	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
631	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
632	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
633	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
634	5.0R 5/12	LIGHT RED	OPAQUE	NA	NA	NA
635	NA	NA	NA	NA	NA	NA
636	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
637	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
638	NA	NA	NA	NA	NA	NA
639	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
640	5.0G 6/6	MINT GREEN	TRANSLUCENT	NA	NA	NA
641	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
642	2.5YR 2/2	DARK ROSE BROWN	TRANSLUCENT	NA	NA	NA
643	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
644	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
645	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
646	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
647	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
648	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
649	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
650	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
651	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
652	5.0G 6/6	MINT GREEN	TRANSLUCENT	NA	NA	NA
653	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
654	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
655	2.5G 5/10	BRIGHT GREEN	OPAQUE	NA	NA	NA
656	10.0R 4/8	REDWOOD	OPAQUE	10.0R 2/4	DEEP RED BROWN	TRANSLUCENT
657	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
658	10.0R 4/8	REDWOOD	OPAQUE	10.0R 2/4	DEEP RED BROWN	TRANSLUCENT
659	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
660	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
661	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
662	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
663	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
664	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
665	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
666	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
667	NA	NA	NA	NA	NA	NA
668	2.5YR 2/2	DARK ROSE BROWN	TRANSLUCENT	NA	NA	NA
669	NA	NA	NA	NA	NA	NA
670	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
671	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
611	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
612	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
613	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
614	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
615	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
616	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
617	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
618	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
619	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
620	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
621	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
622	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
623	NA	NA	NA	NONE	HEAT ROUNDED	POOR
624	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
625	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
626	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
627	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
628	NA	NA	NA	NONE	HEAT ROUNDED	POOR
629	NA	NA	NA	NONE	NONE	FAIR
630	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
631	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
632	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
633	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
634	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
635	NA	NA	NA	NONE	HEAT ROUNDED	POOR
636	NA	NA	NA	NONE	HEAT ROUNDED	POOR
637	NA	NA	NA	NONE	HEAT ROUNDED	POOR
638	NA	NA	NA	NONE	NONE	POOR
639	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
640	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
641	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
642	NA	NA	NA	NONE	NONE	GOOD
643	NA	NA	NA	NONE	NONE	GOOD
644	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
645	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
646	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
647	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
648	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
649	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
650	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
651	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
652	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
653	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
654	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
655	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
656	NA	NA	NA	NONE	NONE	GOOD
657	NA	NA	NA	NONE	HEAT ROUNDED	POOR
658	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
659	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
660	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
661	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
662	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
663	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
664	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
665	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
666	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
667	NA	NA	NA	NONE	HEAT ROUNDED	POOR
668	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
669	NA	NA	NA	NONE	HEAT ROUNDED	POOR
670	NA	NA	NA	NONE	HEAT ROUNDED	POOR
671	NA	NA	NA	NONE	HEAT ROUNDED	POOR

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
611	SMALL	2.42	3.16	0.9	IIa
612	SMALL	1.82	2.88	0.7	IIa
613	SMALL	2.04	3.51	0.8	IIa
614	SMALL	1.39	2.78	0.8	IIa
615	SMALL	1.71	2.59	0.6	IIa
616	SMALL	1.51	2.87	0.8	IIa
617	SMALL	1.58	2.79	1.1	IIa
618	SMALL	1.51	2.94	0.7	IIa
619	SMALL	0.91	3.09	1.2	IIa
620	SMALL	0.54	2.48	1.1	IIa
621	SMALL	0.95	2.14	0.6	IIa
622	SMALL	1.72	3.13	0.8	IIa
623	SMALL	1.68	3.13	0.9	IIa
624	SMALL	1.16	2.72	0.8	IIa
625	SMALL	0.5	2.79	0.7	IIa
626	VERY SMALL	1	1.72	0.6	IIa
627	SMALL	1.54	2.97	1	IIa
628	MEDIUM	4.13	4.65	1.9	IIa
629	SMALL	2.63	2.97	1.2	Ia
630	SMALL	1.76	3.26	1.1	IIa
631	SMALL	0.9	2.86	0.7	IIa
632	SMALL	1.45	2.45	0.8	IIa
633	SMALL	2.21	2.3	1.1	IIa
634	SMALL	3.05	3.01	1.7	WIa
635	SMALL	5.7	3.4	1	IIa
636	MEDIUM	4.62	4.55	1.9	WIa
637	MEDIUM	4.77	4.61	1.5	WIa
638	SMALL	2.28	4.3	1.7	IIa
639	SMALL	2.19	3.19	0.9	IIa
640	LARGE	11.9	12.35	2.3	WIIb
641	SMALL	2.43	3.56	1.2	IIa
642	SMALL	3.41	2.93	1.5	Ia
643	SMALL	2.62	2.77	1.2	Ia
644	SMALL	2.74	3.42	1.3	IIa
645	SMALL	3.99	3.02	1.9	IIa
646	SMALL	1.53	2.69	0.7	IVa
647	SMALL	1.78	2.83	0.9	IVa
648	SMALL	5.03	3.55	1.5	IIa
649	SMALL	2.04	2.97	1.1	IIa
650	SMALL	1.84	2.62	0.5	IVa
651	SMALL	2.34	3.01	1.4	IIa
652	LARGE	12.01	11.96	3.2	WIIb
653	SMALL	2.02	3.56	1.2	IIa
654	SMALL	1.8	2.44	0.8	IVa
655	SMALL	1.97	2.29	0.8	IIa
656	MEDIUM	14.59	3.77	1.5	IIIa
657	SMALL	2.06	3.01	0.9	IIa
658	SMALL	2.17	2.46	0.8	IVa
659	SMALL	1.88	2.62	0.5	IVa
660	SMALL	2.77	3.32	1.2	IIa
661	SMALL	1.59	2.94	0.9	IIa
662	SMALL	0.9	2.45	1.2	IIa
663	VERY SMALL	1.46	1.42	0.4	IIa
664	SMALL	1.97	2.61	0.7	IVa
665	SMALL	1.8	2.59	0.7	IVa
666	SMALL	1.64	2.68	0.8	IVa
667	MEDIUM	4.59	4.56	1	WIa
668	SMALL	2.18	2.28	0.9	IIa
669	SMALL	2.5	2.46	NA	IIa
670	MEDIUM	9.48	9.44	1.7	IIa
671	MEDIUM	9.6	9.2	1.3	WIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
672	8ES115(	05F	2223	050	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
673	8ES115(	05F	2224	042	GLASS	NA	INCOMPLETE	NA	NA
674	8ES115(	05F	2224	043	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
675	8ES115(	05F	2235	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
676	8ES115(	05F	2245	003	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
677	8ES115(	05F	2250	019	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
678	8ES115(	05F	2259	011	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
679	8ES115(	05F	2259	012	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
680	8ES115(	05F	2259	012	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
681	8ES115(	05F	2308	005	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
682	8ES115(	05F	2397	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
683	8ES115(	05F	2444	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
684	8ES115(	05F	2444	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
685	8ES115(	05F	2450	005	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
686	8ES115(	05F	2466	011	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
687	8ES115(	05F	2505	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
688	8ES115(	05F	2505	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
689	8ES115(	05F	2509	021	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
690	8ES115(	05F	2599	020	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
691	8ES115(	05F	2599	021	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
692	8ES115(	05F	2604	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
693	8ES115(	05F	2668	026	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
694	8ES115(	05F	2668	027	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
695	8ES115(	05F	2669	005	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
696	8ES115(	05F	2685	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
697	8ES115(	05F	2761	072	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
698	8ES115(	05F	2763	010	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
699	8ES115(	06F	3320	015	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
700	8ES115(	06F	3320	033	GLASS	NA	INCOMPLETE	NA	NA
701	8ES115(	06F	3425	049	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
702	8ES115(	06F	3425	050	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
703	8ES115(	06F	3875	012	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
704	8ES115(	06F	3901	005	GLASS	NA	INCOMPLETE	NA	NA
705	8ES115(	06F	3999	036	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
706	8ES115(	06F	4031	008	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
707	8ES115(	06F	4034	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
708	8ES115(	06F	4112	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
709	8ES115(	06F	4112	019	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
710	8ES115(	06F	4177	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
711	8ES115(	06F	4246	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
712	8ES115(	06F	4246	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
713	8ES115(	06F	4248	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
714	8ES115(	06F	4290	011	GLASS	DRAWN	INCOMPLETE	SIMPLE	TOROIDAL
715	8ES115(	06F	4344	011	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
716	8ES115(	06F	4344	044	NA	NA	NA	NA	NA
717	8ES115(	06F	4411	034	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
718	8ES115(	06F	4411	035	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
719	8ES115(	06F	4412	069	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
720	8ES115(	06F	4416	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
721	8ES115(	06F	4452	011	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
722	8ES115(	06F	4455	031	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
723	8ES115(	06F	4501	011	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
724	8ES115(	06F	4504	038	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
725	8ES115(	06F	4504	039	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
726	8ES115(	06F	4504	040	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
727	8ES115(	06F	4504	041	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
728	8ES115(	06F	4505	092	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
729	8ES115(	06F	4505	092	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
730	8ES115(	06F	4505	092	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
731	8ES115(	06F	4505	093	GLASS	WOUND	COMPLETE	SIMPLE	CONICAL
732	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
672	2.5G 5/10	BRIGHT GREEN	OPAQUE	NA	NA	NA
673	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
674	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
675	2.5G 5/10	BRIGHT GREEN	OPAQUE	NA	NA	NA
676	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
677	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
678	N 9.5	BRIGHT WHITE	OPAQUE	7.5B 8/2	PALE BLUE	OPAQUE
679	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
680	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
681	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
682	5.0PB 6/3	POWDER BLUE	TRANSLUCENT	NA	NA	NA
683	NA	CLEAR	TRANSPARENT	N 9.5	BRIGHT WHITE	OPAQUE
684	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
685	2.5G 5/10	BRIGHT GREEN	TRANSLUCENT	5.0Y 8/8	SUNLIGHT YELLOW	OPAQUE
686	10.0R 4/8	REDWOOD	OPAQUE	NA	CLEAR	TRANSPARENT
687	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
688	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
689	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
690	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
691	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
692	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
693	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
694	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
695	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
696	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
697	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
698	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
699	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
700	NA	NA	NA	NA	NA	NA
701	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
702	5.0GB 6/3	LIGHT BLUE SPRUCE	OPAQUE	NA	NA	NA
703	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
704	NA	NA	NA	NA	NA	NA
705	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
706	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
707	7.5B 8/2	PALE BLUE	OPAQUE	NA	NA	NA
708	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
709	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
710	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
711	7.5B 8/2	PALE BLUE	TRANSLUCENT	NA	NA	NA
712	7.5B 8/2	PALE BLUE	TRANSLUCENT	NA	NA	NA
713	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
714	2.5YR 2/2	DARK ROSE BROWN	OPAQUE	NA	NA	NA
715	2.5B 6/7	BRIGHT AQUA BLUE	TRANSPARENT	NA	NA	NA
716	NA	NA	NA	NA	NA	NA
717	2.5YR 2/2	DARK ROSE BROWN	OPAQUE	NA	NA	NA
718	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
719	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
720	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
721	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
722	2.5YR 2/2	DARK ROSE BROWN	OPAQUE	NA	NA	NA
723	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
724	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
725	2.5PB 5/4	SHADOW BLUE	OPAQUE	NA	NA	NA
726	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
727	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
728	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
729	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
730	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
731	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
732	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
672	NA	NA	NA	NONE	HEAT ROUNDED	POOR
673	NA	NA	NA	NA	NA	NA
674	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
675	NA	NA	NA	NONE	HEAT ROUNDED	POOR
676	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
677	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
678	7.5R 2/8	WINE	OPAQUE	STRIPED	HEAT ROUNDED	GOOD
679	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
680	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
681	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
682	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
683	NA	NA	NA	STRIPED	HEAT ROUNDED	GOOD
684	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
685	NA	NA	NA	STRIPED	HEAT ROUNDED	GOOD
686	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
687	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
688	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
689	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
690	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
691	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
692	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
693	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
694	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
695	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
696	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
697	NA	NA	NA	NONE	NONE	GOOD
698	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
699	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
700	NA	NA	NA	NA	NA	NA
701	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
702	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
703	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
704	NA	NA	NA	NA	NA	NA
705	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
706	NA	NA	NA	NONE	HEAT ROUNDED	POOR
707	NA	NA	NA	NONE	HEAT ROUNDED	POOR
708	NA	NA	NA	NONE	HEAT ROUNDED	POOR
709	NA	NA	NA	NONE	HEAT ROUNDED	POOR
710	NA	NA	NA	NONE	HEAT ROUNDED	POOR
711	NA	NA	NA	NONE	HEAT ROUNDED	POOR
712	NA	NA	NA	NONE	HEAT ROUNDED	POOR
713	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
714	NA	NA	NA	NONE	HEAT ROUNDED	POOR
715	NA	NA	NA	FACETED	GROUND	GOOD
716	NA	NA	NA	NA	NA	NA
717	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
718	NA	NA	NA	NONE	NA	GOOD
719	NA	NA	NA	NONE	NA	GOOD
720	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
721	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
722	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
723	NA	NA	NA	NONE	HEAT ROUNDED	POOR
724	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
725	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
726	NA	NA	NA	NONE	NA	GOOD
727	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
728	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
729	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
730	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
731	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
732	NA	NA	NA	NONE	NA	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
672	SMALL	1.14	2.17	0.6	IIa
673	NA	NA	NA	NA	NA
674	SMALL	3.16	3.92	1.7	WIIj
675	SMALL	1.85	2.86	0.9	IIa
676	SMALL	2.17	2.44	0.8	IVa
677	SMALL	2.13	2.6	0.6	IVa
678	SMALL	2.58	3.38	1.2	IIb
679	SMALL	1.54	2.49	0.8	IVa
680	SMALL	1.39	2.6	0.7	IVa
681	SMALL	1.33	2.56	0.5	IVa
682	SMALL	2.22	1.7	0.7	IIa
683	MEDIUM	3.07	5.21	1.6	IIb
684	SMALL	1.71	2.5	0.8	IIa
685	SMALL	5.49	3.59	1.2	IIb
686	SMALL	1.63	2.67	0.7	IVa
687	SMALL	1.76	2.37	0.7	IIa
688	VERY SMALL	1.3	2	0.5	IIa
689	SMALL	1.43	2.42	0.6	IIa
690	SMALL	1.68	2.54	0.7	IVa
691	SMALL	2.27	2.78	1.2	IIa
692	SMALL	2.45	3.32	1	IIa
693	SMALL	2.1	2.08	0.5	IVa
694	SMALL	2.57	2.58	0.6	IIa
695	SMALL	1.98	2.43	0.6	IVa
696	SMALL	1.22	3.34	1.2	IIa
697	SMALL	3.42	2.54	0.9	Ia
698	SMALL	1.96	2.9	0.7	IVa
699	SMALL	1.57	2.8	1	IIa
700	NA	NA	NA	NA	NA
701	SMALL	1.91	2.58	0.7	IIa
702	VERY SMALL	1.38	1.61	0.5	IIa
703	SMALL	2.46	3.17	1	IVa
704	NA	NA	NA	NA	NA
705	SMALL	2.81	3.52	1.1	IIa
706	SMALL	0.94	2.38	0.8	IIa
707	MEDIUM	3.25	5.49	2.2	IIa
708	MEDIUM	4.36	4.67	1.4	IIa
709	MEDIUM	3.8	5.16	1.8	IIa
710	MEDIUM	4.77	4.85	1.1	IIa
711	SMALL	3.59	2.65	1.2	IIa
712	SMALL	3.1	2.94	1.4	IIa
713	SMALL	2.82	4.09	1	IIa
714	SMALL	1.29	3.29	0.8	IIa
715	LARGE	6.77	8.99	2	WIIcc
716	NA	NA	NA	NA	NA
717	SMALL	4.44	4.54	1.2	WIa
718	SMALL	2.99	2.72	1	Ia
719	SMALL	2.49	2.8	1.2	Ia
720	SMALL	1.33	2.58	0.7	IIa
721	SMALL	1.2	2.95	1.2	IIa
722	SMALL	1.85	2.43	0.9	Ic
723	MEDIUM	4.05	5.23	1.7	IIa
724	SMALL	1.04	3.33	1.2	IIa
725	SMALL	2.29	3.14	0.7	IIa
726	SMALL	3.55	2.54	1.1	Ia
727	SMALL	2.28	2.56	0.7	IIa
728	MEDIUM	4.64	4.96	1.7	WIa
729	MEDIUM	5.24	5.12	1.7	WIa
730	MEDIUM	5.35	4.97	1.6	WIa
731	MEDIUM	8.8	4.56	1.6	WIa
732	SMALL	3.52	2.53	1	Ia

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
733	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
734	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
735	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
736	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
737	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
738	8ES115(	06F	4505	094	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
739	8ES115(	06F	4505	095	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
740	8ES115(	06F	4505	096	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
741	8ES115(	06F	4505	097	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
742	8ES115(	06F	4522	057	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
743	8ES115(	06F	4522	058	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
744	8ES115(	06F	4522	059	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
745	8ES115(	06F	4522	059	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
746	8ES115(	06F	4522	059	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
747	8ES115(	06F	4522	059	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
748	8ES115(	06F	4523	027	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
749	8ES115(	06F	4526	006	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
750	8ES115(	06F	4557	010	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
751	8ES115(	06F	4662	011	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
752	8ES115(	06F	4678	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
753	8ES115(	06F	4678	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
754	8ES115(	06F	4680	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
755	8ES115(	06F	4806	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
756	8ES115(	06F	4806	022	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
757	8ES115(	06F	4806	023	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
758	8ES115(	06F	4851	026	GLASS	DRAWN	COMPLETE	SIMPLE	OVOID
759	8ES115(	06F	4880	002	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
760	8ES115(	06F	4889	004	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
761	8ES115(	06F	4924	041	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
762	8ES115(	06F	4924	042	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
763	8ES115(	06F	4924	042	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
764	8ES115(	06F	4927	056	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
765	8ES115(	06F	4927	057	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
766	8ES115(	06F	5013	023	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
767	8ES115(	06F	5013	024	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
768	8ES115(	06F	5013	024	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
769	8ES115(	06F	5016	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
770	8ES115(	06F	5016	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
771	8ES115(	06F	5018	051	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
772	8ES115(	06F	5018	051	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
773	8ES115(	06F	5018	051	GLASS	NA	INCOMPLETE	SIMPLE	NA
774	8ES115(	06F	5018	051	GLASS	NA	INCOMPLETE	SIMPLE	NA
775	8ES115(	06F	5018	052	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
776	8ES115(	06F	5018	053	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
777	8ES115(	06F	5035	244	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
778	8ES115(	06F	5035	245	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
779	8ES115(	06F	5035	245	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
780	8ES115(	06F	5035	245	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
781	8ES115(	06F	5035	294	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
782	8ES115(	06F	5036	029	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
783	8ES115(	06F	5036	030	GLASS	NA	INCOMPLETE	SIMPLE	NA
784	8ES115(	06F	5036	030	GLASS	NA	INCOMPLETE	SIMPLE	NA
785	8ES115(	06F	5039	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
786	8ES115(	06F	5084	017	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
787	8ES115(	06F	5084	018	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
788	8ES115(	06F	5087	041	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
789	8ES115(	06F	5087	041	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
790	8ES115(	06F	5087	042	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
791	8ES115(	06F	5087	043	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
792	8ES115(	06F	5087	043	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
793	8ES115(	06F	5087	044	GLASS	NA	INCOMPLETE	SIMPLE	NA

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
733	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
734	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
735	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
736	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
737	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
738	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
739	2.5YR 2/2	DARK ROSE BROWN	TRANSLUCENT	NA	NA	NA
740	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
741	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
742	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
743	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
744	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
745	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
746	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
747	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
748	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
749	NA	CLEAR	TRANSPARENT	NA	NA	NA
750	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT	NA	NA	NA
751	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
752	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
753	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
754	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
755	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
756	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
757	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
758	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
759	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
760	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
761	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
762	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
763	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
764	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
765	7.5B 8/2	PALE BLUE	TRANSLUCENT	NA	NA	NA
766	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
767	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
768	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
769	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
770	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
771	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
772	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
773	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
774	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
775	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
776	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
777	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
778	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
779	5.0PB 4/10	BRIGHT COPEN BLUE	TRANSLUCENT	NA	NA	NA
780	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
781	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
782	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
783	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
784	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
785	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
786	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
787	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
788	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
789	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
790	NA	CLEAR	TRANSPARENT	NA	NA	NA
791	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
792	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
793	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
733	NA	NA	NA	NONE	NA	GOOD
734	NA	NA	NA	NONE	NA	GOOD
735	NA	NA	NA	NONE	NA	GOOD
736	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
737	NA	NA	NA	NONE	NA	GOOD
738	NA	NA	NA	NONE	NA	GOOD
739	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
740	NA	NA	NA	NONE	NA	GOOD
741	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
742	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
743	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
744	NA	NA	NA	NONE	NA	POOR
745	NA	NA	NA	NONE	NA	POOR
746	NA	NA	NA	NONE	NA	POOR
747	NA	NA	NA	NONE	HEAT ROUNDED	POOR
748	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
749	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
750	NA	NA	NA	NONE	HEAT ROUNDED	POOR
751	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
752	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
753	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
754	NA	NA	NA	FACETED	HEAT ROUNDED	FAIR
755	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
756	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
757	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
758	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
759	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
760	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
761	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
762	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
763	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
764	NA	NA	NA	FACETED	HEAT ROUNDED	FAIR
765	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
766	NA	NA	NA	NONE	HEAT ROUNDED	POOR
767	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
768	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
769	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
770	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
771	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
772	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
773	NA	NA	NA	NA	NA	NA
774	NA	NA	NA	NA	NA	NA
775	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
776	NA	NA	NA	NONE	HEAT ROUNDED	POOR
777	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
778	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
779	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
780	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
781	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
782	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
783	NA	NA	NA	NA	NA	NA
784	NA	NA	NA	NA	NA	NA
785	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
786	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
787	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
788	NA	NA	NA	NONE	HEAT ROUNDED	POOR
789	NA	NA	NA	NONE	HEAT ROUNDED	POOR
790	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
791	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
792	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
793	NA	NA	NA	FACETED	NA	NA

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
733	SMALL	2.86	3.23	1.2	Ia
734	SMALL	4.09	3.27	1.3	Ia
735	SMALL	3.2	2.88	1.3	Ia
736	SMALL	2.32	2.74	1	IIa
737	SMALL	2.91	2.15	1.1	Ia
738	SMALL	7.39	3.11	1.5	Ia
739	SMALL	2.46	3.95	1.4	IIa
740	SMALL	4.84	2.84	1.1	Ia
741	SMALL	3.47	3.59	1.5	WIa
742	MEDIUM	4.36	4.59	1.7	WIa
743	MEDIUM	4.68	4.6	1.3	WIa
744	SMALL	7.08	3.48	1.4	Ia
745	SMALL	8.53	2.63	1.2	Ia
746	SMALL	8.83	3.23	1.2	Ia
747	SMALL	2.19	2.19	0.6	IIa
748	SMALL	2.91	2.83	1.2	IVa
749	SMALL	1.9	2.47	1.1	IIa
750	SMALL	0.93	2.7	1	IIa
751	SMALL	3.08	2.97	0.9	IVa
752	SMALL	2.29	2.58	1.2	IIa
753	SMALL	1.96	2.27	0.6	IIa
754	SMALL	1.79	2.93	1	Ic
755	SMALL	2.3	2.26	1	IIa
756	SMALL	2.11	2.83	0.8	IIa
757	SMALL	1.11	2.54	0.9	IIa
758	MEDIUM	8.22	4.43	1.3	WIa
759	SMALL	1.95	3.03	NA	IIa
760	SMALL	1.48	3.4	1.2	IIa
761	SMALL	2.35	3.76	0.9	IIa
762	SMALL	2.61	3.5	0.9	IVa
763	SMALL	2.76	3.27	0.8	IVa
764	MEDIUM	4.74	5.44	1.2	WIIc
765	SMALL	4.68	2.74	1.1	IIa
766	SMALL	2.85	4.03	1.8	WIa
767	MEDIUM	4.72	4.79	1.9	WIa
768	MEDIUM	4.5	4.86	1.3	WIa
769	SMALL	2.32	2.77	1.2	IIa
770	SMALL	1.34	2.89	1	IIa
771	SMALL	3.2	3.08	1.1	IIa
772	SMALL	2.57	2.38	1.1	IIa
773	NA	NA	NA	NA	NA
774	NA	NA	NA	NA	NA
775	MEDIUM	4.74	4.9	1.3	WIa
776	MEDIUM	3.63	4.95	1.8	WIa
777	SMALL	2.33	3.22	1	IIa
778	SMALL	4.42	2.72	1.3	IIa
779	SMALL	3.65	2.88	0.9	IIa
780	SMALL	3.31	2.84	1.2	IIa
781	SMALL	4.22	2.75	0.7	IIa
782	SMALL	1.4	2.27	1.2	IIa
783	NA	NA	NA	NA	NA
784	NA	NA	NA	NA	NA
785	SMALL	1.66	2.73	1.2	IIa
786	SMALL	4.13	2.78	1.3	IIa
787	SMALL	2.3	3.51	1	IVa
788	LARGE	5.63	6.23	1.8	WIa
789	MEDIUM	3.52	4.27	1.7	WIa
790	SMALL	2.1	2.5	1	IIa
791	SMALL	3.02	3.55	1.2	IIa
792	SMALL	3.14	3.22	1	IIa
793	NA	NA	NA	NA	NA

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
794	8ES115(	06F	5087	114	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
795	8ES115(	06F	5092	006	GLASS	BLOWN	COMPLETE	SIMPLE	SPHERICAL
796	8ES115(	06F	5214	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
797	8ES115(	06F	5215	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
798	8ES115(	06F	5239	012	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
799	8ES115(	06F	5241	044	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
800	8ES115(	06F	5241	044	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
801	8ES115(	06F	5241	045	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
802	8ES115(	06F	5241	045	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
803	8ES115(	06F	5241	046	GLASS	WOUND	INCOMPLETE	SIMPLE	CYLINDRICAL
804	8ES115(	06F	5241	047	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
805	8ES115(	06F	5241	047	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
806	8ES115(	06F	5241	047	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
807	8ES115(	06F	5241	048	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
808	8ES115(	06F	5241	048	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
809	8ES115(	06F	5241	048	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
810	8ES115(	06F	5241	049	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
811	8ES115(	06F	5389	009	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
812	8ES115(	06F	5407	050	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
813	8ES115(	06F	5407	050	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
814	8ES115(	06F	5407	051	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
815	8ES115(	06F	5407	053	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
816	8ES115(	06F	5409	011	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
817	8ES115(	06F	5413	058	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
818	8ES115(	06F	5427	003	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
819	8ES115(	06F	5428	002	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
820	8ES115(	06F	5434	024	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
821	8ES115(	06F	5489	010	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
822	8ES115(	06F	5490	009	GLASS	DRAWN	COMPLETE	COMPOUND	TUBULAR
823	8ES115(	06F	5490	010	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
824	8ES115(	06F	5607	061	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
825	8ES115(	06F	5607	062	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
826	8ES115(	06F	5631	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
827	8ES115(	06F	5672	026	GLASS	DRAWN	COMPLETE	SIMPLE	ANNULAR
828	8ES115(	06F	5673	063	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
829	8ES115(	06F	5788	012	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
830	8ES115(	06F	5838	010	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
831	8ES115(	06F	5910	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
832	8ES115(	06F	5976	017	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
833	8ES115(	06F	5979	040	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
834	8ES115(	06F	6070	020	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
835	8ES115(	06F	6073	037	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
836	8ES115(	06F	6073	038	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
837	8ES115(	06F	6079	025	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
838	8ES115(	06F	6240	098	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
839	8ES115(	06F	6314	005	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
840	8ES115(	06F	6366	001	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
841	8ES115	07L	74	10	GLASS	NA	INCOMPLETE	NA	SPHERICAL
842	8ES115	07L	74	10	GLASS	NA	INCOMPLETE	NA	SPHERICAL
843	8ES115	07L	99	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
844	8ES115	07L	99	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
845	8ES115	07L	194	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
846	8ES115	07L	194	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
847	8ES115	07L	199	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
848	8ES115	07L	339	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
849	8ES115	07L	430	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
850	8ES115	07L	431	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
851	8ES115	07L	456	52	GLASS	NA	COMPLETE	SIMPLE	SUB SPHERICAI
852	8ES115	07L	460	46	BONE	NA	COMPLETE	SIMPLE	CYLINDRICAL
853	8ES115	07L	540	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
854	8ES115	07L	586	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
794	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
795	N 9	WHITE	OPAQUE	NA	NA	NA
796	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
797	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
798	7.5B 8/2	PALE BLUE	TRANSPARENT	NA	NA	NA
799	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
800	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
801	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
802	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
803	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
804	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
805	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
806	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
807	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
808	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
809	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
810	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
811	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
812	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
813	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
814	7.5G 5/6	JADE GREEN	OPAQUE	NA	NA	NA
815	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
816	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
817	2.5R 5/8	LIGHT WINE	TRANSLUCENT	NA	NA	NA
818	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
819	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
820	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
821	7.5B 8/2	PALE BLUE	TRANSPARENT	NA	NA	NA
822	7.5G 5/6	JADE GREEN	OPAQUE	NA	NA	NA
823	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
824	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
825	2.5YR 2/2	DARK ROSE BROWN	TRANSLUCENT	NA	NA	NA
826	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
827	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
828	2.5YR 2/2	DARK ROSE BROWN	OPAQUE	NA	NA	NA
829	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
830	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
831	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
832	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
833	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
834	5.0PB 4/10	BRIGHT COPEN BLUE	OPAQUE	NA	NA	NA
835	2.5YR 2/2	DARK ROSE BROWN	OPAQUE	NA	NA	NA
836	7.5B 8/2	PALE BLUE	TRANSPARENT	NA	NA	NA
837	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
838	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
839	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
840	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
841	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
842	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
843	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
844	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
845	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
846	7.5B 7/6	LIGHT SKY BLUE	TRANSPARENT	NA	NA	NA
847	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
848	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
849	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
850	NA	CLEAR	TRANSPARENT	NA	NA	NA
851	NA	CLEAR	TRANSPARENT	NA	NA	NA
852	NA	NA	NA	NA	NA	NA
853	5.0Y 8/8	SUNLIGHT YELLOW	OPAQUE	NA	NA	NA
854	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
794	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
795	NA	NA	NA	FACETED	NA	GOOD
796	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
797	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
798	NA	NA	NA	NONE	NA	GOOD
799	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
800	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
801	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
802	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
803	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
804	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
805	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
806	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
807	NA	NA	NA	NONE	NA	GOOD
808	NA	NA	NA	NONE	NA	GOOD
809	NA	NA	NA	NONE	NA	GOOD
810	NA	NA	NA	NONE	NA	GOOD
811	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
812	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
813	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
814	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
815	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
816	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
817	NA	NA	NA	NONE	HEAT ROUNDED	POOR
818	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
819	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
820	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
821	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
822	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
823	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
824	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
825	NA	NA	NA	NONE	NA	GOOD
826	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
827	NA	NA	NA	NONE	HEAT ROUNDED	POOR
828	NA	NA	NA	NONE	HEAT ROUNDED	POOR
829	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
830	NA	NA	NA	NONE	NA	GOOD
831	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
832	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
833	NA	NA	NA	NONE	HEAT ROUNDED	POOR
834	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
835	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
836	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
837	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
838	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
839	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
840	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
841	NA	NA	NA	NA	NA	NA
842	NA	NA	NA	NA	NA	NA
843	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
844	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
845	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
846	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
847	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
848	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
849	NA	NA	NA	FACETED	GROUND	GOOD
850	NA	NA	NA	FACETED	GROUND	FAIR
851	NA	NA	NA	NONE	CARVED	GOOD
852	NA	NA	NA	NONE	CARVED	GOOD
853	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
854	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
794	VERY SMALL	1.07	1.62	0.5	IIa
795	LARGE	11.98	11.07	1.7	BIa
796	MEDIUM	4.87	4.8	2.1	IIa
797	MEDIUM	3.96	4.84	1.7	IIa
798	SMALL	4.86	2.72	1.2	Ia
799	SMALL	2.6	3.46	1.1	IIa
800	SMALL	2.79	3.98	1.1	IIa
801	MEDIUM	4.89	4.77	1.3	WIa
802	MEDIUM	4.95	5.16	1.4	WIa
803	LARGE	NA	7.09	1.4	WIIc
804	SMALL	2.32	3.4	1	IVa
805	SMALL	2.71	3.15	1	IVa
806	SMALL	2.44	3.02	0.9	IVa
807	SMALL	3.43	2.71	1.4	Ia
808	SMALL	3.1	2.28	1.2	Ia
809	SMALL	2.74	2.58	1.2	Ia
810	SMALL	7.33	3.1	1.3	Ia
811	SMALL	1.73	3.23	0.8	IIa
812	SMALL	3.12	3.11	1.1	IVa
813	SMALL	2.27	3.13	0.9	IVa
814	SMALL	2.43	3.2	1.2	IIa
815	SMALL	2.38	3.51	1.2	IIa
816	SMALL	3.65	2.7	1.2	IIa
817	SMALL	NA	NA	2.5	IIa
818	SMALL	0.94	2.47	0.8	IIa
819	MEDIUM	6.19	4.58	1.7	IIa
820	SMALL	2.14	3.35	1.1	IIa
821	SMALL	3.87	2.99	1.5	IIa
822	SMALL	5.37	2.63	1	IIa
823	SMALL	2.58	3.9	1	IIa
824	MEDIUM	3.12	4.16	1.5	IVa
825	SMALL	5.14	2.79	1.2	Ia
826	SMALL	1.55	2.16	1.1	IIa
827	VERY SMALL	1.01	1.99	1.1	IIa
828	SMALL	5.73	2.66	1.1	IIa
829	SMALL	2.05	2.78	0.8	IIa
830	SMALL	4.59	2.5	1.2	Ia
831	SMALL	2.73	3.24	1.1	IIa
832	VERY SMALL	1.19	1.38	0.5	IIa
833	SMALL	1.44	3.22	1	IIa
834	SMALL	2.89	3.13	0.9	IIa
835	SMALL	1.39	2.94	1	IIa
836	SMALL	4.15	3.15	1.1	Ia
837	SMALL	2.45	3.37	1.2	IIa
838	SMALL	3.14	4.01	1.3	IIa
839	SMALL	1.23	2.61	1	IIa
840	SMALL	2.21	3.05	1.1	IIa
841	NA	NA	NA	NA	NA
842	NA	NA	NA	NA	NA
843	SMALL	1.31	2.24	0.9	IIa
844	SMALL	2.01	2.89	0.9	IIa
845	SMALL	1.15	3.07	1.3	IIa
846	SMALL	2.94	3.49	0.8	If
847	SMALL	1.43	2.74	0.8	IIa
848	SMALL	2.57	3.01	1.1	IIa
849	MEDIUM	4.25	4.97	2.1	If
850	MEDIUM	5.62	5.84	2.4	If
851	MEDIUM	6.66	4.32	1	NA
852	LARGE	6.58	7.87	2.8	NA
853	SMALL	1.91	3.16	0.9	IIa
854	SMALL	2.08	3.47	1	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
855	8ES115	07L	589	48	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
856	8ES115	07L	632	31	GLASS	MOLDED	COMPLETE	COMPOUND	SQUARE
857	8ES115	07L	710	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
858	8ES347[illegible]	09F	85	6	GLASS	DRAWN	COMPLETE	SIMPLE	SPHERICAL
859	8ES347[illegible]	09F	93	10	GLASS	DRAWN	COMPLETE	SIMPLE	SPHERICAL
860	8ES347[illegible]	09F	106	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
861	8ES347[illegible]	09F	107	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
862	8ES347[illegible]	09F	118	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
863	8ES347[illegible]	09F	354	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
864	8ES347[illegible]	09F	371	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
865	8ES347[illegible]	09F	377	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
866	8ES347[illegible]	09F	390	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
867	8ES347[illegible]	09F	390	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
868	8ES347[illegible]	09F	398	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
869	8ES347[illegible]	09F	423	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
870	8ES347[illegible]	09F	423	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
871	8ES347[illegible]	09F	423	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
872	8ES347[illegible]	09F	423	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
873	8ES347[illegible]	09F	434	42	GLASS	DRAWN	INCOMPLETE	SIMPLE	CYLINDRICAL
874	8ES347[illegible]	09F	434	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
875	8ES347[illegible]	09F	434	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
876	8ES347[illegible]	09F	434	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
877	8ES347[illegible]	09F	434	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
878	8ES347[illegible]	09F	434	42	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
879	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
880	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
881	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
882	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
883	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
884	8ES347[illegible]	09F	434	43	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
885	8ES347[illegible]	09F	434	44	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
886	8ES347[illegible]	09F	434	44	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
887	8ES347[illegible]	09F	434	44	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
888	8ES347[illegible]	09F	448	7	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
889	8ES347[illegible]	09F	460	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
890	8ES347[illegible]	09F	468	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
891	8ES347[illegible]	09F	468	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
892	8ES347[illegible]	09F	469	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
893	8ES347[illegible]	09F	503	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
894	8ES347[illegible]	09F	505	1	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
895	8ES347[illegible]	09F	505	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
896	8ES347[illegible]	09F	505	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
897	8ES347[illegible]	09F	509	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
898	8ES347[illegible]	09F	513	1	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
899	8ES347[illegible]	09F	513	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
900	8ES347[illegible]	09F	522	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
901	8ES347[illegible]	09F	540	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
902	8ES347[illegible]	09F	557	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
903	8ES347[illegible]	09F	557	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
904	8ES347[illegible]	09F	557	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
905	8ES347[illegible]	09F	557	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
906	8ES347[illegible]	09F	557	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
907	8ES347[illegible]	09F	578	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
908	8ES347[illegible]	09F	580	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
909	8ES347[illegible]	09F	580	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
910	8ES347[illegible]	09F	580	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
911	8ES347[illegible]	09F	580	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
912	8ES347[illegible]	09F	580	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
913	8ES347[illegible]	09F	635	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
914	8ES347[illegible]	09F	672	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
915	8ES347[illegible]	09F	691	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
855	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
856	N 9.5	BRIGHT WHITE	OPAQUE	N 1	LAMP BLACK	OPAQUE
857	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
858	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
859	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
860	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
861	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
862	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
863	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
864	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
865	NA	CLEAR	TRANSPARENT	NA	NA	NA
866	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
867	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
868	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
869	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
870	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
871	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
872	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
873	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
874	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
875	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
876	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
877	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
878	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
879	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
880	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
881	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
882	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
883	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
884	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
885	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
886	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
887	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
888	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
889	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
890	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
891	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
892	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
893	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
894	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
895	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
896	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
897	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
898	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
899	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
900	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
901	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
902	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
903	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
904	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
905	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
906	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
907	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
908	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
909	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
910	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
911	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
912	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
913	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
914	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
915	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
855	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
856	5.0P 5/4	LILAC	TRANSLUCENT	STRIPED	GROUND	GOOD
857	NA	NA	NA	NONE	HEAT ROUNDED	POOR
858	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
859	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
860	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
861	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
862	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
863	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
864	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
865	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
866	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
867	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
868	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
869	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
870	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
871	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
872	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
873	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
874	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
875	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
876	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
877	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
878	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
879	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
880	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
881	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
882	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
883	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
884	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
885	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
886	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
887	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
888	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
889	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
890	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
891	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
892	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
893	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
894	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
895	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
896	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
897	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
898	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
899	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
900	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
901	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
902	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
903	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
904	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
905	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
906	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
907	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
908	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
909	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
910	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
911	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
912	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
913	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
914	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
915	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
855	SMALL	2.89	3.58	1.2	IIa
856	LARGE	10.19	4.87	0.9	MPIg
857	SMALL	3.56	3.75	1	IIa
858	MEDIUM	3.97	4.54	1.1	IIa
859	MEDIUM	3.73	4.29	0.8	IIa
860	SMALL	1.82	3.15	0.8	IIa
861	SMALL	1.76	3.05	0.8	IIa
862	SMALL	2.03	3.19	0.8	IIa
863	SMALL	2.19	2.78	0.7	IIa
864	SMALL	2.29	3.02	0.9	IIa
865	SMALL	2.01	2.58	0.9	IIa
866	SMALL	1.56	3.52	1	IIa
867	SMALL	2.94	3.24	0.7	IIa
868	SMALL	2.14	3.92	1.1	IIa
869	SMALL	1.87	3.12	1	IIa
870	SMALL	1.91	3.34	0.8	IIa
871	SMALL	2.26	3.03	0.9	IIa
872	SMALL	2.47	3.33	1	IIa
873	SMALL	NA	3.17	1	IIa
874	SMALL	1.83	2.77	0.8	IIa
875	SMALL	2.7	3.6	1.1	IIa
876	SMALL	2.06	2.88	0.7	IIa
877	SMALL	1.75	2.9	0.8	IIa
878	SMALL	2.08	2.93	1	IIa
879	SMALL	2.21	3.2	1.1	IIa
880	SMALL	2.46	3.26	1	IIa
881	SMALL	1.4	2.83	0.9	IIa
882	SMALL	1.49	3.61	1.2	IIa
883	SMALL	1.83	3.07	1.1	IIa
884	SMALL	1.79	2.64	1.1	IIa
885	SMALL	1.83	2.73	0.9	IIa
886	SMALL	2.35	2.99	0.9	IIa
887	SMALL	2.83	2.42	0.8	IIa
888	SMALL	5.45	2.89	1	IIa
889	SMALL	1.71	2.63	0.9	IIa
890	SMALL	2.07	3.03	1	IIa
891	SMALL	1.43	2.91	0.7	IIa
892	SMALL	2.18	3.49	1	IIa
893	SMALL	1.92	3.11	0.7	IIa
894	SMALL	5.05	2.96	1.1	WIc
895	SMALL	1.8	3.27	0.9	IIa
896	SMALL	1.8	2.83	0.9	IIa
897	SMALL	1.8	3.36	0.7	IIa
898	SMALL	5.69	3.39	1.3	WIc
899	SMALL	1.86	3.37	1	IIa
900	SMALL	1.97	2.87	0.8	IIa
901	SMALL	2.05	2.29	0.7	IIa
902	SMALL	1.58	2.88	0.7	IIa
903	SMALL	2.89	3.42	1.2	IIa
904	SMALL	2.36	3.43	0.7	IIa
905	SMALL	1.72	3.31	0.9	IIa
906	SMALL	2.3	3.29	0.9	IIa
907	SMALL	2.36	2.7	0.6	IIa
908	SMALL	1.95	3.32	0.8	IIa
909	SMALL	2.06	2.81	0.7	IIa
910	SMALL	1.76	3.29	0.8	IIa
911	SMALL	1.76	2.98	0.8	IIa
912	SMALL	2.08	2.38	0.7	IIa
913	SMALL	2.36	3.18	0.9	IIa
914	SMALL	1.9	2.94	0.8	IIa
915	SMALL	2.52	2.36	0.7	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
916	8ES3473	09F	691	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
917	8ES3473	09F	691	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
918	8ES3473	10F	1053	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
919	8ES3473	10F	1114	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
920	8ES3473	10F	1183	36	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
921	8ES3473	10F	1183	37	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
922	8ES3473	10F	1183	37	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
923	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
924	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
925	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
926	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
927	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
928	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
929	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
930	8ES3473	10F	1183	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
931	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
932	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
933	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
934	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
935	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
936	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
937	8ES3473	10F	1183	39	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
938	8ES3473	10F	1186	31	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
939	8ES3473	10F	1194	8 (1?)	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
940	8ES3473	10F	1196	12	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
941	8ES3473	10F	1196	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
942	8ES3473	10F	1198	31	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
943	8ES3473	10F	1198	31	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
944	8ES3473	10F	1198	31	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
945	8ES3473	10F	1208	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
946	8ES3473	10F	1238	5	GLASS	DRAWN	COMPLETE	SIMPLE	BICONICAL
947	8ES3473	10F	1244	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
948	8ES3473	10F	1247	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
949	8ES3473	10F	1253	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
950	8ES3473	10F	1256	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
951	8ES3473	10F	1265	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
952	8ES3473	10F	1266	13	GLASS	WOUND	COMPLETE	SIMPLE	BICONICAL
953	8ES3473	10F	1266	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
954	8ES3473	10F	1266	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
955	8ES3473	10F	1281	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
956	8ES3473	10F	1283	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
957	8ES3473	10F	1283	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
958	8ES3473	10F	1283	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
959	8ES3473	10F	1306	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
960	8ES3473	10F	1306	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
961	8ES3473	10F	1314	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
962	8ES3473	10F	1314	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
963	8ES3473	10F	1320	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
964	8ES3473	10F	1348	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
965	8ES3473	10F	1360	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
966	8ES3473	10F	1360	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
967	8ES3473	10F	1380	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
968	8ES3473	10F	1382	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
969	8ES3473	10F	1389	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
970	8ES3473	10F	1389	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
971	8ES3473	10F	1389	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
972	8ES3473	10F	1411	6	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
973	8ES3473	10F	1413	47	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
974	8ES3473	10F	1413	47	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
975	8ES3473	10F	1413	47	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
976	8ES3473	10F	1413	48	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
916	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
917	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
918	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
919	NA	CLEAR	TRANSPARENT	NA	NA	NA
920	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
921	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
922	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
923	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
924	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
925	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
926	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
927	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
928	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
929	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
930	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
931	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
932	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
933	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
934	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
935	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
936	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
937	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
938	6.25PB 3/12	ULTRAMARINE	OPAQUE	NA	NA	NA
939	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
940	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
941	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
942	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
943	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
944	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
945	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
946	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
947	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
948	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
949	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
950	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
951	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
952	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
953	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
954	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
955	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
956	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
957	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
958	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
959	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
960	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
961	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
962	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
963	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
964	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
965	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
966	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
967	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
968	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
969	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
970	NA	CLEAR	TRANSPARENT	NA	NA	NA
971	NA	NA	OPAQUE	NA	NA	NA
972	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
973	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
974	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
975	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
976	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
916	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
917	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
918	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
919	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
920	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
921	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
922	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
923	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
924	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
925	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
926	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
927	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
928	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
929	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
930	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
931	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
932	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
933	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
934	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
935	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
936	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
937	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
938	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
939	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
940	NA	NA	NA	NONE	NA	GOOD
941	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
942	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
943	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
944	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
945	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
946	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
947	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
948	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
949	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
950	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
951	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
952	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
953	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
954	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
955	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
956	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
957	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
958	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
959	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
960	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
961	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
962	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
963	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
964	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
965	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
966	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
967	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
968	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
969	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
970	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
971	NA	NA	NA	NONE	HEAT ROUNDED	POOR
972	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
973	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
974	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
975	NA	NA	NA	NONE	NA	GOOD
976	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
916	SMALL	1.2	2.82	0.6	IIa
917	SMALL	2.04	2.86	0.8	IIa
918	MEDIUM	3	4.31	1.7	IIa
919	SMALL	2.45	3.56	NA	IIa
920	SMALL	9.78	3.97	1	IIa
921	SMALL	2.08	2.71	0.7	IIa
922	SMALL	1.97	2.86	0.7	IIa
923	SMALL	2.32	3.02	0.9	IIa
924	SMALL	1.9	3.1	0.8	IIa
925	SMALL	1.4	3.23	0.8	IIa
926	SMALL	2.22	3.38	1	IIa
927	SMALL	2.21	3.19	0.8	IIa
928	SMALL	2.16	3.38	0.9	IIa
929	SMALL	2.03	3.69	0.8	IIa
930	SMALL	1.8	3.33	0.9	IIa
931	SMALL	1.99	3.41	1	IIa
932	SMALL	2.37	3.17	1	IIa
933	SMALL	1.9	3.68	1.1	IIa
934	SMALL	2.04	3.05	0.9	IIa
935	SMALL	2.05	3.35	0.7	IIa
936	SMALL	1.17	2.86	1	IIa
937	SMALL	2	2.86	0.9	IIa
938	SMALL	2.51	3.58	0.7	IIa
939	SMALL	2.23	3.38	0.9	IIa
940	SMALL	4.98	2.87	1	Ia
941	SMALL	2.2	3.36	0.8	IIa
942	SMALL	1.73	3.03	1	IIa
943	SMALL	1.73	2.92	0.9	IIa
944	SMALL	1.73	3.35	1	IIa
945	SMALL	1.85	3.41	1.1	IIa
946	SMALL	3.32	3.52	1	IIa
947	SMALL	2.6	3.2	1.1	IIa
948	SMALL	1.99	3.05	1	IIa
949	SMALL	2.96	2.79	0.8	IIa
950	SMALL	2.06	2.68	0.8	IIa
951	SMALL	2.32	3.07	0.8	IIa
952	MEDIUM	4.44	4.21	1	WIb
953	SMALL	2.04	3.18	0.8	IIa
954	SMALL	1.96	3.31	0.8	IIa
955	SMALL	1.99	3.98	1	IIa
956	SMALL	2.41	3.21	1	IIa
957	SMALL	1.6	2.84	1	IIa
958	SMALL	2.05	3.33	1.2	IIa
959	SMALL	2.22	3.18	0.9	IIa
960	SMALL	2	3.33	0.9	IIa
961	SMALL	1.86	2.82	0.8	IIa
962	SMALL	1.91	2.6	0.5	IIa
963	SMALL	2.02	2.98	0.9	IIa
964	SMALL	2.66	3.23	0.8	IIa
965	SMALL	1.44	3.01	0.8	IIa
966	SMALL	1.94	3.1	0.9	IIa
967	SMALL	2.65	2.62	0.8	IIa
968	SMALL	1.65	2.93	0.8	IIa
969	VERY SMALL	1.34	1.77	0.4	IIa
970	SMALL	2.41	3.32	1	IIa
971	SMALL	2.11	2.38	0.5	IIa
972	SMALL	4.93	3.23	1.1	IIa
973	SMALL	1.83	3.24	0.7	IIa
974	SMALL	1.96	3.3	0.8	IIa
975	SMALL	4.59	3.25	1	Ia
976	SMALL	1.6	2.8	0.7	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
977	8ES3473	10F	1413	49	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
978	8ES3473	10F	1413	50	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
979	8ES3473	10F	1416	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
980	8ES3473	10F	1416	22	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
981	8ES3473	10F	1440	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
982	8ES3473	10F	1440	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
983	8ES3473	10F	1442	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
984	8ES3473	10F	1442	17	GLASS	WOUND	COMPLETE	SIMPLE	CYLINDRICAL
985	8ES3473	10F	1461	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
986	8ES3473	10F	1462	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
987	8ES3473	10F	1462	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
988	8ES3473	10F	1489	6	NA	NA	NA	NA	NA
989	8ES3473	10F	1569	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
990	8ES3473	10F	1648	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
991	8ES3473	10F	1746	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
992	8ES3473	10F	1767	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
993	8ES3473	10F	1802	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
994	8ES3473	10F	1805	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
995	8ES3473	11F	2019	1	GLASS	DRAWN	INCOMPLETE	SIMPLE	TUBULAR
996	8ES3473	11F	2060	10	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
997	8ES3473	11F	2083	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
998	8ES3473	11F	2127	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
999	8ES3473	11F	2148	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1000	8ES3473	11F	2216	8	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
1001	8ES3473	11F	2223	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1002	8ES3473	11F	2247	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1003	8ES3473	11F	2249	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1004	8ES3473	11F	2285	1	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1005	8ES3473	11F	2421	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1006	8ES3473	11F	2458	6	GLASS	WOUND	COMPLETE	SIMPLE	MELON
1007	8ES3473	11F	2492	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1008	8ES3473	11F	2520	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1009	8ES3473	11F	2547	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1010	8ES3473	11F	2785	10	GLASS	WOUND	COMPLETE	SIMPLE	OVOID
1011	8ES3473	11F	2836	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1012	8ES3473	11F	2886	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1013	8ES3473	11F	2913	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1014	8ES3473	11F	2930	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1015	8ES3473	11F	2991	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1016	8ES3473	11F	3018	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1017	8ES3473	11F	3097	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1018	8ES3473	12F	4014	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1019	8ES3473	12F	4036	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1020	8ES3473	12F	4092	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1021	8ES3473	12F	4092	18	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1022	8ES3473	12F	4106	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1023	8ES3473	12F	4106	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1024	8ES3473	12F	4110	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1025	8ES3473	12F	4173	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1026	8ES3473	12F	4190	3	GLASS	WOUND	INCOMPLETE	SIMPLE	OVOID
1027	8ES3473	12F	4191	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1028	8ES3473	12F	4205	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1029	8ES3473	12F	4220	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1030	8ES3473	12F	4238	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1031	8ES3473	12F	4239	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1032	8ES3473	12F	4240	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1033	8ES3473	12F	4241	18	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1034	8ES3473	12F	4241	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1035	8ES3473	12F	4264	4	GLASS	WOUND	INCOMPLETE	SIMPLE	OVOID
1036	8ES3473	12F	4269	25	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1037	8ES3473	12F	4269	25	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
977	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
978	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
979	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
980	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
981	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
982	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
983	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
984	2.5YR 2/2	DARK ROSE BROWN	TRANSLUCENT	NA	NA	NA
985	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
986	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
987	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
988	NA	NA	NA	NA	NA	NA
989	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
990	6.25PB 3/12	ULTRAMARINE	TRANSPARENT	NA	NA	NA
991	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
992	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
993	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
994	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
995	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
996	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
997	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
998	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
999	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1000	N 9.5	BRIGHT WHITE	OPAQUE	5.0Y 8/8	SUNLIGHT YELLOW	TRANSLUCENT
1001	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1002	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1003	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1004	NA	CLEAR	TRANSPARENT	NA	NA	NA
1005	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1006	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1007	NA	CLEAR	TRANSPARENT	NA	NA	NA
1008	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1009	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1010	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1011	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1012	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1013	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1014	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1015	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1016	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1017	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1018	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1019	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1020	5.0PB 5/7	COPEN BLUE	OPAQUE	NA	NA	NA
1021	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1022	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1023	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1024	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1025	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1026	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1027	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1028	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1029	NA	CLEAR	TRANSPARENT	NA	NA	NA
1030	5.0PB 5/7	COPEN BLUE	OPAQUE	NA	NA	NA
1031	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1032	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1033	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1034	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1035	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1036	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1037	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
977	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
978	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
979	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
980	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
981	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
982	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
983	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
984	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
985	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
986	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
987	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
988	NA	NA	NA	NA	NA	NA
989	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
990	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
991	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
992	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
993	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
994	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
995	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
996	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
997	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
998	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
999	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1000	NA	NA	NA	STRIPED	HEAT ROUNDED	GOOD
1001	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1002	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1003	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1004	NA	NA	NA	FACETED	HEAT ROUNDED	GOOD
1005	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1006	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1007	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1008	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1009	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1010	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1011	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1012	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1013	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1014	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1015	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1016	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1017	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1018	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1019	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1020	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1021	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1022	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1023	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1024	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1025	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1026	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
1027	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1028	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1029	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1030	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1031	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1032	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1033	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1034	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1035	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1036	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1037	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
977	SMALL	1.85	2.85	0.8	IIa
978	SMALL	1.86	2.87	1	IIa
979	SMALL	2.09	3.05	0.6	IIa
980	SMALL	3.85	2.45	0.8	IIa
981	SMALL	2.16	2.74	0.8	IIa
982	SMALL	2.69	3.97	1.3	IIa
983	SMALL	1.86	2.68	1	IIa
984	SMALL	3.03	3.87	1.2	WIIc
985	MEDIUM	3.97	4.89	0.9	IIa
986	SMALL	2.67	3.03	1	IIa
987	SMALL	2.32	3.14	1	IIa
988	NA	NA	NA	NA	NA
989	MEDIUM	2.06	4.14	1	IIa
990	SMALL	2.8	2.78	0.8	IIa
991	SMALL	2.22	3.1	0.8	IIa
992	SMALL	2.94	3.01	1	IIa
993	MEDIUM	3.3	5.29	1.3	IIa
994	SMALL	2.42	3.49	1	IIa
995	MEDIUM	NA	4.27	1.6	IIa
996	SMALL	5.08	2.93	1.2	WIc
997	SMALL	1.97	3.35	1	IIa
998	SMALL	2.44	3.7	1.1	IIa
999	SMALL	2.7	3.48	0.8	IIa
1000	SMALL	3.35	3.32	0.9	IIb
1001	SMALL	1.85	2.95	0.7	IIa
1002	SMALL	2.33	3.01	1	IIa
1003	SMALL	2.02	2.89	0.9	IIa
1004	VERY LARGE	7.83	10.15	2.8	WIIc
1005	SMALL	2.36	3.6	0.7	IIa
1006	LARGE	8.92	10.01	3.1	WIIe
1007	MEDIUM	4.58	5.02	1.2	IIa
1008	SMALL	2.31	3.33	1	IIa
1009	SMALL	2.33	3.01	0.7	IIa
1010	SMALL	5.21	2.74	1.3	WIc
1011	SMALL	1.82	2.98	0.9	IIa
1012	SMALL	1.99	3.1	0.8	IIa
1013	SMALL	2.27	3.33	0.9	IIa
1014	SMALL	2.24	3.73	1	IIa
1015	SMALL	1.81	3.19	0.9	IIa
1016	SMALL	1.57	2.8	1	IIa
1017	SMALL	1.89	2.79	0.9	IIa
1018	SMALL	2.27	3.15	1.1	IIa
1019	SMALL	2.23	3.43	1	IIa
1020	SMALL	2.07	3.63	1.1	IIa
1021	SMALL	9.46	3.92	1.1	IIa
1022	SMALL	2.93	2.92	0.9	IIa
1023	SMALL	2.29	3.21	0.6	IIa
1024	SMALL	2.06	3.33	0.7	IIa
1025	SMALL	2.49	3.2	0.9	IIa
1026	SMALL	NA	2.91	1.2	WIc
1027	SMALL	2.63	3.83	0.9	IIa
1028	SMALL	2.39	3.09	0.8	IIa
1029	SMALL	2.51	2.32	0.6	IIa
1030	SMALL	1.55	2.65	0.7	IIa
1031	SMALL	1.83	2.9	0.9	IIa
1032	SMALL	2.17	3.12	0.6	IIa
1033	SMALL	2.47	3.13	0.7	IIa
1034	SMALL	2.05	3.23	0.7	IIa
1035	SMALL	NA	3.68	1.1	WIc
1036	SMALL	2.66	3.38	0.9	IIa
1037	SMALL	2.54	3.37	0.9	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
1038	8ES3473	12F	4273	7	GLASS	DRAWN	COMPLETE	COMPOUND	CYLINDRICAL
1039	8ES3473	12F	4277	15	GLASS	WOUND	INCOMPLETE	SIMPLE	SUB SPHERICAI
1040	8ES3473	12F	4280	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1041	8ES3473	12F	4291	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1042	8ES3473	12F	4330	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1043	8ES3473	12F	4330	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1044	8ES3473	12F	4330	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1045	8ES3473	12F	4339	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1046	8ES3473	12F	4339	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1047	8ES3473	12F	4367	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1048	8ES3473	12F	4377	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1049	8ES3473	12F	4377	22	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1050	8ES3473	12F	4399	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1051	8ES3473	12F	4400	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1052	8ES3473	12F	4400	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1053	8ES3473	12F	4406	26	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1054	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1055	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1056	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1057	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1058	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1059	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1060	8ES3473	12F	4406	27	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1061	8ES3473	12F	4407	11	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1062	8ES3473	12F	4427	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1063	8ES3473	12F	4438	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1064	8ES3473	12F	4438	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1065	8ES3473	12F	4440	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1066	8ES3473	12F	4484	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1067	8ES3473	12F	4488	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1068	8ES3473	12F	4518	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1069	8ES3473	12F	4523	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1070	8ES3473	12F	4578	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1071	8ES3473	12F	4659	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1072	8ES3473	12F	4683	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1073	8ES3473	14F	5048	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1074	8ES3473	14F	5064	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1075	8ES3473	14F	5066	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1076	8ES3473	14F	5066	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1077	8ES3473	14F	5066	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1078	8ES3473	14F	5066	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1079	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1080	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1081	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1082	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1083	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1084	8ES3473	14F	5086	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1085	8ES3473	14F	5086	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1086	8ES3473	14F	5086	12	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1087	8ES3473	14F	5087	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1088	8ES3473	14F	5114	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1089	8ES3473	14F	5115	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1090	8ES3473	14F	5115	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1091	8ES3473	14F	5115	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1092	8ES3473	14F	5117	9	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1093	8ES3473	14F	5122	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1094	8ES3473	14F	5144	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1095	8ES3473	14F	5161	5	GLASS	DRAWN	COMPLETE	SIMPLE	TOROIDAL
1096	8ES3473	14F	5167	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1097	8ES3473	14F	5179	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1098	8ES3473	14F	5179	28	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
1038	10.0R 4/8	REDWOOD	OPAQUE	7.5GY 8/4	WATER GREEN	TRANSPARENT
1039	2.5Y 7/8	LIGHT GOLD	TRANSLUCENT	NA	NA	NA
1040	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1041	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1042	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1043	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1044	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1045	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1046	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1047	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1048	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1049	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1050	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1051	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1052	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1053	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1054	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1055	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1056	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1057	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1058	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1059	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1060	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1061	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1062	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1063	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1064	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1065	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1066	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1067	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1068	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1069	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1070	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1071	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1072	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1073	5.0PB 5/7	COPEN BLUE	OPAQUE	NA	NA	NA
1074	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1075	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1076	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1077	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1078	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1079	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1080	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1081	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1082	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1083	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1084	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1085	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1086	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1087	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1088	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1089	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1090	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1091	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1092	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1093	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1094	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1095	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1096	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1097	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1098	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
1038	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1039	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1040	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1041	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1042	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1043	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1044	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1045	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1046	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1047	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1048	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1049	NA	NA	NA	NONE	NA	GOOD
1050	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1051	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1052	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1053	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1054	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1055	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1056	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1057	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1058	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1059	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1060	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1061	NA	NA	NA	NONE	NA	GOOD
1062	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1063	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1064	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1065	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1066	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1067	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1068	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1069	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1070	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1071	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1072	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1073	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1074	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1075	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1076	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1077	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1078	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1079	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1080	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1081	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1082	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1083	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1084	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1085	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1086	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1087	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
1088	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1089	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1090	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1091	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1092	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1093	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1094	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1095	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1096	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1097	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1098	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
1038	SMALL	2.94	3.41	1.2	IVa
1039	LARGE	7.35	8.59	2.8	WIb
1040	SMALL	1.91	3.13	0.8	IIa
1041	SMALL	1.76	2.67	0.7	IIa
1042	SMALL	1.85	2.75	0.6	IIa
1043	SMALL	2.14	2.39	0.6	IIa
1044	SMALL	1.37	2.21	0.5	IIa
1045	SMALL	2.37	3.94	0.8	IIa
1046	SMALL	1.51	2.73	0.8	IIa
1047	SMALL	2.11	3.13	0.8	IIa
1048	SMALL	1.82	3.02	0.6	IIa
1049	SMALL	4.88	3.73	1.2	Ia
1050	SMALL	2.7	3.32	0.9	IIa
1051	SMALL	1.73	3.23	0.7	IIa
1052	SMALL	2.5	3	0.9	IIa
1053	SMALL	2.3	3.46	0.9	IIa
1054	SMALL	2.03	3.16	0.7	IIa
1055	SMALL	1.94	3.02	0.6	IIa
1056	SMALL	2.21	3.12	0.9	IIa
1057	SMALL	2.04	2.8	0.7	IIa
1058	SMALL	1.52	2.38	0.7	IIa
1059	SMALL	1.03	2.5	0.6	IIa
1060	SMALL	1.35	2.1	0.5	IIa
1061	SMALL	6.26	3.76	1.3	Ia
1062	SMALL	2.08	3.67	1	IIa
1063	SMALL	2.02	3.37	1	IIa
1064	SMALL	2.17	2.97	0.6	IIa
1065	SMALL	2.36	3.18	0.9	IIa
1066	SMALL	2.19	2.88	0.6	IIa
1067	SMALL	1.91	2.91	0.6	IIa
1068	SMALL	2.25	3.19	0.9	IIa
1069	SMALL	2.19	2.89	0.9	IIa
1070	SMALL	2.4	3.18	0.7	IIa
1071	SMALL	1.52	2.74	0.7	IIa
1072	SMALL	1.61	3	0.8	IIa
1073	SMALL	2.74	3.41	1	IIa
1074	SMALL	1.82	3.16	0.8	IIa
1075	SMALL	2.46	3.26	0.9	IIa
1076	SMALL	2.7	2.78	0.7	IIa
1077	SMALL	2.38	3.56	1	IIa
1078	SMALL	2.39	3.39	1	IIa
1079	SMALL	2.41	3.18	1.1	IIa
1080	SMALL	2.04	3.45	0.8	IIa
1081	SMALL	2.36	3.29	1	IIa
1082	SMALL	2.53	3.25	0.9	IIa
1083	SMALL	2.37	3.57	1	IIa
1084	SMALL	2.58	3.38	0.8	IIa
1085	SMALL	1.91	3.19	0.9	IIa
1086	SMALL	2.69	2.79	0.6	IIa
1087	SMALL	1.86	3.28	1	IIa
1088	SMALL	2.41	2.71	0.9	IIa
1089	SMALL	2.29	3.46	0.8	IIa
1090	SMALL	2.59	3.52	0.8	IIa
1091	SMALL	2.37	3.07	0.9	IIa
1092	SMALL	2.95	3.78	0.9	IIa
1093	SMALL	2.62	3.44	1	IIa
1094	SMALL	2.83	3.27	1	IIa
1095	SMALL	0.84	2.41	0.6	IIa
1096	SMALL	1.97	2.91	0.8	IIa
1097	SMALL	2.31	3.27	0.8	IIa
1098	SMALL	2.02	2.95	0.6	IIa

Sample #	Site #	Year	Prov. #	Cat. #	Material	Manufacture Technique	Completeness	Bead Structure	Bead Shape
1099	8ES3473	14F	5179	29	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1100	8ES3473	14F	5181	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1101	8ES3473	14F	5181	16	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1102	8ES3473	14F	5188	5	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1103	8ES3473	14F	5261	1	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1104	8ES3473	14F	5284	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1105	8ES3473	14F	5288	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1106	8ES3473	14F	5302	3	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1107	8ES3473	14F	5315	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1108	8ES3473	14F	5315	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1109	8ES3473	14F	5315	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1110	8ES3473	14F	5315	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1111	8ES3473	14F	5315	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1112	8ES3473	14F	5351	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1113	8ES3473	14F	5351	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1114	8ES3473	14F	5361	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1115	8ES3473	14F	5361	8	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1116	8ES3473	14F	5364	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1117	8ES3473	14F	5364	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1118	8ES3473	14F	5401	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1119	8ES3473	14F	5401	14	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1120	8ES3473	14F	5407	2	GLASS	WOUND	COMPLETE	SIMPLE	SUB SPHERICAI
1121	8ES3473	14F	5426	15	GLASS	DRAWN	COMPLETE	SIMPLE	TUBULAR
1122	8ES3473	14F	5458	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1123	8ES3473	14F	5459	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1124	8ES3473	14F	5515	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1125	8ES3473	14F	5569	11	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1126	8ES3473	14F	5570	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1127	8ES3473	14F	5576	10	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1128	8ES3473	14F	5588	3	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1129	8ES3473	14F	5588	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1130	8ES3473	14F	5589	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1131	8ES3473	14F	5589	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1132	8ES3473	14F	5607	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1133	8ES3473	14F	5615	19	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1134	8ES3473	14F	5615	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1135	8ES3473	14F	5615	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1136	8ES3473	14F	5616	4	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1137	8ES3473	14F	5616	13	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1138	8ES3473	14F	5619	7	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1139	8ES3473	14F	5629	3	GLASS	DRAWN	COMPLETE	SIMPLE	SUB SPHERICAI
1140	8ES3473	14F	5655	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1141	8ES3473	15F	6040	14	GLASS	DRAWN	COMPLETE	SIMPLE	SUB SPHERICAI
1142	8ES3473	15F	6105	15	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1143	8ES3473	15F	6156	17	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1144	8ES3473	15F	6398	38	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1145	8SR2577	15BB	15	2	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1146	8SR2577	15BB	51	6	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1147	8SR2477	16G	197	21	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1148	8SR2477	16G	197	41	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1149	8SR2477	16G	197	41	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL
1150	8SR2477	16G	199	20	GLASS	DRAWN	COMPLETE	SIMPLE	CYLINDRICAL

Sample #	Color 1	Color Description	Diaphaneity	Corlor 2	Color Description	Diaphaneity
1099	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1100	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1101	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1102	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1103	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1104	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1105	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1106	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1107	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1108	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1109	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1110	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1111	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1112	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1113	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1114	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1115	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1116	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1117	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1118	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1119	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1120	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1121	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1122	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1123	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1124	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1125	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1126	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1127	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1128	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1129	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1130	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1131	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1132	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1133	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1134	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1135	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1136	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1137	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1138	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1139	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1140	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1141	6.25PB 3/12	ULTRAMARINE	TRANSLUCENT	NA	NA	NA
1142	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1143	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1144	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1145	5.0B 8/4	LIGHT AQUA BLUE	OPAQUE	NA	NA	NA
1146	N 9.5	BRIGHT WHITE	OPAQUE	NA	NA	NA
1147	5.0PB 5/7	COPEN BLUE	TRANSLUCENT	NA	NA	NA
1148	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1149	N 1	LAMP BLACK	OPAQUE	NA	NA	NA
1150	N 1	LAMP BLACK	OPAQUE	NA	NA	NA

Sample #	Color 3	Color Description	Diaphaneity	Modifying Decoration	End Treatment	Condition
1099	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1100	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1101	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1102	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1103	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1104	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1105	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1106	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1107	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1108	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1109	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1110	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1111	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1112	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1113	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1114	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1115	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1116	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1117	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1118	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1119	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1120	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1121	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1122	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1123	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1124	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1125	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1126	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1127	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1128	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1129	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1130	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1131	NA	NA	NA	NONE	HEAT ROUNDED	POOR
1132	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1133	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1134	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1135	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1136	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1137	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1138	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1139	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1140	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1141	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1142	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1143	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1144	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1145	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1146	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1147	NA	NA	NA	NONE	HEAT ROUNDED	FAIR
1148	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1149	NA	NA	NA	NONE	HEAT ROUNDED	GOOD
1150	NA	NA	NA	NONE	HEAT ROUNDED	GOOD

Sample #	Size Category	Size length (mm)	Size Width (mm)	Bore Diameter (mm)	Kidd & Kidd Type
1099	SMALL	1.58	3.07	0.7	IIa
1100	SMALL	2.07	2.76	0.6	IIa
1101	SMALL	1.76	2.78	0.7	IIa
1102	SMALL	2.48	3.34	0.9	IIa
1103	MEDIUM	5.56	4.11	0.9	IIa
1104	SMALL	2.65	2.9	1	IIa
1105	SMALL	2.61	3.99	0.9	IIa
1106	MEDIUM	7.59	4.25	1.6	IIa
1107	SMALL	1.56	2.77	0.9	IIa
1108	VERY SMALL	1.11	1.99	0.4	IIa
1109	VERY SMALL	1	2.05	0.5	IIa
1110	SMALL	1.73	2.71	0.7	IIa
1111	SMALL	1.87	2.95	0.7	IIa
1112	SMALL	2.18	3.08	0.6	IIa
1113	SMALL	1.83	2.95	0.9	IIa
1114	SMALL	1.53	2.65	0.7	IIa
1115	SMALL	1.99	3.36	0.9	IIa
1116	SMALL	2.06	3.06	0.9	IIa
1117	SMALL	2.23	2.99	0.8	IIa
1118	SMALL	2.37	2.8	0.9	IIa
1119	SMALL	2.46	2.78	0.7	IIa
1120	LARGE	7.97	10.05	2.6	WIb
1121	MEDIUM	4.94	4.28	1.4	IIa
1122	SMALL	1.94	3.9	1.2	IIa
1123	SMALL	2.12	2.97	0.7	IIa
1124	SMALL	1.99	3.12	1	IIa
1125	SMALL	1.2	2.46	0.7	IIa
1126	SMALL	2.42	3.23	0.9	IIa
1127	SMALL	1.6	3.04	0.8	IIa
1128	SMALL	1.7	2.76	0.8	IIa
1129	SMALL	2.19	3.81	1.1	IIa
1130	SMALL	1.4	2.55	0.7	IIa
1131	SMALL	2.76	3.45	1	IIa
1132	SMALL	2	3.12	0.8	IIa
1133	SMALL	2.09	2.97	1	IIa
1134	SMALL	2.32	2.54	0.8	IIa
1135	SMALL	2.07	2.9	0.6	IIa
1136	SMALL	1.86	3.08	0.7	IIa
1137	SMALL	1.71	2.83	0.7	IIa
1138	SMALL	2.36	3.35	0.9	IIa
1139	SMALL	2.35	2.51	NA	IIa
1140	SMALL	2.55	2.98	0.9	IIa
1141	SMALL	2.38	3.04	0.9	IIa
1142	SMALL	1.55	2.43	0.5	IIa
1143	SMALL	2.35	2.81	0.9	IIa
1144	SMALL	1.71	2.82	0.6	IIa
1145	MEDIUM	3.25	4.01	1.1	IIa
1146	SMALL	3.19	3.19	0.9	IIa
1147	SMALL	3.22	3.45	1.9	IIa
1148	SMALL	2.25	3.93	1.2	IIa
1149	SMALL	2.21	2.98	1.3	IIa
1150	SMALL	3.41	4	1.4	IIa

Appendix C: Glass Bead Chemical Data (wt. %)

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EB.1	Blue	0.00	0.00	0.03	9.26	3.31	1.77
Escambe	EB.10.1	Blue	0.00	0.00	0.02	8.94	3.39	1.69
Escambe	EB.10.2	Blue	0.00	0.00	0.03	9.15	3.41	1.79
Escambe	EB.10.3	Blue	0.00	0.00	0.03	9.15	3.44	2.13
Escambe	EB.10.4	Blue	0.00	0.00	0.02	9.30	3.27	1.98
Escambe	EB.10.5	Blue	0.00	0.00	0.02	9.22	3.16	1.69
Escambe	EB.10.6	Blue	0.00	0.00	0.03	9.60	3.50	1.85
Escambe	EB.11.1	Blue	0.00	0.00	0.02	9.44	3.30	1.86
Escambe	EB.11.2	Blue	0.00	0.00	0.02	9.23	3.39	1.90
Escambe	EB.11.3	Blue	0.00	0.00	0.03	9.05	3.16	1.71
Escambe	EB.11.4	Blue	0.00	0.00	0.03	9.06	3.32	1.75
Escambe	EB.12	Blue	0.00	0.00	0.03	10.65	1.59	1.03
Escambe	EB.13	Blue	0.00	0.00	0.02	9.09	3.34	1.74
Escambe	EB.14	Blue	0.00	0.00	0.04	10.85	2.52	1.11
Escambe	EB.15.1	Blue	0.00	0.00	0.05	11.09	2.45	1.06
Escambe	EB.15.2	Blue	0.00	0.00	0.04	12.52	1.89	1.51
Escambe	EB.15.3	Blue	0.00	0.00	0.04	12.48	1.98	1.62
Escambe	EB.16	Blue	0.00	0.00	0.03	12.59	1.98	1.41
Escambe	EB.17	Blue	0.00	0.00	0.05	10.98	2.43	1.53
Escambe	EB.18	Blue	0.00	0.00	0.04	13.00	1.68	1.14
Escambe	EB.19	Blue	0.00	0.00	0.04	11.83	1.75	1.01
Escambe	EB.2	Blue	0.00	0.00	0.04	10.49	1.49	1.08
Escambe	EB.20.1	Blue	0.00	0.00	0.03	9.35	3.41	1.81
Escambe	EB.20.2	Blue	0.00	0.00	0.03	9.78	3.26	1.72
Escambe	EB.21	Blue	0.01	0.00	0.03	12.26	2.33	2.04
Escambe	EB.22	Blue	0.00	0.00	0.03	11.80	1.40	1.31
Escambe	EB.23.1	Blue	0.00	0.00	0.03	10.96	1.50	1.02
Escambe	EB.23.2	Blue	0.00	0.00	0.04	10.74	1.49	1.04
Escambe	EB.24	Blue	0.00	0.00	0.02	9.91	3.12	1.70
Escambe	EB.25	Blue	0.00	0.00	0.03	11.07	1.49	0.99
Escambe	EB.26	Blue	0.00	0.00	0.03	13.77	2.25	1.28
Escambe	EB.27	Blue	0.00	0.00	0.04	11.39	2.53	1.06
Escambe	EB.28	Blue	0.00	0.00	0.03	11.85	1.40	1.13
Escambe	EB.29	Blue	0.00	0.00	0.03	12.18	1.75	0.95
Escambe	EB.3	Blue	0.00	0.00	0.04	11.23	1.42	1.17
Escambe	EB.30	Blue	0.00	0.00	0.03	12.32	2.29	1.94
Escambe	EB.31	Blue	0.00	0.00	0.03	11.37	1.54	1.04
Escambe	EB.32	Blue	0.00	0.00	0.04	10.88	2.69	0.94
Escambe	EB.33	Blue	0.00	0.00	0.03	12.55	2.52	1.75
Escambe	EB.34	Blue	0.00	0.00	0.03	11.79	4.11	1.13

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EB.1	67.31	0.34	3.51	11.91	0.00	0.12	0.00	0.00	0.32
EB.10.1	66.75	0.31	3.38	12.50	0.00	0.13	0.00	0.00	0.32
EB.10.2	65.71	0.34	3.69	13.36	0.00	0.12	0.00	0.00	0.31
EB.10.3	66.92	0.32	3.82	12.02	0.00	0.13	0.00	0.00	0.40
EB.10.4	67.30	0.34	3.48	12.03	0.00	0.14	0.00	0.00	0.38
EB.10.5	68.11	0.28	3.40	11.40	0.00	0.12	0.00	0.00	0.33
EB.10.6	66.20	0.36	3.84	12.20	0.00	0.13	0.00	0.00	0.34
EB.11.1	66.12	0.29	3.45	12.92	0.00	0.13	0.00	0.00	0.35
EB.11.2	66.04	0.30	3.46	13.21	0.00	0.13	0.00	0.00	0.35
EB.11.3	67.23	0.28	3.29	12.75	0.00	0.12	0.00	0.00	0.34
EB.11.4	66.12	0.28	3.52	13.35	0.00	0.13	0.00	0.00	0.33
EB.12	70.54	0.65	4.68	9.26	0.00	0.06	0.00	0.00	0.39
EB.13	65.62	0.33	3.62	13.56	0.00	0.12	0.00	0.00	0.33
EB.14	67.90	0.64	5.94	9.54	0.00	0.05	0.00	0.00	0.15
EB.15.1	67.88	0.59	5.96	9.69	0.00	0.06	0.00	0.00	0.07
EB.15.2	68.48	0.50	4.55	8.76	0.00	0.07	0.00	0.00	0.20
EB.15.3	67.71	0.53	4.89	9.01	0.00	0.08	0.00	0.00	0.20
EB.16	68.00	0.54	5.32	8.70	0.00	0.07	0.00	0.00	0.22
EB.17	67.87	0.63	5.74	8.90	0.00	0.14	0.00	0.00	0.10
EB.18	66.99	0.85	5.40	9.62	0.00	0.06	0.00	0.00	0.05
EB.19	68.04	0.59	5.65	9.25	0.00	0.05	0.00	0.00	0.14
EB.2	71.76	0.75	4.93	7.95	0.00	0.06	0.00	0.00	0.26
EB.20.1	66.11	0.30	3.69	12.83	0.00	0.12	0.00	0.00	0.33
EB.20.2	65.88	0.29	3.46	12.96	0.00	0.12	0.00	0.00	0.33
EB.21	66.36	0.54	5.26	9.58	0.00	0.10	0.00	0.00	0.05
EB.22	69.90	0.68	4.72	8.97	0.00	0.07	0.00	0.00	0.15
EB.23.1	70.88	0.64	4.88	8.61	0.00	0.05	0.00	0.00	0.26
EB.23.2	71.07	0.63	5.02	8.53	0.00	0.05	0.00	0.00	0.25
EB.24	65.79	0.32	3.49	13.23	0.00	0.13	0.00	0.00	0.35
EB.25	70.80	0.66	4.96	8.46	0.00	0.05	0.00	0.00	0.25
EB.26	65.76	0.53	5.38	9.38	0.00	0.06	0.00	0.00	0.13
EB.27	67.51	0.59	5.98	9.54	0.00	0.05	0.00	0.00	0.10
EB.28	69.12	0.59	5.47	8.80	0.00	0.06	0.00	0.00	0.10
EB.29	68.87	0.59	5.51	8.80	0.00	0.05	0.00	0.00	0.18
EB.3	71.50	0.61	4.99	7.95	0.00	0.05	0.00	0.00	0.12
EB.30	66.80	0.53	4.71	9.77	0.00	0.09	0.00	0.00	0.05
EB.31	70.14	0.62	4.96	8.75	0.00	0.06	0.00	0.00	0.26
EB.32	64.56	0.73	7.41	11.51	0.00	0.05	0.00	0.00	0.16
EB.33	65.12	0.42	3.58	11.99	0.00	0.07	0.00	0.00	0.67
EB.34	62.23	0.27	2.94	12.68	0.00	0.06	0.00	0.00	0.17

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EB.1	0.89	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.10.1	0.97	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.10.2	0.88	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.10.3	0.97	0.07	0.01	0.06	0.01	0.12	0.00	0.07	0.00
EB.10.4	0.98	0.07	0.01	0.06	0.01	0.14	0.00	0.08	0.00
EB.10.5	0.92	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.10.6	0.94	0.08	0.01	0.03	0.01	0.16	0.00	0.08	0.00
EB.11.1	0.94	0.08	0.01	0.03	0.01	0.13	0.00	0.08	0.00
EB.11.2	0.93	0.08	0.01	0.03	0.01	0.13	0.00	0.08	0.00
EB.11.3	0.91	0.08	0.01	0.03	0.00	0.13	0.00	0.08	0.00
EB.11.4	0.88	0.08	0.01	0.02	0.01	0.14	0.00	0.08	0.00
EB.12	0.47	0.12	0.09	0.01	0.01	0.16	0.00	0.08	0.00
EB.13	0.90	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.14	0.53	0.07	0.05	0.04	0.01	0.12	0.00	0.10	0.00
EB.15.1	0.47	0.07	0.05	0.01	0.01	0.12	0.00	0.10	0.00
EB.15.2	0.70	0.13	0.09	0.05	0.01	0.16	0.00	0.09	0.00
EB.15.3	0.73	0.13	0.09	0.05	0.01	0.16	0.00	0.09	0.00
EB.16	0.56	0.09	0.05	0.01	0.01	0.14	0.00	0.09	0.00
EB.17	0.95	0.07	0.05	0.01	0.01	0.12	0.00	0.10	0.02
EB.18	0.51	0.07	0.05	0.01	0.01	0.09	0.00	0.10	0.00
EB.19	0.52	0.14	0.07	0.03	0.01	0.21	0.00	0.10	0.00
EB.2	0.48	0.11	0.12	0.01	0.01	0.18	0.00	0.08	0.00
EB.20.1	0.91	0.08	0.01	0.02	0.01	0.13	0.00	0.08	0.00
EB.20.2	0.93	0.08	0.01	0.02	0.01	0.14	0.00	0.08	0.00
EB.21	0.80	0.08	0.05	0.01	0.01	0.11	0.00	0.09	0.00
EB.22	0.52	0.07	0.04	0.01	0.01	0.09	0.00	0.08	0.00
EB.23.1	0.47	0.11	0.12	0.01	0.01	0.17	0.00	0.08	0.00
EB.23.2	0.48	0.11	0.10	0.01	0.01	0.15	0.00	0.08	0.00
EB.24	0.95	0.07	0.01	0.04	0.01	0.13	0.00	0.08	0.00
EB.25	0.52	0.12	0.11	0.01	0.01	0.17	0.00	0.08	0.00
EB.26	0.57	0.15	0.09	0.02	0.01	0.21	0.00	0.09	0.00
EB.27	0.54	0.07	0.05	0.02	0.01	0.11	0.00	0.11	0.00
EB.28	0.52	0.08	0.04	0.02	0.01	0.12	0.00	0.09	0.00
EB.29	0.43	0.08	0.05	0.02	0.01	0.13	0.00	0.09	0.00
EB.3	0.48	0.07	0.04	0.01	0.01	0.11	0.00	0.07	0.00
EB.30	0.79	0.08	0.05	0.01	0.01	0.11	0.00	0.09	0.00
EB.31	0.52	0.11	0.11	0.01	0.01	0.16	0.00	0.08	0.00
EB.32	0.48	0.07	0.05	0.01	0.01	0.12	0.00	0.12	0.00
EB.33	0.67	0.07	0.05	0.02	0.01	0.10	0.00	0.07	0.00
EB.34	0.58	0.09	0.02	0.01	0.00	0.20	0.00	0.08	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EB.10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.10.3	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.03
EB.10.4	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.03
EB.10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.10.6	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EB.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.11.4	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.12	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10
EB.13	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EB.14	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.05
EB.15.1	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
EB.15.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01
EB.15.3	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01
EB.16	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02
EB.17	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
EB.18	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01
EB.19	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.02
EB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.10
EB.20.1	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EB.21	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
EB.22	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EB.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.24	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.03
EB.25	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.12
EB.26	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.02
EB.27	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.05
EB.28	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.21
EB.29	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.01
EB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
EB.30	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
EB.31	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.32	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05
EB.33	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.03
EB.34	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.00	0.02

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.17	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.10.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.11.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.15.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EB.1	0.75	0.02	0.00	0.00
EB.10.1	1.11	0.02	0.00	0.00
EB.10.2	0.72	0.02	0.00	0.00
EB.10.3	0.18	0.02	0.00	0.00
EB.10.4	0.26	0.02	0.00	0.00
EB.10.5	0.85	0.02	0.00	0.00
EB.10.6	0.51	0.02	0.00	0.00
EB.11.1	0.68	0.02	0.00	0.00
EB.11.2	0.55	0.02	0.00	0.00
EB.11.3	0.65	0.02	0.00	0.00
EB.11.4	0.76	0.02	0.00	0.00
EB.12	0.04	0.01	0.00	0.00
EB.13	0.84	0.02	0.00	0.00
EB.14	0.14	0.05	0.00	0.00
EB.15.1	0.10	0.05	0.00	0.00
EB.15.2	0.06	0.11	0.00	0.00
EB.15.3	0.06	0.11	0.00	0.00
EB.16	0.06	0.05	0.00	0.00
EB.17	0.10	0.05	0.00	0.00
EB.18	0.18	0.09	0.00	0.00
EB.19	0.08	0.09	0.00	0.00
EB.2	0.07	0.00	0.00	0.01
EB.20.1	0.65	0.03	0.00	0.00
EB.20.2	0.75	0.03	0.00	0.00
EB.21	0.10	0.04	0.00	0.00
EB.22	0.06	0.04	0.00	0.00
EB.23.1	0.05	0.00	0.00	0.01
EB.23.2	0.05	0.00	0.00	0.01
EB.24	0.51	0.03	0.00	0.00
EB.25	0.07	0.01	0.00	0.01
EB.26	0.05	0.10	0.00	0.00
EB.27	0.14	0.05	0.00	0.00
EB.28	0.24	0.03	0.00	0.00
EB.29	0.11	0.05	0.00	0.00
EB.3	0.03	0.04	0.00	0.00
EB.30	0.11	0.04	0.00	0.00
EB.31	0.07	0.00	0.00	0.01
EB.32	0.04	0.05	0.00	0.00
EB.33	0.16	0.05	0.00	0.00
EB.34	0.04	0.03	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EB.35	Blue	0.00	0.00	0.04	11.38	1.66	0.96
Escambe	EB.36	Blue	0.00	0.00	0.03	12.48	2.76	1.85
Escambe	EB.37.1	Blue	0.00	0.00	0.04	12.30	2.23	1.35
Escambe	EB.37.2	Blue	0.00	0.00	0.04	11.54	1.74	1.06
Escambe	EB.38	Blue	0.00	0.00	0.03	12.86	2.50	1.51
Escambe	EB.39	Blue	0.00	0.00	0.04	13.08	2.21	1.26
Escambe	EB.4.1	Blue	0.00	0.00	0.03	12.86	2.19	1.31
Escambe	EB.4.2	Blue	0.00	0.00	0.04	11.73	1.84	1.01
Escambe	EB.40	Blue	0.00	0.00	0.03	12.02	1.84	1.08
Escambe	EB.41.1	Blue	0.00	0.00	0.04	11.63	1.84	1.05
Escambe	EB.41.2	Blue	0.00	0.00	0.04	11.99	1.69	0.95
Escambe	EB.42	Blue	0.00	0.00	0.03	13.39	2.19	1.20
Escambe	EB.43.1	Blue	0.00	0.00	0.04	12.71	2.23	2.02
Escambe	EB.43.2	Blue	0.00	0.00	0.04	11.75	2.46	1.05
Escambe	EB.44.1	Blue	0.00	0.00	0.03	11.42	1.55	0.99
Escambe	EB.44.2	Blue	0.00	0.00	0.03	12.11	1.73	1.08
Escambe	EB.44.3	Blue	0.00	0.00	0.03	12.49	1.77	0.96
Escambe	EB.45.1	Blue	0.00	0.00	0.04	13.15	2.18	1.19
Escambe	EB.45.2	Blue	0.01	0.00	0.03	12.96	2.25	1.81
Escambe	EB.46	Blue	0.00	0.00	0.03	12.36	2.37	2.19
Escambe	EB.47	Blue	0.00	0.00	0.04	13.61	2.25	1.19
Escambe	EB.48.1	Blue	0.00	0.00	0.03	11.89	1.57	0.91
Escambe	EB.48.2	Blue	0.00	0.00	0.03	10.75	1.64	1.14
Escambe	EB.48.3	Blue	0.00	0.00	0.03	11.09	1.71	1.20
Escambe	EB.48.4	Blue	0.00	0.00	0.04	13.14	2.52	1.81
Escambe	EB.48.5	Blue	0.00	0.00	0.04	13.15	2.55	1.77
Escambe	EB.48.6	Blue	0.00	0.00	0.03	11.36	1.69	1.12
Escambe	EB.48.7	Blue	0.00	0.00	0.03	11.54	1.61	1.07
Escambe	EB.48.8	Blue	0.00	0.00	0.04	12.72	2.57	1.86
Escambe	EB.5	Blue	0.00	0.00	0.04	10.65	2.44	1.01
Escambe	EB.6	Blue	0.00	0.00	0.04	10.86	1.78	1.03
Escambe	EB.7	Blue	0.00	0.00	0.02	8.99	3.24	1.83
Escambe	EB.8	Blue	0.00	0.00	0.03	9.05	3.47	1.77
Escambe	EB.9.1	Blue	0.00	0.00	0.03	9.31	3.13	1.77
Escambe	EB.9.2	Blue	0.00	0.00	0.03	9.81	3.07	1.71
Escambe	EB.9.3	Blue	0.00	0.00	0.03	9.89	3.30	1.77
Escambe	EBK.1.1	Black	0.00	0.00	0.04	9.19	3.10	3.63
Escambe	EBK.1.2	Black	0.00	0.00	0.04	9.35	3.11	3.34
Escambe	EBK.10.1	Black	0.00	0.00	0.04	10.89	3.32	4.00
Escambe	EBK.10.2	Black	0.00	0.00	0.03	11.22	1.87	1.51

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EB.35	68.85	0.69	5.01	9.76	0.00	0.05	0.00	0.00	0.42
EB.36	65.10	0.44	3.87	11.46	0.00	0.07	0.00	0.00	0.64
EB.37.1	66.84	0.67	5.41	9.90	0.00	0.08	0.00	0.00	0.06
EB.37.2	69.52	0.67	4.45	9.38	0.00	0.05	0.00	0.00	0.39
EB.38	66.65	0.66	4.40	10.14	0.00	0.07	0.00	0.00	0.06
EB.39	67.05	0.68	4.50	9.91	0.00	0.06	0.00	0.00	0.06
EB.4.1	66.86	0.60	5.38	9.13	0.00	0.07	0.00	0.00	0.13
EB.4.2	69.72	0.69	5.30	8.24	0.00	0.05	0.00	0.00	0.18
EB.40	68.57	0.60	5.36	8.83	0.00	0.05	0.00	0.00	0.14
EB.41.1	70.15	0.64	4.55	8.63	0.00	0.08	0.00	0.00	0.27
EB.41.2	69.47	0.68	4.44	9.13	0.00	0.05	0.00	0.00	0.41
EB.42	66.97	0.69	4.64	9.61	0.00	0.06	0.00	0.00	0.06
EB.43.1	66.16	0.61	4.53	10.07	0.00	0.09	0.00	0.00	0.05
EB.43.2	66.96	0.62	5.96	9.85	0.00	0.05	0.00	0.00	0.08
EB.44.1	70.65	0.66	5.05	8.06	0.00	0.05	0.00	0.00	0.28
EB.44.2	68.89	0.63	5.12	8.76	0.00	0.05	0.00	0.00	0.26
EB.44.3	68.19	0.63	5.51	8.81	0.00	0.05	0.00	0.00	0.13
EB.45.1	67.39	0.70	4.43	9.63	0.00	0.06	0.00	0.00	0.06
EB.45.2	66.44	0.61	4.53	9.71	0.00	0.09	0.00	0.00	0.05
EB.46	66.58	0.59	4.34	9.90	0.00	0.09	0.00	0.00	0.05
EB.47	66.28	0.72	4.74	9.83	0.00	0.06	0.00	0.00	0.07
EB.48.1	70.23	0.72	4.93	8.11	0.00	0.05	0.00	0.00	0.30
EB.48.2	71.37	0.64	4.64	8.35	0.00	0.05	0.00	0.00	0.26
EB.48.3	70.45	0.67	4.75	8.58	0.00	0.05	0.00	0.00	0.27
EB.48.4	64.99	0.57	4.30	10.95	0.00	0.08	0.00	0.00	0.11
EB.48.5	64.48	0.59	4.67	11.16	0.00	0.09	0.00	0.00	0.15
EB.48.6	70.34	0.67	4.82	8.42	0.00	0.05	0.00	0.00	0.28
EB.48.7	70.23	0.67	4.78	8.44	0.00	0.05	0.00	0.00	0.28
EB.48.8	65.46	0.58	4.59	10.47	0.00	0.09	0.00	0.00	0.11
EB.5	68.68	0.46	5.73	9.70	0.00	0.06	0.00	0.00	0.09
EB.6	71.05	0.66	4.88	8.28	0.00	0.06	0.00	0.00	0.18
EB.7	67.17	0.30	3.55	12.36	0.00	0.12	0.00	0.00	0.35
EB.8	65.85	0.36	3.99	12.69	0.00	0.12	0.00	0.00	0.32
EB.9.1	66.67	0.30	3.26	12.89	0.00	0.12	0.00	0.00	0.34
EB.9.2	66.38	0.37	3.27	12.72	0.00	0.13	0.00	0.00	0.34
EB.9.3	66.77	0.33	3.53	12.12	0.00	0.13	0.00	0.00	0.35
EBK.1.1	59.76	0.61	2.89	11.26	0.00	0.19	0.01	0.00	6.52
EBK.1.2	60.05	0.63	2.86	11.00	0.00	0.18	0.01	0.00	6.54
EBK.10.1	57.50	0.64	2.15	10.19	0.00	0.23	0.01	0.00	8.01
EBK.10.2	65.70	0.63	4.26	7.81	0.00	0.06	0.00	0.00	5.20

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EB.35	0.46	0.12	0.10	0.01	0.01	0.19	0.00	0.08	0.00
EB.36	0.65	0.07	0.05	0.02	0.01	0.11	0.00	0.06	0.00
EB.37.1	0.53	0.09	0.04	0.01	0.01	0.11	0.00	0.09	0.00
EB.37.2	0.45	0.12	0.11	0.01	0.01	0.17	0.00	0.08	0.00
EB.38	0.54	0.08	0.04	0.02	0.01	0.11	0.00	0.09	0.00
EB.39	0.57	0.09	0.04	0.02	0.01	0.11	0.00	0.09	0.00
EB.4.1	0.61	0.15	0.08	0.02	0.01	0.23	0.00	0.08	0.00
EB.4.2	0.47	0.09	0.06	0.02	0.01	0.19	0.00	0.09	0.00
EB.40	0.45	0.12	0.07	0.02	0.01	0.18	0.00	0.10	0.00
EB.41.1	0.50	0.10	0.10	0.02	0.01	0.16	0.00	0.08	0.00
EB.41.2	0.47	0.12	0.10	0.02	0.01	0.16	0.00	0.08	0.00
EB.42	0.57	0.08	0.04	0.01	0.01	0.11	0.00	0.09	0.00
EB.43.1	0.81	0.09	0.05	0.02	0.01	0.12	0.00	0.09	0.00
EB.43.2	0.49	0.07	0.05	0.01	0.01	0.13	0.00	0.11	0.00
EB.44.1	0.49	0.12	0.12	0.01	0.01	0.18	0.00	0.08	0.00
EB.44.2	0.46	0.12	0.06	0.04	0.01	0.16	0.00	0.10	0.00
EB.44.3	0.43	0.10	0.06	0.02	0.01	0.16	0.00	0.10	0.00
EB.45.1	0.58	0.09	0.04	0.01	0.01	0.11	0.00	0.09	0.00
EB.45.2	0.82	0.08	0.05	0.02	0.01	0.12	0.00	0.09	0.00
EB.46	0.82	0.08	0.05	0.01	0.01	0.12	0.00	0.09	0.00
EB.47	0.58	0.09	0.04	0.02	0.01	0.12	0.00	0.09	0.00
EB.48.1	0.51	0.12	0.12	0.02	0.01	0.19	0.00	0.07	0.00
EB.48.2	0.46	0.11	0.12	0.01	0.01	0.17	0.00	0.08	0.00
EB.48.3	0.49	0.11	0.12	0.01	0.01	0.17	0.00	0.08	0.00
EB.48.4	0.74	0.08	0.05	0.03	0.01	0.12	0.00	0.09	0.00
EB.48.5	0.71	0.06	0.03	0.02	0.01	0.09	0.00	0.10	0.00
EB.48.6	0.48	0.11	0.12	0.01	0.01	0.18	0.00	0.08	0.00
EB.48.7	0.53	0.12	0.12	0.02	0.01	0.17	0.00	0.08	0.00
EB.48.8	0.75	0.08	0.05	0.03	0.01	0.13	0.00	0.09	0.00
EB.5	0.51	0.07	0.05	0.01	0.01	0.13	0.00	0.10	0.00
EB.6	0.48	0.09	0.06	0.02	0.01	0.17	0.00	0.09	0.00
EB.7	0.94	0.08	0.01	0.03	0.01	0.14	0.00	0.08	0.00
EB.8	0.89	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.9.1	0.94	0.08	0.01	0.03	0.01	0.15	0.00	0.07	0.00
EB.9.2	0.91	0.08	0.01	0.02	0.01	0.15	0.00	0.08	0.00
EB.9.3	0.85	0.08	0.01	0.06	0.01	0.14	0.00	0.08	0.00
EBK.1.1	1.80	0.01	0.01	0.05	0.01	0.03	0.00	0.09	0.00
EBK.1.2	1.82	0.01	0.01	0.06	0.01	0.04	0.00	0.09	0.00
EBK.10.1	2.25	0.00	0.01	0.04	0.01	0.04	0.00	0.09	0.00
EBK.10.2	1.23	0.00	0.00	0.12	0.01	0.04	0.00	0.07	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EB.35	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.11
EB.36	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.03
EB.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.06
EB.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.11
EB.38	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.05
EB.39	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.06
EB.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.02
EB.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
EB.40	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.02
EB.41.1	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05
EB.41.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.11
EB.42	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.06
EB.43.1	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
EB.43.2	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06
EB.44.1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.44.2	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.02
EB.44.3	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.02
EB.45.1	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.06
EB.45.2	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.07
EB.46	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
EB.47	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.06
EB.48.1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.48.2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.48.3	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.48.4	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.08
EB.48.5	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.06
EB.48.6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.48.7	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11
EB.48.8	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.09
EB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.05
EB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
EB.7	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.8	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EB.9.1	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EB.9.2	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.03
EB.9.3	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
EBK.1.1	0.01	0.00	0.00	0.00	0.00	0.01	0.35	0.00	0.10
EBK.1.2	0.01	0.00	0.00	0.00	0.00	0.01	0.37	0.00	0.10
EBK.10.1	0.01	0.00	0.00	0.00	0.00	0.01	0.28	0.00	0.11
EBK.10.2	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.00	0.06

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EB.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.41.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.41.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.43.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.43.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.45.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.45.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EB.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.41.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.41.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.43.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.43.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.44.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.45.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.45.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.48.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB.9.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EB.35	0.05	0.01	0.00	0.01
EB.36	0.18	0.05	0.00	0.00
EB.37.1	0.12	0.03	0.00	0.00
EB.37.2	0.05	0.01	0.00	0.01
EB.38	0.10	0.03	0.00	0.00
EB.39	0.10	0.03	0.00	0.00
EB.4.1	0.07	0.09	0.00	0.00
EB.4.2	0.10	0.05	0.00	0.00
EB.40	0.07	0.07	0.00	0.00
EB.41.1	0.06	0.01	0.00	0.01
EB.41.2	0.05	0.01	0.00	0.00
EB.42	0.12	0.03	0.00	0.00
EB.43.1	0.10	0.04	0.00	0.00
EB.43.2	0.12	0.05	0.00	0.00
EB.44.1	0.09	0.00	0.00	0.01
EB.44.2	0.21	0.07	0.00	0.00
EB.44.3	0.07	0.06	0.00	0.00
EB.45.1	0.11	0.03	0.00	0.00
EB.45.2	0.10	0.04	0.00	0.00
EB.46	0.10	0.04	0.00	0.00
EB.47	0.13	0.03	0.00	0.00
EB.48.1	0.07	0.00	0.00	0.01
EB.48.2	0.05	0.00	0.00	0.01
EB.48.3	0.07	0.00	0.00	0.01
EB.48.4	0.03	0.03	0.00	0.00
EB.48.5	0.06	0.01	0.00	0.00
EB.48.6	0.08	0.00	0.00	0.01
EB.48.7	0.08	0.00	0.00	0.01
EB.48.8	0.03	0.03	0.00	0.00
EB.5	0.11	0.04	0.00	0.00
EB.6	0.10	0.05	0.00	0.00
EB.7	0.63	0.02	0.00	0.00
EB.8	0.98	0.02	0.00	0.00
EB.9.1	0.73	0.02	0.00	0.00
EB.9.2	0.76	0.02	0.00	0.00
EB.9.3	0.43	0.02	0.00	0.00
EBK.1.1	0.34	0.00	0.00	0.00
EBK.1.2	0.37	0.00	0.00	0.00
EBK.10.1	0.15	0.00	0.00	0.00
EBK.10.2	0.05	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EBK.11	Black	0.00	0.00	0.04	10.86	3.27	4.74
Escambe	EBK.12	Black	0.00	0.00	0.03	11.08	2.06	1.58
Escambe	EBK.13	Black	0.00	0.00	0.03	12.81	1.57	2.24
Escambe	EBK.14	Black	0.00	0.00	0.04	10.76	1.52	1.04
Escambe	EBK.15	Black	0.00	0.00	0.03	10.10	2.05	2.19
Escambe	EBK.16	Black	0.00	0.00	0.02	11.65	2.93	2.33
Escambe	EBK.17	Black	0.00	0.00	0.04	10.83	2.97	3.92
Escambe	EBK.18	Black	0.00	0.00	0.04	11.10	3.22	5.01
Escambe	EBK.19	Black	0.00	0.00	0.05	11.15	2.17	2.52
Escambe	EBK.2	Black	0.00	0.00	0.04	11.43	2.11	1.49
Escambe	EBK.20	Black	0.00	0.00	0.04	10.90	3.37	5.13
Escambe	EBK.21	Black	0.00	0.00	0.04	10.60	2.54	3.35
Escambe	EBK.22	Black	0.00	0.00	0.04	10.24	3.16	3.47
Escambe	EBK.23	Black	0.00	0.00	0.04	11.37	2.35	2.65
Escambe	EBK.24	Black	0.00	0.00	0.04	10.23	2.03	2.67
Escambe	EBK.25	Black	0.00	0.00	0.04	10.10	2.74	2.79
Escambe	EBK.26	Black	0.00	0.00	0.04	10.87	2.34	2.74
Escambe	EBK.27	Black	0.00	0.00	0.05	11.90	2.92	2.13
Escambe	EBK.28	Black	0.00	0.00	0.05	12.61	2.67	1.89
Escambe	EBK.29	Black	0.00	0.00	0.05	13.52	2.52	1.50
Escambe	EBK.3	Black	0.00	0.00	0.03	11.80	1.83	1.26
Escambe	EBK.30	Black	0.00	0.00	0.04	11.38	2.79	2.51
Escambe	EBK.31	Black	0.00	0.00	0.04	10.97	2.53	2.89
Escambe	EBK.32	Black	0.00	0.00	0.05	9.89	2.76	2.89
Escambe	EBK.33	Black	0.00	0.00	0.04	11.07	2.81	2.31
Escambe	EBK.34	Black	0.00	0.00	0.03	10.29	2.35	2.71
Escambe	EBK.35	Black	0.00	0.00	0.03	11.11	2.10	1.50
Escambe	EBK.36	Black	0.00	0.00	0.03	11.96	2.85	1.74
Escambe	EBK.37.1	Black	0.00	0.00	0.03	9.37	2.21	1.99
Escambe	EBK.37.2	Black	0.00	0.00	0.04	10.68	1.88	2.12
Escambe	EBK.38	Black	0.00	0.00	0.04	11.07	2.18	2.46
Escambe	EBK.39.1	Black	0.00	0.00	0.03	13.17	2.21	1.45
Escambe	EBK.39.2	Black	0.00	0.00	0.04	10.03	2.44	2.19
Escambe	EBK.4	Black	0.00	0.00	0.03	10.77	1.87	1.79
Escambe	EBK.40	Black	0.00	0.00	0.04	11.57	1.93	2.13
Escambe	EBK.41	Black	0.00	0.00	0.03	11.63	2.15	2.88
Escambe	EBK.42	Black	0.00	0.00	0.04	9.94	2.87	3.05
Escambe	EBK.43	Black	0.00	0.00	0.01	0.68	0.23	0.32
Escambe	EBK.44	Black	0.00	0.00	0.04	11.24	3.18	4.42
Escambe	EBK.45.1	Black	0.00	0.00	0.03	10.18	2.30	2.56

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EBK.11	61.28	0.53	2.44	6.81	0.00	0.29	0.01	0.00	6.07
EBK.12	65.65	0.62	4.63	8.82	0.00	0.07	0.00	0.00	4.18
EBK.13	62.83	0.86	3.62	7.90	0.00	0.14	0.00	0.00	6.16
EBK.14	67.55	0.64	5.73	8.30	0.00	0.05	0.00	0.00	3.21
EBK.15	64.02	0.64	4.38	8.07	0.00	0.14	0.01	0.00	5.86
EBK.16	64.87	0.40	4.01	11.75	0.00	0.11	0.00	0.00	0.61
EBK.17	57.37	0.61	2.77	10.79	0.00	0.23	0.01	0.00	7.56
EBK.18	59.87	0.55	2.46	6.97	0.00	0.31	0.01	0.01	6.65
EBK.19	63.15	0.63	3.47	8.83	0.00	0.15	0.01	0.00	6.08
EBK.2	64.10	0.55	4.47	8.68	0.00	0.07	0.00	0.00	5.48
EBK.20	59.23	0.55	2.41	7.50	0.00	0.31	0.01	0.01	6.64
EBK.21	62.13	0.54	3.73	10.61	0.00	0.20	0.01	0.00	4.41
EBK.22	62.69	0.55	2.09	7.85	0.00	0.24	0.01	0.00	6.46
EBK.23	63.67	0.58	3.25	9.42	0.00	0.17	0.01	0.00	4.58
EBK.24	60.34	0.64	3.92	10.36	0.00	0.15	0.01	0.00	6.78
EBK.25	60.98	0.68	2.95	9.43	0.00	0.16	0.01	0.00	7.00
EBK.26	64.16	0.58	3.12	9.44	0.00	0.17	0.01	0.00	4.60
EBK.27	63.29	0.65	3.63	8.23	0.00	0.13	0.00	0.00	4.94
EBK.28	64.49	0.66	3.55	7.53	0.00	0.12	0.00	0.00	4.44
EBK.29	64.56	0.77	3.21	8.72	0.00	0.06	0.00	0.00	3.96
EBK.3	66.47	0.68	4.49	7.55	0.00	0.05	0.00	0.00	4.26
EBK.30	61.06	0.61	2.50	9.21	0.00	0.16	0.01	0.00	7.35
EBK.31	62.59	0.59	3.21	10.01	0.00	0.18	0.01	0.00	4.91
EBK.32	63.47	0.66	6.18	6.96	0.00	0.14	0.01	0.00	4.30
EBK.33	62.02	0.66	2.41	8.49	0.00	0.15	0.01	0.00	7.37
EBK.34	60.72	0.55	3.26	9.26	0.00	0.16	0.01	0.00	7.43
EBK.35	62.82	0.60	5.24	8.43	0.00	0.07	0.00	0.00	4.37
EBK.36	65.38	0.41	4.01	11.70	0.00	0.06	0.00	0.00	0.62
EBK.37.1	64.25	1.03	4.23	11.24	0.00	0.10	0.00	0.00	4.11
EBK.37.2	62.52	0.70	3.58	8.46	0.00	0.13	0.01	0.00	6.93
EBK.38	63.57	0.60	3.60	8.76	0.00	0.15	0.01	0.00	5.75
EBK.39.1	66.08	0.70	4.00	8.97	0.00	0.07	0.00	0.00	2.13
EBK.39.2	60.17	0.69	4.37	9.90	0.00	0.14	0.01	0.00	6.98
EBK.4	65.96	0.65	3.91	8.44	0.00	0.10	0.00	0.00	4.66
EBK.40	63.49	0.69	3.56	7.76	0.00	0.13	0.01	0.00	6.29
EBK.41	65.26	0.53	2.82	5.73	0.00	0.20	0.01	0.00	6.35
EBK.42	60.13	0.70	2.80	10.54	0.00	0.16	0.01	0.00	6.80
EBK.43	40.36	0.04	6.40	0.86	0.00	0.04	0.00	0.00	2.96
EBK.44	60.99	0.63	2.33	6.89	0.00	0.28	0.01	0.01	6.31
EBK.45.1	63.32	0.57	3.43	9.18	0.00	0.13	0.00	0.00	6.29

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EBK.11	3.01	0.00	0.01	0.03	0.01	0.04	0.00	0.07	0.00
EBK.12	0.91	0.01	0.01	0.05	0.01	0.03	0.00	0.08	0.00
EBK.13	1.05	0.00	0.00	0.06	0.02	0.02	0.00	0.08	0.00
EBK.14	0.86	0.00	0.00	0.05	0.01	0.02	0.00	0.07	0.00
EBK.15	1.46	0.01	0.01	0.06	0.01	0.02	0.00	0.07	0.00
EBK.16	0.73	0.06	0.02	0.02	0.01	0.16	0.00	0.07	0.00
EBK.17	2.11	0.01	0.01	0.04	0.01	0.02	0.00	0.11	0.00
EBK.18	3.09	0.00	0.00	0.03	0.01	0.04	0.00	0.07	0.00
EBK.19	1.51	0.00	0.01	0.03	0.01	0.01	0.00	0.09	0.00
EBK.2	0.78	0.00	0.00	0.04	0.01	0.01	0.00	0.08	0.00
EBK.20	3.21	0.00	0.01	0.05	0.01	0.04	0.00	0.07	0.00
EBK.21	1.50	0.00	0.01	0.02	0.01	0.01	0.00	0.11	0.00
EBK.22	2.32	0.01	0.01	0.04	0.01	0.02	0.00	0.06	0.00
EBK.23	1.58	0.00	0.01	0.02	0.01	0.01	0.00	0.10	0.00
EBK.24	1.40	0.00	0.01	0.06	0.01	0.01	0.00	0.09	0.00
EBK.25	1.99	0.01	0.01	0.06	0.01	0.04	0.00	0.08	0.00
EBK.26	1.62	0.00	0.01	0.02	0.01	0.01	0.00	0.10	0.00
EBK.27	1.56	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
EBK.28	1.47	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
EBK.29	0.78	0.00	0.01	0.04	0.01	0.02	0.00	0.04	0.00
EBK.3	1.14	0.00	0.00	0.09	0.01	0.04	0.00	0.07	0.00
EBK.30	1.61	0.01	0.02	0.04	0.01	0.02	0.00	0.07	0.00
EBK.31	1.68	0.00	0.01	0.03	0.01	0.01	0.00	0.11	0.00
EBK.32	1.83	0.00	0.00	0.03	0.01	0.03	0.03	0.06	0.00
EBK.33	1.79	0.01	0.02	0.04	0.01	0.03	0.00	0.07	0.00
EBK.34	2.08	0.02	0.05	0.08	0.01	0.07	0.00	0.08	0.00
EBK.35	1.02	0.00	0.00	0.13	0.01	0.06	0.00	0.10	0.00
EBK.36	0.64	0.06	0.02	0.02	0.01	0.17	0.00	0.06	0.00
EBK.37.1	0.95	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
EBK.37.2	1.44	0.00	0.01	0.08	0.01	0.02	0.00	0.07	0.00
EBK.38	1.50	0.00	0.01	0.03	0.01	0.01	0.00	0.09	0.00
EBK.39.1	0.80	0.01	0.01	0.02	0.01	0.01	0.00	0.07	0.00
EBK.39.2	1.40	0.01	0.02	0.06	0.01	0.02	0.00	0.08	0.00
EBK.4	1.31	0.00	0.00	0.08	0.01	0.03	0.00	0.09	0.00
EBK.40	1.28	0.00	0.01	0.05	0.01	0.02	0.00	0.06	0.00
EBK.41	1.94	0.00	0.00	0.04	0.01	0.02	0.00	0.06	0.00
EBK.42	1.79	0.01	0.01	0.06	0.01	0.04	0.00	0.08	0.00
EBK.43	0.53	0.00	0.00	0.03	0.01	0.14	0.00	0.01	0.00
EBK.44	2.92	0.00	0.01	0.05	0.02	0.04	0.00	0.06	0.00
EBK.45.1	1.18	0.01	0.01	0.07	0.02	0.02	0.00	0.09	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EBK.11	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.10
EBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.06
EBK.13	0.01	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.08
EBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04
EBK.15	0.01	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.05
EBK.16	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.03
EBK.17	0.01	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.07
EBK.18	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.11
EBK.19	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.06
EBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.05
EBK.20	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.11
EBK.21	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.05
EBK.22	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.05
EBK.23	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
EBK.24	0.01	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.06
EBK.25	0.01	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.10
EBK.26	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
EBK.27	0.01	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.07
EBK.28	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.00	0.06
EBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.04
EBK.3	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05
EBK.30	0.01	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.05
EBK.31	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
EBK.32	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
EBK.33	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.06
EBK.34	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.05
EBK.35	0.00	0.00	0.00	0.00	0.00	0.01	0.36	0.00	0.05
EBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.03
EBK.37.1	0.01	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.04
EBK.37.2	0.01	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.06
EBK.38	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.06
EBK.39.1	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.03
EBK.39.2	0.01	0.00	0.00	0.00	0.00	0.01	0.35	0.00	0.07
EBK.4	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.04
EBK.40	0.01	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.05
EBK.41	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.08
EBK.42	0.01	0.00	0.00	0.00	0.00	0.01	0.38	0.00	0.10
EBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.07
EBK.44	0.01	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.09
EBK.45.1	0.01	0.00	0.00	0.00	0.00	0.01	0.32	0.00	0.06

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EBK.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.39.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.39.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EBK.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.39.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.39.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EBK.11	0.27	0.00	0.00	0.00
EBK.12	0.02	0.00	0.00	0.00
EBK.13	0.25	0.00	0.00	0.00
EBK.14	0.05	0.00	0.00	0.00
EBK.15	0.55	0.01	0.00	0.00
EBK.16	0.11	0.02	0.00	0.00
EBK.17	0.37	0.00	0.00	0.00
EBK.18	0.30	0.00	0.00	0.00
EBK.19	0.03	0.00	0.00	0.00
EBK.2	0.12	0.00	0.00	0.00
EBK.20	0.27	0.00	0.00	0.00
EBK.21	0.04	0.00	0.00	0.00
EBK.22	0.28	0.00	0.00	0.00
EBK.23	0.05	0.00	0.00	0.00
EBK.24	0.76	0.00	0.00	0.00
EBK.25	0.40	0.00	0.00	0.00
EBK.26	0.04	0.00	0.00	0.00
EBK.27	0.19	0.00	0.00	0.00
EBK.28	0.14	0.00	0.00	0.00
EBK.29	0.04	0.01	0.00	0.00
EBK.3	0.05	0.00	0.00	0.00
EBK.30	0.23	0.00	0.00	0.00
EBK.31	0.10	0.00	0.00	0.00
EBK.32	0.57	0.00	0.00	0.00
EBK.33	0.25	0.01	0.00	0.00
EBK.34	0.40	0.01	0.00	0.00
EBK.35	1.97	0.00	0.00	0.00
EBK.36	0.12	0.02	0.00	0.00
EBK.37.1	0.06	0.00	0.00	0.00
EBK.37.2	0.86	0.00	0.00	0.00
EBK.38	0.04	0.00	0.00	0.00
EBK.39.1	0.16	0.01	0.00	0.00
EBK.39.2	0.99	0.01	0.00	0.00
EBK.4	0.03	0.00	0.00	0.00
EBK.40	0.67	0.00	0.00	0.00
EBK.41	0.09	0.00	0.00	0.00
EBK.42	0.45	0.00	0.00	0.00
EBK.43	47.14	0.00	0.00	0.00
EBK.44	0.32	0.00	0.00	0.00
EBK.45.1	0.19	0.01	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EBK.45.2	Black	0.00	0.00	0.05	11.17	3.02	2.71
Escambe	EBK.45.3	Black	0.00	0.00	0.04	10.67	3.18	4.41
Escambe	EBK.45.4	Black	0.00	0.00	0.04	10.60	3.36	4.50
Escambe	EBK.45.5	Black	0.00	0.00	0.03	10.24	2.18	3.27
Escambe	EBK.45.6	Black	0.00	0.00	0.04	9.72	3.08	3.04
Escambe	EBK.46.1	Black	0.00	0.00	0.04	10.96	2.81	3.22
Escambe	EBK.46.2	Black	0.00	0.00	0.03	10.94	2.35	2.26
Escambe	EBK.46.3	Black	0.00	0.00	0.05	9.91	3.28	3.51
Escambe	EBK.47	Black	0.02	0.02	0.23	55.72	0.47	3.46
Escambe	EBK.48	Black	0.00	0.00	0.04	10.91	2.29	2.79
Escambe	EBK.49	Black	0.00	0.00	0.04	10.94	3.31	4.44
Escambe	EBK.5	Black	0.00	0.00	0.03	9.59	1.94	2.45
Escambe	EBK.50	Black	0.00	0.00	0.04	9.50	2.36	2.88
Escambe	EBK.51	Black	0.00	0.00	0.04	11.24	1.83	1.78
Escambe	EBK.52	Black	0.00	0.00	0.03	10.38	1.84	2.26
Escambe	EBK.53.1	Black	0.00	0.00	0.03	11.77	2.29	1.95
Escambe	EBK.53.2	Black	0.00	0.00	0.04	10.74	2.45	2.83
Escambe	EBK.54	Black	0.00	0.00	0.05	10.90	4.09	4.52
Escambe	EBK.55.1	Black	0.00	0.00	0.03	10.75	2.35	1.82
Escambe	EBK.55.2	Black	0.00	0.00	0.03	9.21	2.48	2.45
Escambe	EBK.55.3	Black	0.00	0.00	0.03	10.54	1.97	2.42
Escambe	EBK.55.4	Black	0.00	0.00	0.04	10.19	2.12	2.62
Escambe	EBK.55.5	Black	0.00	0.00	0.03	10.15	2.02	2.63
Escambe	EBK.55.6	Black	0.00	0.00	0.03	11.76	2.30	2.08
Escambe	EBK.55.7	Black	0.00	0.00	0.06	11.35	3.79	2.41
Escambe	EBK.6	Black	0.00	0.00	0.03	10.55	2.23	2.14
Escambe	EBK.7.1	Black	0.00	0.00	0.04	11.40	2.58	1.91
Escambe	EBK.7.2	Black	0.00	0.00	0.03	10.61	1.65	1.85
Escambe	EBK.8.1	Black	0.00	0.00	0.03	10.61	1.88	1.92
Escambe	EBK.8.2	Black	0.00	0.00	0.04	11.07	1.71	1.64
Escambe	EBK.9	Black	0.00	0.00	0.04	10.64	2.16	1.87
Escambe	EW.1	White	0.00	0.00	0.03	10.36	1.32	1.32
Escambe	EW.10	White	0.00	0.00	0.04	10.63	1.74	2.27
Escambe	EW.11.1	White	0.01	0.00	0.04	10.83	1.86	1.40
Escambe	EW.11.2	White	0.00	0.00	0.03	11.16	1.45	1.42
Escambe	EW.12	White	0.00	0.00	0.03	11.14	1.40	1.38
Escambe	EW.13	White	0.00	0.00	0.04	10.32	1.50	1.57
Escambe	EW.14.1	White	0.01	0.00	0.03	11.50	1.74	1.30
Escambe	EW.14.2	White	0.00	0.00	0.03	11.46	1.49	1.44
Escambe	EW.15	White	0.00	0.00	0.03	11.62	1.51	1.45

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EBK.45.2	63.84	0.63	2.93	8.79	0.00	0.15	0.00	0.00	4.68
EBK.45.3	61.57	0.56	2.02	6.99	0.00	0.32	0.01	0.01	6.53
EBK.45.4	60.76	0.56	2.11	7.43	0.00	0.31	0.01	0.01	6.67
EBK.45.5	61.40	0.62	2.79	8.39	0.00	0.25	0.01	0.01	7.91
EBK.45.6	60.43	0.71	2.40	10.17	0.00	0.18	0.01	0.00	7.24
EBK.46.1	65.02	0.59	2.66	7.53	0.00	0.16	0.01	0.00	4.44
EBK.46.2	60.81	0.61	3.20	10.06	0.00	0.12	0.00	0.00	6.71
EBK.46.3	62.42	0.72	2.75	7.18	0.00	0.18	0.01	0.00	6.75
EBK.47	4.91	4.27	12.99	8.53	0.00	0.09	0.27	0.13	0.20
EBK.48	62.66	0.57	3.18	9.35	0.00	0.18	0.01	0.00	6.15
EBK.49	60.69	0.55	2.13	7.25	0.00	0.32	0.01	0.01	6.70
EBK.5	62.67	0.60	3.47	9.58	0.00	0.15	0.01	0.00	6.83
EBK.50	63.16	0.59	5.17	9.39	0.00	0.18	0.01	0.00	4.84
EBK.51	63.99	0.64	4.63	7.72	0.00	0.08	0.00	0.00	6.28
EBK.52	63.38	0.58	4.35	9.22	0.00	0.13	0.00	0.00	6.26
EBK.53.1	61.23	0.65	3.45	9.36	0.00	0.11	0.00	0.00	6.33
EBK.53.2	64.16	0.57	2.87	9.34	0.00	0.18	0.01	0.00	4.76
EBK.54	60.41	0.79	1.78	6.73	0.00	0.25	0.01	0.01	6.65
EBK.55.1	65.62	0.70	3.40	8.12	0.00	0.09	0.00	0.00	5.42
EBK.55.2	58.67	0.61	3.90	10.85	0.00	0.15	0.01	0.00	8.85
EBK.55.3	61.23	0.68	3.41	9.33	0.00	0.15	0.01	0.00	7.30
EBK.55.4	61.39	0.67	3.23	9.73	0.00	0.16	0.01	0.00	6.90
EBK.55.5	60.97	0.63	3.45	9.56	0.00	0.15	0.01	0.00	7.50
EBK.55.6	60.09	0.65	3.44	9.40	0.00	0.11	0.00	0.00	7.00
EBK.55.7	60.01	1.09	2.07	6.74	0.00	0.10	0.01	0.00	9.21
EBK.6	65.47	0.46	4.01	8.89	0.00	0.10	0.00	0.00	4.58
EBK.7.1	66.45	0.50	3.23	7.12	0.00	0.09	0.00	0.00	4.73
EBK.7.2	67.15	0.52	4.22	8.89	0.00	0.08	0.00	0.00	3.76
EBK.8.1	66.88	0.54	4.28	8.70	0.00	0.08	0.00	0.00	3.69
EBK.8.2	68.04	0.57	4.04	7.91	0.00	0.07	0.00	0.00	3.56
EBK.9	66.93	0.50	3.76	8.26	0.00	0.08	0.00	0.00	4.17
EW.1	72.46	0.64	4.46	7.79	0.00	0.09	0.00	0.00	0.70
EW.10	69.92	0.70	4.42	8.46	0.00	0.12	0.00	0.00	0.72
EW.11.1	64.69	0.70	5.07	9.77	0.00	0.09	0.00	0.00	0.10
EW.11.2	70.88	0.60	4.82	8.11	0.00	0.07	0.00	0.00	0.78
EW.12	71.28	0.60	4.78	7.89	0.00	0.07	0.00	0.00	0.75
EW.13	64.87	0.67	4.45	8.25	0.00	0.09	0.00	0.00	0.20
EW.14.1	69.65	0.60	5.38	8.71	0.00	0.07	0.00	0.00	0.36
EW.14.2	69.99	0.61	4.84	8.55	0.00	0.07	0.00	0.00	0.80
EW.15	70.27	0.59	5.14	7.82	0.00	0.07	0.00	0.00	0.79

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EBK.45.2	1.48	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
EBK.45.3	3.05	0.00	0.00	0.04	0.02	0.04	0.00	0.07	0.00
EBK.45.4	2.90	0.00	0.00	0.04	0.02	0.04	0.00	0.07	0.00
EBK.45.5	2.35	0.01	0.01	0.06	0.01	0.04	0.00	0.08	0.00
EBK.45.6	1.84	0.01	0.01	0.06	0.01	0.04	0.00	0.09	0.00
EBK.46.1	1.90	0.00	0.00	0.03	0.01	0.03	0.00	0.08	0.00
EBK.46.2	1.22	0.02	0.03	0.08	0.01	0.05	0.00	0.09	0.00
EBK.46.3	2.12	0.00	0.01	0.04	0.01	0.04	0.00	0.06	0.00
EBK.47	7.13	0.00	0.00	0.03	0.01	0.01	0.02	0.11	0.03
EBK.48	1.58	0.00	0.01	0.02	0.01	0.01	0.00	0.11	0.00
EBK.49	2.93	0.00	0.00	0.04	0.02	0.04	0.00	0.07	0.00
EBK.5	1.45	0.00	0.01	0.05	0.01	0.01	0.00	0.08	0.00
EBK.50	1.53	0.00	0.01	0.02	0.01	0.01	0.02	0.11	0.00
EBK.51	1.22	0.00	0.00	0.07	0.01	0.04	0.00	0.07	0.00
EBK.52	1.11	0.00	0.01	0.05	0.01	0.01	0.00	0.10	0.00
EBK.53.1	1.18	0.02	0.02	0.08	0.01	0.04	0.00	0.08	0.00
EBK.53.2	1.67	0.00	0.01	0.02	0.01	0.01	0.00	0.11	0.00
EBK.54	2.82	0.00	0.00	0.03	0.02	0.03	0.00	0.07	0.00
EBK.55.1	1.28	0.01	0.01	0.03	0.01	0.04	0.00	0.09	0.00
EBK.55.2	1.33	0.01	0.02	0.06	0.01	0.02	0.00	0.09	0.00
EBK.55.3	1.42	0.00	0.01	0.08	0.01	0.01	0.00	0.09	0.00
EBK.55.4	1.49	0.00	0.01	0.08	0.01	0.01	0.00	0.09	0.00
EBK.55.5	1.39	0.00	0.01	0.06	0.01	0.01	0.00	0.09	0.00
EBK.55.6	1.32	0.03	0.03	0.08	0.01	0.09	0.00	0.08	0.00
EBK.55.7	1.58	0.05	0.03	0.05	0.01	0.10	0.00	0.05	0.00
EBK.6	1.16	0.00	0.00	0.09	0.01	0.02	0.00	0.10	0.00
EBK.7.1	1.34	0.00	0.00	0.04	0.01	0.02	0.00	0.08	0.00
EBK.7.2	0.96	0.00	0.00	0.04	0.01	0.02	0.00	0.10	0.00
EBK.8.1	1.08	0.00	0.00	0.04	0.01	0.02	0.00	0.09	0.00
EBK.8.2	1.03	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
EBK.9	1.20	0.00	0.00	0.09	0.01	0.02	0.00	0.10	0.00
EW.1	0.51	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
EW.10	0.77	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.00
EW.11.1	0.56	0.00	0.00	0.02	0.01	0.00	0.00	0.12	0.00
EW.11.2	0.50	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
EW.12	0.50	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.13	0.66	0.00	0.00	0.02	0.01	0.04	0.00	0.08	0.00
EW.14.1	0.46	0.00	0.00	0.01	0.01	0.00	0.00	0.12	0.00
EW.14.2	0.53	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.15	0.51	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EBK.45.2	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.07
EBK.45.3	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.11
EBK.45.4	0.01	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.11
EBK.45.5	0.01	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.06
EBK.45.6	0.01	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.11
EBK.46.1	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.05
EBK.46.2	0.01	0.00	0.00	0.00	0.00	0.01	0.40	0.00	0.07
EBK.46.3	0.01	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.08
EBK.47	0.75	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.19
EBK.48	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.06
EBK.49	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.11
EBK.5	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.06
EBK.50	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
EBK.51	0.00	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.09
EBK.52	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.07
EBK.53.1	0.00	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.07
EBK.53.2	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.05
EBK.54	0.01	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.07
EBK.55.1	0.05	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.09
EBK.55.2	0.01	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.09
EBK.55.3	0.01	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.07
EBK.55.4	0.01	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.07
EBK.55.5	0.01	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.07
EBK.55.6	0.00	0.00	0.00	0.00	0.00	0.01	0.41	0.00	0.07
EBK.55.7	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.09
EBK.6	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
EBK.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.04
EBK.7.2	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
EBK.8.1	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04
EBK.8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04
EBK.9	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.04
EW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.02
EW.10	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02
EW.11.1	0.00	0.00	0.00	0.00	0.00	0.00	4.64	0.00	0.01
EW.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02
EW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
EW.13	0.00	0.00	0.00	0.00	0.00	0.00	7.17	0.00	0.01
EW.14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EW.14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02
EW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EBK.45.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.47	0.02	0.05	0.01	0.03	0.00	0.00	0.01	0.00	0.00
EBK.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.53.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.53.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EBK.45.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.45.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.46.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.47	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01
EBK.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.53.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.53.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.55.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EBK.45.2	0.16	0.00	0.00	0.00
EBK.45.3	0.25	0.00	0.00	0.00
EBK.45.4	0.31	0.00	0.00	0.00
EBK.45.5	0.09	0.00	0.00	0.00
EBK.45.6	0.42	0.00	0.00	0.00
EBK.46.1	0.38	0.00	0.00	0.00
EBK.46.2	0.88	0.01	0.00	0.00
EBK.46.3	0.58	0.00	0.00	0.00
EBK.47	0.20	0.00	0.00	0.02
EBK.48	0.03	0.00	0.00	0.00
EBK.49	0.25	0.00	0.00	0.00
EBK.5	0.63	0.00	0.00	0.00
EBK.50	0.04	0.00	0.00	0.00
EBK.51	0.11	0.00	0.00	0.00
EBK.52	0.04	0.00	0.00	0.00
EBK.53.1	0.89	0.01	0.00	0.00
EBK.53.2	0.09	0.00	0.00	0.00
EBK.54	0.49	0.00	0.00	0.00
EBK.55.1	0.04	0.00	0.00	0.00
EBK.55.2	0.75	0.00	0.00	0.00
EBK.55.3	0.87	0.00	0.00	0.00
EBK.55.4	0.87	0.00	0.00	0.00
EBK.55.5	0.84	0.00	0.00	0.00
EBK.55.6	0.96	0.01	0.00	0.00
EBK.55.7	0.54	0.01	0.00	0.00
EBK.6	0.04	0.00	0.00	0.00
EBK.7.1	0.01	0.00	0.00	0.00
EBK.7.2	0.01	0.00	0.00	0.00
EBK.8.1	0.01	0.00	0.00	0.00
EBK.8.2	0.02	0.00	0.00	0.00
EBK.9	0.06	0.00	0.00	0.00
EW.1	0.02	0.00	0.00	0.00
EW.10	0.00	0.00	0.00	0.00
EW.11.1	0.06	0.00	0.00	0.00
EW.11.2	0.01	0.00	0.00	0.00
EW.12	0.01	0.00	0.00	0.00
EW.13	0.03	0.00	0.00	0.00
EW.14.1	0.01	0.00	0.00	0.00
EW.14.2	0.02	0.00	0.00	0.00
EW.15	0.03	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EW.16	White	0.01	0.00	0.04	12.79	1.86	1.05
Escambe	EW.17	White	0.00	0.00	0.04	10.76	1.56	1.50
Escambe	EW.18	White	0.00	0.00	0.04	11.69	1.70	1.34
Escambe	EW.19.1	White	0.00	0.00	0.03	14.41	1.79	1.41
Escambe	EW.19.2	White	0.00	0.00	0.03	11.93	1.36	1.36
Escambe	EW.19.3	White	0.00	0.00	0.04	11.36	1.42	1.44
Escambe	EW.2	White	0.00	0.00	0.04	8.78	1.56	1.97
Escambe	EW.20	White	0.00	0.00	0.04	12.47	1.28	0.83
Escambe	EW.21	White	0.00	0.00	0.03	12.18	1.44	1.34
Escambe	EW.22	White	0.00	0.00	0.04	12.97	1.44	0.83
Escambe	EW.23	White	0.00	0.00	0.04	11.24	1.54	0.98
Escambe	EW.24	White	0.00	0.00	0.03	12.40	1.48	1.36
Escambe	EW.25	White	0.01	0.00	0.04	12.12	1.86	1.79
Escambe	EW.26	White	0.00	0.00	0.03	13.31	1.75	1.38
Escambe	EW.27	White	0.00	0.00	0.03	15.50	1.31	1.01
Escambe	EW.28	White	0.00	0.00	0.03	12.38	1.48	1.32
Escambe	EW.29	White	0.00	0.00	0.02	11.55	2.77	1.67
Escambe	EW.3	White	0.00	0.00	0.03	10.76	1.64	1.57
Escambe	EW.30	White	0.00	0.00	0.04	12.23	1.83	1.05
Escambe	EW.31.1	White	0.01	0.00	0.04	12.83	1.38	2.13
Escambe	EW.31.2	White	0.00	0.00	0.03	13.95	1.86	1.17
Escambe	EW.32	White	0.00	0.00	0.02	13.13	2.92	2.19
Escambe	EW.33.1	White	0.00	0.00	0.03	12.05	1.51	1.32
Escambe	EW.33.2	White	0.00	0.00	0.03	11.04	1.89	1.09
Escambe	EW.33.3	White	0.01	0.00	0.04	14.14	1.80	0.89
Escambe	EW.33.4	White	0.00	0.00	0.04	13.17	1.74	0.79
Escambe	EW.33.5	White	0.00	0.00	0.04	11.95	1.54	1.23
Escambe	EW.33.6	White	0.01	0.00	0.03	11.76	1.56	1.37
Escambe	EW.33.7	White	0.00	0.00	0.03	10.74	2.01	1.94
Escambe	EW.34	White	0.01	0.00	0.03	12.36	1.54	1.11
Escambe	EW.35	White	0.00	0.00	0.04	15.91	1.35	0.94
Escambe	EW.36	White	0.00	0.00	0.04	12.95	1.67	1.44
Escambe	EW.37.1	White	0.00	0.00	0.03	11.87	1.79	1.32
Escambe	EW.37.2	White	0.00	0.00	0.03	14.82	1.19	0.61
Escambe	EW.38.1	White	0.00	0.00	0.04	12.50	1.42	1.08
Escambe	EW.38.2	White	0.00	0.00	0.04	11.68	1.47	0.96
Escambe	EW.38.3	White	0.00	0.00	0.01	1.64	0.35	0.21
Escambe	EW.39	White	0.00	0.00	0.04	11.03	1.73	0.97
Escambe	EW.4.1	White	0.00	0.00	0.03	10.61	1.43	1.11
Escambe	EW.4.2	White	0.00	0.00	0.03	10.11	1.50	1.52

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EW.16	67.84	0.61	5.58	8.71	0.00	0.06	0.00	0.00	0.45
EW.17	65.52	0.62	4.64	8.60	0.00	0.08	0.00	0.00	0.28
EW.18	65.70	0.55	4.60	9.10	0.00	0.07	0.00	0.00	0.22
EW.19.1	67.42	0.63	4.74	8.06	0.00	0.07	0.00	0.00	0.77
EW.19.2	69.98	0.64	4.28	9.00	0.00	0.09	0.00	0.00	0.58
EW.19.3	70.16	0.57	4.42	8.68	0.00	0.07	0.00	0.00	1.00
EW.2	72.04	0.64	4.03	9.23	0.00	0.12	0.00	0.00	0.53
EW.20	68.72	0.66	5.28	9.39	0.00	0.05	0.00	0.00	0.51
EW.21	69.51	0.53	5.06	8.37	0.00	0.07	0.00	0.00	0.76
EW.22	68.28	0.69	5.64	8.93	0.00	0.06	0.00	0.00	0.58
EW.23	63.99	0.61	4.91	9.92	0.00	0.06	0.00	0.00	0.13
EW.24	68.98	0.55	5.28	8.39	0.00	0.06	0.00	0.00	0.75
EW.25	67.41	0.67	5.39	8.97	0.00	0.09	0.00	0.00	0.68
EW.26	68.36	0.63	4.33	8.72	0.00	0.07	0.00	0.00	0.70
EW.27	66.85	0.66	3.42	9.82	0.00	0.05	0.00	0.00	0.56
EW.28	68.37	0.61	5.31	8.91	0.00	0.07	0.00	0.00	0.77
EW.29	70.01	0.26	3.53	8.37	0.00	0.11	0.00	0.00	0.67
EW.3	70.35	0.56	4.59	8.59	0.00	0.08	0.00	0.00	0.83
EW.30	60.12	0.85	4.93	10.43	0.00	0.07	0.00	0.00	0.20
EW.31.1	68.49	0.68	4.86	8.06	0.00	0.08	0.00	0.00	0.62
EW.31.2	68.21	0.63	4.30	8.60	0.00	0.06	0.00	0.00	0.53
EW.32	69.48	0.29	3.33	6.00	0.00	0.14	0.00	0.00	0.99
EW.33.1	64.17	0.62	4.88	8.87	0.00	0.07	0.00	0.00	0.41
EW.33.2	64.25	0.63	4.21	9.95	0.00	0.06	0.00	0.00	0.25
EW.33.3	65.80	0.61	5.89	9.21	0.00	0.05	0.00	0.00	0.45
EW.33.4	64.81	0.44	3.72	8.58	0.00	0.05	0.00	0.00	0.35
EW.33.5	60.84	0.45	3.51	11.39	0.00	0.07	0.00	0.00	0.13
EW.33.6	63.95	0.61	4.81	8.62	0.00	0.06	0.00	0.00	0.32
EW.33.7	61.33	0.62	4.20	10.26	0.00	0.10	0.00	0.00	0.16
EW.34	68.99	0.48	5.45	8.54	0.00	0.06	0.00	0.00	0.56
EW.35	66.25	0.62	3.49	9.88	0.00	0.05	0.00	0.00	0.56
EW.36	66.30	0.52	5.41	9.41	0.00	0.07	0.00	0.00	0.63
EW.37.1	60.84	0.57	4.26	10.35	0.00	0.07	0.00	0.00	0.17
EW.37.2	70.05	0.87	4.11	7.31	0.00	0.03	0.00	0.00	0.49
EW.38.1	71.02	0.61	3.76	7.92	0.00	0.05	0.00	0.00	0.94
EW.38.2	65.32	0.72	4.27	8.08	0.00	0.05	0.00	0.00	0.29
EW.38.3	38.93	0.07	7.73	1.30	0.00	0.01	0.00	0.00	0.07
EW.39	63.69	0.99	4.66	10.13	0.00	0.07	0.00	0.00	0.17
EW.4.1	70.15	0.62	5.07	9.83	0.00	0.08	0.00	0.00	0.43
EW.4.2	67.32	0.61	4.66	8.02	0.00	0.07	0.00	0.00	0.36

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EW.16	0.41	0.00	0.00	0.03	0.01	0.00	0.00	0.11	0.00
EW.17	0.67	0.00	0.00	0.02	0.01	0.03	0.00	0.09	0.00
EW.18	0.53	0.00	0.00	0.02	0.01	0.00	0.00	0.15	0.00
EW.19.1	0.45	0.00	0.00	0.01	0.01	0.00	0.00	0.09	0.00
EW.19.2	0.50	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
EW.19.3	0.53	0.00	0.00	0.01	0.01	0.00	0.00	0.11	0.00
EW.2	0.76	0.00	0.00	0.00	0.01	0.00	0.00	0.11	0.00
EW.20	0.39	0.00	0.00	0.01	0.01	0.00	0.00	0.10	0.00
EW.21	0.53	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.22	0.35	0.00	0.00	0.00	0.01	0.00	0.00	0.12	0.00
EW.23	0.46	0.00	0.00	0.01	0.02	0.01	0.00	0.10	0.00
EW.24	0.53	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.25	0.73	0.01	0.00	0.01	0.01	0.01	0.00	0.11	0.00
EW.26	0.51	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.27	0.44	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.00
EW.28	0.55	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
EW.29	0.67	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.00
EW.3	0.66	0.00	0.00	0.03	0.01	0.01	0.00	0.13	0.00
EW.30	0.53	0.00	0.00	0.03	0.02	0.00	0.00	0.09	0.00
EW.31.1	0.61	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.00
EW.31.2	0.45	0.00	0.00	0.03	0.01	0.00	0.00	0.09	0.00
EW.32	1.07	0.00	0.00	0.01	0.01	0.01	0.00	0.04	0.00
EW.33.1	0.68	0.00	0.00	0.02	0.01	0.02	0.00	0.09	0.00
EW.33.2	0.49	0.00	0.00	0.02	0.02	0.00	0.00	0.09	0.00
EW.33.3	0.42	0.00	0.00	0.09	0.01	0.00	0.00	0.12	0.00
EW.33.4	0.50	0.00	0.00	0.04	0.01	0.01	0.00	0.15	0.00
EW.33.5	0.50	0.00	0.00	0.01	0.02	0.00	0.00	0.08	0.00
EW.33.6	0.69	0.00	0.00	0.01	0.01	0.03	0.00	0.09	0.00
EW.33.7	0.75	0.00	0.00	0.01	0.05	0.01	0.00	0.10	0.00
EW.34	0.46	0.00	0.00	0.01	0.01	0.00	0.00	0.16	0.00
EW.35	0.47	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00
EW.36	0.60	0.00	0.00	0.01	0.01	0.00	0.00	0.17	0.00
EW.37.1	0.59	0.00	0.00	0.01	0.01	0.02	0.00	0.11	0.00
EW.37.2	0.27	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
EW.38.1	0.45	0.00	0.00	0.02	0.01	0.00	0.00	0.05	0.00
EW.38.2	0.59	0.00	0.00	0.02	0.02	0.00	0.00	0.07	0.00
EW.38.3	0.15	0.00	0.00	0.02	0.00	5.93	0.00	0.01	0.00
EW.39	0.52	0.00	0.00	0.02	0.03	0.00	0.00	0.09	0.00
EW.4.1	0.42	0.00	0.00	0.01	0.01	0.00	0.00	0.06	0.00
EW.4.2	0.63	0.00	0.00	0.01	0.01	0.03	0.00	0.08	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.01
EW.17	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.00	0.01
EW.18	0.00	0.00	0.00	0.00	0.00	0.00	4.21	0.00	0.01
EW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
EW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02
EW.19.3	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.01
EW.2	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
EW.20	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.01
EW.21	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02
EW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EW.23	0.00	0.00	0.00	0.00	0.00	0.00	5.91	0.00	0.01
EW.24	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02
EW.25	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02
EW.26	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02
EW.27	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.01
EW.28	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02
EW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.02
EW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01
EW.30	0.00	0.00	0.00	0.00	0.00	0.00	7.41	0.00	0.01
EW.31.1	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02
EW.31.2	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EW.32	0.01	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.02
EW.33.1	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.00	0.02
EW.33.2	0.00	0.00	0.00	0.00	0.00	0.00	5.78	0.00	0.01
EW.33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.01
EW.33.4	0.00	0.00	0.00	0.00	0.00	0.00	5.51	0.00	0.01
EW.33.5	0.00	0.00	0.00	0.00	0.00	0.00	8.13	0.00	0.01
EW.33.6	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.01
EW.33.7	0.00	0.00	0.00	0.00	0.00	0.00	7.41	0.00	0.01
EW.34	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.02
EW.35	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.01
EW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.01
EW.37.1	0.01	0.00	0.00	0.00	0.00	0.00	7.88	0.00	0.01
EW.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.01
EW.38.1	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
EW.38.2	0.00	0.00	0.00	0.00	0.00	0.01	6.21	0.00	0.01
EW.38.3	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.00
EW.39	0.00	0.00	0.00	0.00	0.00	0.00	5.64	0.00	0.01
EW.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
EW.4.2	0.00	0.00	0.00	0.00	0.00	0.00	4.97	0.00	0.01

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.31.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.31.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.19.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.31.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.31.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.33.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.37.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.37.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.38.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EW.16	0.03	0.00	0.00	0.00
EW.17	0.05	0.00	0.00	0.00
EW.18	0.03	0.00	0.00	0.00
EW.19.1	0.01	0.00	0.00	0.00
EW.19.2	0.07	0.00	0.00	0.00
EW.19.3	0.03	0.00	0.00	0.00
EW.2	0.02	0.00	0.00	0.00
EW.20	0.01	0.00	0.00	0.00
EW.21	0.02	0.00	0.00	0.00
EW.22	0.01	0.00	0.00	0.00
EW.23	0.06	0.00	0.00	0.00
EW.24	0.02	0.00	0.00	0.00
EW.25	0.02	0.00	0.00	0.00
EW.26	0.03	0.00	0.00	0.00
EW.27	0.01	0.00	0.00	0.00
EW.28	0.02	0.00	0.00	0.00
EW.29	0.02	0.00	0.00	0.00
EW.3	0.02	0.00	0.00	0.00
EW.30	0.14	0.00	0.00	0.00
EW.31.1	0.01	0.00	0.00	0.00
EW.31.2	0.01	0.00	0.00	0.00
EW.32	0.05	0.00	0.00	0.00
EW.33.1	0.03	0.00	0.00	0.00
EW.33.2	0.17	0.00	0.00	0.00
EW.33.3	0.03	0.00	0.00	0.00
EW.33.4	0.06	0.00	0.00	0.00
EW.33.5	0.09	0.00	0.00	0.00
EW.33.6	0.04	0.00	0.00	0.00
EW.33.7	0.24	0.00	0.00	0.00
EW.34	0.02	0.00	0.00	0.00
EW.35	0.01	0.00	0.00	0.00
EW.36	0.02	0.00	0.00	0.00
EW.37.1	0.09	0.00	0.00	0.00
EW.37.2	0.05	0.00	0.00	0.00
EW.38.1	0.01	0.00	0.00	0.00
EW.38.2	0.15	0.00	0.00	0.00
EW.38.3	43.48	0.00	0.00	0.00
EW.39	0.18	0.00	0.00	0.00
EW.4.1	0.01	0.00	0.00	0.00
EW.4.2	0.04	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Escambe	EW.40.1	White	0.00	0.00	0.04	10.94	1.69	0.96
Escambe	EW.40.2	White	0.00	0.00	0.04	11.08	1.87	1.09
Escambe	EW.41	White	0.01	0.00	0.04	13.27	1.73	1.19
Escambe	EW.42.1	White	0.00	0.00	0.04	11.55	1.56	0.82
Escambe	EW.42.2	White	0.00	0.00	0.04	11.59	2.18	1.20
Escambe	EW.43	White	0.00	0.00	0.03	13.07	1.68	0.74
Escambe	EW.44	White	0.00	0.00	0.03	10.85	1.66	1.10
Escambe	EW.45	White	0.00	0.00	0.03	11.58	1.61	1.43
Escambe	EW.46	White	0.00	0.00	0.04	10.94	1.61	1.00
Escambe	EW.47	White	0.00	0.00	0.04	11.46	1.89	0.93
Escambe	EW.48	White	0.00	0.00	0.03	12.34	1.54	1.00
Escambe	EW.49	White	0.00	0.00	0.04	14.48	1.47	1.06
Escambe	EW.5	White	0.00	0.00	0.04	10.60	1.29	1.14
Escambe	EW.50.1	White	0.00	0.00	0.03	11.27	1.54	1.32
Escambe	EW.50.2	White	0.00	0.00	0.04	11.41	1.50	0.86
Escambe	EW.50.3	White	0.00	0.00	0.03	10.38	1.77	1.16
Escambe	EW.52	White	0.00	0.00	0.03	10.42	2.14	1.08
Escambe	EW.53	White	0.00	0.00	0.04	11.71	1.73	1.21
Escambe	EW.54.1	White	0.00	0.00	0.04	12.24	1.98	1.42
Escambe	EW.54.2	White	0.00	0.00	0.04	10.64	1.94	1.23
Escambe	EW.55	White	0.00	0.00	0.03	11.36	1.53	0.83
Escambe	EW.56	White	0.00	0.00	0.03	11.16	1.57	1.30
Escambe	EW.57	White	0.00	0.00	0.04	11.12	2.12	0.96
Escambe	EW.58	White	0.00	0.00	0.04	10.63	2.06	1.93
Escambe	EW.6	White	0.00	0.00	0.04	10.38	1.53	1.68
Escambe	EW.7	White	0.00	0.00	0.03	10.23	1.50	1.57
Escambe	EW.8	White	0.00	0.00	0.04	11.07	1.29	1.01
Escambe	EW.9	White	0.00	0.00	0.04	9.70	1.55	1.05
San Miguel	MB.1	Blue	0.00	0.00	0.04	11.47	1.21	1.21
San Miguel	MB.2	Blue	0.00	0.00	0.04	12.51	1.17	1.02
San Miguel	MB.3	Blue	0.00	0.00	0.03	9.42	1.58	1.79
San Miguel	MB.4	Blue	0.00	0.00	0.04	10.43	1.50	1.82
San Miguel	MB.5	Blue	0.00	0.00	0.04	9.84	1.47	1.62
San Miguel	MBK.1.1	Black	0.00	0.00	0.00	0.10	0.23	4.53
San Miguel	MBK.1.2	Black	0.00	0.00	0.00	0.09	0.23	4.39
San Miguel	MBK.1.3	Black	0.00	0.00	0.00	0.13	0.18	4.42
San Miguel	MBK.10	Black	0.00	0.00	0.06	9.91	2.65	2.03
San Miguel	MBK.11	Black	0.00	0.00	0.00	0.06	0.17	4.97
San Miguel	MBK.12	Black	0.00	0.00	0.04	11.34	1.60	1.56
San Miguel	MBK.13	Black	0.00	0.00	0.04	10.24	1.21	1.21

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
EW.40.1	62.76	0.98	4.73	10.00	0.00	0.06	0.00	0.00	0.13
EW.40.2	64.62	0.91	5.92	9.03	0.00	0.06	0.00	0.00	0.23
EW.41	69.04	0.71	4.66	8.01	0.00	0.06	0.00	0.00	0.61
EW.42.1	64.10	1.05	4.88	8.70	0.00	0.05	0.00	0.00	0.18
EW.42.2	60.58	0.80	4.14	10.02	0.00	0.07	0.00	0.00	0.23
EW.43	70.27	0.58	3.90	8.60	0.00	0.04	0.00	0.00	0.58
EW.44	65.19	0.60	4.62	10.55	0.00	0.05	0.00	0.00	0.25
EW.45	69.95	0.57	4.83	8.44	0.00	0.06	0.00	0.00	0.78
EW.46	64.33	0.62	4.67	9.93	0.00	0.05	0.00	0.00	0.18
EW.47	59.88	0.89	4.82	10.41	0.00	0.08	0.00	0.00	0.15
EW.48	72.50	0.45	4.01	6.50	0.00	0.05	0.00	0.00	0.70
EW.49	67.92	0.63	3.10	10.01	0.00	0.05	0.00	0.00	0.51
EW.5	66.53	0.81	4.63	9.59	0.00	0.06	0.00	0.00	0.30
EW.50.1	69.88	0.64	5.60	8.19	0.00	0.18	0.00	0.00	0.52
EW.50.2	64.84	0.61	4.68	8.59	0.00	0.04	0.00	0.00	0.12
EW.50.3	65.04	0.62	4.93	8.47	0.00	0.06	0.00	0.00	0.12
EW.52	63.96	0.60	4.28	9.89	0.00	0.07	0.00	0.00	0.18
EW.53	64.98	0.60	3.44	10.02	0.00	0.05	0.00	0.00	0.12
EW.54.1	64.27	0.73	4.40	8.69	0.00	0.08	0.00	0.00	0.24
EW.54.2	66.14	0.65	4.25	8.92	0.00	0.06	0.00	0.00	0.31
EW.55	71.49	0.71	5.35	7.61	0.00	0.04	0.00	0.00	0.47
EW.56	66.79	0.63	4.64	7.87	0.00	0.07	0.00	0.00	0.37
EW.57	65.80	0.70	5.01	8.95	0.00	0.05	0.00	0.00	0.18
EW.58	62.00	0.62	4.54	10.43	0.00	0.09	0.00	0.00	0.27
EW.6	66.57	0.69	4.52	8.06	0.00	0.09	0.00	0.00	0.34
EW.7	64.60	0.59	4.31	9.09	0.00	0.09	0.00	0.00	0.28
EW.8	68.68	0.75	4.96	11.03	0.00	0.06	0.00	0.00	0.44
EW.9	68.01	0.58	3.54	8.50	0.00	0.06	0.00	0.00	0.23
MB.1	72.98	0.53	3.17	7.26	0.00	0.08	0.00	0.00	0.25
MB.2	73.54	0.44	3.04	6.80	0.00	0.05	0.00	0.00	0.30
MB.3	68.65	0.69	4.62	8.46	0.00	0.11	0.00	0.00	0.45
MB.4	70.09	0.60	4.77	8.73	0.00	0.11	0.00	0.00	0.25
MB.5	71.16	0.63	4.25	8.81	0.00	0.09	0.00	0.00	0.21
MBK.1.1	29.49	2.24	0.20	3.22	0.00	0.21	0.05	0.01	21.69
MBK.1.2	38.47	2.49	0.19	3.24	0.00	0.19	0.04	0.01	19.15
MBK.1.3	39.18	1.73	0.09	3.25	0.00	0.19	0.01	0.01	19.09
MBK.10	61.95	0.81	4.02	9.12	0.00	0.08	0.00	0.00	7.11
MBK.11	32.95	1.24	0.26	2.88	0.00	0.23	0.03	0.01	20.81
MBK.12	68.42	0.44	4.55	9.01	0.00	0.07	0.00	0.00	2.03
MBK.13	68.17	0.84	7.05	8.05	0.00	0.05	0.00	0.00	2.34

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
EW.40.1	0.58	0.00	0.00	0.02	0.03	0.01	0.00	0.08	0.00
EW.40.2	0.69	0.00	0.00	0.01	0.01	0.01	0.00	0.12	0.00
EW.41	0.51	0.00	0.00	0.02	0.01	0.00	0.00	0.07	0.00
EW.42.1	0.49	0.00	0.00	0.02	0.02	0.01	0.00	0.07	0.00
EW.42.2	0.79	0.00	0.00	0.01	0.02	0.02	0.00	0.08	0.00
EW.43	0.32	0.00	0.00	0.02	0.01	0.00	0.00	0.07	0.00
EW.44	0.47	0.00	0.00	0.01	0.01	0.01	0.00	0.10	0.00
EW.45	0.52	0.00	0.00	0.02	0.01	0.00	0.00	0.08	0.00
EW.46	0.45	0.00	0.00	0.01	0.02	0.01	0.00	0.09	0.00
EW.47	0.54	0.00	0.00	0.02	0.02	0.00	0.00	0.09	0.00
EW.48	0.46	0.00	0.00	0.02	0.01	0.00	0.00	0.07	0.00
EW.49	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
EW.5	0.50	0.00	0.00	0.02	0.01	0.01	0.00	0.09	0.00
EW.50.1	0.59	0.00	0.00	0.01	0.01	0.00	0.00	0.10	0.00
EW.50.2	0.43	0.00	0.00	0.01	0.03	0.01	0.00	0.09	0.00
EW.50.3	0.53	0.00	0.00	0.04	0.01	0.00	0.00	0.09	0.00
EW.52	0.45	0.00	0.00	0.02	0.03	0.00	0.00	0.08	0.00
EW.53	0.51	0.00	0.00	0.04	0.01	0.00	0.00	0.06	0.00
EW.54.1	0.72	0.00	0.00	0.02	0.03	0.00	0.00	0.08	0.00
EW.54.2	0.56	0.00	0.00	0.01	0.02	0.00	0.00	0.08	0.00
EW.55	0.35	0.00	0.00	0.02	0.01	0.00	0.00	0.10	0.00
EW.56	0.66	0.00	0.00	0.01	0.01	0.02	0.00	0.08	0.00
EW.57	0.46	0.00	0.00	0.02	0.01	0.00	0.00	0.11	0.00
EW.58	0.85	0.00	0.00	0.02	0.01	0.01	0.00	0.10	0.00
EW.6	0.67	0.00	0.00	0.01	0.01	0.03	0.00	0.08	0.00
EW.7	0.71	0.00	0.00	0.02	0.01	0.03	0.00	0.09	0.00
EW.8	0.39	0.00	0.00	0.01	0.01	0.00	0.00	0.06	0.00
EW.9	0.52	0.00	0.00	0.02	0.01	0.02	0.00	0.06	0.00
MB.1	0.53	0.09	0.06	0.02	0.01	0.15	0.00	0.06	0.00
MB.2	0.43	0.06	0.03	0.02	0.00	0.07	0.00	0.06	0.00
MB.3	0.74	0.09	0.07	0.04	0.01	0.14	0.00	0.10	0.00
MB.4	0.80	0.06	0.05	0.02	0.01	0.09	0.00	0.09	0.00
MB.5	0.75	0.06	0.07	0.02	0.01	0.12	0.00	0.09	0.00
MBK.1.1	2.46	0.01	0.01	0.82	0.12	0.10	0.00	0.01	0.00
MBK.1.2	2.35	0.01	0.00	0.73	0.09	0.15	0.00	0.01	0.00
MBK.1.3	2.33	0.01	0.01	0.73	0.11	0.13	0.00	0.01	0.00
MBK.10	0.81	0.00	0.00	0.09	0.01	0.10	0.00	0.12	0.00
MBK.11	2.66	0.01	0.00	0.79	0.73	0.13	0.00	0.02	0.00
MBK.12	0.59	0.00	0.00	0.01	0.01	0.00	0.00	0.11	0.00
MBK.13	0.59	0.00	0.00	0.02	0.01	0.01	0.00	0.06	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
EW.40.1	0.00	0.00	0.00	0.00	0.00	0.00	6.78	0.00	0.01
EW.40.2	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.00	0.01
EW.41	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EW.42.1	0.00	0.00	0.00	0.00	0.00	0.00	6.23	0.00	0.01
EW.42.2	0.00	0.00	0.00	0.00	0.00	0.00	8.05	0.00	0.01
EW.43	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
EW.44	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.00	0.01
EW.45	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
EW.46	0.01	0.00	0.00	0.00	0.00	0.00	5.95	0.00	0.01
EW.47	0.00	0.00	0.00	0.00	0.00	0.00	8.61	0.00	0.01
EW.48	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.01
EW.49	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.01
EW.5	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00	0.01
EW.50.1	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.02
EW.50.2	0.00	0.00	0.00	0.00	0.00	0.00	6.61	0.00	0.01
EW.50.3	0.00	0.00	0.00	0.00	0.00	0.00	6.65	0.00	0.01
EW.52	0.00	0.00	0.00	0.00	0.00	0.00	6.59	0.00	0.01
EW.53	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.00	0.01
EW.54.1	0.00	0.00	0.00	0.00	0.00	0.00	4.83	0.00	0.01
EW.54.2	0.00	0.00	0.00	0.00	0.00	0.00	4.97	0.00	0.01
EW.55	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
EW.56	0.00	0.00	0.00	0.00	0.00	0.00	4.71	0.00	0.01
EW.57	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	0.01
EW.58	0.01	0.00	0.00	0.00	0.00	0.00	6.28	0.00	0.02
EW.6	0.00	0.00	0.00	0.00	0.00	0.00	5.23	0.00	0.01
EW.7	0.00	0.00	0.00	0.00	0.00	0.00	6.77	0.00	0.01
EW.8	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.01
EW.9	0.00	0.00	0.00	0.00	0.00	0.00	6.03	0.00	0.01
MB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.01
MB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.01
MB.3	0.00	0.00	0.00	0.00	0.00	0.00	2.69	0.00	0.01
MB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.01
MB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.01
MBK.1.1	0.01	0.00	0.00	0.00	0.00	0.15	0.11	0.00	0.08
MBK.1.2	0.01	0.00	0.00	0.00	0.00	0.15	0.11	0.00	0.08
MBK.1.3	0.01	0.00	0.00	0.01	0.00	0.13	0.12	0.00	0.10
MBK.10	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.09
MBK.11	0.01	0.00	0.01	0.00	0.00	0.15	0.11	0.00	0.12
MBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.03
MBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.03

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
EW.40.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.40.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.42.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.42.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.54.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.54.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
EW.40.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.40.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.42.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.42.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.50.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.54.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.54.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.1.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
EW.40.1	0.19	0.00	0.00	0.00
EW.40.2	0.10	0.00	0.00	0.00
EW.41	0.02	0.00	0.00	0.00
EW.42.1	0.21	0.00	0.00	0.00
EW.42.2	0.15	0.00	0.00	0.00
EW.43	0.04	0.00	0.00	0.00
EW.44	0.05	0.00	0.00	0.00
EW.45	0.02	0.00	0.00	0.00
EW.46	0.07	0.00	0.00	0.00
EW.47	0.16	0.00	0.00	0.00
EW.48	0.04	0.00	0.00	0.00
EW.49	0.00	0.00	0.00	0.00
EW.5	0.17	0.00	0.00	0.00
EW.50.1	0.01	0.00	0.00	0.00
EW.50.2	0.12	0.00	0.00	0.00
EW.50.3	0.06	0.00	0.00	0.00
EW.52	0.15	0.00	0.00	0.00
EW.53	0.06	0.00	0.00	0.00
EW.54.1	0.21	0.00	0.00	0.00
EW.54.2	0.13	0.00	0.00	0.00
EW.55	0.04	0.00	0.00	0.00
EW.56	0.05	0.00	0.00	0.00
EW.57	0.06	0.00	0.00	0.00
EW.58	0.09	0.00	0.00	0.00
EW.6	0.03	0.00	0.00	0.00
EW.7	0.05	0.00	0.00	0.00
EW.8	0.03	0.00	0.00	0.00
EW.9	0.08	0.00	0.00	0.00
MB.1	0.17	0.05	0.00	0.00
MB.2	0.14	0.02	0.00	0.00
MB.3	0.19	0.09	0.00	0.00
MB.4	0.29	0.04	0.00	0.00
MB.5	0.34	0.04	0.00	0.00
MBK.1.1	34.13	0.00	0.00	0.00
MBK.1.2	27.79	0.00	0.00	0.00
MBK.1.3	28.01	0.00	0.00	0.00
MBK.10	0.88	0.00	0.00	0.00
MBK.11	31.63	0.00	0.00	0.00
MBK.12	0.07	0.00	0.00	0.00
MBK.13	0.00	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
San Miguel	MBK.14	Black	0.00	0.00	0.04	9.67	1.95	1.49
San Miguel	MBK.15	Black	0.00	0.00	0.04	9.67	2.09	1.36
San Miguel	MBK.16	Black	0.00	0.00	0.00	0.13	0.22	3.95
San Miguel	MBK.17	Black	0.00	0.00	0.00	0.08	0.14	3.93
San Miguel	MBK.18	Black	0.00	0.00	0.04	9.53	2.10	1.51
San Miguel	MBK.19	Black	0.00	0.00	0.04	9.44	2.07	1.62
San Miguel	MBK.2	Black	0.00	0.00	0.03	8.52	1.60	1.75
San Miguel	MBK.20.1	Black	0.00	0.00	0.00	0.07	0.21	4.36
San Miguel	MBK.20.2	Black	0.00	0.00	0.00	0.11	0.16	4.01
San Miguel	MBK.21	Black	0.00	0.00	0.05	11.63	1.49	1.18
San Miguel	MBK.22	Black	0.00	0.00	0.04	10.73	1.45	1.80
San Miguel	MBK.23	Black	0.00	0.00	0.04	9.42	2.67	2.55
San Miguel	MBK.24	Black	0.00	0.00	0.04	9.71	1.72	1.49
San Miguel	MBK.25	Black	0.00	0.00	0.03	10.47	1.32	1.95
San Miguel	MBK.26	Black	0.00	0.00	0.04	9.10	2.23	1.90
San Miguel	MBK.27	Black	0.01	0.00	0.05	9.82	2.82	1.70
San Miguel	MBK.28	Black	0.00	0.00	0.00	0.10	0.22	4.84
San Miguel	MBK.29	Black	0.00	0.00	0.05	9.66	2.43	2.04
San Miguel	MBK.3.1	Black	0.00	0.00	0.00	0.13	0.16	4.39
San Miguel	MBK.3.2	Black	0.00	0.00	0.02	4.45	0.96	2.98
San Miguel	MBK.30.1	Black	0.00	0.00	0.03	10.09	2.34	2.06
San Miguel	MBK.30.2	Black	0.00	0.00	0.03	9.32	2.20	1.68
San Miguel	MBK.31	Black	0.00	0.00	0.03	10.51	1.35	1.76
San Miguel	MBK.32	Black	0.00	0.00	0.03	8.92	2.42	3.46
San Miguel	MBK.33.1	Black	0.00	0.00	0.05	10.53	2.33	2.47
San Miguel	MBK.33.2	Black	0.00	0.00	0.04	10.08	2.43	1.49
San Miguel	MBK.34	Black	0.00	0.00	0.04	10.42	1.70	1.27
San Miguel	MBK.35	Black	0.00	0.00	0.05	11.39	2.60	2.34
San Miguel	MBK.36	Black	0.00	0.00	0.04	13.82	1.36	1.40
San Miguel	MBK.37	Black	0.00	0.00	0.04	10.62	2.04	2.06
San Miguel	MBK.38	Black	0.00	0.00	0.03	9.76	1.63	1.64
San Miguel	MBK.39	Black	0.01	0.00	0.04	11.14	1.57	1.08
San Miguel	MBK.4	Black	0.00	0.00	0.03	9.05	1.62	1.56
San Miguel	MBK.40	Black	0.00	0.00	0.03	10.09	2.05	1.35
San Miguel	MBK.42	Black	0.00	0.00	0.04	10.45	2.40	2.70
San Miguel	MBK.43	Black	0.00	0.00	0.03	10.33	1.76	1.70
San Miguel	MBK.44	Black	0.00	0.00	0.05	10.66	2.62	2.59
San Miguel	MBK.45	Black	0.01	0.00	0.05	9.91	1.64	2.38
San Miguel	MBK.5	Black	0.00	0.00	0.04	9.53	2.14	1.50
San Miguel	MBK.6	Black	0.00	0.00	0.04	7.67	1.74	2.39

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
MBK.14	64.82	0.68	4.09	10.46	0.00	0.06	0.00	0.00	4.72
MBK.15	64.62	0.72	4.30	10.97	0.00	0.06	0.00	0.00	4.34
MBK.16	36.72	5.87	0.32	6.09	0.00	0.16	0.04	0.01	11.68
MBK.17	31.50	4.89	0.21	4.68	0.00	0.14	0.01	0.01	14.36
MBK.18	64.73	0.74	4.11	10.61	0.00	0.06	0.00	0.00	4.63
MBK.19	64.04	0.69	4.03	11.39	0.00	0.06	0.00	0.00	4.61
MBK.2	67.22	0.66	4.86	9.43	0.00	0.08	0.00	0.00	3.94
MBK.20.1	29.19	1.98	0.16	2.99	0.00	0.21	0.04	0.01	22.61
MBK.20.2	34.39	4.45	0.27	4.72	0.00	0.16	0.02	0.00	13.94
MBK.21	66.90	0.92	5.41	9.02	0.00	0.05	0.00	0.00	2.48
MBK.22	69.95	0.59	4.11	7.26	0.00	0.08	0.00	0.00	2.94
MBK.23	61.69	1.35	4.68	9.31	0.00	0.09	0.00	0.00	6.41
MBK.24	64.87	0.58	5.28	8.43	0.00	0.06	0.00	0.00	6.43
MBK.25	67.79	0.70	3.88	9.24	0.00	0.09	0.00	0.00	2.97
MBK.26	64.48	0.97	4.99	9.47	0.00	0.07	0.00	0.00	5.35
MBK.27	63.41	0.84	3.97	8.69	0.00	0.06	0.00	0.00	7.28
MBK.28	41.59	2.62	0.20	3.74	0.00	0.19	0.02	0.01	14.18
MBK.29	63.24	0.81	3.46	8.56	0.00	0.11	0.00	0.00	6.99
MBK.3.1	35.32	4.44	0.16	5.17	0.00	0.17	0.03	0.01	14.66
MBK.3.2	66.06	0.91	1.19	4.74	0.00	0.12	0.00	0.00	4.26
MBK.30.1	65.40	0.65	3.07	8.24	0.00	0.09	0.00	0.00	6.19
MBK.30.2	64.56	1.16	5.13	8.77	0.00	0.06	0.00	0.00	5.44
MBK.31	67.27	0.72	5.38	7.84	0.00	0.09	0.00	0.00	3.72
MBK.32	61.65	0.52	3.04	7.72	0.00	0.22	0.01	0.00	9.12
MBK.33.1	64.83	0.63	3.60	8.25	0.00	0.10	0.00	0.00	4.96
MBK.33.2	63.07	1.24	4.94	9.15	0.00	0.06	0.00	0.00	6.03
MBK.34	64.21	0.61	5.14	8.05	0.00	0.05	0.00	0.00	6.96
MBK.35	62.40	0.85	3.73	6.79	0.00	0.09	0.00	0.00	7.53
MBK.36	65.68	0.69	4.55	7.47	0.00	0.07	0.00	0.00	3.79
MBK.37	60.85	0.78	4.10	8.93	0.00	0.10	0.01	0.00	8.20
MBK.38	63.45	0.54	4.61	8.35	0.00	0.06	0.00	0.00	8.63
MBK.39	64.27	0.71	5.33	7.14	0.00	0.05	0.00	0.00	7.10
MBK.4	66.62	0.72	5.02	9.14	0.00	0.07	0.00	0.00	4.16
MBK.40	63.82	0.69	4.31	10.79	0.00	0.06	0.00	0.00	4.72
MBK.42	64.06	0.58	3.72	8.14	0.00	0.11	0.00	0.00	5.48
MBK.43	65.60	0.74	5.13	7.75	0.00	0.07	0.00	0.00	4.96
MBK.44	63.45	0.61	3.75	8.83	0.00	0.11	0.00	0.00	5.13
MBK.45	66.18	0.64	4.39	7.84	0.00	0.15	0.00	0.00	5.20
MBK.5	64.61	0.70	4.16	11.17	0.00	0.06	0.00	0.00	4.29
MBK.6	62.14	0.97	3.70	7.86	0.00	0.10	0.01	0.00	9.73

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
MBK.14	1.25	0.00	0.00	0.04	0.18	0.01	0.00	0.07	0.00
MBK.15	1.18	0.00	0.00	0.04	0.18	0.01	0.00	0.08	0.00
MBK.16	1.64	0.01	0.00	0.09	0.04	0.24	0.00	0.02	0.00
MBK.17	1.47	0.01	0.00	0.08	0.04	0.28	0.00	0.02	0.00
MBK.18	1.19	0.00	0.00	0.03	0.18	0.01	0.00	0.07	0.00
MBK.19	1.21	0.00	0.00	0.03	0.18	0.01	0.00	0.08	0.00
MBK.2	1.27	0.00	0.00	0.03	0.15	0.01	0.00	0.06	0.00
MBK.20.1	2.29	0.01	0.01	0.81	0.12	0.11	0.00	0.01	0.00
MBK.20.2	1.66	0.01	0.01	0.10	0.04	0.53	0.00	0.02	0.00
MBK.21	0.47	0.00	0.00	0.03	0.01	0.02	0.00	0.06	0.00
MBK.22	0.76	0.00	0.00	0.01	0.01	0.00	0.00	0.08	0.00
MBK.23	1.45	0.00	0.01	0.06	0.01	0.03	0.00	0.09	0.00
MBK.24	0.91	0.00	0.00	0.04	0.01	0.02	0.00	0.09	0.00
MBK.25	1.17	0.03	0.02	0.02	0.01	0.03	0.00	0.09	0.00
MBK.26	0.93	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
MBK.27	0.79	0.01	0.01	0.08	0.01	0.01	0.00	0.10	0.00
MBK.28	1.85	0.01	0.01	0.10	0.03	0.50	0.00	0.01	0.00
MBK.29	1.08	0.01	0.01	0.07	0.01	0.02	0.00	0.07	0.00
MBK.3.1	1.67	0.01	0.01	0.11	0.04	0.47	0.00	0.02	0.00
MBK.3.2	1.60	0.00	0.00	0.44	0.02	0.20	0.00	0.03	0.00
MBK.30.1	1.41	0.01	0.01	0.03	0.01	0.04	0.00	0.09	0.00
MBK.30.2	1.09	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
MBK.31	0.80	0.00	0.00	0.06	0.01	0.01	0.00	0.11	0.00
MBK.32	2.05	0.00	0.00	0.06	0.01	0.04	0.00	0.08	0.00
MBK.33.1	1.72	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
MBK.33.2	1.16	0.00	0.01	0.05	0.01	0.02	0.00	0.09	0.00
MBK.34	0.95	0.01	0.01	0.05	0.01	0.02	0.00	0.09	0.00
MBK.35	1.43	0.00	0.01	0.07	0.01	0.03	0.00	0.08	0.00
MBK.36	0.77	0.01	0.01	0.04	0.01	0.02	0.00	0.08	0.00
MBK.37	1.43	0.01	0.01	0.06	0.01	0.02	0.00	0.10	0.00
MBK.38	0.73	0.00	0.00	0.10	0.01	0.03	0.00	0.08	0.00
MBK.39	0.98	0.01	0.01	0.05	0.01	0.02	0.00	0.08	0.00
MBK.4	1.34	0.00	0.00	0.03	0.16	0.01	0.00	0.06	0.00
MBK.40	1.31	0.00	0.00	0.03	0.20	0.01	0.00	0.07	0.00
MBK.42	1.88	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
MBK.43	1.26	0.00	0.00	0.06	0.01	0.02	0.00	0.08	0.00
MBK.44	1.69	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
MBK.45	1.11	0.00	0.00	0.06	0.01	0.01	0.00	0.09	0.00
MBK.5	1.16	0.00	0.00	0.03	0.17	0.01	0.00	0.08	0.00
MBK.6	2.39	0.01	0.01	0.09	0.02	0.02	0.00	0.08	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
MBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.06
MBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05
MBK.16	0.01	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.06
MBK.17	0.01	0.00	0.00	0.00	0.00	0.11	0.03	0.00	0.05
MBK.18	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.06
MBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.06
MBK.2	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
MBK.20.1	0.01	0.00	0.00	0.00	0.00	0.13	0.12	0.00	0.09
MBK.20.2	0.01	0.00	0.00	0.00	0.00	0.07	0.03	0.00	0.06
MBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.04
MBK.22	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.04
MBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07
MBK.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.07
MBK.25	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.05
MBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.10
MBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.21
MBK.28	0.01	0.00	0.00	0.00	0.00	0.08	0.03	0.00	0.06
MBK.29	0.01	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.10
MBK.3.1	0.01	0.00	0.00	0.00	0.00	0.07	0.04	0.00	0.05
MBK.3.2	0.01	0.00	0.00	0.00	0.00	0.11	0.13	0.00	0.06
MBK.30.1	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.10
MBK.30.2	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.10
MBK.31	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.05
MBK.32	0.01	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.09
MBK.33.1	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
MBK.33.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.08
MBK.34	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.07
MBK.35	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.09
MBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.06
MBK.37	0.01	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.09
MBK.38	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.13
MBK.39	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.07
MBK.4	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.06
MBK.40	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.07
MBK.42	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06
MBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.06
MBK.44	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06
MBK.45	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
MBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05
MBK.6	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.10

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
MBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.3.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.3.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.30.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.30.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.33.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
MBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.3.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.3.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.30.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.30.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.33.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
MBK.14	0.27	0.00	0.00	0.00
MBK.15	0.18	0.00	0.00	0.00
MBK.16	32.60	0.00	0.00	0.00
MBK.17	37.93	0.00	0.00	0.00
MBK.18	0.25	0.00	0.00	0.00
MBK.19	0.28	0.00	0.00	0.00
MBK.2	0.24	0.00	0.00	0.00
MBK.20.1	34.45	0.00	0.00	0.00
MBK.20.2	35.20	0.00	0.00	0.00
MBK.21	0.06	0.00	0.00	0.00
MBK.22	0.02	0.00	0.00	0.00
MBK.23	0.03	0.00	0.00	0.00
MBK.24	0.14	0.00	0.00	0.00
MBK.25	0.06	0.02	0.00	0.00
MBK.26	0.11	0.00	0.00	0.00
MBK.27	0.04	0.00	0.00	0.00
MBK.28	29.57	0.00	0.00	0.00
MBK.29	1.05	0.00	0.00	0.00
MBK.3.1	32.85	0.00	0.00	0.00
MBK.3.2	11.68	0.00	0.00	0.00
MBK.30.1	0.08	0.00	0.00	0.00
MBK.30.2	0.15	0.00	0.00	0.00
MBK.31	0.22	0.00	0.00	0.00
MBK.32	0.30	0.00	0.00	0.00
MBK.33.1	0.18	0.00	0.00	0.00
MBK.33.2	0.02	0.00	0.00	0.00
MBK.34	0.25	0.00	0.00	0.00
MBK.35	0.06	0.00	0.00	0.00
MBK.36	0.06	0.00	0.00	0.00
MBK.37	0.15	0.00	0.00	0.00
MBK.38	0.05	0.00	0.00	0.00
MBK.39	0.24	0.00	0.00	0.00
MBK.4	0.25	0.00	0.00	0.00
MBK.40	0.26	0.00	0.00	0.00
MBK.42	0.11	0.00	0.00	0.00
MBK.43	0.18	0.00	0.00	0.00
MBK.44	0.15	0.00	0.00	0.00
MBK.45	0.18	0.00	0.00	0.00
MBK.5	0.17	0.00	0.00	0.00
MBK.6	0.76	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
San Miguel	MBK.7	Black	0.00	0.00	0.04	8.74	2.03	1.38
San Miguel	MBK.8	Black	0.00	0.00	0.03	0.90	0.26	0.65
San Miguel	MBK.9	Black	0.00	0.00	0.04	10.41	1.87	1.86
San Miguel	MW.1	White	0.00	0.00	0.01	3.61	0.20	0.34
San Miguel	MW.10	White	0.00	0.00	0.03	13.78	1.89	1.07
San Miguel	MW.11	White	0.00	0.00	0.00	0.01	0.02	0.30
San Miguel	MW.12	White	0.00	0.00	0.04	9.11	1.72	1.83
San Miguel	MW.13.1	White	0.00	0.00	0.04	11.17	1.60	1.73
San Miguel	MW.13.2	White	0.00	0.00	0.04	11.58	1.56	1.62
San Miguel	MW.14	White	0.00	0.00	0.01	0.58	0.87	5.13
San Miguel	MW.15	White	0.00	0.00	0.04	11.07	1.33	1.38
San Miguel	MW.16	White	0.00	0.00	0.04	10.82	1.73	1.82
San Miguel	MW.17	White	0.00	0.00	0.04	10.23	1.65	1.86
San Miguel	MW.18	White	0.00	0.00	0.04	10.00	1.59	1.85
San Miguel	MW.19.1	White	0.00	0.00	0.04	10.10	1.69	1.77
San Miguel	MW.19.2	White	0.00	0.00	0.04	9.68	1.87	1.89
San Miguel	MW.2	White	0.00	0.00	0.03	7.73	1.31	3.55
San Miguel	MW.20.1	White	0.01	0.00	0.04	9.91	1.83	2.04
San Miguel	MW.20.2	White	0.00	0.00	0.04	9.82	1.68	1.96
San Miguel	MW.21	White	0.01	0.00	0.04	9.72	1.53	1.65
San Miguel	MW.22	White	0.00	0.00	0.04	14.38	2.08	0.97
San Miguel	MW.23.1	White	0.00	0.00	0.04	14.28	2.02	0.98
San Miguel	MW.23.2	White	0.00	0.00	0.04	10.09	1.61	1.86
San Miguel	MW.24	White	0.00	0.00	0.03	11.46	1.83	1.82
San Miguel	MW.25	White	0.00	0.00	0.04	10.91	1.69	1.69
San Miguel	MW.26	White	0.00	0.00	0.04	10.32	1.62	1.78
San Miguel	MW.27	White	0.00	0.00	0.04	10.26	2.36	2.53
San Miguel	MW.28	White	0.00	0.00	0.01	0.03	0.50	7.40
San Miguel	MW.29	White	0.00	0.00	0.04	12.64	1.46	1.76
San Miguel	MW.3	White	0.00	0.00	0.04	8.62	1.77	1.86
San Miguel	MW.30	White	0.00	0.00	0.04	11.02	1.89	1.65
San Miguel	MW.31	White	0.00	0.00	0.04	12.54	1.79	1.90
San Miguel	MW.32	White	0.00	0.00	0.04	11.17	1.92	1.56
San Miguel	MW.33	White	0.00	0.00	0.03	11.27	1.48	1.39
San Miguel	MW.34.1	White	0.00	0.00	0.03	12.29	1.39	1.20
San Miguel	MW.34.2	White	0.00	0.00	0.03	12.13	2.35	1.90
San Miguel	MW.36	White	0.00	0.00	0.03	10.92	2.24	1.76
San Miguel	MW.37	White	0.00	0.00	0.03	10.90	2.10	2.14
San Miguel	MW.38	White	0.00	0.00	0.00	4.78	1.01	8.51
San Miguel	MW.39	White	0.00	0.00	0.03	14.37	2.13	1.16

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
MBK.7	65.29	0.95	4.23	8.20	0.00	0.06	0.00	0.00	7.78
MBK.8	69.09	0.37	11.86	6.64	0.00	0.04	0.00	0.00	8.74
MBK.9	66.03	0.67	3.92	8.48	0.00	0.10	0.00	0.00	4.82
MW.1	58.83	0.41	10.62	3.28	0.00	0.03	0.00	0.00	0.12
MW.10	68.76	0.99	3.18	9.20	0.00	0.07	0.00	0.00	0.35
MW.11	4.98	1.20	0.02	1.33	0.00	0.01	0.01	0.00	0.00
MW.12	62.30	0.77	3.90	10.99	0.00	0.11	0.00	0.00	0.09
MW.13.1	68.24	0.50	4.45	9.95	0.00	0.09	0.00	0.00	0.09
MW.13.2	67.40	0.58	4.64	10.34	0.00	0.09	0.00	0.00	0.08
MW.14	19.63	2.92	0.40	54.67	0.00	0.36	0.00	0.04	0.31
MW.15	65.47	0.60	3.25	10.36	0.00	0.09	0.00	0.00	0.06
MW.16	65.10	0.49	4.32	9.92	0.00	0.09	0.00	0.00	0.10
MW.17	63.86	0.68	4.14	10.49	0.00	0.09	0.00	0.00	0.06
MW.18	66.34	0.77	4.31	9.47	0.00	0.11	0.00	0.00	0.06
MW.19.1	63.20	0.64	4.37	10.30	0.00	0.09	0.00	0.00	0.06
MW.19.2	60.95	0.57	4.06	11.50	0.00	0.09	0.00	0.00	0.05
MW.2	65.52	1.03	4.20	9.68	0.00	0.10	0.00	0.00	0.10
MW.20.1	62.80	0.64	4.29	11.46	0.00	0.10	0.00	0.00	0.06
MW.20.2	64.34	0.59	4.17	10.08	0.00	0.10	0.00	0.00	0.08
MW.21	65.79	0.93	5.31	9.93	0.00	0.09	0.00	0.00	0.24
MW.22	67.86	0.69	3.35	9.63	0.00	0.05	0.00	0.00	0.35
MW.23.1	68.13	0.71	3.34	9.48	0.00	0.05	0.00	0.00	0.36
MW.23.2	59.21	0.84	2.91	11.52	0.00	0.06	0.00	0.00	0.05
MW.24	63.06	0.65	4.21	9.58	0.00	0.05	0.00	0.00	0.28
MW.25	64.94	0.51	4.43	10.18	0.00	0.09	0.00	0.00	0.09
MW.26	65.84	0.73	4.44	9.44	0.00	0.10	0.00	0.00	0.07
MW.27	60.66	0.56	3.54	10.14	0.00	0.12	0.00	0.00	0.04
MW.28	11.03	3.11	0.36	3.81	0.00	0.16	0.32	0.06	0.07
MW.29	67.21	0.95	5.24	9.25	0.00	0.08	0.00	0.00	0.53
MW.3	68.57	0.66	5.65	9.27	0.00	0.09	0.00	0.00	0.45
MW.30	63.75	0.60	4.22	10.80	0.00	0.08	0.00	0.00	0.22
MW.31	67.47	0.67	4.81	8.88	0.00	0.08	0.00	0.00	0.79
MW.32	58.77	0.84	3.43	11.71	0.00	0.06	0.00	0.00	0.04
MW.33	64.65	0.55	3.72	11.07	0.00	0.07	0.00	0.00	0.08
MW.34.1	70.03	0.63	4.08	8.93	0.00	0.06	0.00	0.00	0.54
MW.34.2	63.18	0.55	3.85	10.10	0.00	0.09	0.00	0.00	0.05
MW.36	66.47	0.64	5.17	11.29	0.00	0.07	0.00	0.00	0.56
MW.37	62.92	0.53	5.08	10.20	0.00	0.09	0.00	0.00	0.24
MW.38	66.94	0.66	3.25	12.96	0.00	0.11	0.00	0.00	0.08
MW.39	67.38	0.63	3.65	9.64	0.00	0.04	0.00	0.00	0.35

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
MBK.7	0.93	0.00	0.00	0.05	0.01	0.02	0.00	0.08	0.00
MBK.8	0.26	0.00	0.00	0.06	0.03	0.17	0.01	0.01	0.00
MBK.9	1.31	0.00	0.00	0.08	0.01	0.03	0.00	0.10	0.00
MW.1	0.14	0.00	0.00	0.01	0.02	1.46	0.00	0.01	0.00
MW.10	0.50	0.00	0.00	0.01	0.01	0.00	0.00	0.05	0.00
MW.11	0.33	0.00	0.00	0.47	0.00	0.00	0.00	0.06	0.00
MW.12	0.86	0.00	0.00	0.01	0.01	0.07	0.00	0.09	0.00
MW.13.1	0.66	0.00	0.00	0.01	0.01	0.01	0.00	0.12	0.00
MW.13.2	0.75	0.00	0.00	0.01	0.01	0.01	0.00	0.12	0.00
MW.14	3.31	0.00	0.00	0.03	0.03	0.00	0.00	0.13	0.00
MW.15	0.77	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
MW.16	0.85	0.00	0.00	0.01	0.01	0.02	0.00	0.12	0.00
MW.17	0.77	0.00	0.00	0.01	0.01	0.05	0.00	0.10	0.00
MW.18	0.87	0.00	0.00	0.00	0.01	0.00	0.00	0.10	0.00
MW.19.1	0.75	0.00	0.00	0.00	0.01	0.05	0.00	0.11	0.00
MW.19.2	0.83	0.00	0.00	0.00	0.01	0.07	0.00	0.11	0.00
MW.2	0.71	0.00	0.00	0.01	0.01	0.02	0.00	0.08	0.00
MW.20.1	0.92	0.00	0.00	0.01	0.01	0.04	0.00	0.11	0.00
MW.20.2	0.83	0.00	0.00	0.01	0.01	0.06	0.00	0.10	0.00
MW.21	0.81	0.00	0.00	0.01	0.01	0.00	0.00	0.10	0.00
MW.22	0.43	0.00	0.00	0.01	0.01	0.00	0.00	0.05	0.00
MW.23.1	0.43	0.00	0.00	0.01	0.01	0.00	0.00	0.05	0.00
MW.23.2	0.59	0.00	0.00	0.01	0.03	0.00	0.00	0.07	0.00
MW.24	0.58	0.00	0.00	0.02	0.02	0.01	0.00	0.08	0.00
MW.25	0.83	0.00	0.00	0.01	0.02	0.02	0.00	0.12	0.00
MW.26	0.88	0.00	0.00	0.01	0.02	0.00	0.00	0.10	0.00
MW.27	0.93	0.00	0.00	0.01	0.02	0.02	0.00	0.12	0.00
MW.28	72.75	0.00	0.00	0.02	0.03	0.24	0.00	0.01	0.00
MW.29	0.65	0.00	0.00	0.01	0.01	0.02	0.00	0.07	0.00
MW.3	0.64	0.00	0.00	0.01	0.01	0.00	0.00	0.09	0.00
MW.30	0.73	0.00	0.00	0.01	0.01	0.01	0.00	0.10	0.00
MW.31	0.77	0.00	0.00	0.01	0.01	0.00	0.00	0.12	0.00
MW.32	0.55	0.00	0.00	0.01	0.04	0.00	0.00	0.07	0.00
MW.33	0.57	0.00	0.00	0.01	0.02	0.03	0.00	0.11	0.00
MW.34.1	0.54	0.00	0.00	0.01	0.01	0.00	0.00	0.07	0.00
MW.34.2	0.86	0.00	0.00	0.01	0.01	0.01	0.00	0.12	0.00
MW.36	0.62	0.00	0.00	0.01	0.01	0.00	0.00	0.10	0.00
MW.37	0.75	0.00	0.00	0.01	0.01	0.01	0.00	0.11	0.00
MW.38	0.87	0.00	0.00	0.01	0.02	0.00	0.00	0.06	0.00
MW.39	0.43	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
MBK.7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.11
MBK.8	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.73
MBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.05
MW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01
MW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01
MW.11	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00
MW.12	0.00	0.00	0.00	0.00	0.00	0.00	7.97	0.00	0.02
MW.13.1	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.02
MW.13.2	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.02
MW.14	0.02	0.00	0.00	0.01	0.00	0.01	10.38	0.00	0.13
MW.15	0.01	0.00	0.00	0.00	0.00	0.00	5.32	0.00	0.02
MW.16	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	0.01
MW.17	0.00	0.00	0.00	0.00	0.00	0.00	5.86	0.00	0.02
MW.18	0.01	0.00	0.00	0.00	0.00	0.00	4.42	0.00	0.02
MW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	6.73	0.00	0.02
MW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	8.20	0.00	0.01
MW.2	0.01	0.00	0.00	0.00	0.00	0.00	5.85	0.00	0.03
MW.20.1	0.00	0.00	0.00	0.00	0.00	0.00	5.68	0.00	0.02
MW.20.2	0.00	0.00	0.00	0.00	0.00	0.00	5.92	0.00	0.01
MW.21	0.00	0.00	0.00	0.00	0.00	0.00	3.73	0.00	0.02
MW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
MW.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
MW.23.2	0.00	0.00	0.00	0.00	0.00	0.00	10.90	0.00	0.01
MW.24	0.00	0.00	0.00	0.00	0.00	0.00	6.09	0.00	0.02
MW.25	0.00	0.00	0.00	0.00	0.00	0.00	4.28	0.00	0.01
MW.26	0.00	0.00	0.00	0.00	0.00	0.00	4.55	0.00	0.02
MW.27	0.01	0.00	0.00	0.00	0.00	0.00	8.53	0.00	0.01
MW.28	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
MW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01
MW.3	0.01	0.00	0.00	0.00	0.00	0.00	2.20	0.00	0.02
MW.30	0.00	0.00	0.00	0.00	0.00	0.00	4.76	0.00	0.01
MW.31	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02
MW.32	0.00	0.00	0.00	0.00	0.00	0.00	9.56	0.00	0.01
MW.33	0.00	0.00	0.00	0.00	0.00	0.00	4.90	0.00	0.01
MW.34.1	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.01
MW.34.2	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.01
MW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02
MW.37	0.01	0.00	0.00	0.00	0.00	0.00	4.82	0.00	0.01
MW.38	0.01	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.11
MW.39	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
MBK.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.13.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.13.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.20.2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.34.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.34.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
MBK.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MBK.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
MBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.13.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.13.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.19.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.20.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.20.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.23.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.34.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.34.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
MBK.7	0.04	0.00	0.00	0.00
MBK.8	0.08	0.00	0.00	0.00
MBK.9	0.03	0.00	0.00	0.00
MW.1	20.87	0.00	0.00	0.00
MW.10	0.03	0.00	0.00	0.00
MW.11	91.21	0.00	0.00	0.00
MW.12	0.08	0.00	0.00	0.00
MW.13.1	0.14	0.00	0.00	0.00
MW.13.2	0.10	0.00	0.00	0.00
MW.14	0.98	0.00	0.00	0.00
MW.15	0.12	0.00	0.00	0.00
MW.16	0.11	0.00	0.00	0.00
MW.17	0.06	0.00	0.00	0.00
MW.18	0.02	0.00	0.00	0.00
MW.19.1	0.06	0.00	0.00	0.00
MW.19.2	0.02	0.00	0.00	0.00
MW.2	0.02	0.00	0.00	0.00
MW.20.1	0.03	0.00	0.00	0.00
MW.20.2	0.18	0.00	0.00	0.00
MW.21	0.07	0.00	0.00	0.00
MW.22	0.03	0.00	0.00	0.00
MW.23.1	0.03	0.00	0.00	0.00
MW.23.2	0.19	0.00	0.00	0.00
MW.24	0.20	0.00	0.00	0.00
MW.25	0.13	0.00	0.00	0.00
MW.26	0.03	0.00	0.00	0.00
MW.27	0.09	0.00	0.00	0.00
MW.28	0.04	0.00	0.01	0.00
MW.29	0.00	0.00	0.00	0.00
MW.3	0.03	0.00	0.00	0.00
MW.30	0.09	0.00	0.00	0.00
MW.31	0.00	0.00	0.00	0.00
MW.32	0.21	0.00	0.00	0.00
MW.33	0.03	0.00	0.00	0.00
MW.34.1	0.00	0.00	0.00	0.00
MW.34.2	0.08	0.00	0.00	0.00
MW.36	0.01	0.00	0.00	0.00
MW.37	0.01	0.00	0.00	0.00
MW.38	0.11	0.00	0.00	0.00
MW.39	0.03	0.00	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
San Miguel	MW.4	White	0.00	0.00	0.04	10.43	1.65	1.55
San Miguel	MW.40	White	0.00	0.00	0.04	9.71	1.94	1.68
San Miguel	MW.5	White	0.00	0.00	0.05	11.30	1.69	1.40
San Miguel	MW.6	White	0.00	0.00	0.04	10.19	1.75	1.87
San Miguel	MW.7	White	0.00	0.00	0.04	10.30	1.75	1.54
San Miguel	MW.8.1	White	0.00	0.00	0.03	7.41	1.31	3.55
San Miguel	MW.8.2	White	0.00	0.00	0.04	9.98	1.72	1.97
San Miguel	MW.9	White	0.00	0.00	0.04	13.39	2.06	1.03
Santa Rosa	RB.1	Blue	0.00	0.00	0.04	12.58	2.76	1.85
Santa Rosa	RB.2	Blue	0.00	0.00	0.04	11.84	1.82	0.98
Santa Rosa	RB.3	Blue	0.00	0.00	0.04	10.99	1.55	0.86
Santa Rosa	RB.4	Blue	0.00	0.00	0.04	11.04	1.69	0.99
Santa Rosa	RB.5	Blue	0.00	0.00	0.04	10.44	2.67	3.02
Santa Rosa	RB.6	Blue	0.00	0.00	0.03	13.10	2.11	1.18
Santa Rosa	RB.7.1	Blue	0.00	0.00	0.04	11.59	1.40	0.97
Santa Rosa	RB.7.2	Blue	0.00	0.00	0.04	10.98	1.67	1.03
Santa Rosa	RB.7.3	Blue	0.00	0.00	0.04	11.52	1.64	0.95
Santa Rosa	RB.8	Blue	0.00	0.00	0.04	9.81	1.58	1.44
Santa Rosa	RB.9	Blue	0.00	0.00	0.04	10.16	1.63	0.94
Santa Rosa	RBK.1	Black	0.00	0.00	0.04	8.99	2.05	2.90
Santa Rosa	RBK.10	Black	0.00	0.00	0.03	11.71	1.73	1.04
Santa Rosa	RBK.11.1	Black	0.00	0.00	0.04	10.28	2.95	3.66
Santa Rosa	RBK.11.2	Black	0.00	0.00	0.03	9.52	2.85	3.05
Santa Rosa	RBK.12	Black	0.00	0.00	0.03	11.79	1.47	1.15
Santa Rosa	RBK.13	Black	0.00	0.00	0.04	10.53	2.45	2.84
Santa Rosa	RBK.14	Black	0.00	0.00	0.03	9.89	2.44	3.68
Santa Rosa	RBK.15	Black	0.00	0.00	0.04	12.37	2.94	2.38
Santa Rosa	RBK.16.1	Black	0.00	0.00	0.06	10.77	3.86	2.85
Santa Rosa	RBK.16.2	Black	0.00	0.00	0.03	9.66	2.22	3.05
Santa Rosa	RBK.16.3	Black	0.00	0.00	0.04	9.76	2.91	2.88
Santa Rosa	RBK.17	Black	0.00	0.00	0.04	12.14	3.01	2.35
Santa Rosa	RBK.18.1	Black	0.00	0.00	0.03	12.23	2.21	1.62
Santa Rosa	RBK.18.2	Black	0.00	0.00	0.04	13.29	2.01	1.25
Santa Rosa	RBK.19	Black	0.00	0.00	0.03	10.93	2.44	2.00
Santa Rosa	RBK.2	Black	0.00	0.00	0.04	10.93	2.21	2.13
Santa Rosa	RBK.20	Black	0.00	0.00	0.03	8.33	2.81	3.98
Santa Rosa	RBK.21	Black	0.00	0.00	0.04	10.52	2.97	3.37
Santa Rosa	RBK.22.1	Black	0.00	0.00	0.03	9.97	2.23	1.67
Santa Rosa	RBK.22.2	Black	0.00	0.00	0.03	11.78	1.95	1.38
Santa Rosa	RBK.22.3	Black	0.00	0.00	0.03	12.96	1.44	0.97

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
MW.4	66.10	0.75	3.96	9.98	0.00	0.08	0.00	0.00	0.05
MW.40	61.52	0.78	5.33	10.40	0.00	0.09	0.00	0.00	0.04
MW.5	66.96	0.62	3.14	8.86	0.00	0.08	0.00	0.00	0.04
MW.6	65.38	0.66	4.22	9.79	0.00	0.11	0.00	0.00	0.16
MW.7	66.32	0.65	4.59	9.93	0.00	0.08	0.00	0.00	0.22
MW.8.1	62.03	1.05	3.33	13.04	0.00	0.20	0.00	0.00	0.13
MW.8.2	63.74	0.62	4.00	11.38	0.00	0.10	0.00	0.00	0.12
MW.9	68.85	0.70	3.56	9.17	0.00	0.05	0.00	0.00	0.51
RB.1	64.46	0.72	4.30	11.05	0.00	0.08	0.00	0.00	0.46
RB.2	68.89	0.67	4.60	9.54	0.00	0.05	0.00	0.00	0.41
RB.3	70.71	0.66	4.30	9.35	0.00	0.04	0.00	0.00	0.37
RB.4	70.26	0.67	4.34	9.36	0.00	0.05	0.00	0.00	0.40
RB.5	61.29	0.62	3.11	10.27	0.00	0.21	0.01	0.00	5.80
RB.6	67.25	0.57	4.86	9.25	0.00	0.05	0.00	0.00	0.14
RB.7.1	69.06	0.79	5.01	9.43	0.00	0.05	0.00	0.00	0.29
RB.7.2	70.34	0.66	4.34	9.37	0.00	0.05	0.00	0.00	0.38
RB.7.3	69.90	0.69	4.37	9.22	0.00	0.05	0.00	0.00	0.43
RB.8	69.41	1.01	5.69	9.51	0.00	0.07	0.00	0.00	0.11
RB.9	69.68	0.67	6.08	9.23	0.00	0.05	0.00	0.00	0.39
RBK.1	64.56	0.51	4.18	9.51	0.00	0.14	0.00	0.00	5.32
RBK.10	65.71	0.64	3.73	9.47	0.00	0.06	0.00	0.00	0.34
RBK.11.1	58.97	0.64	2.11	10.38	0.00	0.22	0.01	0.00	7.98
RBK.11.2	55.77	0.58	2.79	10.05	0.00	0.17	0.01	0.00	11.15
RBK.12	70.38	0.67	4.43	8.92	0.00	0.06	0.00	0.00	0.14
RBK.13	63.21	0.66	2.92	9.98	0.00	0.19	0.01	0.00	5.11
RBK.14	58.02	0.62	2.78	8.84	0.00	0.29	0.01	0.01	9.89
RBK.15	61.68	0.62	3.20	9.14	0.00	0.14	0.00	0.00	5.51
RBK.16.1	58.71	0.99	2.44	8.08	0.00	0.11	0.01	0.00	9.09
RBK.16.2	60.32	0.59	3.44	10.64	0.00	0.17	0.01	0.00	7.08
RBK.16.3	59.99	0.69	2.75	10.53	0.00	0.17	0.01	0.00	7.33
RBK.17	61.41	0.67	3.16	8.87	0.00	0.15	0.01	0.00	6.11
RBK.18.1	62.42	0.63	4.75	10.34	0.00	0.07	0.00	0.00	4.24
RBK.18.2	62.82	0.67	5.02	9.22	0.00	0.06	0.00	0.00	4.27
RBK.19	58.63	0.63	4.48	9.90	0.00	0.09	0.00	0.00	7.91
RBK.2	62.50	0.58	3.33	8.96	0.00	0.12	0.00	0.00	6.92
RBK.20	63.09	0.55	1.63	10.88	0.00	0.29	0.01	0.00	5.28
RBK.21	59.95	0.70	2.48	10.01	0.00	0.18	0.01	0.00	6.37
RBK.22.1	60.82	0.72	4.45	8.71	0.00	0.10	0.00	0.00	7.74
RBK.22.2	67.50	0.63	5.28	9.93	0.00	0.07	0.00	0.00	0.15
RBK.22.3	69.50	0.70	4.53	8.71	0.00	0.05	0.00	0.00	0.16

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
MW.4	0.77	0.00	0.00	0.00	0.01	0.04	0.00	0.10	0.00
MW.40	0.72	0.00	0.00	0.01	0.01	0.00	0.00	0.11	0.00
MW.5	0.77	0.00	0.00	0.00	0.01	0.07	0.00	0.09	0.00
MW.6	0.85	0.00	0.00	0.01	0.01	0.03	0.00	0.12	0.00
MW.7	0.66	0.00	0.00	0.01	0.01	0.00	0.00	0.11	0.00
MW.8.1	1.24	0.00	0.00	0.01	0.01	0.02	0.00	0.10	0.00
MW.8.2	0.96	0.00	0.00	0.01	0.01	0.02	0.00	0.12	0.00
MW.9	0.42	0.00	0.00	0.01	0.01	0.01	0.00	0.05	0.00
RB.1	0.86	0.12	0.03	0.03	0.01	0.17	0.00	0.06	0.00
RB.2	0.46	0.13	0.12	0.01	0.01	0.18	0.00	0.08	0.00
RB.3	0.45	0.12	0.10	0.01	0.01	0.17	0.00	0.07	0.00
RB.4	0.46	0.12	0.11	0.02	0.01	0.18	0.00	0.08	0.00
RB.5	1.99	0.00	0.01	0.05	0.01	0.03	0.00	0.11	0.00
RB.6	0.59	0.16	0.09	0.01	0.01	0.23	0.00	0.08	0.00
RB.7.1	0.50	0.11	0.07	0.02	0.01	0.18	0.00	0.08	0.00
RB.7.2	0.46	0.12	0.10	0.01	0.01	0.17	0.00	0.08	0.00
RB.7.3	0.50	0.12	0.11	0.02	0.01	0.17	0.00	0.08	0.00
RB.8	0.70	0.08	0.01	0.01	0.01	0.27	0.00	0.04	0.00
RB.9	0.45	0.12	0.11	0.01	0.01	0.17	0.00	0.08	0.00
RBK.1	1.27	0.00	0.00	0.06	0.01	0.02	0.00	0.10	0.00
RBK.10	0.54	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.00
RBK.11.1	1.93	0.01	0.01	0.05	0.01	0.02	0.00	0.11	0.00
RBK.11.2	2.16	0.01	0.01	0.22	0.01	0.04	0.00	0.07	0.00
RBK.12	0.51	0.07	0.04	0.01	0.01	0.09	0.00	0.08	0.00
RBK.13	1.72	0.00	0.01	0.02	0.01	0.01	0.00	0.11	0.00
RBK.14	2.96	0.01	0.01	0.04	0.01	0.04	0.00	0.09	0.00
RBK.15	1.50	0.00	0.00	0.05	0.01	0.03	0.00	0.08	0.00
RBK.16.1	1.55	0.04	0.03	0.04	0.01	0.08	0.00	0.06	0.00
RBK.16.2	1.38	0.00	0.01	0.08	0.01	0.01	0.00	0.10	0.00
RBK.16.3	1.78	0.01	0.01	0.06	0.01	0.03	0.00	0.09	0.00
RBK.17	1.61	0.00	0.00	0.05	0.01	0.03	0.00	0.08	0.00
RBK.18.1	0.75	0.00	0.01	0.08	0.01	0.01	0.00	0.09	0.00
RBK.18.2	0.77	0.00	0.01	0.04	0.01	0.01	0.00	0.09	0.00
RBK.19	1.38	0.01	0.01	0.09	0.01	0.03	0.00	0.08	0.00
RBK.2	1.31	0.01	0.02	0.27	0.01	0.02	0.00	0.09	0.00
RBK.20	2.39	0.01	0.01	0.02	0.01	0.03	0.00	0.13	0.00
RBK.21	1.78	0.00	0.01	0.07	0.01	0.03	0.00	0.09	0.00
RBK.22.1	1.34	0.01	0.02	0.06	0.01	0.05	0.00	0.07	0.00
RBK.22.2	0.60	0.07	0.05	0.02	0.01	0.13	0.00	0.09	0.00
RBK.22.3	0.50	0.07	0.04	0.00	0.01	0.09	0.00	0.08	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
MW.4	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.00	0.01
MW.40	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.00	0.01
MW.5	0.00	0.00	0.00	0.00	0.00	0.00	4.87	0.00	0.01
MW.6	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.02
MW.7	0.00	0.00	0.00	0.00	0.00	0.00	3.71	0.00	0.01
MW.8.1	0.01	0.00	0.00	0.00	0.00	0.00	6.27	0.00	0.03
MW.8.2	0.00	0.00	0.00	0.00	0.00	0.00	5.04	0.00	0.02
MW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
RB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.02
RB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.11
RB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10
RB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10
RB.5	0.01	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.06
RB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.02
RB.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.16
RB.7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09
RB.7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10
RB.8	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01
RB.9	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10
RBK.1	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
RBK.10	0.00	0.00	0.00	0.00	0.00	0.00	4.76	0.00	0.01
RBK.11.1	0.01	0.00	0.00	0.00	0.00	0.01	0.11	0.00	0.07
RBK.11.2	0.01	0.00	0.00	0.00	0.00	0.02	0.16	0.00	0.12
RBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
RBK.13	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
RBK.14	0.01	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.07
RBK.15	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.09
RBK.16.1	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.09
RBK.16.2	0.01	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.06
RBK.16.3	0.01	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.10
RBK.17	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.09
RBK.18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.05
RBK.18.2	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.05
RBK.19	0.00	0.00	0.00	0.00	0.00	0.04	0.23	0.00	0.07
RBK.2	0.01	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.06
RBK.20	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.08
RBK.21	0.01	0.00	0.00	0.00	0.00	0.01	0.34	0.00	0.09
RBK.22.1	0.00	0.00	0.00	0.00	0.00	0.01	0.45	0.00	0.08
RBK.22.2	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.07
RBK.22.3	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
MW.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.18.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
MW.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RB.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.16.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.18.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
MW.4	0.03	0.00	0.00	0.00
MW.40	0.10	0.00	0.00	0.00
MW.5	0.03	0.00	0.00	0.00
MW.6	0.12	0.00	0.00	0.00
MW.7	0.04	0.00	0.00	0.00
MW.8.1	0.19	0.00	0.00	0.00
MW.8.2	0.14	0.00	0.00	0.00
MW.9	0.02	0.00	0.00	0.00
RB.1	0.24	0.05	0.00	0.00
RB.2	0.05	0.01	0.00	0.01
RB.3	0.03	0.01	0.00	0.00
RB.4	0.04	0.01	0.00	0.00
RB.5	0.05	0.00	0.00	0.00
RB.6	0.04	0.09	0.00	0.00
RB.7.1	0.09	0.06	0.00	0.00
RB.7.2	0.04	0.01	0.00	0.00
RB.7.3	0.04	0.01	0.00	0.00
RB.8	0.07	0.01	0.00	0.00
RB.9	0.04	0.01	0.00	0.00
RBK.1	0.20	0.00	0.00	0.00
RBK.10	0.09	0.00	0.00	0.00
RBK.11.1	0.43	0.00	0.00	0.00
RBK.11.2	1.19	0.01	0.00	0.00
RBK.12	0.05	0.04	0.00	0.00
RBK.13	0.05	0.00	0.00	0.00
RBK.14	0.11	0.00	0.00	0.00
RBK.15	0.11	0.00	0.00	0.00
RBK.16.1	0.47	0.01	0.00	0.00
RBK.16.2	0.78	0.00	0.00	0.00
RBK.16.3	0.45	0.00	0.00	0.00
RBK.17	0.10	0.00	0.00	0.00
RBK.18.1	0.20	0.00	0.00	0.00
RBK.18.2	0.15	0.00	0.00	0.00
RBK.19	1.00	0.00	0.00	0.00
RBK.2	0.27	0.00	0.00	0.00
RBK.20	0.36	0.01	0.00	0.00
RBK.21	0.95	0.00	0.00	0.00
RBK.22.1	1.42	0.00	0.00	0.00
RBK.22.2	0.13	0.03	0.00	0.00
RBK.22.3	0.05	0.04	0.00	0.00

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al
Santa Rosa	RBK.22.4	Black	0.00	0.00	0.04	11.67	2.55	2.20
Santa Rosa	RBK.22.5	Black	0.00	0.00	0.03	8.94	2.58	3.06
Santa Rosa	RBK.22.6	Black	0.00	0.00	0.04	10.65	1.89	2.64
Santa Rosa	RBK.23	Black	0.00	0.00	0.03	10.59	1.79	2.00
Santa Rosa	RBK.24.1	Black	0.00	0.00	0.04	10.22	2.17	2.77
Santa Rosa	RBK.24.2	Black	0.00	0.00	0.04	10.36	1.54	1.25
Santa Rosa	RBK.25	Black	0.00	0.00	0.04	10.97	2.54	2.70
Santa Rosa	RBK.26	Black	0.00	0.00	0.03	11.90	2.00	1.28
Santa Rosa	RBK.27	Black	0.00	0.00	0.03	10.65	2.46	3.95
Santa Rosa	RBK.28	Black	0.00	0.00	0.05	12.28	3.05	2.43
Santa Rosa	RBK.29	Black	0.00	0.00	0.04	10.44	2.99	3.02
Santa Rosa	RBK.3	Black	0.00	0.00	0.04	9.31	1.89	2.33
Santa Rosa	RBK.30	Black	0.00	0.00	0.04	11.32	2.56	3.04
Santa Rosa	RBK.4.1	Black	0.00	0.00	0.03	9.09	2.62	3.15
Santa Rosa	RBK.4.2	Black	0.00	0.00	0.04	10.07	1.97	2.54
Santa Rosa	RBK.5	Black	0.00	0.00	0.03	8.95	3.37	4.03
Santa Rosa	RBK.6	Black	0.00	0.00	0.03	10.54	3.16	3.68
Santa Rosa	RBK.7	Black	0.00	0.00	0.03	10.09	2.70	3.16
Santa Rosa	RBK.8	Black	0.00	0.00	0.04	10.10	2.18	2.45
Santa Rosa	RBK.9	Black	0.00	0.00	0.03	11.81	2.12	1.50
Santa Rosa	RW.1	White	0.00	0.00	0.04	11.50	1.77	0.84
Santa Rosa	RW.10	White	0.00	0.00	0.04	12.23	1.39	0.99
Santa Rosa	RW.11	White	0.00	0.00	0.03	11.95	1.35	0.99
Santa Rosa	RW.12	White	0.00	0.00	0.04	10.63	1.77	1.01
Santa Rosa	RW.13	White	0.00	0.00	0.03	10.88	2.34	1.30
Santa Rosa	RW.14	White	0.00	0.00	0.03	11.73	1.40	1.06
Santa Rosa	RW.15	White	0.00	0.00	0.03	9.75	1.80	2.10
Santa Rosa	RW.16	White	0.00	0.00	0.05	13.46	1.66	0.80
Santa Rosa	RW.17	White	0.00	0.00	0.04	10.31	1.81	1.06
Santa Rosa	RW.2.1	White	0.00	0.00	0.04	10.96	1.98	1.90
Santa Rosa	RW.2.2	White	0.00	0.00	0.03	10.92	1.44	0.84
Santa Rosa	RW.3	White	0.00	0.00	0.04	11.13	1.41	1.01
Santa Rosa	RW.4	White	0.00	0.00	0.03	8.90	1.56	1.54
Santa Rosa	RW.5	White	0.00	0.00	0.03	11.54	1.77	0.92
Santa Rosa	RW.6	White	0.00	0.00	0.04	10.20	1.49	1.32
Santa Rosa	RW.7	White	0.00	0.00	0.03	10.08	1.48	1.01
Santa Rosa	RW.8	White	0.00	0.00	0.03	10.20	1.72	1.07
Santa Rosa	RW.9	White	0.00	0.00	0.04	11.92	1.98	0.93

Sample Name	29Si	31P	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn
RBK.22.4	63.33	0.54	2.29	7.67	0.00	0.13	0.01	0.00	7.08
RBK.22.5	55.03	0.94	3.48	10.33	0.00	0.19	0.01	0.00	11.20
RBK.22.6	59.59	0.86	4.00	10.91	0.00	0.17	0.01	0.00	6.95
RBK.23	60.05	0.64	3.77	8.41	0.00	0.10	0.01	0.00	9.34
RBK.24.1	59.09	0.67	4.71	10.68	0.00	0.13	0.01	0.00	7.05
RBK.24.2	66.77	0.61	4.63	7.91	0.00	0.06	0.00	0.00	0.37
RBK.25	63.23	0.65	3.03	8.66	0.00	0.17	0.01	0.00	5.77
RBK.26	63.06	0.66	4.57	8.17	0.00	0.08	0.00	0.00	6.58
RBK.27	58.55	0.54	2.58	6.20	0.00	0.30	0.01	0.01	11.23
RBK.28	62.14	0.65	3.41	8.71	0.00	0.14	0.00	0.00	5.07
RBK.29	59.14	0.75	2.64	10.18	0.00	0.17	0.01	0.00	7.54
RBK.3	65.37	0.57	4.30	8.70	0.00	0.12	0.00	0.00	5.49
RBK.30	62.13	0.62	3.01	10.13	0.00	0.18	0.01	0.00	5.03
RBK.4.1	62.23	0.64	2.37	8.48	0.00	0.22	0.01	0.00	8.03
RBK.4.2	60.92	1.08	3.08	9.41	0.00	0.17	0.01	0.00	7.52
RBK.5	56.05	0.53	2.40	10.93	0.00	0.23	0.01	0.00	10.08
RBK.6	60.81	0.53	2.66	9.34	0.00	0.24	0.01	0.00	6.52
RBK.7	61.72	0.65	2.52	9.62	0.00	0.21	0.01	0.00	6.40
RBK.8	63.31	0.58	3.62	9.33	0.00	0.14	0.00	0.00	6.04
RBK.9	63.26	0.59	4.13	8.52	0.00	0.07	0.00	0.00	5.39
RW.1	66.48	0.62	3.34	8.92	0.00	0.05	0.00	0.00	0.29
RW.10	70.38	0.94	4.86	7.65	0.00	0.06	0.00	0.00	0.52
RW.11	68.21	0.68	3.21	7.59	0.00	0.06	0.00	0.00	0.11
RW.12	66.87	0.70	3.99	8.22	0.00	0.06	0.00	0.00	0.20
RW.13	63.15	0.63	3.53	9.85	0.00	0.08	0.00	0.00	0.22
RW.14	68.16	0.67	3.18	7.78	0.00	0.05	0.00	0.00	0.15
RW.15	64.14	0.65	2.44	12.08	0.00	0.09	0.00	0.00	0.11
RW.16	69.86	0.70	3.29	8.32	0.00	0.04	0.00	0.00	0.92
RW.17	63.44	0.62	3.43	11.57	0.00	0.06	0.00	0.00	0.24
RW.2.1	61.31	0.72	4.06	11.36	0.00	0.10	0.00	0.00	0.54
RW.2.2	66.59	0.69	4.19	8.91	0.00	0.05	0.00	0.00	0.19
RW.3	66.40	0.67	3.51	9.33	0.00	0.06	0.00	0.00	0.23
RW.4	65.04	0.50	8.16	9.53	0.00	0.06	0.00	0.00	0.43
RW.5	66.50	0.62	3.53	9.26	0.00	0.06	0.00	0.00	0.35
RW.6	66.24	0.61	4.35	8.52	0.00	0.07	0.00	0.00	0.37
RW.7	65.17	0.83	5.57	8.76	0.00	0.05	0.00	0.00	0.23
RW.8	65.61	0.67	4.76	8.87	0.00	0.06	0.00	0.00	0.17
RW.9	64.03	0.67	3.23	9.45	0.00	0.05	0.00	0.00	0.22

Sample Name	57Fe	59Co	60Ni	63Cu	66Zn	75As	85Rb	88Sr	89Y
RBK.22.4	1.37	0.00	0.01	0.07	0.01	0.01	0.00	0.07	0.00
RBK.22.5	1.74	0.01	0.01	0.06	0.05	0.02	0.00	0.08	0.00
RBK.22.6	1.57	0.00	0.01	0.06	0.01	0.01	0.00	0.09	0.00
RBK.23	2.30	0.01	0.02	0.09	0.01	0.06	0.00	0.08	0.00
RBK.24.1	1.61	0.00	0.00	0.18	0.01	0.03	0.00	0.10	0.00
RBK.24.2	0.64	0.00	0.01	0.02	0.01	0.01	0.00	0.08	0.00
RBK.25	1.69	0.00	0.01	0.05	0.01	0.01	0.00	0.09	0.00
RBK.26	0.94	0.00	0.01	0.08	0.01	0.01	0.00	0.08	0.00
RBK.27	2.93	0.01	0.01	0.06	0.01	0.02	0.00	0.07	0.00
RBK.28	1.52	0.00	0.00	0.04	0.01	0.02	0.00	0.10	0.00
RBK.29	1.87	0.01	0.01	0.06	0.01	0.03	0.00	0.09	0.00
RBK.3	1.34	0.00	0.00	0.05	0.01	0.02	0.00	0.09	0.00
RBK.30	1.56	0.00	0.01	0.02	0.01	0.01	0.00	0.12	0.00
RBK.4.1	2.19	0.00	0.00	0.08	0.01	0.03	0.00	0.08	0.00
RBK.4.2	1.73	0.00	0.01	0.09	0.01	0.01	0.00	0.09	0.00
RBK.5	2.51	0.01	0.01	0.08	0.01	0.06	0.00	0.08	0.00
RBK.6	1.98	0.00	0.01	0.04	0.01	0.02	0.00	0.09	0.00
RBK.7	1.69	0.00	0.01	0.11	0.01	0.01	0.00	0.08	0.00
RBK.8	1.22	0.01	0.01	0.08	0.01	0.02	0.00	0.09	0.00
RBK.9	0.93	0.01	0.01	0.10	0.01	0.04	0.00	0.08	0.00
RW.1	0.55	0.00	0.00	0.02	0.02	0.01	0.00	0.06	0.00
RW.10	0.46	0.00	0.00	0.02	0.01	0.00	0.00	0.06	0.00
RW.11	0.67	0.00	0.00	0.02	0.01	0.02	0.00	0.06	0.00
RW.12	0.62	0.00	0.00	0.01	0.01	0.01	0.00	0.06	0.00
RW.13	0.63	0.00	0.01	0.03	0.01	0.02	0.00	0.08	0.00
RW.14	0.66	0.00	0.00	0.02	0.01	0.02	0.00	0.06	0.00
RW.15	0.82	0.00	0.00	0.02	0.01	0.00	0.00	0.03	0.00
RW.16	0.41	0.00	0.00	0.02	0.01	0.00	0.00	0.08	0.00
RW.17	0.64	0.00	0.00	0.01	0.01	0.01	0.00	0.05	0.00
RW.2.1	0.81	0.00	0.00	0.03	0.04	0.01	0.00	0.11	0.00
RW.2.2	0.49	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.00
RW.3	0.57	0.00	0.00	0.02	0.01	0.02	0.00	0.07	0.00
RW.4	0.65	0.00	0.00	0.01	0.01	0.01	0.01	0.11	0.00
RW.5	0.52	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.00
RW.6	0.63	0.00	0.01	0.02	0.01	0.01	0.00	0.09	0.00
RW.7	0.50	0.00	0.00	0.01	0.01	0.01	0.00	0.08	0.00
RW.8	0.54	0.00	0.00	0.15	0.01	0.00	0.00	0.09	0.00
RW.9	0.60	0.00	0.00	0.02	0.02	0.01	0.00	0.07	0.00

Sample Name	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn	121Sb	133Cs	137Ba
RBK.22.4	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.06
RBK.22.5	0.01	0.00	0.00	0.00	0.00	0.01	0.41	0.00	0.11
RBK.22.6	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.07
RBK.23	0.01	0.00	0.00	0.00	0.00	0.01	0.24	0.00	0.10
RBK.24.1	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.07
RBK.24.2	0.00	0.00	0.00	0.00	0.00	0.00	5.58	0.00	0.01
RBK.25	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.05
RBK.26	0.00	0.00	0.00	0.00	0.00	0.01	0.27	0.00	0.06
RBK.27	0.01	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.11
RBK.28	0.01	0.00	0.00	0.00	0.00	0.01	0.13	0.00	0.07
RBK.29	0.01	0.00	0.00	0.00	0.00	0.01	0.41	0.00	0.10
RBK.3	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
RBK.30	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
RBK.4.1	0.01	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.09
RBK.4.2	0.01	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.07
RBK.5	0.01	0.00	0.00	0.00	0.00	0.01	0.08	0.00	0.09
RBK.6	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.07
RBK.7	0.01	0.00	0.00	0.00	0.00	0.01	0.42	0.00	0.06
RBK.8	0.01	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.06
RBK.9	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.00	0.06
RW.1	0.00	0.00	0.00	0.00	0.00	0.00	5.35	0.00	0.01
RW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.01
RW.11	0.00	0.00	0.00	0.00	0.00	0.00	4.98	0.00	0.01
RW.12	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.00	0.01
RW.13	0.00	0.00	0.00	0.00	0.00	0.01	6.80	0.00	0.01
RW.14	0.00	0.00	0.00	0.00	0.00	0.00	4.96	0.00	0.01
RW.15	0.01	0.00	0.00	0.00	0.00	0.00	5.76	0.00	0.01
RW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.01
RW.17	0.00	0.00	0.00	0.00	0.00	0.00	6.67	0.00	0.01
RW.2.1	0.01	0.00	0.00	0.00	0.00	0.00	5.82	0.00	0.02
RW.2.2	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.00	0.01
RW.3	0.00	0.00	0.00	0.00	0.00	0.00	5.48	0.00	0.01
RW.4	0.00	0.00	0.00	0.00	0.00	0.00	3.35	0.00	0.01
RW.5	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.01
RW.6	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.01
RW.7	0.00	0.00	0.00	0.00	0.00	0.00	6.09	0.00	0.01
RW.8	0.00	0.00	0.00	0.00	0.00	0.00	5.89	0.00	0.01
RW.9	0.00	0.00	0.00	0.00	0.00	0.00	6.57	0.00	0.01

Sample Name	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd	159Tb	163Dy
RBK.22.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.24.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.24.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.2.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.2.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	197Au
RBK.22.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.22.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.24.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.24.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.4.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RBK.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.2.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.2.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RW.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sample Name	208Pb	209Bi	232Th	238U
RBK.22.4	0.46	0.00	0.00	0.00
RBK.22.5	1.70	0.00	0.00	0.00
RBK.22.6	0.36	0.00	0.00	0.00
RBK.23	0.32	0.01	0.00	0.00
RBK.24.1	0.37	0.00	0.00	0.00
RBK.24.2	0.08	0.00	0.00	0.00
RBK.25	0.18	0.00	0.00	0.00
RBK.26	0.18	0.00	0.00	0.00
RBK.27	0.21	0.00	0.00	0.00
RBK.28	0.15	0.00	0.00	0.00
RBK.29	0.47	0.00	0.00	0.00
RBK.3	0.21	0.00	0.00	0.00
RBK.30	0.04	0.00	0.00	0.00
RBK.4.1	0.36	0.00	0.00	0.00
RBK.4.2	0.82	0.00	0.00	0.00
RBK.5	0.40	0.01	0.00	0.00
RBK.6	0.16	0.00	0.00	0.00
RBK.7	0.45	0.00	0.00	0.00
RBK.8	0.49	0.00	0.00	0.00
RBK.9	1.20	0.00	0.00	0.00
RW.1	0.12	0.00	0.00	0.00
RW.10	0.04	0.00	0.00	0.00
RW.11	0.03	0.00	0.00	0.00
RW.12	0.05	0.00	0.00	0.00
RW.13	0.37	0.00	0.00	0.00
RW.14	0.03	0.00	0.00	0.00
RW.15	0.14	0.00	0.00	0.00
RW.16	0.01	0.00	0.00	0.00
RW.17	0.02	0.00	0.00	0.00
RW.2.1	0.17	0.00	0.00	0.00
RW.2.2	0.07	0.00	0.00	0.00
RW.3	0.03	0.00	0.00	0.00
RW.4	0.08	0.00	0.00	0.00
RW.5	0.08	0.00	0.00	0.00
RW.6	0.06	0.00	0.00	0.00
RW.7	0.06	0.00	0.00	0.00
RW.8	0.11	0.00	0.00	0.00
RW.9	0.15	0.00	0.00	0.00

Appendix C: Glass Bead Chemical Data (ppm)

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EB.1	Blue	10	0	93	68679	19975	9346	314650	1480
Escambe	EB.10.1	Blue	17	0	67	66316	20417	8930	312055	1354
Escambe	EB.10.2	Blue	16	0	90	67915	20541	9479	307162	1475
Escambe	EB.10.3	Blue	11	1	90	67911	20755	11273	312850	1384
Escambe	EB.10.4	Blue	11	0	60	69002	19729	10484	314611	1469
Escambe	EB.10.5	Blue	13	-1	64	68384	19068	8946	318380	1219
Escambe	EB.10.6	Blue	13	0	92	71210	21087	9772	309449	1557
Escambe	EB.11.1	Blue	12	0	72	70057	19896	9861	309078	1270
Escambe	EB.11.2	Blue	13	1	77	68445	20414	10062	308697	1302
Escambe	EB.11.3	Blue	13	0	81	67114	19070	9074	314268	1226
Escambe	EB.11.4	Blue	16	1	85	67243	20043	9271	309072	1211
Escambe	EB.12	Blue	14	0	102	79015	9601	5466	329729	2832
Escambe	EB.13	Blue	16	0	69	67428	20149	9203	306755	1442
Escambe	EB.14	Blue	16	0	128	80493	15173	5889	317387	2814
Escambe	EB.15.1	Blue	15	0	145	82272	14796	5585	317303	2580
Escambe	EB.15.2	Blue	21	0	112	92903	11384	8007	320142	2201
Escambe	EB.15.3	Blue	18	0	113	92554	11947	8586	316532	2298
Escambe	EB.16	Blue	17	0	94	93422	11949	7478	317888	2363
Escambe	EB.17	Blue	18	1	146	81474	14649	8107	317253	2760
Escambe	EB.18	Blue	15	1	121	96425	10132	6056	313150	3688
Escambe	EB.19	Blue	18	0	109	87730	10579	5350	318053	2557
Escambe	EB.2	Blue	16	0	114	77818	8996	5724	335466	3272
Escambe	EB.20.1	Blue	14	0	85	69339	20558	9556	309045	1312
Escambe	EB.20.2	Blue	15	0	85	72523	19631	9125	307960	1284
Escambe	EB.21	Blue	24	1	103	90926	14064	10801	310207	2354
Escambe	EB.22	Blue	17	0	96	87530	8423	6922	326773	2959
Escambe	EB.23.1	Blue	18	1	96	81307	9028	5389	331352	2791
Escambe	EB.23.2	Blue	17	-1	110	79664	8982	5511	332244	2731
Escambe	EB.24	Blue	13	0	65	73504	18787	8981	307548	1375
Escambe	EB.25	Blue	21	0	105	82121	8962	5265	330944	2878
Escambe	EB.26	Blue	19	0	79	102173	13562	6777	307395	2320
Escambe	EB.27	Blue	18	0	121	84462	15282	5594	315589	2560
Escambe	EB.28	Blue	18	0	96	87920	8447	5970	323134	2593
Escambe	EB.29	Blue	20	0	100	90373	10536	5040	321957	2579
Escambe	EB.3	Blue	17	0	119	83304	8550	6184	334224	2653
Escambe	EB.30	Blue	21	0	93	91402	13827	10279	312272	2315
Escambe	EB.31	Blue	20	0	94	84343	9262	5506	327870	2725
Escambe	EB.32	Blue	15	0	128	80692	16202	4955	301817	3196
Escambe	EB.33	Blue	13	2	87	93131	15203	9247	304397	1828
Escambe	EB.34	Blue	11	-1	96	87476	24801	5979	290897	1170

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EB.1	29127	85090	7	699	15	18	2500	6238	638	89	148
EB.10.1	28096	89311	6	750	14	17	2458	6782	624	92	182
EB.10.2	30604	95468	4	725	14	20	2401	6170	617	93	142
EB.10.3	31682	85893	7	763	16	20	3084	6796	559	93	466
EB.10.4	28870	85969	7	858	16	21	2966	6880	573	79	441
EB.10.5	28230	81506	7	730	16	17	2578	6406	629	79	178
EB.10.6	31883	87171	7	756	15	20	2650	6602	620	87	225
EB.11.1	28623	92366	7	763	15	19	2701	6596	621	85	238
EB.11.2	28726	94439	7	758	15	20	2706	6536	624	84	253
EB.11.3	27306	91112	4	739	15	22	2630	6371	614	90	270
EB.11.4	29212	95385	6	751	15	18	2536	6148	638	89	161
EB.12	38841	66158	4	354	8	9	3016	3258	922	733	88
EB.13	30016	96891	3	736	15	17	2521	6306	609	83	183
EB.14	49270	68173	5	325	8	13	1200	3732	565	394	290
EB.15.1	49485	69276	4	341	8	14	561	3258	588	395	119
EB.15.2	37783	62620	5	448	11	9	1568	4895	1053	743	360
EB.15.3	40569	64370	3	455	12	8	1567	5103	988	709	386
EB.16	44203	62185	5	404	8	6	1675	3936	710	394	84
EB.17	47652	63622	6	828	12	17	751	6622	554	380	112
EB.18	44792	68752	4	388	9	8	399	3583	570	431	83
EB.19	46933	66139	4	290	7	7	1102	3609	1117	586	210
EB.2	40931	56788	1	335	9	7	2036	3360	899	942	100
EB.20.1	30605	91726	6	707	16	19	2542	6348	621	89	159
EB.20.2	28722	92655	5	716	15	19	2558	6483	651	88	168
EB.21	43631	68451	5	577	15	12	356	5581	663	409	115
EB.22	39217	64113	5	435	9	9	1153	3644	567	291	44
EB.23.1	40505	61542	3	324	8	8	1989	3307	882	921	84
EB.23.2	41659	60982	5	303	8	7	1954	3363	871	793	92
EB.24	28992	94535	3	773	16	20	2684	6658	579	83	326
EB.25	41173	60476	4	302	8	8	1928	3603	916	864	89
EB.26	44653	67068	3	349	8	6	1026	3960	1212	719	145
EB.27	49627	68182	4	329	8	14	775	3747	555	360	144
EB.28	45434	62915	5	339	8	8	805	3647	594	279	160
EB.29	45709	62888	4	282	7	7	1364	2988	667	377	168
EB.3	41418	56816	6	316	8	9	906	3331	556	304	114
EB.30	39105	69797	4	514	15	12	364	5532	662	428	109
EB.31	41155	62558	5	363	9	7	2034	3634	888	855	81
EB.32	61522	82279	4	326	9	17	1267	3365	576	392	58
EB.33	29757	85679	4	425	11	12	5166	4687	513	372	187
EB.34	24411	90620	3	337	10	15	1319	4082	693	147	111

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EB.1	67	952	25	681	5	36	2	6	0	0	19
EB.10.1	70	1003	25	653	4	32	2	5	0	0	26
EB.10.2	42	998	22	685	5	35	2	6	0	1	14
EB.10.3	51	807	19	601	6	44	3	5	0	1	9
EB.10.4	70	885	24	639	5	38	3	5	1	0	9
EB.10.5	98	948	24	693	4	32	3	5	0	0	18
EB.10.6	56	1028	24	647	5	37	3	5	0	0	14
EB.11.1	62	871	24	667	5	36	3	6	0	0	17
EB.11.2	82	855	24	690	5	36	2	6	0	0	14
EB.11.3	33	857	23	665	4	33	2	5	0	0	13
EB.11.4	53	889	24	687	4	35	2	5	0	0	16
EB.12	67	1044	21	635	4	21	1	3	0	0	4
EB.13	48	952	23	699	5	35	2	5	0	0	19
EB.14	45	759	24	869	4	19	1	3	0	0	5
EB.15.1	41	810	23	877	4	18	1	3	0	0	2
EB.15.2	61	1070	24	729	3	24	2	7	0	0	25
EB.15.3	62	1046	20	723	3	29	2	6	0	0	25
EB.16	63	911	20	746	3	25	2	2	1	0	34
EB.17	60	779	30	854	193	21	3	2	0	-1	3
EB.18	62	565	15	818	2	23	2	2	0	0	3
EB.19	91	1399	19	821	2	21	1	5	1	0	7
EB.2	56	1149	15	643	5	26	1	2	0	0	3
EB.20.1	58	859	23	679	5	38	2	6	0	0	15
EB.20.2	55	882	23	703	4	33	2	5	0	0	17
EB.21	63	709	20	759	6	47	2	1	0	0	4
EB.22	61	570	15	694	3	22	1	2	1	0	2
EB.23.1	53	1090	18	663	5	24	1	2	0	0	3
EB.23.2	83	981	19	654	4	26	1	2	0	0	3
EB.24	65	837	25	700	4	32	2	6	0	0	15
EB.25	69	1090	19	699	4	22	1	2	0	0	3
EB.26	69	1391	21	769	3	23	2	8	4	0	15
EB.27	57	714	27	899	4	18	1	2	0	0	3
EB.28	58	814	30	797	3	23	1	2	1	0	4
EB.29	59	857	20	794	2	21	1	4	1	0	10
EB.3	61	691	18	622	2	26	1	2	0	0	2
EB.30	58	724	20	774	5	44	2	1	0	0	3
EB.31	73	1026	19	695	4	24	1	3	0	0	3
EB.32	47	764	22	998	4	14	2	3	0	0	1
EB.33	48	667	32	582	4	17	2	7	1	0	20
EB.34	34	1294	16	714	3	17	1	5	0	0	4

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EB.1	552	1	206	5	8	1	4	1	0	1
EB.10.1	586	0	209	5	9	1	4	1	0	0
EB.10.2	563	1	213	5	9	1	5	1	0	1
EB.10.3	565	0	226	6	10	1	5	1	0	1
EB.10.4	596	1	230	6	11	1	5	1	0	1
EB.10.5	550	0	221	5	9	1	4	1	0	1
EB.10.6	620	0	216	5	9	1	5	1	0	1
EB.11.1	558	1	222	5	9	1	5	1	0	1
EB.11.2	543	1	223	6	10	1	4	1	0	0
EB.11.3	548	0	203	5	9	1	5	1	0	0
EB.11.4	547	1	208	5	9	1	4	1	0	1
EB.12	147	0	910	2	5	1	3	1	0	1
EB.13	585	1	207	5	10	1	4	1	0	1
EB.14	610	1	465	3	5	1	3	1	0	1
EB.15.1	378	1	474	3	5	1	2	1	0	1
EB.15.2	179	1	108	4	7	1	3	0	0	0
EB.15.3	188	0	108	4	7	1	3	1	0	1
EB.16	307	0	136	3	6	1	3	1	0	0
EB.17	408	-1	493	22	44	5	20	8	3	25
EB.18	336	0	74	3	6	1	3	1	0	0
EB.19	2729	0	168	2	5	1	2	0	0	0
EB.2	96	0	903	2	5	1	3	1	0	1
EB.20.1	539	0	215	5	10	1	4	1	0	1
EB.20.2	590	0	215	5	10	1	4	1	0	1
EB.21	644	0	576	5	10	1	5	1	0	1
EB.22	219	0	90	4	8	1	3	1	0	1
EB.23.1	88	0	1009	3	5	1	3	1	0	1
EB.23.2	84	0	982	2	5	1	2	1	0	1
EB.24	592	1	227	5	10	1	5	1	0	1
EB.25	94	1	1047	3	6	1	2	1	0	1
EB.26	758	0	170	3	6	1	3	1	0	1
EB.27	483	1	470	3	5	1	2	1	0	1
EB.28	375	1	1912	3	6	1	3	1	0	1
EB.29	685	0	130	3	5	1	2	0	0	1
EB.3	357	0	84	3	5	1	3	0	0	0
EB.30	663	0	569	5	10	1	5	1	0	1
EB.31	90	0	1025	3	6	1	3	1	0	1
EB.32	74	0	484	3	5	1	3	1	0	1
EB.33	474	1	240	4	8	1	4	1	0	1
EB.34	26275	0	162	3	6	1	3	1	0	0

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EB.1	0	0	0	0	0	0	0	1	0	1
EB.10.1	0	0	0	0	0	0	0	1	0	0
EB.10.2	0	1	0	0	0	0	0	1	0	1
EB.10.3	0	1	0	0	0	0	0	1	0	0
EB.10.4	0	1	0	0	0	1	0	1	0	1
EB.10.5	0	1	0	0	0	0	0	1	0	1
EB.10.6	0	1	0	0	0	0	0	1	0	1
EB.11.1	0	1	0	1	0	0	0	1	0	1
EB.11.2	0	1	0	1	0	0	0	1	0	1
EB.11.3	0	1	0	0	0	1	0	1	0	1
EB.11.4	0	1	0	0	0	0	0	1	0	1
EB.12	0	1	0	0	0	0	0	1	0	0
EB.13	0	1	0	0	0	1	0	1	0	0
EB.14	0	1	0	0	0	0	0	0	0	0
EB.15.1	0	1	0	0	0	0	0	0	0	0
EB.15.2	0	0	0	0	0	0	0	1	0	0
EB.15.3	0	1	0	0	0	0	0	1	0	0
EB.16	0	0	0	0	0	0	0	1	0	0
EB.17	5	31	6	15	2	9	1	0	0	0
EB.18	0	0	0	0	0	0	0	1	0	0
EB.19	0	0	0	0	0	0	0	1	0	0
EB.2	0	1	0	0	0	1	0	1	0	0
EB.20.1	0	1	0	1	0	1	0	1	0	1
EB.20.2	0	1	0	0	0	0	0	1	0	0
EB.21	0	1	0	1	0	1	0	1	0	0
EB.22	0	0	0	0	0	0	0	0	0	0
EB.23.1	0	1	0	0	0	0	0	1	0	0
EB.23.2	0	1	0	0	0	0	0	1	0	0
EB.24	0	1	0	0	0	0	0	1	0	1
EB.25	0	1	0	0	0	0	0	1	0	0
EB.26	0	0	0	0	0	0	0	1	0	0
EB.27	0	1	0	0	0	0	0	1	0	0
EB.28	0	1	0	0	0	0	0	1	0	0
EB.29	0	0	0	0	0	0	0	1	0	0
EB.3	0	0	0	0	0	0	0	1	0	0
EB.30	0	1	0	0	0	0	0	1	0	0
EB.31	0	1	0	1	0	0	0	0	0	0
EB.32	0	0	0	0	0	1	0	0	0	0
EB.33	0	1	0	0	0	0	0	1	0	0
EB.34	0	1	0	0	0	0	0	0	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
EB.1	0	6963	213	1	1
EB.10.1	0	10260	209	1	1
EB.10.2	0	6695	221	1	1
EB.10.3	0	1695	195	1	1
EB.10.4	0	2434	209	1	1
EB.10.5	0	7899	207	1	1
EB.10.6	0	4735	221	1	1
EB.11.1	0	6349	218	1	1
EB.11.2	0	5150	207	1	1
EB.11.3	0	6029	220	1	1
EB.11.4	0	7068	214	1	1
EB.12	0	373	95	1	42
EB.13	0	7798	220	1	1
EB.14	0	1337	407	1	5
EB.15.1	0	907	417	1	6
EB.15.2	0	539	1013	1	8
EB.15.3	0	569	943	1	8
EB.16	0	517	429	1	2
EB.17	0	960	417	11	9
EB.18	0	1653	769	1	3
EB.19	0	788	779	1	6
EB.2	0	629	37	1	52
EB.20.1	0	6038	225	1	1
EB.20.2	0	6973	234	1	1
EB.21	0	902	320	2	5
EB.22	0	522	392	1	1
EB.23.1	0	504	41	1	58
EB.23.2	0	491	37	1	57
EB.24	0	4713	237	1	1
EB.25	0	660	46	1	59
EB.26	0	447	892	1	3
EB.27	0	1290	423	1	6
EB.28	0	2240	285	1	6
EB.29	0	1008	440	1	6
EB.3	0	271	391	1	1
EB.30	0	1006	329	2	5
EB.31	0	685	41	1	59
EB.32	0	361	440	1	6
EB.33	0	1511	417	1	13
EB.34	0	395	307	1	2

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EB.35	Blue	13	0	112	84408	10017	5074	321853	3020
Escambe	EB.36	Blue	10	1	84	92549	16634	9813	304341	1921
Escambe	EB.37.1	Blue	19	0	110	91250	13447	7159	312441	2908
Escambe	EB.37.2	Blue	14	0	113	85614	10519	5586	324974	2910
Escambe	EB.38	Blue	19	0	98	95396	15091	7990	311544	2872
Escambe	EB.39	Blue	19	0	113	97067	13306	6686	313415	2954
Escambe	EB.4.1	Blue	17	0	93	95387	13194	6918	312535	2614
Escambe	EB.4.2	Blue	19	0	113	87030	11074	5328	325893	2998
Escambe	EB.40	Blue	18	0	103	89137	11072	5693	320534	2616
Escambe	EB.41.1	Blue	17	0	109	86274	11086	5562	327933	2785
Escambe	EB.41.2	Blue	16	0	120	88925	10171	5002	324761	2958
Escambe	EB.42	Blue	19	0	103	99327	13203	6370	313059	2995
Escambe	EB.43.1	Blue	23	0	113	94274	13443	10675	309258	2655
Escambe	EB.43.2	Blue	21	0	118	87199	14819	5570	313027	2722
Escambe	EB.44.1	Blue	17	0	108	84736	9377	5223	330279	2891
Escambe	EB.44.2	Blue	18	0	99	89810	10443	5739	322024	2751
Escambe	EB.44.3	Blue	18	0	104	92656	10662	5098	318767	2743
Escambe	EB.45.1	Blue	18	0	110	97586	13143	6313	315031	3041
Escambe	EB.45.2	Blue	23	0	104	96137	13577	9568	310599	2683
Escambe	EB.46	Blue	23	0	103	91720	14274	11569	311241	2554
Escambe	EB.47	Blue	19	0	111	100947	13542	6310	309841	3143
Escambe	EB.48.1	Blue	19	0	107	88210	9490	4823	328310	3134
Escambe	EB.48.2	Blue	18	0	99	79718	9877	6015	333621	2774
Escambe	EB.48.3	Blue	19	0	109	82257	10322	6328	329344	2903
Escambe	EB.48.4	Blue	20	0	119	97478	15200	9570	303819	2491
Escambe	EB.48.5	Blue	20	0	118	97519	15394	9356	301414	2595
Escambe	EB.48.6	Blue	17	0	95	84270	10164	5911	328801	2946
Escambe	EB.48.7	Blue	19	0	102	85620	9719	5655	328307	2937
Escambe	EB.48.8	Blue	21	0	117	94349	15470	9868	305980	2520
Escambe	EB.5	Blue	14	0	132	78987	14698	5329	321047	2006
Escambe	EB.6	Blue	19	1	117	80532	10712	5444	332122	2868
Escambe	EB.7	Blue	12	0	73	66717	19523	9700	314001	1330
Escambe	EB.8	Blue	13	0	100	67171	20897	9381	307816	1553
Escambe	EB.9.1	Blue	8	0	85	69042	18891	9377	311669	1317
Escambe	EB.9.2	Blue	16	1	87	72747	18540	9069	310302	1609
Escambe	EB.9.3	Blue	14	1	78	73336	19891	9371	312107	1460
Escambe	EBK.1.1	Black	14	1	110	68183	18708	19188	279339	2664
Escambe	EBK.1.2	Black	14	1	120	69393	18740	17658	280731	2739
Escambe	EBK.10.1	Black	16	1	123	80754	20037	21181	268787	2779
Escambe	EBK.10.2	Black	18	1	104	83237	11298	7994	307147	2754

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EB.35	41567	69745	5	293	9	8	3232	3192	974	814	109
EB.36	32100	81929	6	398	10	13	4981	4535	512	376	151
EB.37.1	44940	70759	4	458	10	10	488	3692	674	323	103
EB.37.2	36978	67071	4	298	8	7	3000	3166	973	838	106
EB.38	36516	72506	4	397	10	10	482	3809	656	290	123
EB.39	37378	70801	4	360	11	10	493	3963	693	287	129
EB.4.1	44643	65282	8	401	9	7	983	4254	1197	605	121
EB.4.2	43972	58878	6	270	7	7	1402	3307	720	433	164
EB.40	44535	63103	4	295	7	6	1068	3148	921	515	171
EB.41.1	37805	61666	4	468	9	8	2088	3481	765	798	161
EB.41.2	36850	65273	4	279	8	7	3140	3295	936	793	135
EB.42	38489	68663	4	348	10	11	499	3970	668	292	107
EB.43.1	37634	71971	4	520	15	11	378	5657	674	407	135
EB.43.2	49482	70417	5	318	8	14	608	3414	584	382	114
EB.44.1	41950	57589	4	284	9	7	2179	3445	926	953	104
EB.44.2	42500	62593	4	279	7	6	2007	3192	968	468	296
EB.44.3	45774	62937	4	284	7	7	1028	3021	766	441	168
EB.45.1	36777	68807	4	345	10	10	500	4056	685	302	107
EB.45.2	37625	69403	5	510	15	13	379	5754	668	395	136
EB.46	36044	70723	5	548	15	11	371	5732	664	404	118
EB.47	39344	70237	4	377	11	11	522	4070	710	337	125
EB.48.1	40957	57932	3	272	9	6	2287	3537	955	967	130
EB.48.2	38528	59648	3	302	8	6	2015	3198	868	905	88
EB.48.3	39392	61307	4	305	8	6	2101	3414	888	915	106
EB.48.4	35664	78281	5	509	14	11	887	5184	629	390	205
EB.48.5	38767	79785	4	519	14	11	1175	4943	506	203	135
EB.48.6	40010	60210	3	299	9	7	2176	3339	903	938	107
EB.48.7	39689	60347	4	313	9	7	2194	3704	912	916	152
EB.48.8	38094	74824	4	512	15	12	884	5271	655	416	215
EB.5	47542	69326	6	379	8	12	666	3573	564	356	116
EB.6	40475	59166	7	368	8	6	1377	3327	721	453	178
EB.7	29507	88352	4	734	15	20	2705	6566	612	89	229
EB.8	33088	90678	7	710	14	18	2471	6249	611	88	166
EB.9.1	27069	92159	5	748	13	18	2667	6568	640	83	228
EB.9.2	27146	90919	4	800	16	20	2607	6346	646	79	198
EB.9.3	29288	86630	6	776	17	22	2673	5976	610	82	449
EBK.1.1	23989	80441	4	1156	36	18	50466	12581	48	89	363
EBK.1.2	23739	78651	8	1059	38	20	50669	12696	49	79	482
EBK.10.1	17842	72840	6	1393	43	29	62015	15760	28	45	313
EBK.10.2	35401	55816	3	362	20	8	40246	8615	20	26	967

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EB.35	56	1229	23	695	4	20	1	3	0	0	5
EB.36	49	696	35	547	4	19	2	7	1	0	21
EB.37.1	47	715	27	739	5	25	2	1	0	0	4
EB.37.2	57	1135	20	662	5	23	1	3	0	0	4
EB.38	73	687	18	769	5	29	1	2	0	0	5
EB.39	81	702	20	770	4	23	1	1	0	0	5
EB.4.1	86	1502	20	703	3	22	1	6	1	0	15
EB.4.2	81	1249	15	725	2	22	1	5	1	0	9
EB.40	72	1196	16	821	3	25	1	4	1	0	6
EB.41.1	52	1070	16	651	5	23	1	3	1	0	5
EB.41.2	57	1070	19	677	4	20	1	3	0	0	4
EB.42	79	707	18	737	4	22	2	1	0	0	4
EB.43.1	63	814	18	759	5	44	2	1	0	0	4
EB.43.2	46	815	26	908	4	19	1	2	0	0	2
EB.44.1	54	1149	19	643	4	22	1	2	0	0	3
EB.44.2	56	1062	17	833	2	25	1	4	1	0	14
EB.44.3	69	1042	15	804	2	22	1	3	1	0	6
EB.45.1	81	729	16	736	4	22	1	1	0	0	4
EB.45.2	88	788	18	777	5	38	2	1	0	0	4
EB.46	65	776	22	787	6	47	3	1	0	0	3
EB.47	56	775	20	754	4	20	1	1	0	0	4
EB.48.1	57	1217	16	627	4	21	1	2	0	0	3
EB.48.2	52	1097	16	663	5	29	1	2	0	0	3
EB.48.3	52	1099	19	687	6	29	1	2	0	0	3
EB.48.4	61	779	13	785	5	36	2	2	0	0	5
EB.48.5	61	594	16	828	5	36	2	2	0	0	3
EB.48.6	55	1167	17	685	5	26	1	2	0	0	4
EB.48.7	55	1139	17	688	5	28	1	2	0	0	4
EB.48.8	59	821	15	770	5	37	2	3	0	0	5
EB.5	54	836	19	852	4	17	1	2	0	-1	3
EB.6	78	1126	14	735	3	20	1	4	1	0	8
EB.7	56	902	22	649	5	37	2	5	1	0	14
EB.8	65	956	26	648	5	37	2	5	0	0	21
EB.9.1	51	961	21	629	4	34	2	5	0	0	19
EB.9.2	69	956	23	701	4	32	2	5	0	0	19
EB.9.3	53	915	25	639	5	35	2	5	0	0	11
EBK.1.1	93	218	18	756	11	72	5	2	0	0	54
EBK.1.2	83	234	15	748	9	62	4	2	0	0	56
EBK.10.1	82	246	13	787	11	62	5	1	0	1	68
EBK.10.2	65	281	20	630	6	24	2	2	1	0	41

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EB.35	152	0	972	2	5	1	3	1	0	1
EB.36	483	0	246	4	8	1	3	1	0	1
EB.37.1	272	0	496	3	6	1	3	1	0	1
EB.37.2	149	0	959	3	5	1	2	1	0	1
EB.38	273	0	490	4	6	1	3	1	0	1
EB.39	278	0	507	3	6	1	3	1	0	1
EB.4.1	665	-1	167	3	6	1	2	1	0	0
EB.4.2	863	0	126	2	5	0	2	0	0	0
EB.40	2817	0	147	2	5	1	2	1	0	0
EB.41.1	174	0	466	3	5	1	3	1	0	1
EB.41.2	170	0	984	3	5	1	2	0	0	1
EB.42	277	0	513	3	6	1	3	1	0	1
EB.43.1	681	0	579	5	9	1	4	1	0	1
EB.43.2	422	0	508	3	6	1	3	1	0	1
EB.44.1	103	0	973	2	5	1	2	1	0	1
EB.44.2	669	0	149	3	5	1	2	1	0	1
EB.44.3	2971	0	139	2	5	1	2	0	0	0
EB.45.1	264	0	517	3	6	1	3	1	0	0
EB.45.2	666	0	587	5	9	1	4	1	0	1
EB.46	666	0	567	5	9	1	5	1	0	1
EB.47	285	0	558	3	7	1	2	1	0	0
EB.48.1	105	0	983	2	5	1	2	1	0	1
EB.48.2	91	0	969	3	5	1	3	1	0	1
EB.48.3	99	0	975	3	5	1	3	1	0	1
EB.48.4	1563	0	748	5	9	1	4	1	0	1
EB.48.5	1422	0	509	5	9	1	4	1	0	1
EB.48.6	109	0	975	3	5	1	3	1	0	1
EB.48.7	110	0	1005	3	6	1	3	1	0	1
EB.48.8	1649	0	770	5	10	1	4	1	0	1
EB.5	442	0	470	3	5	0	2	1	0	1
EB.6	844	1	124	3	6	1	2	0	0	0
EB.7	563	1	210	5	9	1	5	1	0	1
EB.8	574	1	213	5	8	1	4	1	0	1
EB.9.1	565	0	207	5	9	1	4	1	0	1
EB.9.2	561	-1	229	5	9	1	4	1	0	1
EB.9.3	572	1	207	5	9	1	4	1	0	1
EBK.1.1	2646	0	871	10	14	2	9	2	0	2
EBK.1.2	2752	0	885	10	15	2	8	2	0	2
EBK.10.1	2121	0	982	11	17	2	11	2	1	2
EBK.10.2	604	0	507	6	7	1	6	1	0	1

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EB.35	0	1	0	0	0	0	0	0	0	0
EB.36	0	1	0	0	0	0	0	0	0	1
EB.37.1	0	1	0	0	0	0	0	1	0	0
EB.37.2	0	1	0	0	0	0	0	1	0	0
EB.38	0	1	0	0	0	0	0	1	0	0
EB.39	0	1	0	0	0	0	0	1	0	0
EB.4.1	0	0	0	0	0	0	0	0	0	0
EB.4.2	0	1	0	0	0	0	0	0	0	0
EB.40	0	0	0	0	0	0	0	1	0	0
EB.41.1	0	1	0	0	0	0	0	1	0	1
EB.41.2	0	1	0	0	0	0	0	1	0	0
EB.42	0	1	0	0	0	0	0	0	0	0
EB.43.1	0	1	0	1	0	0	0	1	0	0
EB.43.2	0	1	0	0	0	0	0	1	0	0
EB.44.1	0	1	0	0	0	0	0	1	0	0
EB.44.2	0	0	0	0	0	0	0	1	0	0
EB.44.3	0	0	0	0	0	0	0	1	0	0
EB.45.1	0	1	0	0	0	0	0	1	0	0
EB.45.2	0	1	0	1	0	0	0	1	0	0
EB.46	0	1	0	1	0	0	0	1	0	0
EB.47	0	1	0	0	0	0	0	1	0	0
EB.48.1	0	1	0	0	0	0	0	1	0	0
EB.48.2	0	1	0	0	0	1	0	1	0	0
EB.48.3	0	1	0	1	0	0	0	1	0	0
EB.48.4	0	1	0	0	0	0	0	1	0	0
EB.48.5	0	1	0	1	0	0	0	1	0	0
EB.48.6	0	1	0	1	0	0	0	1	0	0
EB.48.7	0	1	0	1	0	0	0	1	0	0
EB.48.8	0	1	0	1	0	0	0	1	0	0
EB.5	0	1	0	0	0	0	0	0	0	0
EB.6	0	1	0	0	0	0	0	0	0	0
EB.7	0	1	0	0	0	0	0	1	0	0
EB.8	0	1	0	0	0	0	0	1	0	0
EB.9.1	0	1	0	0	0	1	0	1	0	1
EB.9.2	0	1	0	0	0	0	0	1	0	1
EB.9.3	0	1	0	0	0	0	0	1	0	1
EBK.1.1	0	2	0	1	0	1	0	2	0	0
EBK.1.2	0	2	0	1	0	0	0	2	0	0
EBK.10.1	0	2	0	1	0	1	0	2	0	1
EBK.10.2	0	1	0	0	0	0	0	1	0	1

Sample Name	197Au	208Pb	209Bi	232Th	238U
EB.35	0	504	112	1	48
EB.36	0	1678	435	1	12
EB.37.1	0	1101	226	1	5
EB.37.2	0	439	103	1	46
EB.38	0	933	225	1	5
EB.39	0	928	236	1	5
EB.4.1	0	624	766	1	2
EB.4.2	0	965	438	1	8
EB.40	0	654	622	1	6
EB.41.1	0	527	53	1	73
EB.41.2	0	426	101	1	44
EB.42	0	1074	238	1	5
EB.43.1	0	973	325	2	5
EB.43.2	0	1159	421	1	6
EB.44.1	0	862	42	1	60
EB.44.2	0	1971	590	1	2
EB.44.3	0	668	521	1	6
EB.45.1	0	988	235	1	5
EB.45.2	0	932	335	2	5
EB.46	0	971	322	2	5
EB.47	0	1191	258	1	6
EB.48.1	0	693	43	1	60
EB.48.2	0	486	40	1	57
EB.48.3	0	637	41	1	56
EB.48.4	0	243	232	1	5
EB.48.5	0	565	116	2	5
EB.48.6	0	721	41	1	60
EB.48.7	0	758	42	1	60
EB.48.8	0	256	250	2	5
EB.5	0	983	369	1	5
EB.6	0	909	419	1	8
EB.7	0	5803	210	1	1
EB.8	0	9083	204	1	1
EB.9.1	0	6788	217	1	1
EB.9.2	0	7039	204	1	1
EB.9.3	0	3986	202	1	1
EBK.1.1	0	3132	27	2	3
EBK.1.2	0	3390	28	2	3
EBK.10.1	0	1438	7	2	2
EBK.10.2	0	452	6	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EBK.11	Black	14	1	121	80596	19691	25100	286448	2296
Escambe	EBK.12	Black	20	1	89	82193	12440	8384	306904	2693
Escambe	EBK.13	Black	16	1	100	95004	9463	11856	293724	3735
Escambe	EBK.14	Black	17	0	117	79803	9166	5479	315773	2802
Escambe	EBK.15	Black	14	0	108	74927	12370	11572	299288	2782
Escambe	EBK.16	Black	14	1	75	86411	17669	12348	303262	1733
Escambe	EBK.17	Black	15	0	122	80330	17895	20760	268197	2671
Escambe	EBK.18	Black	18	1	111	82319	19400	26537	279875	2419
Escambe	EBK.19	Black	18	0	142	82734	13108	13356	295189	2742
Escambe	EBK.2	Black	20	1	117	84827	12736	7891	299648	2410
Escambe	EBK.20	Black	17	1	113	80824	20329	27136	276861	2394
Escambe	EBK.21	Black	14	1	120	78605	15315	17712	290441	2356
Escambe	EBK.22	Black	23	0	126	75996	19075	18383	293054	2385
Escambe	EBK.23	Black	16	1	122	84329	14181	14030	297633	2517
Escambe	EBK.24	Black	16	1	111	75891	12225	14136	282082	2781
Escambe	EBK.25	Black	15	1	117	74915	16510	14767	285077	2966
Escambe	EBK.26	Black	17	1	120	80618	14087	14498	299902	2533
Escambe	EBK.27	Black	20	0	145	88272	17581	11280	295843	2822
Escambe	EBK.28	Black	21	2	153	93551	16104	10013	301463	2894
Escambe	EBK.29	Black	11	1	155	100327	15189	7956	301775	3380
Escambe	EBK.3	Black	18	1	106	87537	11024	6650	310743	2954
Escambe	EBK.30	Black	23	1	116	84421	16800	13278	285456	2645
Escambe	EBK.31	Black	16	1	123	81348	15277	15298	292567	2555
Escambe	EBK.32	Black	21	1	149	73371	16626	15311	296712	2870
Escambe	EBK.33	Black	22	0	112	82134	16940	12234	289931	2867
Escambe	EBK.34	Black	13	1	91	76326	14155	14353	283851	2397
Escambe	EBK.35	Black	20	0	104	82438	12640	7935	293641	2632
Escambe	EBK.36	Black	5	1	83	88741	17180	9231	305636	1782
Escambe	EBK.37.1	Black	14	0	108	69511	13324	10539	300353	4492
Escambe	EBK.37.2	Black	16	0	110	79243	11327	11220	292258	3038
Escambe	EBK.38	Black	16	1	120	82122	13154	13030	297172	2606
Escambe	EBK.39.1	Black	20	0	106	97709	13327	7689	308902	3054
Escambe	EBK.39.2	Black	16	0	114	74391	14713	11600	281296	3006
Escambe	EBK.4	Black	13	0	109	79897	11261	9493	308357	2834
Escambe	EBK.40	Black	12	0	139	85866	11631	11290	296814	3031
Escambe	EBK.41	Black	14	1	105	86252	12973	15229	305084	2314
Escambe	EBK.42	Black	14	1	120	73745	17331	16120	281095	3050
Escambe	EBK.43	Black	7	0	35	5013	1393	1713	188678	174
Escambe	EBK.44	Black	17	2	128	83408	19202	23393	285096	2748
Escambe	EBK.45.1	Black	15	0	103	75508	13899	13546	296013	2497

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EBK.11	20276	48642	8	1727	64	32	47000	21030	27	40	253
EBK.12	38467	63052	4	418	16	10	32397	6341	56	47	392
EBK.13	30089	56463	5	812	23	10	47713	7371	15	21	455
EBK.14	47551	59298	3	314	15	8	24824	5990	13	19	362
EBK.15	36327	57684	5	869	34	19	45360	10238	43	89	458
EBK.16	33270	84011	2	652	11	13	4703	5128	472	177	143
EBK.17	23020	77098	6	1374	47	26	58577	14773	47	66	293
EBK.18	20458	49820	9	1854	64	42	51537	21619	28	38	260
EBK.19	28800	63118	5	902	38	26	47071	10539	27	51	227
EBK.2	37130	62004	5	449	17	12	42407	5464	27	37	334
EBK.20	20008	53600	8	1860	66	38	51421	22486	29	41	432
EBK.21	30969	75859	6	1212	36	21	34169	10512	21	51	163
EBK.22	17348	56086	6	1447	51	32	50034	16225	47	96	305
EBK.23	27019	67303	6	1020	36	21	35450	11061	22	56	146
EBK.24	32512	74067	5	910	33	22	52510	9810	36	61	452
EBK.25	24525	67391	6	960	37	20	54205	13925	52	79	519
EBK.26	25930	67461	5	1034	40	23	35615	11326	21	51	169
EBK.27	30147	58821	5	779	27	15	38291	10914	24	30	368
EBK.28	29495	53846	5	701	26	14	34425	10255	24	36	376
EBK.29	26645	62317	4	374	17	18	30693	5469	32	114	320
EBK.3	37299	53958	3	309	18	10	33018	7969	18	24	714
EBK.30	20759	65811	4	932	38	25	56959	11232	58	133	341
EBK.31	26627	71524	6	1093	38	33	38063	11739	24	88	246
EBK.32	51288	49744	5	846	36	25	33299	12800	20	39	214
EBK.33	20004	60703	4	885	39	26	57055	12535	67	183	286
EBK.34	27086	66174	5	942	38	26	57540	14515	134	431	609
EBK.35	43532	60237	3	404	21	9	33846	7109	28	33	1019
EBK.36	33252	83598	2	385	10	11	4823	4495	492	183	124
EBK.37.1	35098	80350	6	575	18	12	31848	6649	16	26	438
EBK.37.2	29689	60495	4	764	33	20	53692	10070	37	66	604
EBK.38	29909	62619	5	901	37	21	44558	10513	25	64	230
EBK.39.1	33172	64098	3	397	14	12	16524	5589	56	49	173
EBK.39.2	36284	70721	4	841	32	21	54082	9762	69	136	503
EBK.4	32493	60334	6	578	22	13	36095	9193	19	31	660
EBK.40	29532	55459	5	765	33	23	48678	8954	34	70	410
EBK.41	23395	40946	6	1200	39	23	49204	13574	25	29	320
EBK.42	23232	75298	5	988	35	20	52679	12519	51	89	439
EBK.43	53170	6153	2	232	17	6	22917	3682	28	25	265
EBK.44	19323	49275	7	1672	64	34	48900	20441	30	40	390
EBK.45.1	28472	65624	7	776	23	14	48677	8261	46	93	577

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EBK.11	120	244	15	566	11	66	7	1	0	0	15
EBK.12	96	196	24	687	5	31	2	1	0	0	14
EBK.13	164	126	10	677	8	100	3	2	0	0	9
EBK.14	58	155	17	601	3	24	1	1	0	0	25
EBK.15	76	107	21	607	6	40	3	2	-9	0	27
EBK.16	59	1053	44	573	7	34	2	6	1	0	31
EBK.17	98	117	17	890	10	65	5	2	0	0	57
EBK.18	117	263	16	568	11	73	6	1	0	0	16
EBK.19	79	71	15	750	7	47	3	1	0	0	4
EBK.2	73	63	23	673	4	30	2	1	0	0	20
EBK.20	115	260	15	581	12	77	7	1	2	0	17
EBK.21	65	45	14	967	9	66	4	1	0	0	6
EBK.22	98	108	18	546	7	58	4	2	0	0	28
EBK.23	83	50	18	858	6	47	3	1	0	0	5
EBK.24	89	90	22	752	7	52	3	2	1	0	25
EBK.25	98	239	20	648	8	50	3	2	1	0	63
EBK.26	75	51	10	832	7	55	3	1	0	0	6
EBK.27	72	160	15	704	6	38	3	1	0	0	46
EBK.28	65	150	18	638	5	35	2	1	0	0	48
EBK.29	66	145	22	366	5	22	2	1	0	0	9
EBK.3	64	233	22	599	4	23	1	1	0	0	37
EBK.30	87	125	12	589	6	45	3	1	0	0	18
EBK.31	78	62	12	892	7	59	4	1	0	0	8
EBK.32	68	185	230	517	7	40	3	1	0	0	12
EBK.33	116	181	12	569	6	41	3	1	0	0	23
EBK.34	76	460	25	684	8	44	3	3	0	0	23
EBK.35	72	370	15	812	5	26	2	1	0	0	63
EBK.36	52	1091	42	537	5	22	2	7	0	0	30
EBK.37.1	109	141	18	697	7	44	2	2	0	0	5
EBK.37.2	85	99	18	613	5	42	3	2	0	0	26
EBK.38	76	66	16	768	7	48	3	1	0	0	5
EBK.39.1	57	90	10	589	3	25	2	1	0	0	15
EBK.39.2	106	160	19	668	7	41	3	3	0	0	42
EBK.4	71	182	19	757	6	34	3	1	0	0	24
EBK.40	80	100	22	545	5	39	3	2	1	0	18
EBK.41	87	154	19	522	8	51	4	2	0	0	12
EBK.42	89	244	17	677	8	54	3	2	0	0	63
EBK.43	111	884	28	77	4	25	1	6	22	2	11
EBK.44	132	250	15	532	9	65	6	1	2	0	19
EBK.45.1	132	134	25	721	6	42	3	1	0	0	43

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EBK.11	813	0	875	11	20	2	10	2	1	2
EBK.12	509	0	503	5	8	1	5	1	0	1
EBK.13	1773	0	758	9	21	2	7	8	0	1
EBK.14	421	0	353	4	7	1	3	1	0	1
EBK.15	1848	0	443	6	11	1	6	1	0	1
EBK.16	404	1	304	5	9	1	5	1	0	1
EBK.17	882	0	632	11	17	2	10	2	0	2
EBK.18	790	0	983	11	23	3	11	2	0	2
EBK.19	224	0	503	7	13	2	8	1	0	1
EBK.2	3402	0	436	5	8	1	4	1	0	1
EBK.20	817	0	951	12	21	3	11	2	1	2
EBK.21	489	0	452	8	14	2	8	2	0	1
EBK.22	2686	0	481	8	17	2	8	2	0	1
EBK.23	496	0	444	7	13	2	7	2	0	1
EBK.24	3023	0	578	8	12	2	7	2	0	2
EBK.25	2956	0	872	8	14	2	8	1	0	2
EBK.26	500	0	423	8	17	2	7	2	0	1
EBK.27	869	0	608	8	11	2	7	2	0	2
EBK.28	850	0	559	6	11	2	7	2	0	2
EBK.29	745	0	325	4	7	1	5	1	0	1
EBK.3	778	0	405	5	7	1	4	1	0	1
EBK.30	2289	0	484	6	14	2	6	1	0	1
EBK.31	382	1	452	8	15	2	7	2	0	2
EBK.32	503	1	411	8	14	2	8	1	0	2
EBK.33	2739	0	501	7	14	2	6	1	0	1
EBK.34	2683	0	462	8	13	2	9	2	0	1
EBK.35	2737	0	459	5	7	1	5	1	0	1
EBK.36	420	1	308	4	8	1	4	1	0	1
EBK.37.1	1311	0	396	7	9	1	6	1	0	1
EBK.37.2	2967	1	506	6	12	1	7	1	0	1
EBK.38	247	0	515	7	13	2	6	2	0	1
EBK.39.1	329	0	244	4	8	1	4	0	0	1
EBK.39.2	2609	0	667	7	12	2	6	1	0	1
EBK.4	1379	0	373	6	9	1	4	1	0	1
EBK.40	1568	0	477	6	10	1	5	1	0	1
EBK.41	934	0	738	8	13	2	8	2	0	2
EBK.42	2881	0	886	10	15	2	9	2	0	2
EBK.43	1044	0	616	3	4	0	2	0	0	0
EBK.44	965	0	830	10	19	3	9	2	0	2
EBK.45.1	2407	1	556	7	11	2	6	1	0	1

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EBK.11	0	2	0	1	0	1	0	2	0	1
EBK.12	0	1	0	0	0	0	0	1	0	0
EBK.13	0	1	0	1	0	1	0	1	0	1
EBK.14	0	0	0	0	0	0	0	1	0	0
EBK.15	0	1	0	1	0	0	0	1	0	0
EBK.16	0	1	0	1	0	0	0	1	0	1
EBK.17	0	2	0	1	0	1	0	2	0	0
EBK.18	0	2	0	1	0	1	0	2	0	0
EBK.19	0	1	0	1	0	1	0	1	0	0
EBK.2	0	1	0	0	0	0	0	1	0	0
EBK.20	0	2	0	1	0	1	0	2	0	1
EBK.21	0	1	0	1	0	1	0	2	0	0
EBK.22	0	1	0	1	0	1	0	2	0	0
EBK.23	0	1	0	1	0	1	0	1	0	0
EBK.24	0	1	0	1	0	1	0	2	0	0
EBK.25	0	1	0	1	0	0	0	1	0	0
EBK.26	0	1	0	1	0	1	0	1	0	0
EBK.27	0	1	0	1	0	0	0	1	0	0
EBK.28	0	1	0	1	0	0	0	1	0	0
EBK.29	0	1	0	0	0	0	0	1	0	0
EBK.3	0	1	0	0	0	0	0	0	0	1
EBK.30	0	1	0	1	0	1	0	1	0	0
EBK.31	0	1	0	0	0	0	0	2	0	0
EBK.32	0	1	0	1	0	1	0	1	0	1
EBK.33	0	1	0	0	0	1	0	1	0	0
EBK.34	0	1	0	1	0	1	0	1	0	1
EBK.35	0	1	0	0	0	0	0	1	0	0
EBK.36	0	1	0	0	0	0	0	1	0	0
EBK.37.1	0	1	0	1	0	0	0	1	0	1
EBK.37.2	0	1	0	0	0	1	0	1	0	1
EBK.38	0	1	0	1	0	1	0	1	0	0
EBK.39.1	0	1	0	0	0	0	0	1	0	0
EBK.39.2	0	1	0	1	0	1	0	1	0	1
EBK.4	0	1	0	1	0	1	0	1	0	0
EBK.40	0	1	0	1	0	1	0	1	0	1
EBK.41	0	1	0	1	0	1	0	2	0	0
EBK.42	0	1	0	1	0	1	0	2	0	1
EBK.43	0	1	0	0	0	0	0	1	0	0
EBK.44	0	2	0	1	0	1	0	2	0	0
EBK.45.1	0	1	0	0	0	1	0	1	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
EBK.11	0	2464	5	3	3
EBK.12	0	229	33	1	1
EBK.13	0	2335	4	2	1
EBK.14	0	483	4	1	1
EBK.15	0	5126	56	1	2
EBK.16	0	1034	176	1	4
EBK.17	0	3471	10	2	2
EBK.18	0	2751	6	3	2
EBK.19	0	274	2	2	2
EBK.2	0	1109	6	1	1
EBK.20	0	2528	6	3	3
EBK.21	0	372	3	2	1
EBK.22	0	2594	25	2	2
EBK.23	0	472	3	2	1
EBK.24	0	7047	9	2	2
EBK.25	0	3712	33	2	3
EBK.26	0	360	3	2	2
EBK.27	0	1792	10	1	2
EBK.28	0	1315	11	1	2
EBK.29	0	407	61	1	1
EBK.3	0	478	6	1	1
EBK.30	0	2147	37	2	3
EBK.31	0	966	7	2	2
EBK.32	0	5312	10	2	2
EBK.33	0	2303	53	1	3
EBK.34	0	3753	120	2	2
EBK.35	0	18313	20	1	2
EBK.36	0	1140	200	1	5
EBK.37.1	0	601	5	1	1
EBK.37.2	0	7978	9	1	2
EBK.38	0	358	3	2	2
EBK.39.1	0	1488	108	1	1
EBK.39.2	0	9185	55	2	3
EBK.4	0	265	6	1	1
EBK.40	0	6258	11	1	2
EBK.41	0	861	8	2	2
EBK.42	0	4219	35	2	3
EBK.43	0	437604	24	1	1
EBK.44	0	2927	7	3	3
EBK.45.1	0	1767	64	2	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EBK.45.2	Black	16	0	152	82840	18214	14357	298420	2766
Escambe	EBK.45.3	Black	15	1	123	79158	19150	23332	287809	2433
Escambe	EBK.45.4	Black	15	1	124	78618	20235	23828	284037	2432
Escambe	EBK.45.5	Black	14	1	91	75981	13131	17317	287005	2722
Escambe	EBK.45.6	Black	14	1	115	72096	18569	16073	282470	3102
Escambe	EBK.46.1	Black	17	0	128	81296	16933	17056	303958	2580
Escambe	EBK.46.2	Black	12	0	108	81137	14167	11971	284248	2675
Escambe	EBK.46.3	Black	15	0	147	73522	19791	18601	291793	3137
Escambe	EBK.47	Black	88	70	707	413358	2846	18331	22937	18652
Escambe	EBK.48	Black	16	0	123	80943	13788	14755	292926	2503
Escambe	EBK.49	Black	16	1	121	81155	19975	23505	283704	2384
Escambe	EBK.5	Black	15	0	100	71149	11681	12969	292970	2634
Escambe	EBK.50	Black	14	1	121	70507	14228	15240	295242	2569
Escambe	EBK.51	Black	18	1	114	83388	11063	9429	299127	2772
Escambe	EBK.52	Black	15	0	108	77001	11081	11960	296266	2551
Escambe	EBK.53.1	Black	14	0	107	87296	13781	10315	286238	2858
Escambe	EBK.53.2	Black	16	1	115	79669	14798	14998	299924	2481
Escambe	EBK.54	Black	17	1	160	80829	24642	23936	282400	3430
Escambe	EBK.55.1	Black	14	0	102	79730	14187	9627	306748	3034
Escambe	EBK.55.2	Black	12	1	107	68319	14943	12978	274252	2676
Escambe	EBK.55.3	Black	17	0	106	78212	11853	12788	286213	2953
Escambe	EBK.55.4	Black	14	0	111	75598	12796	13882	286999	2912
Escambe	EBK.55.5	Black	15	1	99	75293	12186	13900	285014	2728
Escambe	EBK.55.6	Black	13	0	106	87220	13878	11008	280918	2845
Escambe	EBK.55.7	Black	12	0	176	84202	22886	12734	280532	4744
Escambe	EBK.6	Black	16	1	86	78291	13463	11309	306046	2023
Escambe	EBK.7.1	Black	16	0	132	84545	15533	10107	310613	2181
Escambe	EBK.7.2	Black	17	1	104	78731	9960	9766	313903	2259
Escambe	EBK.8.1	Black	18	1	87	78695	11355	10181	312658	2369
Escambe	EBK.8.2	Black	17	1	127	82101	10323	8658	318080	2497
Escambe	EBK.9	Black	17	-1	111	78926	13028	9878	312853	2190
Escambe	EW.1	White	17	0	98	76865	7937	7003	338730	2810
Escambe	EW.10	White	21	0	110	78865	10497	12004	326835	3044
Escambe	EW.11.1	White	27	0	117	80322	11232	7432	302397	3046
Escambe	EW.11.2	White	20	0	102	82798	8761	7496	331357	2597
Escambe	EW.12	White	22	0	94	82636	8449	7320	333219	2602
Escambe	EW.13	White	20	0	109	76531	9059	8334	303244	2933
Escambe	EW.14.1	White	28	0	92	85324	10504	6888	325603	2626
Escambe	EW.14.2	White	17	0	88	85048	8996	7616	327190	2641
Escambe	EW.15	White	21	0	91	86210	9076	7673	328471	2590

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EBK.45.2	24349	62810	6	915	23	15	36220	10323	21	31	366
EBK.45.3	16786	49935	10	1890	65	35	50569	21315	28	38	282
EBK.45.4	17544	53074	9	1873	59	35	51695	20250	29	39	314
EBK.45.5	23198	59966	8	1502	45	48	61226	16454	45	85	511
EBK.45.6	19933	72674	6	1101	36	20	56055	12853	51	85	456
EBK.46.1	22091	53798	6	960	33	22	34363	13273	20	36	257
EBK.46.2	26570	71912	6	746	26	20	51997	8567	190	205	662
EBK.46.3	22834	51325	7	1083	42	33	52310	14833	29	49	321
EBK.47	107855	60981	13	529	1525	875	1539	49858	38	-7	201
EBK.48	26365	66816	6	1051	36	20	47624	11053	25	51	164
EBK.49	17689	51827	8	1948	66	35	51894	20465	29	30	331
EBK.5	28795	68457	4	876	33	20	52863	10108	36	60	434
EBK.50	42954	67114	6	1059	35	21	37479	10691	21	52	145
EBK.51	38427	55193	4	498	23	12	48658	8527	23	28	539
EBK.52	36104	65898	5	749	27	16	48503	7738	29	48	370
EBK.53.1	28624	66865	5	660	27	19	49033	8281	141	187	633
EBK.53.2	23793	66783	5	1097	36	22	36878	11714	22	62	185
EBK.54	14764	48065	9	1522	54	36	51536	19737	26	37	265
EBK.55.1	28225	58049	5	554	20	12	41991	8942	43	54	230
EBK.55.2	32335	77520	5	886	32	22	68547	9297	58	122	459
EBK.55.3	28285	66649	5	871	34	22	56538	9898	38	62	618
EBK.55.4	26814	69526	5	967	34	22	53439	10455	36	58	615
EBK.55.5	28656	68356	5	889	33	19	58115	9697	38	62	481
EBK.55.6	28564	67163	5	641	27	20	54192	9254	271	270	656
EBK.55.7	17154	48170	5	571	32	30	71317	11059	384	258	385
EBK.6	33270	63570	4	575	22	18	35452	8117	22	34	707
EBK.7.1	26787	50917	4	542	24	33	36612	9393	16	30	342
EBK.7.2	35064	63510	4	461	18	10	29134	6687	15	14	347
EBK.8.1	35493	62185	5	492	18	12	28562	7552	17	23	358
EBK.8.2	33570	56553	5	446	16	10	27558	7224	17	20	414
EBK.9	31178	59057	5	508	23	18	32321	8391	20	33	698
EW.1	36993	55670	8	536	10	7	5424	3576	9	5	96
EW.10	36713	60494	9	728	17	14	5558	5390	14	19	69
EW.11.1	42102	69821	6	555	10	8	745	3944	2	9	148
EW.11.2	39991	57985	7	438	11	8	6012	3519	10	11	117
EW.12	39684	56412	6	446	10	8	5783	3515	4	9	107
EW.13	36927	58931	6	548	11	7	1568	4583	3	6	197
EW.14.1	44625	62232	5	432	10	7	2762	3185	9	11	69
EW.14.2	40190	61118	5	415	10	8	6211	3711	9	10	103
EW.15	42654	55859	6	420	10	8	6143	3597	11	10	90

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EBK.45.2	83	147	15	802	8	47	3	0	0	0	36
EBK.45.3	150	249	16	616	10	71	6	1	0	0	16
EBK.45.4	128	242	16	617	10	72	6	1	2	0	18
EBK.45.5	77	253	19	672	9	65	5	2	0	0	20
EBK.45.6	90	231	15	730	8	53	4	1	0	0	58
EBK.46.1	101	166	14	645	8	45	3	1	0	0	11
EBK.46.2	105	353	17	745	7	39	3	3	0	0	48
EBK.46.3	80	259	19	521	9	47	4	1	0	0	31
EBK.47	59	58	141	891	206	5556	281	-2	7	1	2
EBK.48	102	63	20	888	7	52	4	1	0	0	4
EBK.49	172	230	21	608	10	70	8	1	1	0	15
EBK.5	83	86	21	703	6	47	3	1	1	0	25
EBK.50	74	51	138	925	7	51	4	1	0	0	5
EBK.51	95	237	22	606	6	34	2	3	0	0	82
EBK.52	73	61	16	870	5	47	2	1	0	0	5
EBK.53.1	108	278	18	702	6	32	2	3	0	0	50
EBK.53.2	82	56	17	944	6	54	4	1	0	0	8
EBK.54	139	168	14	566	11	61	5	1	0	0	35
EBK.55.1	77	267	15	729	8	392	2	1	0	0	29
EBK.55.2	94	140	15	753	7	43	3	3	1	0	36
EBK.55.3	90	89	17	738	6	42	3	1	0	0	24
EBK.55.4	82	88	14	764	6	50	3	1	0	0	23
EBK.55.5	81	91	19	771	7	49	3	1	0	0	24
EBK.55.6	116	575	17	680	6	33	2	3	1	0	51
EBK.55.7	104	656	10	465	7	28	2	1	0	0	23
EBK.6	70	151	14	877	6	46	2	1	0	0	5
EBK.7.1	67	146	14	666	5	24	2	1	0	0	1
EBK.7.2	57	135	15	826	5	38	2	1	0	0	4
EBK.8.1	65	132	16	727	5	38	2	1	0	0	12
EBK.8.2	58	149	18	673	4	32	2	1	0	1	13
EBK.9	80	152	15	828	5	41	2	1	1	0	6
EW.1	80	24	21	581	3	24	2	1	0	0	1
EW.10	61	34	12	789	4	38	3	1	0	0	1
EW.11.1	97	20	18	996	3	32	2	1	1	0	11
EW.11.2	50	23	20	631	3	24	2	1	0	0	1
EW.12	59	15	23	635	3	24	2	1	0	0	1
EW.13	114	275	19	705	3	26	2	1	0	0	1
EW.14.1	54	20	19	995	2	28	1	1	0	0	3
EW.14.2	68	19	21	653	3	25	2	1	0	0	1
EW.15	78	20	27	649	3	27	1	1	0	0	1

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EBK.45.2	825	0	661	8	10	2	7	2	0	2
EBK.45.3	815	0	953	10	19	2	9	2	0	2
EBK.45.4	966	0	981	11	18	2	9	2	0	2
EBK.45.5	1271	0	526	9	16	2	9	2	0	2
EBK.45.6	2926	0	943	9	14	2	7	2	0	2
EBK.46.1	448	0	479	8	12	2	7	1	0	1
EBK.46.2	2995	0	632	6	10	1	5	1	0	1
EBK.46.3	1924	0	730	9	14	2	8	2	0	1
EBK.47	55	-2	1700	190	406	49	231	40	11	70
EBK.48	213	0	570	7	13	2	7	2	0	1
EBK.49	859	0	949	10	20	2	10	2	1	2
EBK.5	2687	0	557	6	12	1	6	1	0	1
EBK.50	512	0	491	7	13	2	6	1	0	1
EBK.51	889	0	821	7	9	2	6	2	0	1
EBK.52	1098	0	660	6	10	1	5	1	0	1
EBK.53.1	2966	0	613	5	10	1	5	1	0	1
EBK.53.2	318	0	457	7	14	2	7	2	0	1
EBK.54	1910	0	619	12	19	3	10	2	0	2
EBK.55.1	264	0	805	6	9	2	5	2	0	1
EBK.55.2	2970	0	813	7	12	2	6	1	0	1
EBK.55.3	2798	0	611	6	12	1	5	1	0	1
EBK.55.4	2143	0	591	7	12	1	6	1	0	1
EBK.55.5	2942	0	623	6	11	2	6	1	0	1
EBK.55.6	3052	0	649	5	10	1	5	1	0	1
EBK.55.7	4798	0	769	7	12	2	6	2	0	1
EBK.6	322	0	375	6	9	1	5	1	0	1
EBK.7.1	2884	0	373	5	8	1	4	1	0	1
EBK.7.2	307	0	370	6	9	1	5	1	0	1
EBK.8.1	461	0	367	6	9	1	5	1	0	1
EBK.8.2	478	0	351	6	9	1	5	1	0	1
EBK.9	372	0	362	6	9	1	5	1	0	1
EW.1	1269	0	168	3	6	1	3	1	0	1
EW.10	408	1	142	7	12	2	5	1	0	1
EW.11.1	34921	0	102	4	8	1	3	1	0	0
EW.11.2	197	0	185	4	7	1	3	0	0	1
EW.12	165	0	190	4	7	1	3	1	0	0
EW.13	53937	0	103	4	7	1	3	1	0	0
EW.14.1	188	0	103	3	7	1	3	1	0	1
EW.14.2	191	0	197	4	7	1	3	1	0	1
EW.15	197	0	189	3	7	1	3	1	0	1

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EBK.45.2	0	1	0	1	0	1	0	1	0	0
EBK.45.3	0	2	0	1	0	1	0	2	0	0
EBK.45.4	0	2	0	1	0	1	0	2	0	0
EBK.45.5	0	2	0	1	0	1	0	1	0	1
EBK.45.6	0	1	0	1	0	1	0	1	0	0
EBK.46.1	0	1	0	1	0	1	0	1	0	0
EBK.46.2	0	1	0	1	0	1	0	1	0	1
EBK.46.3	0	1	0	1	0	1	0	1	0	0
EBK.47	9	42	7	17	2	13	2	129	0	8
EBK.48	0	1	0	1	0	1	0	1	0	0
EBK.49	0	2	0	1	0	1	0	2	0	1
EBK.5	0	1	0	1	0	1	0	1	0	0
EBK.50	0	1	0	1	0	1	0	1	0	0
EBK.51	0	1	0	1	0	1	0	1	0	1
EBK.52	0	1	0	0	0	0	0	1	0	0
EBK.53.1	0	1	0	0	0	0	0	1	0	1
EBK.53.2	0	1	0	1	0	1	0	1	0	0
EBK.54	0	2	0	1	0	1	0	1	0	0
EBK.55.1	0	2	0	1	0	1	0	10	0	0
EBK.55.2	0	1	0	1	0	1	0	1	0	1
EBK.55.3	0	1	0	1	0	0	0	1	0	0
EBK.55.4	0	1	0	1	0	1	0	1	0	0
EBK.55.5	0	1	0	1	0	1	0	1	0	0
EBK.55.6	0	1	0	1	0	1	0	1	0	0
EBK.55.7	0	1	0	1	0	0	0	1	0	1
EBK.6	0	1	0	1	0	0	0	1	0	0
EBK.7.1	0	1	0	0	0	1	0	1	0	0
EBK.7.2	0	1	0	1	0	0	0	1	0	0
EBK.8.1	0	1	0	0	0	0	0	1	0	0
EBK.8.2	0	1	0	0	0	0	0	1	0	0
EBK.9	0	1	0	0	0	1	0	1	0	0
EW.1	0	0	0	0	0	0	0	1	0	0
EW.10	0	1	0	0	0	0	0	1	0	0
EW.11.1	0	0	0	0	0	0	0	1	0	0
EW.11.2	0	1	0	0	0	0	0	1	0	0
EW.12	0	0	0	0	0	0	0	1	0	0
EW.13	0	1	0	0	0	0	0	1	0	0
EW.14.1	0	1	0	0	0	0	0	1	0	0
EW.14.2	0	1	0	0	0	0	0	1	0	0
EW.15	0	1	0	0	0	0	0	1	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
EBK.45.2	0	1470	9	1	1
EBK.45.3	0	2288	5	2	2
EBK.45.4	0	2862	6	2	2
EBK.45.5	0	796	24	2	2
EBK.45.6	0	3910	30	2	3
EBK.46.1	0	3487	8	2	1
EBK.46.2	0	8136	76	1	4
EBK.46.3	0	5403	15	2	2
EBK.47	82	1869	-2	15	151
EBK.48	0	279	2	1	1
EBK.49	0	2359	5	2	2
EBK.5	0	5810	8	1	1
EBK.50	0	390	3	2	1
EBK.51	0	994	13	1	2
EBK.52	0	378	4	1	1
EBK.53.1	0	8255	61	1	4
EBK.53.2	0	829	5	2	1
EBK.54	0	4590	5	3	3
EBK.55.1	0	369	15	2	2
EBK.55.2	0	6986	35	1	2
EBK.55.3	0	8088	8	1	1
EBK.55.4	0	8052	8	1	2
EBK.55.5	0	7812	8	1	1
EBK.55.6	0	8909	134	1	5
EBK.55.7	0	5038	94	2	2
EBK.6	0	366	6	1	1
EBK.7.1	0	116	2	1	1
EBK.7.2	0	74	5	1	1
EBK.8.1	0	135	5	1	1
EBK.8.2	0	143	6	1	1
EBK.9	0	512	7	1	1
EW.1	0	147	4	1	1
EW.10	0	10	12	2	1
EW.11.1	0	589	2	1	1
EW.11.2	0	80	5	1	1
EW.12	0	89	2	1	1
EW.13	0	249	2	1	1
EW.14.1	0	81	9	1	1
EW.14.2	0	151	4	1	1
EW.15	0	316	5	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EW.16	White	27	0	110	94906	11240	5556	317135	2665
Escambe	EW.17	White	22	0	112	79813	9428	7929	306295	2711
Escambe	EW.18	White	22	0	122	86724	10248	7102	307132	2398
Escambe	EW.19.1	White	23	0	101	106919	10815	7437	315144	2753
Escambe	EW.19.2	White	12	0	108	88520	8210	7214	327152	2771
Escambe	EW.19.3	White	21	0	115	84257	8543	7620	327965	2504
Escambe	EW.2	White	21	0	121	65143	9417	10431	336756	2795
Escambe	EW.20	White	11	0	117	92522	7740	4369	321236	2862
Escambe	EW.21	White	23	0	106	90328	8686	7093	324938	2297
Escambe	EW.22	White	18	0	110	96223	8703	4416	319181	3003
Escambe	EW.23	White	11	0	113	83386	9259	5187	299115	2673
Escambe	EW.24	White	20	0	99	92019	8898	7208	322439	2392
Escambe	EW.25	White	27	0	120	89933	11221	9485	315105	2936
Escambe	EW.26	White	23	1	106	98775	10525	7287	319547	2740
Escambe	EW.27	White	11	0	108	114950	7911	5333	312484	2872
Escambe	EW.28	White	21	0	94	91843	8939	7008	319595	2663
Escambe	EW.29	White	23	0	52	85652	16714	8863	327281	1120
Escambe	EW.3	White	16	1	100	79831	9904	8295	328840	2439
Escambe	EW.30	White	12	0	121	90738	11048	5539	281027	3721
Escambe	EW.31.1	White	23	1	114	95151	8339	11289	320188	2979
Escambe	EW.31.2	White	21	0	104	103456	11187	6200	318879	2747
Escambe	EW.32	White	21	0	75	97403	17603	11612	324800	1247
Escambe	EW.33.1	White	21	0	100	89397	9097	6965	299950	2696
Escambe	EW.33.2	White	18	0	104	81866	11387	5771	300348	2733
Escambe	EW.33.3	White	36	0	119	104900	10850	4706	307585	2646
Escambe	EW.33.4	White	11	0	109	97726	10477	4206	302960	1918
Escambe	EW.33.5	White	12	0	109	88637	9305	6507	284395	1972
Escambe	EW.33.6	White	24	0	98	87231	9420	7249	298927	2650
Escambe	EW.33.7	White	19	0	106	79676	12138	10274	286689	2699
Escambe	EW.34	White	27	0	93	91679	9272	5876	322512	2088
Escambe	EW.35	White	13	0	109	118018	8166	4964	309716	2704
Escambe	EW.36	White	23	0	114	96056	10075	7642	309918	2264
Escambe	EW.37.1	White	15	0	107	88033	10807	6964	284408	2467
Escambe	EW.37.2	White	11	0	107	109919	7180	3248	327466	3784
Escambe	EW.38.1	White	14	0	109	92759	8567	5709	331991	2659
Escambe	EW.38.2	White	16	0	127	86670	8891	5055	305367	3143
Escambe	EW.38.3	White	2	0	17	12180	2089	1104	182003	312
Escambe	EW.39	White	12	0	122	81845	10416	5140	297747	4341
Escambe	EW.4.1	White	13	0	98	78674	8628	5877	327908	2717
Escambe	EW.4.2	White	15	0	93	75034	9036	8029	314705	2664

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EW.16	46330	62262	4	371	8	6	3449	2871	12	15	242
EW.17	38498	61460	6	476	11	8	2206	4721	7	11	121
EW.18	38162	65044	5	417	9	7	1723	3674	5	7	189
EW.19.1	39364	57632	7	440	9	9	5976	3163	13	20	91
EW.19.2	35507	64297	5	541	10	8	4514	3475	5	1	107
EW.19.3	36714	62033	5	435	9	9	7776	3730	12	22	62
EW.2	33430	65980	6	718	15	12	4135	5301	11	21	39
EW.20	43847	67080	4	322	7	7	3915	2710	6	14	70
EW.21	42043	59786	4	419	11	8	5865	3677	10	8	115
EW.22	46843	63796	4	342	6	4	4497	2459	5	4	24
EW.23	40775	70908	6	338	7	7	990	3219	3	12	97
EW.24	43817	59941	3	368	11	8	5845	3691	10	7	119
EW.25	44765	64073	6	525	14	10	5230	5072	42	35	85
EW.26	35937	62331	5	414	11	8	5403	3542	9	17	90
EW.27	28396	70188	5	328	9	8	4372	3102	5	14	155
EW.28	44096	63666	6	397	11	8	5987	3864	6	7	100
EW.29	29338	59836	4	647	12	14	5158	4686	27	15	72
EW.3	38076	61427	8	474	13	10	6458	4630	18	19	201
EW.30	40950	74561	5	410	10	9	1538	3679	5	12	240
EW.31.1	40386	57577	6	471	10	6	4769	4278	12	12	89
EW.31.2	35665	61443	5	359	9	7	4112	3182	13	16	257
EW.32	27654	42900	5	838	22	13	7696	7476	26	28	63
EW.33.1	40489	63415	5	390	11	8	3170	4767	10	11	143
EW.33.2	34969	71130	4	354	8	8	1934	3411	4	11	181
EW.33.3	48932	65845	5	322	8	7	3510	2933	12	21	736
EW.33.4	30892	61331	4	288	7	7	2732	3527	5	10	344
EW.33.5	29113	81402	4	435	9	10	1011	3468	2	8	71
EW.33.6	39969	61610	3	381	11	9	2492	4810	6	9	109
EW.33.7	34895	73338	5	593	14	12	1239	5225	4	13	92
EW.34	45238	61063	5	365	10	7	4365	3247	16	11	86
EW.35	28961	70628	3	278	9	10	4350	3280	6	12	60
EW.36	44872	67245	3	399	12	8	4881	4165	13	14	114
EW.37.1	35351	73999	4	417	9	21	1289	4121	3	9	86
EW.37.2	34092	52223	3	180	5	4	3783	1885	2	3	44
EW.38.1	31214	56591	5	315	8	7	7310	3149	5	8	127
EW.38.2	35467	57778	5	312	8	8	2242	4151	6	11	142
EW.38.3	64173	9293	1	57	1	1	571	1046	2	8	129
EW.39	38716	72431	4	441	8	8	1280	3660	4	10	143
EW.4.1	42093	70227	8	462	7	6	3323	2923	8	12	104
EW.4.2	38716	57296	7	396	10	8	2768	4427	6	6	92

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EW.16	58	30	18	919	3	25	1	1	1	0	9
EW.17	96	174	18	723	3	26	2	1	0	0	2
EW.18	96	22	28	1277	3	31	2	1	1	0	3
EW.19.1	59	21	15	779	3	25	1	1	1	0	2
EW.19.2	51	22	23	591	3	25	2	1	0	0	1
EW.19.3	67	22	20	904	3	24	1	0	0	0	2
EW.2	59	17	13	923	3	43	6	0	0	-1	2
EW.20	69	19	26	810	2	19	1	1	0	0	0
EW.21	52	22	27	672	3	23	2	1	0	0	0
EW.22	49	7	14	1009	2	17	1	1	0	0	3
EW.23	135	45	30	832	2	21	1	1	1	0	2
EW.24	51	22	26	683	2	22	2	1	0	0	1
EW.25	84	57	25	914	3	30	2	1	0	0	1
EW.26	55	17	17	672	3	22	1	1	0	0	1
EW.27	33	22	24	355	3	17	1	1	2	0	1
EW.28	62	19	25	712	2	22	2	1	0	0	1
EW.29	29	32	30	517	4	31	2	1	0	0	3
EW.3	58	52	24	1113	3	34	1	1	0	0	11
EW.30	149	27	23	749	2	22	2	1	1	0	2
EW.31.1	57	61	23	757	3	23	2	0	0	0	3
EW.31.2	50	25	20	790	2	18	1	1	1	0	1
EW.32	70	36	21	366	4	37	2	1	0	0	3
EW.33.1	97	154	22	762	2	23	2	1	0	0	2
EW.33.2	175	30	18	733	2	21	1	1	1	0	5
EW.33.3	60	27	19	1009	2	20	1	1	0	0	10
EW.33.4	72	41	25	1226	2	16	1	1	2	0	2
EW.33.5	154	12	23	716	3	19	1	1	0	1	2
EW.33.6	100	178	21	748	3	25	2	1	0	0	2
EW.33.7	368	34	13	857	4	34	2	1	1	2	3
EW.34	63	21	31	1376	2	19	1	1	1	0	1
EW.35	39	20	27	385	3	16	1	1	0	0	1
EW.36	60	28	32	1396	3	33	2	1	0	0	3
EW.37.1	95	120	24	900	3	39	1	1	0	1	3
EW.37.2	41	11	18	554	1	9	0	2	0	0	1
EW.38.1	42	7	21	427	3	23	1	1	0	0	1
EW.38.2	133	31	23	612	2	17	1	1	0	0	118
EW.38.3	15	38675	15	98	1	3	0	0	42	0	53
EW.39	235	29	23	722	2	24	2	0	0	1	2
EW.4.1	51	11	23	548	3	26	1	1	0	0	1
EW.4.2	93	173	20	664	3	28	2	1	0	0	2

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EW.16	2898	0	94	3	5	1	3	1	0	1
EW.17	41392	0	111	4	8	1	3	1	0	1
EW.18	31727	0	97	4	7	1	3	0	0	1
EW.19.1	379	0	73	3	6	1	3	0	0	1
EW.19.2	337	1	144	4	7	1	4	1	0	1
EW.19.3	886	0	81	3	8	1	3	1	0	1
EW.2	865	0	123	6	12	1	5	1	0	1
EW.20	1760	0	107	3	5	1	2	1	0	1
EW.21	198	0	190	4	7	1	3	1	0	1
EW.22	238	0	76	2	5	1	2	0	0	0
EW.23	44471	0	84	3	6	1	2	0	0	1
EW.24	200	0	204	4	8	1	3	0	0	0
EW.25	348	0	147	5	9	1	4	1	0	1
EW.26	432	0	145	4	7	1	3	1	0	0
EW.27	1815	0	69	3	7	1	4	1	0	1
EW.28	210	0	206	4	7	1	3	1	0	1
EW.29	1725	0	137	5	10	1	4	1	0	1
EW.3	786	0	130	4	7	1	4	0	0	1
EW.30	55818	0	81	4	7	1	3	0	0	1
EW.31.1	371	0	146	4	9	1	4	1	0	1
EW.31.2	213	0	115	3	6	1	3	1	0	0
EW.32	1987	0	159	5	11	1	5	1	0	1
EW.33.1	39108	0	140	4	8	1	3	1	0	1
EW.33.2	43484	1	99	3	7	1	3	1	0	0
EW.33.3	3063	0	113	3	6	1	2	0	0	0
EW.33.4	41511	0	89	3	5	1	2	0	0	0
EW.33.5	61213	0	92	4	9	1	4	1	0	1
EW.33.6	45170	0	127	4	8	1	3	0	0	1
EW.33.7	55786	0	122	6	11	2	5	1	0	1
EW.34	1254	0	164	3	7	1	3	0	0	0
EW.35	2601	0	75	3	7	1	3	1	0	0
EW.36	5481	0	133	4	9	1	4	1	0	1
EW.37.1	59305	1	97	3	7	1	3	1	0	1
EW.37.2	603	1	71	2	4	0	2	0	0	0
EW.38.1	799	0	63	3	6	1	3	0	0	1
EW.38.2	46756	0	81	3	5	1	2	0	0	0
EW.38.3	504	0	17	0	1	0	0	0	0	0
EW.39	42430	0	90	3	5	1	2	0	0	0
EW.4.1	833	0	65	3	5	1	3	0	0	0
EW.4.2	37408	0	116	4	6	1	3	1	0	1

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EW.16	0	1	0	0	0	0	0	1	0	0
EW.17	0	0	0	0	0	0	0	1	0	0
EW.18	0	0	0	0	0	0	0	1	0	0
EW.19.1	0	0	0	0	0	0	0	1	0	0
EW.19.2	0	1	0	0	0	0	0	1	0	0
EW.19.3	0	0	0	0	0	0	0	1	0	0
EW.2	0	1	0	0	0	0	0	1	0	0
EW.20	0	0	0	0	0	0	0	0	0	0
EW.21	0	1	0	0	0	0	0	1	0	0
EW.22	0	0	0	0	0	0	0	0	0	0
EW.23	0	0	0	0	0	0	0	1	0	0
EW.24	0	0	0	0	0	0	0	1	0	0
EW.25	0	1	0	0	0	0	0	1	0	0
EW.26	0	0	0	0	0	0	0	1	0	0
EW.27	0	1	0	0	0	0	0	0	0	0
EW.28	0	1	0	0	0	0	0	1	0	0
EW.29	0	1	0	0	0	0	0	1	0	0
EW.3	0	1	0	0	0	0	0	1	0	0
EW.30	0	0	0	0	0	0	0	1	0	0
EW.31.1	0	1	0	0	0	0	0	1	0	0
EW.31.2	0	0	0	0	0	0	0	1	0	0
EW.32	0	1	0	0	0	1	0	1	0	0
EW.33.1	0	0	0	0	0	0	0	1	0	0
EW.33.2	0	0	0	0	0	0	0	1	0	0
EW.33.3	0	0	0	0	0	0	0	0	0	0
EW.33.4	0	0	0	0	0	0	0	0	0	0
EW.33.5	0	1	0	0	0	0	0	1	0	0
EW.33.6	0	0	0	0	0	0	0	1	0	0
EW.33.7	0	1	0	1	0	0	0	1	0	0
EW.34	0	1	0	0	0	0	0	1	0	0
EW.35	0	0	0	0	0	0	0	0	0	0
EW.36	0	1	0	0	0	0	0	1	0	0
EW.37.1	0	1	0	0	0	0	0	1	0	0
EW.37.2	0	0	0	0	0	0	0	0	0	0
EW.38.1	0	0	0	0	0	0	0	1	0	0
EW.38.2	0	0	0	0	0	0	0	0	0	0
EW.38.3	0	0	0	0	0	0	0	0	0	0
EW.39	0	0	0	0	0	0	0	1	0	0
EW.4.1	0	0	0	0	0	0	0	1	0	0
EW.4.2	0	1	0	0	0	0	0	1	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
EW.16	0	241	12	1	1
EW.17	0	490	6	1	1
EW.18	0	246	3	1	1
EW.19.1	0	98	22	1	1
EW.19.2	0	693	3	1	1
EW.19.3	0	276	6	1	1
EW.2	0	160	10	1	1
EW.20	0	132	6	1	1
EW.21	0	158	6	1	1
EW.22	0	63	2	1	1
EW.23	0	584	6	1	1
EW.24	0	173	6	1	1
EW.25	0	213	45	1	1
EW.26	0	235	6	1	2
EW.27	0	59	5	1	1
EW.28	0	140	3	1	1
EW.29	0	201	4	1	1
EW.3	0	170	14	1	1
EW.30	0	1296	4	1	1
EW.31.1	0	103	15	1	1
EW.31.2	0	129	10	1	1
EW.32	0	451	26	2	9
EW.33.1	0	261	7	1	1
EW.33.2	0	1608	4	1	1
EW.33.3	0	248	14	1	1
EW.33.4	0	549	11	1	1
EW.33.5	0	800	2	1	1
EW.33.6	0	364	5	1	1
EW.33.7	0	2247	3	1	1
EW.34	0	173	15	1	1
EW.35	0	91	7	1	1
EW.36	0	156	13	1	1
EW.37.1	0	833	2	1	1
EW.37.2	0	440	0	0	1
EW.38.1	0	54	0	1	1
EW.38.2	0	1369	4	1	1
EW.38.3	1	403654	2	0	0
EW.39	0	1679	3	1	1
EW.4.1	0	100	3	1	0
EW.4.2	0	390	4	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Escambe	EW.40.1	White	15	0	122	81121	10164	5099	293359	4294
Escambe	EW.40.2	White	22	1	129	82188	11282	5747	302072	3971
Escambe	EW.41	White	23	0	109	98455	10433	6281	322728	3116
Escambe	EW.42.1	White	13	0	133	85661	9421	4329	299634	4564
Escambe	EW.42.2	White	15	0	137	85993	13138	6368	283202	3479
Escambe	EW.43	White	13	0	106	96957	10147	3941	328471	2520
Escambe	EW.44	White	12	0	109	80499	10039	5815	304739	2607
Escambe	EW.45	White	19	0	98	85923	9703	7590	327014	2480
Escambe	EW.46	White	12	0	114	81149	9681	5312	300737	2706
Escambe	EW.47	White	11	0	131	85003	11391	4924	279922	3863
Escambe	EW.48	White	18	0	98	91513	9292	5293	338906	1964
Escambe	EW.49	White	8	0	109	107451	8858	5636	317511	2769
Escambe	EW.5	White	11	0	115	78664	7777	6056	310997	3516
Escambe	EW.50.1	White	23	0	102	83603	9293	6982	326673	2799
Escambe	EW.50.2	White	12	0	115	84655	9022	4529	303113	2649
Escambe	EW.50.3	White	17	0	109	76994	10661	6128	304045	2712
Escambe	EW.52	White	15	0	106	77263	12913	5736	298978	2625
Escambe	EW.53	White	14	0	117	86868	10422	6394	303750	2639
Escambe	EW.54.1	White	19	1	124	90772	11933	7495	300429	3167
Escambe	EW.54.2	White	17	1	112	78930	11698	6516	309193	2819
Escambe	EW.55	White	20	0	105	84268	9228	4407	334194	3111
Escambe	EW.56	White	18	0	104	82807	9443	6868	312227	2771
Escambe	EW.57	White	19	0	118	82512	12767	5077	307575	3060
Escambe	EW.58	White	22	0	115	78833	12447	10197	289817	2712
Escambe	EW.6	White	16	1	111	76992	9238	8905	311214	2992
Escambe	EW.7	White	17	0	104	75922	9027	8283	301972	2594
Escambe	EW.8	White	12	0	132	82103	7804	5328	321061	3280
Escambe	EW.9	White	9	0	111	71938	9323	5556	317910	2525
San Miguel	MB.1	Blue	12	0	121	85073	7286	6382	341136	2317
San Miguel	MB.2	Blue	8	0	114	92819	7042	5392	343774	1929
San Miguel	MB.3	Blue	16	0	108	69882	9556	9464	320907	2989
San Miguel	MB.4	Blue	18	1	111	77361	9047	9617	327664	2628
San Miguel	MB.5	Blue	19	0	113	73007	8847	8587	332633	2737
San Miguel	MBK.1.1	Black	1	2	11	763	1395	23964	137832	9770
San Miguel	MBK.1.2	Black	0	1	12	684	1395	23212	179856	10859
San Miguel	MBK.1.3	Black	1	1	3	974	1085	23397	183175	7538
San Miguel	MBK.10	Black	10	0	194	73531	16000	10763	289597	3552
San Miguel	MBK.11	Black	-2	1	9	476	1049	26284	154015	5409
San Miguel	MBK.12	Black	20	0	122	84094	9662	8231	319853	1927
San Miguel	MBK.13	Black	20	1	117	75977	7307	6414	318683	3660

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
EW.40.1	39275	71455	4	338	9	9	1045	4069	4	9	165
EW.40.2	49166	64533	5	336	10	7	1783	4824	7	12	118
EW.41	38683	57220	3	341	10	8	4761	3553	9	13	122
EW.42.1	40509	62195	4	284	7	7	1425	3419	4	7	123
EW.42.2	34346	71601	4	418	12	9	1747	5548	10	16	107
EW.43	32358	61443	4	246	6	7	4523	2239	10	23	136
EW.44	38334	75372	3	321	8	7	1926	3318	4	9	94
EW.45	40056	60324	4	365	10	8	6064	3660	11	7	142
EW.46	38751	70981	4	313	7	7	1405	3179	3	8	102
EW.47	40015	74390	4	462	9	9	1145	3782	4	11	183
EW.48	33265	46483	4	289	9	7	5458	3230	8	9	138
EW.49	25721	71574	4	284	8	8	3924	3054	5	11	36
EW.5	38417	68558	8	370	8	7	2311	3498	5	14	166
EW.50.1	46473	58528	4	1097	11	9	4048	4134	11	15	78
EW.50.2	38867	61405	3	267	6	6	891	2978	3	11	112
EW.50.3	40893	60505	3	354	9	7	947	3727	5	10	335
EW.52	35549	70706	4	393	8	7	1372	3178	4	9	138
EW.53	28591	71632	4	321	8	7	927	3575	2	6	332
EW.54.1	36491	62130	4	494	14	11	1876	5010	6	13	141
EW.54.2	35321	63751	3	385	10	14	2416	3952	6	14	118
EW.55	44409	54384	5	258	7	5	3640	2441	3	7	129
EW.56	38518	56260	5	395	11	7	2849	4610	6	8	106
EW.57	41569	63975	4	272	7	6	1401	3188	2	5	122
EW.58	37659	74555	4	564	14	11	2085	5943	8	11	149
EW.6	37493	57640	7	547	11	10	2640	4677	6	5	119
EW.7	35756	64973	6	569	11	11	2138	4965	7	15	127
EW.8	41168	78805	6	376	7	6	3398	2758	3	2	81
EW.9	29359	60714	2	376	7	7	1817	3665	2	9	197
MB.1	26317	51891	8	477	8	8	1947	3741	679	465	136
MB.2	25267	48593	5	317	8	6	2344	3014	439	235	156
MB.3	38347	60468	6	634	14	11	3476	5211	716	555	296
MB.4	39614	62385	8	645	15	14	1916	5598	465	403	156
MB.5	35270	62982	9	517	13	9	1601	5221	504	530	168
MBK.1.1	1679	23021	5	1277	293	89	167986	17218	56	45	6580
MBK.1.2	1600	23132	4	1147	239	48	148312	16421	53	36	5852
MBK.1.3	779	23219	6	1156	83	52	147816	16278	52	47	5798
MBK.10	33399	65185	4	475	19	12	55054	5642	27	29	722
MBK.11	2133	20599	6	1369	163	56	161131	18636	57	39	6346
MBK.12	37794	64422	3	403	16	12	15719	4119	19	24	110
MBK.13	58567	57549	4	307	13	11	18134	4160	18	25	187

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
EW.40.1	221	37	21	702	2	21	1	1	1	1	2
EW.40.2	71	70	15	984	3	27	2	0	1	0	2
EW.41	55	17	20	606	3	20	1	1	1	0	1
EW.42.1	199	38	23	628	3	17	1	1	0	1	1
EW.42.2	140	120	23	659	2	18	2	1	0	1	2
EW.43	56	23	16	568	2	16	1	1	0	0	1
EW.44	111	33	24	841	3	26	1	1	0	0	1
EW.45	56	23	24	667	3	26	2	1	0	0	1
EW.46	124	36	23	790	3	43	1	1	1	0	2
EW.47	161	28	22	730	2	21	3	1	0	0	2
EW.48	46	14	19	598	2	17	1	1	1	0	1
EW.49	37	19	12	348	4	21	1	1	0	0	1
EW.5	71	90	20	732	2	22	1	1	0	0	6
EW.50.1	51	18	17	817	2	31	3	1	1	0	2
EW.50.2	206	36	26	783	2	19	1	1	0	1	2
EW.50.3	85	19	16	792	3	32	1	1	0	0	4
EW.52	228	28	17	685	2	23	1	1	0	0	4
EW.53	110	14	16	495	3	26	1	1	2	0	1
EW.54.1	267	29	17	666	3	25	2	1	1	0	5
EW.54.2	182	27	17	643	2	24	2	1	1	1	4
EW.55	46	1	20	826	2	19	1	1	0	0	2
EW.56	93	162	21	643	3	24	2	1	0	0	2
EW.57	69	11	18	923	2	22	1	1	1	0	2
EW.58	83	68	18	823	5	58	2	1	0	0	5
EW.6	105	188	13	694	3	29	2	1	0	1	2
EW.7	108	194	12	733	3	26	2	1	0	2	3
EW.8	52	6	21	493	2	24	1	1	0	0	2
EW.9	63	106	14	516	2	17	2	1	0	0	2
MB.1	51	953	7	531	3	33	1	2	0	0	7
MB.2	39	447	8	500	2	26	1	1	0	0	7
MB.3	100	895	14	849	4	33	2	2	0	0	14
MB.4	73	613	13	742	3	33	3	1	0	0	18
MB.5	64	776	12	800	3	32	2	2	0	0	18
MBK.1.1	951	645	11	115	16	110	5	18	4	2	1148
MBK.1.2	754	960	8	108	16	88	4	10	4	2	1168
MBK.1.3	869	860	7	94	14	96	4	12	79	4	1041
MBK.10	47	672	14	977	6	32	2	2	0	0	27
MBK.11	5884	843	11	130	16	109	5	42	2	39	1212
MBK.12	47	31	13	922	3	30	1	1	0	0	2
MBK.13	48	78	13	471	3	20	1	1	0	0	2

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
EW.40.1	51046	0	94	3	6	1	2	1	0	0
EW.40.2	31477	0	106	3	7	1	3	1	0	0
EW.41	204	0	131	4	6	1	3	1	0	0
EW.42.1	46928	0	83	3	6	1	2	0	0	0
EW.42.2	60611	0	96	3	8	1	3	1	0	0
EW.43	130	0	138	2	4	0	2	0	0	0
EW.44	33281	0	86	3	5	1	3	0	0	1
EW.45	180	0	190	4	6	1	3	1	0	1
EW.46	44819	0	78	3	6	1	3	1	0	0
EW.47	64780	0	77	3	6	1	3	1	0	1
EW.48	1936	0	99	2	5	1	2	1	0	0
EW.49	1576	0	63	4	6	1	3	0	0	1
EW.5	31539	1	74	3	5	1	2	0	0	0
EW.50.1	515	0	135	4	9	1	3	1	0	0
EW.50.2	49727	0	72	3	5	1	2	0	0	0
EW.50.3	50026	0	131	3	7	1	3	0	0	0
EW.52	49580	0	97	3	6	1	3	1	0	1
EW.53	40507	0	60	4	6	1	3	0	0	1
EW.54.1	36366	0	107	4	8	1	3	1	0	1
EW.54.2	37406	0	104	4	8	1	3	1	0	0
EW.55	255	0	71	2	5	1	2	0	0	0
EW.56	35428	0	116	4	7	1	3	1	0	0
EW.57	33143	0	87	3	5	1	2	0	0	0
EW.58	47250	0	138	5	10	1	5	1	0	1
EW.6	39337	0	119	4	8	1	4	1	0	1
EW.7	50927	0	104	5	10	1	4	1	0	1
EW.8	1091	0	64	3	5	1	2	0	0	0
EW.9	45362	0	67	3	13	1	3	0	0	1
MB.1	4886	0	99	3	5	1	2	1	0	0
MB.2	1693	0	102	2	4	1	2	0	0	0
MB.3	20261	0	127	4	8	1	4	0	0	1
MB.4	1308	0	116	4	9	1	5	1	0	1
MB.5	2658	0	106	4	8	1	4	1	0	0
MBK.1.1	791	1	677	16	19	3	12	3	1	3
MBK.1.2	860	0	684	16	19	3	13	3	0	3
MBK.1.3	889	0	878	14	20	3	12	2	0	2
MBK.10	940	0	774	5	8	1	5	1	0	1
MBK.11	800	0	1039	14	22	3	13	3	1	3
MBK.12	735	0	255	4	7	1	3	1	0	0
MBK.13	296	0	256	3	6	1	3	0	0	0

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
EW.40.1	0	0	0	0	0	0	0	1	0	0
EW.40.2	0	1	0	0	0	0	0	1	0	0
EW.41	0	0	0	0	0	0	0	1	0	0
EW.42.1	0	0	0	0	0	0	0	1	0	0
EW.42.2	0	0	0	0	0	0	0	1	0	0
EW.43	0	0	0	0	0	0	0	0	0	0
EW.44	0	1	0	0	0	0	0	1	0	0
EW.45	0	0	0	0	0	0	0	1	0	0
EW.46	0	0	0	0	0	0	0	1	0	0
EW.47	0	0	0	0	0	0	0	1	0	0
EW.48	0	0	0	0	0	0	0	0	0	0
EW.49	0	1	0	0	0	0	0	1	0	0
EW.5	0	0	0	0	0	0	0	1	0	0
EW.50.1	0	1	0	0	0	0	0	1	0	0
EW.50.2	0	0	0	0	0	0	0	0	0	0
EW.50.3	0	0	0	0	0	0	0	1	0	0
EW.52	0	1	0	0	0	0	0	1	0	0
EW.53	0	1	0	0	0	0	0	1	0	0
EW.54.1	0	1	0	0	0	0	0	1	0	0
EW.54.2	0	0	0	0	0	0	0	1	0	0
EW.55	0	0	0	0	0	0	0	0	0	0
EW.56	0	0	0	0	0	0	0	1	0	0
EW.57	0	0	0	0	0	0	0	1	0	0
EW.58	0	1	0	1	0	1	0	2	0	0
EW.6	0	0	0	0	0	0	0	1	0	0
EW.7	0	0	0	0	0	0	0	1	0	0
EW.8	0	0	0	0	0	0	0	1	0	0
EW.9	0	0	0	0	0	0	0	0	0	0
MB.1	0	0	0	0	0	0	0	1	0	0
MB.2	0	0	0	0	0	0	0	1	0	0
MB.3	0	1	0	0	0	0	0	1	0	0
MB.4	0	1	0	0	0	0	0	1	0	0
MB.5	0	1	0	0	0	0	0	1	0	0
MBK.1.1	0	2	0	1	0	1	0	3	0	1
MBK.1.2	0	2	1	2	0	1	0	2	0	2
MBK.1.3	1	2	0	2	0	1	0	2	0	1
MBK.10	0	1	0	0	0	0	0	1	0	0
MBK.11	0	3	0	1	0	1	0	3	0	1
MBK.12	0	1	0	0	0	0	0	1	0	0
MBK.13	0	0	0	0	0	0	0	1	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
EW.40.1	0	1768	3	1	1
EW.40.2	0	947	4	1	1
EW.41	0	193	6	1	1
EW.42.1	0	1906	3	1	1
EW.42.2	0	1385	5	1	1
EW.43	0	384	1	1	0
EW.44	0	419	5	1	0
EW.45	0	140	6	1	1
EW.46	0	604	5	1	1
EW.47	0	1446	2	1	1
EW.48	0	332	10	1	1
EW.49	0	22	5	1	1
EW.5	0	1533	3	1	1
EW.50.1	0	70	10	1	1
EW.50.2	0	1154	9	1	1
EW.50.3	0	589	8	1	1
EW.52	0	1395	2	1	1
EW.53	0	584	0	1	1
EW.54.1	0	1929	5	1	1
EW.54.2	0	1214	4	1	1
EW.55	0	395	0	1	0
EW.56	0	427	4	1	1
EW.57	0	574	1	1	1
EW.58	0	823	7	2	1
EW.6	1	291	4	1	1
EW.7	0	508	6	1	1
EW.8	0	306	1	1	0
EW.9	0	697	1	1	1
MB.1	0	1579	465	1	8
MB.2	0	1316	219	1	4
MB.3	0	1790	800	1	25
MB.4	0	2734	370	1	5
MB.5	0	3196	388	1	6
MBK.1.1	0	316825	17	3	3
MBK.1.2	0	257985	15	3	3
MBK.1.3	0	260007	15	3	2
MBK.10	0	8165	10	1	2
MBK.11	0	293638	17	4	4
MBK.12	0	618	9	1	1
MBK.13	0	37	9	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
San Miguel	MBK.14	Black	16	1	113	71755	11753	7868	303009	2949
San Miguel	MBK.15	Black	17	1	119	71703	12604	7213	302054	3154
San Miguel	MBK.16	Black	2	1	1	959	1303	20888	171647	25632
San Miguel	MBK.17	Black	1	0	2	608	854	20777	147229	21326
San Miguel	MBK.18	Black	17	1	113	70710	12659	8011	302599	3236
San Miguel	MBK.19	Black	17	1	113	70022	12513	8567	299386	3032
San Miguel	MBK.2	Black	18	1	95	63239	9638	9248	314251	2889
San Miguel	MBK.20.1	Black	0	1	1	509	1237	23073	136465	8644
San Miguel	MBK.20.2	Black	0	1	4	817	979	21231	160783	19407
San Miguel	MBK.21	Black	16	0	143	86284	8985	6222	312730	4009
San Miguel	MBK.22	Black	17	0	112	79623	8738	9502	326998	2563
San Miguel	MBK.23	Black	18	1	126	69890	16082	13476	288370	5884
San Miguel	MBK.24	Black	21	0	124	72001	10365	7864	303223	2517
San Miguel	MBK.25	Black	16	1	101	77639	7971	10296	316883	3059
San Miguel	MBK.26	Black	19	0	115	67485	13439	10068	301407	4248
San Miguel	MBK.27	Black	32	0	164	72825	16982	8981	296416	3686
San Miguel	MBK.28	Black	2	0	6	745	1337	25618	194405	11423
San Miguel	MBK.29	Black	14	0	150	71691	14643	10812	295640	3541
San Miguel	MBK.3.1	Black	2	1	-4	951	984	23246	165092	19375
San Miguel	MBK.3.2	Black	5	0	57	32986	5792	15787	308804	3950
San Miguel	MBK.30.1	Black	17	0	86	74857	14134	10903	305714	2839
San Miguel	MBK.30.2	Black	17	1	106	69137	13249	8906	301818	5064
San Miguel	MBK.31	Black	18	0	103	77936	8149	9316	314451	3154
San Miguel	MBK.32	Black	17	1	89	66173	14576	18335	288187	2273
San Miguel	MBK.33.1	Black	22	0	145	78105	14066	13048	303047	2761
San Miguel	MBK.33.2	Black	18	0	119	74752	14653	7909	294817	5410
San Miguel	MBK.34	Black	22	0	120	77319	10237	6744	300179	2651
San Miguel	MBK.35	Black	22	1	150	84503	15690	12375	291720	3725
San Miguel	MBK.36	Black	22	0	123	102516	8222	7402	307026	2996
San Miguel	MBK.37	Black	22	0	129	78766	12283	10889	284458	3382
San Miguel	MBK.38	Black	18	0	90	72396	9807	8656	296588	2352
San Miguel	MBK.39	Black	23	0	122	82614	9489	5734	300437	3114
San Miguel	MBK.4	Black	18	0	102	67153	9765	8273	311410	3141
San Miguel	MBK.40	Black	18	1	107	74886	12357	7122	298341	3009
San Miguel	MBK.42	Black	22	1	128	77553	14444	14306	299458	2542
San Miguel	MBK.43	Black	21	0	105	76659	10610	9006	306639	3215
San Miguel	MBK.44	Black	21	0	146	79104	15773	13730	296592	2668
San Miguel	MBK.45	Black	25	0	148	73535	9894	12584	309388	2779
San Miguel	MBK.5	Black	17	0	121	70731	12917	7931	302042	3057
San Miguel	MBK.6	Black	16	0	123	56928	10479	12675	290506	4231

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
MBK.14	33964	74767	4	370	22	12	36553	8765	13	22	280
MBK.15	35689	78432	3	347	21	12	33617	8224	10	16	322
MBK.16	2618	43511	6	963	215	39	90436	11502	57	38	698
MBK.17	1768	33475	4	859	55	35	111206	10314	65	35	657
MBK.18	34159	75809	3	373	22	12	35821	8347	11	20	240
MBK.19	33448	81414	3	383	21	11	35679	8445	13	22	279
MBK.2	40326	67364	5	500	21	13	30484	8900	8	18	234
MBK.20.1	1294	21339	5	1231	231	58	175079	16048	62	52	6500
MBK.20.2	2235	33729	4	972	136	24	107976	11623	64	53	818
MBK.21	44911	64453	4	293	10	10	19194	3289	34	31	233
MBK.22	34119	51906	4	483	18	15	22807	5299	12	23	119
MBK.23	38873	66539	5	553	26	20	49663	10133	35	54	457
MBK.24	43813	60223	4	382	20	9	49774	6346	25	29	310
MBK.25	32194	66041	3	562	19	9	23006	8206	236	118	178
MBK.26	41433	67667	4	410	17	10	41429	6512	16	16	385
MBK.27	32996	62118	4	381	23	11	56389	5509	42	44	654
MBK.28	1672	26746	5	1111	113	45	109846	12952	64	59	776
MBK.29	28727	61144	4	642	24	15	54118	7587	74	64	590
MBK.3.1	1356	36957	5	1005	162	40	113507	11673	57	39	890
MBK.3.2	9878	33873	5	749	23	21	32982	11186	20	26	3548
MBK.30.1	25520	58889	3	539	23	12	47977	9878	44	71	224
MBK.30.2	42623	62700	3	379	17	12	42120	7627	17	22	427
MBK.31	44670	56046	4	535	17	14	28823	5596	20	20	455
MBK.32	25267	55150	6	1297	49	26	70600	14337	36	35	475
MBK.33.1	29884	58938	4	613	25	17	38396	12005	23	28	408
MBK.33.2	41019	65368	4	348	20	13	46736	8115	32	40	396
MBK.34	42670	57531	4	322	20	10	53878	6649	40	42	363
MBK.35	30997	48524	4	564	26	23	58334	9973	26	42	577
MBK.36	37756	53416	3	434	16	12	29320	5386	45	46	305
MBK.37	34032	63815	5	575	35	17	63526	10001	50	51	446
MBK.38	38236	59701	3	374	17	9	66823	5119	25	26	778
MBK.39	44244	51017	3	294	21	10	54975	6882	54	49	383
MBK.4	41667	65317	4	448	22	11	32205	9369	8	22	266
MBK.40	35773	77138	3	384	23	12	36580	9130	10	15	206
MBK.42	30904	58169	4	643	27	18	42412	13129	24	30	425
MBK.43	42547	55394	4	422	23	17	38427	8834	18	29	493
MBK.44	31146	63119	5	658	25	19	39756	11834	24	27	365
MBK.45	36473	56044	4	890	26	16	40310	7776	24	33	505
MBK.5	34562	79863	3	363	21	12	33254	8091	10	15	218
MBK.6	30675	56156	5	609	50	15	75327	16689	68	80	708

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
MBK.14	1436	44	14	608	3	30	1	2	1	5	13
MBK.15	1428	36	15	661	3	29	1	2	0	5	5
MBK.16	284	1558	9	185	10	73	4	11	4	1	603
MBK.17	334	1848	9	142	15	68	4	10	3	2	873
MBK.18	1434	40	24	620	3	32	1	2	1	4	10
MBK.19	1425	46	15	639	3	34	1	2	0	4	12
MBK.2	1192	46	14	521	4	56	2	1	0	2	9
MBK.20.1	929	722	7	85	16	97	5	20	26	2	1051
MBK.20.2	293	3438	10	154	12	70	4	12	4	0	580
MBK.21	45	98	13	478	3	24	1	1	0	0	6
MBK.22	53	22	13	662	3	37	2	1	0	0	2
MBK.23	73	166	16	787	10	29	2	3	0	0	4
MBK.24	59	111	16	752	3	26	1	1	0	0	15
MBK.25	72	169	25	739	5	148	2	2	0	0	4
MBK.26	59	109	17	719	5	23	2	3	0	0	6
MBK.27	70	65	13	879	6	35	2	2	1	0	4
MBK.28	267	3271	14	114	11	84	4	9	3	1	656
MBK.29	64	122	12	628	5	54	3	2	0	0	35
MBK.3.1	349	3042	6	156	12	79	4	8	5	1	580
MBK.3.2	133	1305	6	292	6	54	3	1	3	0	852
MBK.30.1	88	255	15	722	5	27	2	2	0	0	40
MBK.30.2	69	131	18	641	5	21	1	4	0	0	12
MBK.31	52	86	15	896	4	31	2	2	0	0	7
MBK.32	72	239	24	648	10	72	5	2	0	0	33
MBK.33.1	59	151	23	767	9	58	2	1	0	0	18
MBK.33.2	69	114	17	721	5	21	1	3	1	0	11
MBK.34	63	117	13	749	3	23	1	2	0	0	26
MBK.35	90	204	23	677	9	29	2	2	0	0	7
MBK.36	77	128	16	705	3	27	1	1	0	0	5
MBK.37	99	112	20	819	5	42	2	3	1	0	62
MBK.38	53	211	14	701	6	28	1	3	0	0	4
MBK.39	68	130	15	657	3	19	1	2	0	0	26
MBK.4	1262	50	14	491	3	50	2	1	1	3	14
MBK.40	1568	37	17	625	3	26	1	3	0	5	10
MBK.42	61	163	24	733	11	63	3	2	0	0	9
MBK.43	58	141	15	660	6	27	2	3	1	0	10
MBK.44	58	145	13	796	9	66	3	1	0	0	17
MBK.45	77	64	17	802	3	31	4	2	1	0	24
MBK.5	1387	33	16	673	3	32	1	2	0	4	5
MBK.6	122	149	14	708	6	46	3	5	0	1	32

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
MBK.14	951	0	551	3	7	1	3	1	0	1
MBK.15	748	0	490	3	7	1	3	1	0	0
MBK.16	185	0	540	11	17	2	9	2	0	2
MBK.17	235	0	450	16	16	3	12	3	1	2
MBK.18	913	0	537	3	7	1	3	1	0	1
MBK.19	969	0	560	4	7	1	4	1	0	1
MBK.2	556	0	480	4	9	1	4	1	0	1
MBK.20.1	913	0	834	16	19	3	13	2	1	3
MBK.20.2	245	1	531	14	19	3	12	2	1	2
MBK.21	1362	0	329	3	6	1	3	1	0	1
MBK.22	812	0	316	4	8	1	3	1	0	1
MBK.23	119	0	671	10	12	3	10	2	0	2
MBK.24	867	0	641	4	8	1	3	1	0	0
MBK.25	231	0	436	7	13	2	6	1	0	1
MBK.26	613	0	907	7	9	2	7	1	0	1
MBK.27	509	0	1897	7	9	2	6	1	0	2
MBK.28	252	1	547	13	20	2	10	2	0	2
MBK.29	1385	0	928	6	11	1	5	1	0	1
MBK.3.1	336	0	473	11	21	2	10	2	1	2
MBK.3.2	1001	0	578	6	12	1	6	1	0	1
MBK.30.1	253	0	908	7	9	2	7	1	0	1
MBK.30.2	802	0	911	7	9	2	5	1	0	1
MBK.31	309	0	481	5	8	1	4	1	0	1
MBK.32	1760	0	830	10	17	2	9	2	0	2
MBK.33.1	668	0	521	10	13	3	11	2	0	2
MBK.33.2	166	0	694	5	8	1	5	1	0	1
MBK.34	629	0	622	4	7	1	3	1	0	0
MBK.35	3082	0	778	7	12	2	7	2	0	2
MBK.36	501	0	501	4	9	1	3	1	0	1
MBK.37	2960	0	771	6	21	1	5	1	0	1
MBK.38	1151	0	1172	5	8	1	5	1	0	1
MBK.39	646	0	588	3	7	1	3	0	0	0
MBK.4	562	-1	499	4	9	1	3	1	0	0
MBK.40	860	0	592	3	8	1	2	1	0	1
MBK.42	442	0	549	12	14	3	12	3	1	2
MBK.43	1749	1	500	7	10	2	7	1	0	1
MBK.44	644	0	542	11	14	3	11	3	0	3
MBK.45	345	1	564	5	12	1	5	1	0	1
MBK.5	699	0	476	3	7	1	3	1	0	1
MBK.6	1114	0	881	6	12	1	6	1	0	1

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
MBK.14	0	1	0	0	0	0	0	1	0	0
MBK.15	0	0	0	0	0	0	0	1	0	1
MBK.16	0	1	0	1	0	1	0	2	0	3
MBK.17	0	2	0	1	0	1	0	2	0	1
MBK.18	0	0	0	0	0	0	0	1	0	0
MBK.19	0	1	0	0	0	0	0	1	0	1
MBK.2	0	1	0	0	0	0	0	1	0	0
MBK.20.1	0	2	1	1	0	1	0	3	0	2
MBK.20.2	0	2	0	1	0	1	0	2	0	1
MBK.21	0	0	0	0	0	0	0	1	0	0
MBK.22	0	1	0	0	0	0	0	1	0	0
MBK.23	0	2	0	1	0	1	0	1	0	1
MBK.24	0	1	0	0	0	0	0	1	0	1
MBK.25	0	1	0	0	0	1	0	1	0	0
MBK.26	0	1	0	1	0	0	0	1	0	1
MBK.27	0	1	0	1	0	1	0	1	0	4
MBK.28	0	2	0	1	0	1	0	2	0	1
MBK.29	0	1	0	0	0	1	0	1	0	1
MBK.3.1	0	2	0	1	0	1	0	2	0	1
MBK.3.2	0	1	0	1	0	0	0	1	0	0
MBK.30.1	0	1	0	1	0	0	0	1	0	0
MBK.30.2	0	1	0	0	0	0	0	1	0	1
MBK.31	0	1	0	0	0	0	0	1	0	1
MBK.32	0	2	0	1	0	1	0	2	0	1
MBK.33.1	0	2	0	1	0	1	0	2	0	1
MBK.33.2	0	1	0	1	0	0	0	1	0	1
MBK.34	0	1	0	0	0	0	0	1	0	1
MBK.35	0	1	0	1	0	1	0	1	0	1
MBK.36	0	0	0	0	0	0	0	1	0	0
MBK.37	0	1	0	1	0	0	0	1	0	1
MBK.38	0	1	0	1	0	0	0	1	0	1
MBK.39	0	0	0	0	0	0	0	1	0	1
MBK.4	0	1	0	0	0	0	0	1	0	0
MBK.40	0	1	0	0	0	0	0	1	0	0
MBK.42	0	2	0	1	0	1	0	2	0	1
MBK.43	0	1	0	1	0	0	0	1	0	1
MBK.44	0	2	0	1	0	1	0	2	0	1
MBK.45	0	1	0	0	0	0	0	1	0	1
MBK.5	0	1	0	0	0	0	0	1	0	0
MBK.6	0	1	0	1	0	1	0	1	0	1

Sample Name	197Au	208Pb	209Bi	232Th	238U
MBK.14	0	2468	8	1	1
MBK.15	0	1654	5	1	1
MBK.16	0	302678	6	3	2
MBK.17	0	352081	3	3	5
MBK.18	0	2289	7	1	1
MBK.19	0	2598	8	1	1
MBK.2	0	2182	4	1	1
MBK.20.1	0	319799	16	3	3
MBK.20.2	0	326790	6	3	3
MBK.21	0	590	18	1	2
MBK.22	0	196	0	1	1
MBK.23	0	247	23	2	1
MBK.24	0	1288	5	1	2
MBK.25	0	585	177	2	1
MBK.26	0	1038	4	1	2
MBK.27	0	409	5	1	3
MBK.28	0	274551	6	4	3
MBK.29	0	9791	32	1	3
MBK.3.1	0	304967	7	3	3
MBK.3.2	1	108441	31	2	2
MBK.30.1	0	702	31	1	2
MBK.30.2	0	1382	5	1	2
MBK.31	0	2051	14	1	1
MBK.32	0	2752	15	2	3
MBK.33.1	0	1706	9	2	2
MBK.33.2	0	203	12	1	1
MBK.34	0	2300	16	1	2
MBK.35	0	551	5	2	2
MBK.36	0	513	36	1	2
MBK.37	0	1395	20	1	2
MBK.38	0	490	12	1	2
MBK.39	0	2245	28	1	2
MBK.4	0	2320	4	1	1
MBK.40	0	2458	7	1	1
MBK.42	0	990	7	2	3
MBK.43	0	1677	4	1	2
MBK.44	0	1363	7	2	3
MBK.45	0	1656	5	2	2
MBK.5	0	1572	5	1	1
MBK.6	0	7083	12	2	2

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
San Miguel	MBK.7	Black	14	0	137	64862	12227	7281	305211	4135
San Miguel	MBK.8	Black	9	5	84	6649	1595	3465	322982	1615
San Miguel	MBK.9	Black	14	0	116	77200	11303	9843	308650	2939
San Miguel	MW.1	White	2	0	26	26812	1186	1819	274997	1774
San Miguel	MW.10	White	11	0	106	102238	11395	5670	321413	4318
San Miguel	MW.11	White	0	0	3	65	109	1565	23301	5215
San Miguel	MW.12	White	16	0	117	67602	10381	9690	291220	3340
San Miguel	MW.13.1	White	19	0	124	82889	9646	9177	318990	2197
San Miguel	MW.13.2	White	22	0	109	85887	9399	8556	315091	2540
San Miguel	MW.14	White	19	0	44	4308	5240	27168	91776	12721
San Miguel	MW.15	White	12	0	128	82090	8021	7298	306053	2639
San Miguel	MW.16	White	19	0	137	80236	10422	9646	304327	2151
San Miguel	MW.17	White	20	0	113	75925	9954	9842	298539	2965
San Miguel	MW.18	White	18	0	122	74202	9570	9777	310114	3358
San Miguel	MW.19.1	White	19	0	116	74935	10172	9375	295443	2773
San Miguel	MW.19.2	White	20	1	131	71803	11290	10022	284919	2476
San Miguel	MW.2	White	9	0	89	57373	7889	18804	306270	4487
San Miguel	MW.20.1	White	24	0	115	73518	11019	10804	293549	2797
San Miguel	MW.20.2	White	22	0	123	72870	10123	10370	300785	2574
San Miguel	MW.21	White	29	0	121	72092	9233	8737	307523	4049
San Miguel	MW.22	White	10	0	109	106699	12568	5146	317202	3011
San Miguel	MW.23.1	White	13	0	126	105952	12207	5193	318482	3107
San Miguel	MW.23.2	White	7	0	113	74820	9709	9859	276793	3665
San Miguel	MW.24	White	13	0	105	84984	11012	9648	294781	2855
San Miguel	MW.25	White	21	0	123	80900	10182	8970	303549	2224
San Miguel	MW.26	White	20	0	121	76559	9757	9410	307759	3170
San Miguel	MW.27	White	22	0	114	76090	14250	13381	283554	2423
San Miguel	MW.28	White	10	0	25	214	3003	39183	51558	13562
San Miguel	MW.29	White	12	0	111	93766	8813	9299	314175	4125
San Miguel	MW.3	White	16	0	119	63916	10690	9823	320560	2859
San Miguel	MW.30	White	20	0	129	81737	11370	8756	297997	2623
San Miguel	MW.31	White	22	1	122	93028	10795	10069	315386	2937
San Miguel	MW.32	White	6	0	117	82843	11575	8263	274735	3681
San Miguel	MW.33	White	15	0	102	83584	8922	7345	302200	2402
San Miguel	MW.34.1	White	13	0	98	91171	8381	6365	327377	2753
San Miguel	MW.34.2	White	22	1	104	89993	14143	10051	295353	2415
San Miguel	MW.36	White	22	0	95	81008	13515	9319	310717	2793
San Miguel	MW.37	White	23	1	109	80854	12650	11324	294124	2295
San Miguel	MW.38	White	15	0	5	35438	6066	45050	312924	2883
San Miguel	MW.39	White	13	0	107	106582	12838	6116	315000	2738

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
MBK.7	35094	58594	4	349	23	13	60274	6489	37	38	427
MBK.8	98475	47449	4	264	15	24	67666	1838	23	38	506
MBK.9	32543	60586	4	582	21	12	37291	9179	19	30	665
MW.1	88139	23428	4	161	7	4	911	958	2	7	44
MW.10	26395	65726	6	405	8	7	2685	3477	6	12	74
MW.11	194	9497	1	55	49	3	10	2337	0	1	3784
MW.12	32383	78559	5	653	14	19	716	6035	3	12	70
MW.13.1	36936	71128	3	545	14	15	692	4583	4	9	65
MW.13.2	38509	73864	5	550	14	16	598	5260	4	13	69
MW.14	3337	390743	9	2161	28	295	2405	23126	4	18	232
MW.15	26955	74073	3	553	10	20	469	5377	2	5	80
MW.16	35861	70865	7	522	14	12	800	5977	3	6	86
MW.17	34333	74951	3	529	15	22	454	5398	3	14	69
MW.18	35751	67652	3	675	16	15	446	6116	2	8	31
MW.19.1	36295	73600	3	564	15	18	431	5268	2	10	29
MW.19.2	33698	82209	4	568	14	17	397	5807	3	5	39
MW.2	34839	69170	2	572	9	14	743	4998	2	10	99
MW.20.1	35617	81908	3	626	15	19	454	6425	3	8	47
MW.20.2	34610	72006	3	623	17	14	581	5811	3	6	42
MW.21	44040	70965	4	515	16	17	1841	5679	9	22	70
MW.22	27806	68800	5	273	8	6	2728	2994	5	9	81
MW.23.1	27693	67740	3	297	8	7	2762	3001	5	10	78
MW.23.2	24138	82299	3	336	8	8	391	4156	4	5	72
MW.24	34923	68478	3	327	8	14	2196	4030	4	9	132
MW.25	36762	72734	4	513	14	13	692	5785	3	10	83
MW.26	36885	67491	4	587	14	17	539	6147	2	8	42
MW.27	29416	72503	5	693	19	14	327	6501	3	11	46
MW.28	2947	27200	16	984	1795	404	518	508824	1	10	193
MW.29	43462	66122	4	478	11	11	4130	4525	15	25	59
MW.3	46863	66245	4	544	13	11	3513	4511	3	10	68
MW.30	35014	77163	3	483	13	13	1676	5100	4	12	54
MW.31	39900	63484	4	499	16	12	6128	5395	5	10	120
MW.32	28482	83710	3	342	8	8	312	3837	2	5	74
MW.33	30916	79135	2	395	11	9	627	3959	2	7	59
MW.34.1	33878	63789	5	362	11	10	4166	3773	11	29	50
MW.34.2	31952	72199	4	519	15	12	358	6018	3	13	97
MW.36	42893	80688	4	430	13	10	4333	4351	3	10	72
MW.37	42165	72890	5	536	14	11	1896	5241	10	13	114
MW.38	26963	92634	6	654	10	16	587	6103	2	1	41
MW.39	30328	68918	4	258	7	6	2734	2994	6	9	78

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
MBK.7	65	106	14	669	3	21	1	3	0	0	6
MBK.8	267	1105	78	124	20	55	1	6	0	3	9
MBK.9	68	168	14	821	5	31	3	2	0	0	24
MW.1	193	9493	17	66	1	8	0	0	3	2	13
MW.10	70	32	10	426	3	24	1	1	1	0	17
MW.11	4	31	1	536	0	4	0	4	4	0	93
MW.12	84	455	15	781	3	36	2	0	2	1	4
MW.13.1	60	40	12	975	3	32	2	1	1	0	2
MW.13.2	45	39	13	1013	3	28	2	1	2	0	2
MW.14	275	25	22	1118	12	120	6	1	100	1	52
MW.15	68	32	12	622	3	41	2	0	1	0	4
MW.16	58	150	14	1024	3	33	2	1	0	1	3
MW.17	94	303	11	868	3	31	2	1	1	0	6
MW.18	76	18	15	841	3	42	3	1	0	0	2
MW.19.1	80	322	10	896	3	30	2	1	0	1	8
MW.19.2	88	472	11	960	3	30	2	1	0	0	3
MW.2	106	115	25	707	3	43	2	1	0	1	2
MW.20.1	69	270	12	927	3	37	2	0	0	0	5
MW.20.2	82	361	10	843	3	28	2	0	0	0	6
MW.21	91	26	16	871	2	26	2	1	1	0	7
MW.22	58	26	11	421	3	19	1	1	1	0	16
MW.23.1	59	26	11	436	2	18	1	1	1	0	16
MW.23.2	277	20	15	558	2	21	1	0	1	1	3
MW.24	170	34	15	689	2	26	2	0	1	1	4
MW.25	133	143	14	1031	3	29	2	1	0	2	3
MW.26	145	22	20	808	3	36	2	1	0	1	4
MW.27	153	129	14	996	4	41	3	1	0	1	2
MW.28	209	1544	20	115	11	95	3	9	1	2	1
MW.29	53	118	16	632	3	34	1	1	0	0	3
MW.3	71	20	11	800	4	42	2	1	0	0	2
MW.30	59	34	12	871	3	30	2	1	0	0	2
MW.31	52	28	20	973	3	36	2	1	0	0	3
MW.32	283	22	16	616	3	28	2	1	1	0	2
MW.33	146	172	29	924	3	31	2	1	0	1	1
MW.34.1	73	24	17	592	2	18	1	1	0	0	1
MW.34.2	95	51	12	1000	3	33	2	1	0	0	2
MW.36	55	11	15	858	4	35	2	1	0	0	2
MW.37	67	78	11	962	4	44	2	1	0	0	2
MW.38	130	8	24	518	2	46	3	1	0	0	17
MW.39	33	26	12	449	3	21	1	1	1	0	20

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
MBK.7	382	0	942	4	7	1	3	1	0	1
MBK.8	57	1	6547	6	11	3	14	5	0	4
MBK.9	1358	0	413	5	10	1	5	1	0	1
MW.1	302	0	98	1	1	0	1	0	0	0
MW.10	420	0	83	4	5	1	2	0	0	1
MW.11	143	0	9	1	1	0	0	0	0	0
MW.12	60027	0	160	5	8	1	4	1	0	1
MW.13.1	8721	0	145	4	8	1	4	0	0	1
MW.13.2	7965	0	143	4	10	1	3	1	0	1
MW.14	78161	2	1203	21	38	4	19	4	1	3
MW.15	40021	0	167	4	8	1	3	1	0	0
MW.16	33151	0	130	4	9	1	4	1	0	1
MW.17	44110	0	158	6	12	1	6	1	0	0
MW.18	33259	1	179	12	11	1	4	1	0	1
MW.19.1	50651	0	134	5	10	1	4	1	0	1
MW.19.2	61754	0	115	5	11	1	4	1	0	1
MW.2	44062	1	292	4	7	1	3	1	0	1
MW.20.1	42727	0	143	5	11	1	5	1	0	1
MW.20.2	44586	0	126	5	41	1	4	1	0	1
MW.21	28095	0	177	4	9	1	4	1	0	1
MW.22	400	0	77	3	5	1	3	1	0	1
MW.23.1	408	0	82	3	5	1	2	1	0	0
MW.23.2	82065	0	120	4	6	1	3	0	0	1
MW.24	45841	0	146	3	6	1	3	0	0	1
MW.25	32222	0	131	4	9	1	4	1	0	0
MW.26	34260	0	169	5	11	1	4	1	0	1
MW.27	64245	0	116	6	12	1	5	1	0	1
MW.28	10	2	157	20	27	6	27	6	1	4
MW.29	420	0	102	3	7	1	4	2	0	1
MW.3	16596	0	141	4	8	1	4	1	0	1
MW.30	35860	0	132	4	9	1	4	1	0	1
MW.31	485	0	174	5	10	1	4	1	0	1
MW.32	71946	0	69	4	6	1	3	1	0	1
MW.33	36902	0	100	4	7	1	4	1	0	1
MW.34.1	1131	0	116	3	6	1	3	1	0	1
MW.34.2	34992	0	108	5	10	1	4	1	0	1
MW.36	470	0	146	5	8	1	5	1	0	1
MW.37	36289	0	123	5	9	1	5	1	0	1
MW.38	3842	1	1000	3	5	1	3	1	0	1
MW.39	419	0	67	3	5	1	3	1	0	0

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
MBK.7	0	0	0	0	0	0	0	1	0	1
MBK.8	1	4	1	2	0	1	0	2	0	62
MBK.9	0	1	0	0	0	0	0	1	0	1
MW.1	0	0	0	0	0	0	0	0	0	0
MW.10	0	0	0	0	0	0	0	1	0	0
MW.11	0	0	0	0	0	0	0	0	0	0
MW.12	0	1	0	0	0	0	0	1	0	0
MW.13.1	0	1	0	0	0	0	0	1	0	0
MW.13.2	0	0	0	0	0	0	0	1	0	0
MW.14	0	3	0	2	0	1	0	3	1	1
MW.15	0	1	0	0	0	0	0	1	0	0
MW.16	0	1	0	0	0	0	0	1	0	0
MW.17	0	1	0	0	0	0	0	1	0	0
MW.18	0	1	0	0	0	0	0	1	0	0
MW.19.1	0	0	0	0	0	0	0	1	0	0
MW.19.2	0	1	0	0	0	0	0	1	0	0
MW.2	0	1	0	0	0	0	0	1	0	0
MW.20.1	0	1	0	0	0	0	0	1	0	0
MW.20.2	0	1	0	0	0	0	0	1	0	0
MW.21	0	0	0	0	0	0	0	1	0	0
MW.22	0	0	0	0	0	0	0	0	0	0
MW.23.1	0	1	0	0	0	0	0	1	0	0
MW.23.2	0	0	0	0	0	0	0	1	0	0
MW.24	0	0	0	0	0	0	0	1	0	0
MW.25	0	0	0	0	0	0	0	1	0	0
MW.26	0	1	0	0	0	0	0	1	0	0
MW.27	0	1	0	0	0	0	0	1	0	0
MW.28	1	3	1	1	0	1	0	3	0	1
MW.29	0	1	0	0	0	0	0	1	0	0
MW.3	0	1	0	0	0	0	0	1	0	0
MW.30	0	1	0	0	0	0	0	1	0	0
MW.31	0	1	0	0	0	0	0	1	0	0
MW.32	0	1	0	0	0	0	0	1	0	0
MW.33	0	1	0	0	0	0	0	1	0	0
MW.34.1	0	0	0	0	0	0	0	0	0	0
MW.34.2	0	1	0	0	0	0	0	1	0	0
MW.36	0	1	0	0	0	0	0	1	0	0
MW.37	0	1	0	0	0	0	0	1	0	0
MW.38	0	0	0	0	0	0	0	2	0	0
MW.39	0	1	0	0	0	0	0	1	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
MBK.7	0	330	3	1	1
MBK.8	0	697	3	2	13
MBK.9	0	271	7	1	1
MW.1	1	193755	9	0	0
MW.10	0	316	4	1	1
MW.11	0	846767	2	0	1
MW.12	0	751	2	1	1
MW.13.1	0	1318	1	1	1
MW.13.2	0	884	1	1	1
MW.14	0	9070	10	8	1
MW.15	0	1151	2	1	1
MW.16	0	1053	1	1	1
MW.17	1	591	1	2	1
MW.18	0	191	0	1	1
MW.19.1	1	550	0	1	1
MW.19.2	1	174	0	1	1
MW.2	1	162	1	2	1
MW.20.1	1	312	0	2	1
MW.20.2	1	1663	1	1	1
MW.21	0	673	5	1	1
MW.22	0	268	4	1	1
MW.23.1	0	267	5	1	1
MW.23.2	0	1750	4	1	1
MW.24	0	1831	5	1	1
MW.25	0	1237	1	1	1
MW.26	0	323	0	1	1
MW.27	1	852	1	2	1
MW.28	0	406	0	48	5
MW.29	0	44	42	1	2
MW.3	0	267	1	1	1
MW.30	0	835	1	1	1
MW.31	0	44	1	1	1
MW.32	0	1944	2	1	1
MW.33	1	304	1	1	1
MW.34.1	0	45	18	1	2
MW.34.2	0	723	7	1	1
MW.36	0	91	0	1	1
MW.37	0	127	10	2	1
MW.38	0	987	1	2	1
MW.39	0	272	4	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
San Miguel	MW.4	White	18	1	122	77342	9962	8204	309015	3267
San Miguel	MW.40	White	17	1	127	71997	11715	8902	287581	3396
San Miguel	MW.5	White	15	0	150	83817	10190	7391	313030	2727
San Miguel	MW.6	White	19	0	138	75592	10555	9911	305608	2888
San Miguel	MW.7	White	17	0	110	76428	10542	8170	310017	2834
San Miguel	MW.8.1	White	15	1	102	54977	7900	18792	289959	4600
San Miguel	MW.8.2	White	19	0	114	74035	10377	10400	297952	2714
San Miguel	MW.9	White	9	0	114	99362	12435	5427	321858	3068
Santa Rosa	RB.1	Blue	18	0	117	93343	16620	9790	301331	3129
Santa Rosa	RB.2	Blue	15	0	116	87806	10989	5191	322023	2906
Santa Rosa	RB.3	Blue	14	0	113	81555	9358	4574	330564	2897
Santa Rosa	RB.4	Blue	14	0	111	81935	10201	5251	328434	2943
Santa Rosa	RB.5	Blue	13	0	116	77459	16110	15971	286509	2709
Santa Rosa	RB.6	Blue	19	0	92	97201	12748	6231	314375	2501
Santa Rosa	RB.7.1	Blue	15	0	111	85960	8437	5120	322819	3455
Santa Rosa	RB.7.2	Blue	15	0	115	81451	10058	5453	328828	2901
Santa Rosa	RB.7.3	Blue	16	0	110	85474	9902	5041	326736	3032
Santa Rosa	RB.8	Blue	13	0	128	72791	9505	7598	324475	4417
Santa Rosa	RB.9	Blue	14	0	115	75391	9827	4961	325737	2937
Santa Rosa	RBK.1	Black	19	1	120	66656	12371	15332	301790	2239
Santa Rosa	RBK.10	Black	14	0	108	86883	10448	5478	307185	2776
Santa Rosa	RBK.11.1	Black	12	0	127	76228	17771	19375	275671	2776
Santa Rosa	RBK.11.2	Black	16	1	93	70603	17176	16119	260709	2521
Santa Rosa	RBK.12	Black	17	0	102	87446	8883	6083	329012	2922
Santa Rosa	RBK.13	Black	15	0	122	78082	14800	15026	295484	2884
Santa Rosa	RBK.14	Black	15	1	81	73396	14729	19499	271225	2710
Santa Rosa	RBK.15	Black	18	1	114	91777	17737	12599	288333	2686
Santa Rosa	RBK.16.1	Black	12	0	174	79879	23293	15076	274455	4319
Santa Rosa	RBK.16.2	Black	14	0	100	71669	13418	16148	281962	2572
Santa Rosa	RBK.16.3	Black	16	1	114	72373	17519	15231	280435	2999
Santa Rosa	RBK.17	Black	19	1	124	90076	18151	12449	287079	2907
Santa Rosa	RBK.18.1	Black	15	0	107	90708	13320	8559	291813	2761
Santa Rosa	RBK.18.2	Black	16	0	111	98617	12116	6642	293673	2910
Santa Rosa	RBK.19	Black	15	1	107	81110	14704	10579	274075	2749
Santa Rosa	RBK.2	Black	14	0	115	81095	13308	11298	292143	2543
Santa Rosa	RBK.20	Black	10	0	87	61806	16939	21050	294903	2396
Santa Rosa	RBK.21	Black	14	1	120	78036	17895	17823	280265	3046
Santa Rosa	RBK.22.1	Black	16	0	107	73952	13476	8859	284335	3153
Santa Rosa	RBK.22.2	Black	18	0	109	87356	11779	7291	315549	2728
Santa Rosa	RBK.22.3	Black	18	0	107	96138	8690	5127	324882	3058

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
MW.4	32903	71329	7	478	13	12	382	5373	2	7	34
MW.40	44241	74299	4	531	14	10	338	5059	7	13	67
MW.5	26040	63328	6	492	11	12	318	5357	3	8	28
MW.6	35053	69953	6	657	14	16	1244	5967	3	7	94
MW.7	38115	70993	4	490	12	10	1724	4628	6	10	118
MW.8.1	27618	93218	5	1216	21	32	982	8685	3	-3	94
MW.8.2	33195	81321	6	581	14	20	937	6685	4	8	81
MW.9	29563	65509	4	273	7	6	3957	2949	6	11	62
RB.1	35700	78995	3	489	15	13	3581	5986	913	247	209
RB.2	38201	68154	4	275	8	7	3150	3203	998	907	103
RB.3	35713	66789	4	264	7	7	2868	3130	922	792	113
RB.4	36019	66890	4	299	8	7	3061	3230	978	846	126
RB.5	25797	73425	6	1245	42	25	44921	13917	28	41	383
RB.6	40359	66134	3	318	8	6	1049	4101	1232	725	108
RB.7.1	41592	67411	4	294	8	6	2257	3516	871	543	182
RB.7.2	36046	66998	2	282	8	6	2943	3195	949	804	120
RB.7.3	36275	65898	4	282	8	7	3336	3468	945	863	171
RB.8	47215	67938	4	441	11	10	880	4891	610	84	75
RB.9	50465	65940	4	270	8	6	3050	3118	934	850	112
RBK.1	34716	67949	6	814	27	14	41177	8915	16	22	500
RBK.10	30979	67673	4	334	8	9	2599	3797	5	14	107
RBK.11.1	17479	74200	5	1299	47	24	61780	13477	41	60	406
RBK.11.2	23145	71807	5	1001	36	22	86340	15139	78	89	1724
RBK.12	36759	63783	4	336	9	9	1108	3602	564	289	42
RBK.13	24245	71305	6	1125	36	20	39558	11996	23	51	182
RBK.14	23111	63146	6	1717	53	52	76607	20704	41	85	318
RBK.15	26550	65337	5	862	27	17	42690	10516	25	39	395
RBK.16.1	20260	57783	4	679	31	28	70437	10825	352	242	338
RBK.16.2	28534	76041	5	994	32	20	54841	9650	36	62	615
RBK.16.3	22824	75243	5	1024	37	20	56787	12434	50	92	489
RBK.17	26218	63419	4	881	29	17	47353	11268	27	35	408
RBK.18.1	39407	73913	4	421	16	10	32861	5263	32	57	639
RBK.18.2	41672	65921	4	362	17	11	33071	5394	28	42	331
RBK.19	37162	70776	4	546	26	14	61250	9634	44	55	725
RBK.2	27638	64068	4	708	28	16	53579	9181	46	183	2186
RBK.20	13568	77729	8	1739	51	29	40913	16722	43	91	190
RBK.21	20581	71516	5	1101	34	24	49303	12421	39	65	585
RBK.22.1	36927	62226	4	598	27	20	59931	9386	52	119	497
RBK.22.2	43805	70934	4	424	11	10	1132	4229	547	413	172
RBK.22.3	37604	62274	3	307	9	9	1264	3477	570	294	39

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
MW.4	89	278	14	871	3	30	2	1	0	1	2
MW.40	119	16	13	936	3	33	2	1	0	0	2
MW.5	71	437	11	773	3	30	2	0	0	0	5
MW.6	61	176	12	997	3	35	2	1	0	1	3
MW.7	61	14	11	922	3	30	2	1	0	0	2
MW.8.1	82	129	20	880	4	46	3	1	13	2	14
MW.8.2	60	148	11	1033	3	36	2	1	3	1	4
MW.9	47	35	10	409	3	22	1	0	1	0	14
RB.1	68	1104	13	547	4	30	2	5	1	0	30
RB.2	56	1141	19	669	4	23	1	3	0	0	4
RB.3	51	1119	18	633	4	19	1	3	0	0	3
RB.4	62	1146	18	656	4	23	1	3	1	0	4
RB.5	79	184	13	948	8	56	4	1	0	0	27
RB.6	67	1500	21	696	3	21	1	9	3	0	17
RB.7.1	78	1195	23	716	3	20	1	5	1	0	3
RB.7.2	58	1123	17	646	5	25	1	3	1	0	3
RB.7.3	55	1116	18	643	4	20	1	3	0	0	4
RB.8	45	1761	21	362	4	40	2	5	1	0	3
RB.9	54	1137	20	650	4	20	1	2	0	0	3
RBK.1	72	141	20	814	10	99	3	2	0	0	10
RBK.10	92	88	14	769	2	21	1	1	1	0	3
RBK.11.1	92	125	10	929	9	59	4	2	0	1	51
RBK.11.2	80	267	14	621	9	45	3	3	1	0	186
RBK.12	64	602	12	688	2	23	1	2	0	0	3
RBK.13	99	52	9	935	7	51	4	1	1	0	8
RBK.14	89	266	22	752	10	69	6	3	0	0	17
RBK.15	69	171	13	682	7	39	2	1	0	0	35
RBK.16.1	98	553	10	516	9	37	2	2	0	0	22
RBK.16.2	77	81	14	812	8	61	3	2	1	0	23
RBK.16.3	80	221	14	746	8	51	3	1	0	0	61
RBK.17	72	181	12	647	7	38	3	1	0	0	34
RBK.18.1	69	72	18	797	5	35	2	1	0	0	22
RBK.18.2	70	61	20	742	3	25	1	2	0	0	17
RBK.19	112	190	20	647	5	32	2	4	1	0	310
RBK.2	76	125	12	769	5	40	2	2	1	0	33
RBK.20	57	198	9	1087	10	69	6	1	0	0	22
RBK.21	81	215	12	788	9	62	4	1	0	0	81
RBK.22.1	98	325	17	633	6	30	2	2	1	0	72
RBK.22.2	88	829	13	756	3	55	2	3	2	0	6
RBK.22.3	63	602	13	654	2	19	1	2	1	0	3

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
MW.4	33258	0	120	4	8	1	3	1	0	0
MW.40	56319	0	120	5	9	1	3	1	0	1
MW.5	36628	0	95	4	7	1	3	0	0	1
MW.6	35030	0	139	4	8	1	5	1	0	1
MW.7	27903	0	123	4	7	1	4	0	0	0
MW.8.1	47183	2	305	8	13	1	6	1	0	1
MW.8.2	37949	0	150	5	9	1	5	1	0	1
MW.9	815	0	64	3	5	1	3	0	0	0
RB.1	694	0	134	4	10	1	4	1	0	1
RB.2	154	0	941	3	5	1	3	1	0	1
RB.3	167	0	860	2	5	1	3	1	0	1
RB.4	158	0	868	3	5	1	3	1	0	1
RB.5	1433	0	529	9	14	2	8	2	0	1
RB.6	806	0	159	3	6	1	3	1	0	1
RB.7.1	587	0	1394	2	5	1	3	0	0	1
RB.7.2	159	0	841	3	5	1	3	1	0	1
RB.7.3	160	0	868	2	5	1	2	0	0	1
RB.8	777	0	97	4	9	1	4	1	0	1
RB.9	156	0	855	2	5	1	3	1	0	1
RBK.1	382	0	521	10	14	2	8	2	0	2
RBK.10	35827	0	99	3	5	1	2	0	0	0
RBK.11.1	858	0	615	9	16	2	8	2	0	1
RBK.11.2	1234	0	1057	10	14	2	9	2	0	2
RBK.12	216	0	79	3	6	1	3	0	0	1
RBK.13	529	0	480	7	14	2	6	2	0	1
RBK.14	972	0	617	11	19	3	10	2	1	2
RBK.15	564	0	774	8	11	2	8	2	0	2
RBK.16.1	4600	0	761	9	12	2	8	2	0	2
RBK.16.2	2538	0	574	8	12	2	7	1	0	1
RBK.16.3	2908	0	931	8	15	2	7	1	0	1
RBK.17	568	0	849	8	12	2	8	2	0	2
RBK.18.1	1711	0	427	5	8	1	4	1	0	1
RBK.18.2	1471	0	421	4	7	1	3	1	0	1
RBK.19	1697	0	615	5	11	1	5	1	0	1
RBK.2	1383	0	569	5	9	1	5	1	0	1
RBK.20	359	0	676	10	18	2	10	2	1	2
RBK.21	2551	0	792	9	14	2	8	1	0	2
RBK.22.1	3387	0	701	5	11	1	5	1	0	1
RBK.22.2	634	0	603	4	7	1	3	1	0	1
RBK.22.3	228	0	83	3	6	1	2	0	0	0

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
MW.4	0	0	0	0	0	0	0	1	0	0
MW.40	0	1	0	0	0	0	0	1	0	0
MW.5	0	1	0	0	0	0	0	1	0	0
MW.6	0	0	0	0	0	0	0	1	0	0
MW.7	0	0	0	0	0	0	0	1	0	0
MW.8.1	0	1	0	1	0	0	0	1	0	0
MW.8.2	0	1	0	0	0	0	0	1	0	0
MW.9	0	0	0	0	0	0	0	1	0	0
RB.1	0	1	0	0	0	0	0	1	0	0
RB.2	0	1	0	0	0	0	0	1	0	0
RB.3	0	0	0	0	0	0	0	1	0	0
RB.4	0	1	0	0	0	0	0	1	0	0
RB.5	0	1	0	1	0	1	0	1	0	0
RB.6	0	0	0	0	0	0	0	1	0	0
RB.7.1	0	0	0	0	0	0	0	1	0	0
RB.7.2	0	1	0	0	0	0	0	1	0	0
RB.7.3	0	1	0	0	0	0	0	0	0	0
RB.8	0	1	0	0	0	0	0	1	0	0
RB.9	0	1	0	0	0	0	0	1	0	0
RBK.1	0	1	0	1	0	1	0	3	0	1
RBK.10	0	0	0	0	0	0	0	0	0	0
RBK.11.1	0	2	0	1	0	1	0	2	0	0
RBK.11.2	0	1	0	1	0	1	0	1	0	1
RBK.12	0	0	0	0	0	0	0	1	0	0
RBK.13	0	1	0	1	0	1	0	1	0	0
RBK.14	0	2	0	1	0	1	0	2	0	1
RBK.15	0	1	0	1	0	1	0	1	0	0
RBK.16.1	0	2	0	1	0	1	0	1	0	1
RBK.16.2	0	2	0	1	0	1	0	1	0	0
RBK.16.3	0	1	0	1	0	1	0	1	0	0
RBK.17	0	1	0	1	0	1	0	1	0	0
RBK.18.1	0	1	0	0	0	0	0	1	0	0
RBK.18.2	0	1	0	0	0	0	0	1	0	0
RBK.19	0	1	0	0	0	0	0	1	0	1
RBK.2	0	1	0	0	0	0	0	1	0	0
RBK.20	0	2	0	1	0	1	0	2	0	1
RBK.21	0	2	0	1	0	1	0	2	0	0
RBK.22.1	0	1	0	1	0	0	0	1	0	1
RBK.22.2	0	1	0	0	0	0	0	1	0	0
RBK.22.3	0	0	0	0	0	0	0	0	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
MW.4	0	245	0	1	1
MW.40	0	915	5	1	1
MW.5	0	249	0	1	1
MW.6	0	1080	8	1	1
MW.7	0	356	3	1	1
MW.8.1	0	1799	1	3	1
MW.8.2	0	1333	1	1	1
MW.9	0	215	4	1	1
RB.1	0	2259	475	1	4
RB.2	0	433	112	1	50
RB.3	0	322	96	1	40
RB.4	0	376	96	1	42
RB.5	0	470	15	2	2
RB.6	0	398	833	1	2
RB.7.1	0	836	497	1	11
RB.7.2	0	358	98	1	41
RB.7.3	0	380	93	1	42
RB.8	0	630	114	1	4
RB.9	0	407	94	1	42
RBK.1	0	1847	3	2	1
RBK.10	0	800	4	1	1
RBK.11.1	0	4021	10	2	2
RBK.11.2	0	11078	51	2	2
RBK.12	0	464	364	1	1
RBK.13	0	435	3	2	1
RBK.14	0	1048	19	2	2
RBK.15	0	1019	10	1	1
RBK.16.1	0	4391	84	2	2
RBK.16.2	0	7230	8	2	1
RBK.16.3	0	4142	33	2	3
RBK.17	0	936	9	1	1
RBK.18.1	0	1827	13	1	1
RBK.18.2	0	1420	10	1	1
RBK.19	0	9266	13	1	2
RBK.2	0	2513	21	1	1
RBK.20	0	3359	130	2	6
RBK.21	0	8820	21	2	2
RBK.22.1	0	13182	39	1	2
RBK.22.2	0	1223	276	1	8
RBK.22.3	0	489	393	1	1

Site Name	Sample Name	Color	7Li	9Be	11B	23Na	24Mg	27Al	29Si	31P
Santa Rosa	RBK.22.4	Black	11	0	109	86556	15349	11652	296030	2346
Santa Rosa	RBK.22.5	Black	13	0	96	66287	15564	16177	257263	4097
Santa Rosa	RBK.22.6	Black	12	1	116	78990	11398	13956	278546	3749
Santa Rosa	RBK.23	Black	14	1	89	78556	10810	10579	280733	2782
Santa Rosa	RBK.24.1	Black	21	0	132	75798	13082	14678	276237	2943
Santa Rosa	RBK.24.2	Black	17	0	110	76880	9309	6603	312146	2645
Santa Rosa	RBK.25	Black	14	1	133	81390	15338	14281	295578	2824
Santa Rosa	RBK.26	Black	18	1	95	88254	12070	6748	294797	2888
Santa Rosa	RBK.27	Black	15	1	92	78975	14844	20910	273717	2351
Santa Rosa	RBK.28	Black	19	1	149	91074	18393	12841	290463	2833
Santa Rosa	RBK.29	Black	16	1	117	77418	18013	15969	276437	3273
Santa Rosa	RBK.3	Black	20	1	123	69059	11395	12346	305577	2495
Santa Rosa	RBK.30	Black	16	1	115	84008	15439	16097	290455	2709
Santa Rosa	RBK.4.1	Black	15	1	104	67441	15793	16651	290915	2812
Santa Rosa	RBK.4.2	Black	13	1	118	74687	11878	13442	284791	4734
Santa Rosa	RBK.5	Black	18	1	88	66407	20319	21341	262019	2328
Santa Rosa	RBK.6	Black	20	1	96	78206	19042	19485	284283	2324
Santa Rosa	RBK.7	Black	10	1	101	74880	16285	16748	288524	2825
Santa Rosa	RBK.8	Black	15	0	110	74900	13162	12948	295971	2552
Santa Rosa	RBK.9	Black	17	0	103	87586	12799	7938	295715	2575
Santa Rosa	RW.1	White	12	0	110	85311	10696	4445	310753	2712
Santa Rosa	RW.10	White	14	0	114	90747	8362	5227	328982	4111
Santa Rosa	RW.11	White	10	0	105	88642	8141	5249	318852	2976
Santa Rosa	RW.12	White	11	0	110	78852	10677	5368	312572	3056
Santa Rosa	RW.13	White	11	0	94	80677	14098	6896	295201	2765
Santa Rosa	RW.14	White	11	0	98	87019	8466	5605	318647	2920
Santa Rosa	RW.15	White	8	0	89	72321	10881	11140	299819	2837
Santa Rosa	RW.16	White	14	0	149	99845	10012	4225	326585	3068
Santa Rosa	RW.17	White	8	0	114	76506	10917	5602	296537	2700
Santa Rosa	RW.2.1	White	17	1	120	81309	11942	10047	286614	3151
Santa Rosa	RW.2.2	White	10	0	103	81012	8688	4427	311287	2990
Santa Rosa	RW.3	White	10	0	110	82562	8522	5343	310396	2936
Santa Rosa	RW.4	White	14	1	98	66033	9422	8132	304028	2198
Santa Rosa	RW.5	White	11	0	103	85615	10687	4851	310868	2684
Santa Rosa	RW.6	White	17	0	109	75677	9000	6976	309648	2676
Santa Rosa	RW.7	White	18	0	106	74764	8908	5365	304626	3604
Santa Rosa	RW.8	White	16	0	101	75683	10398	5673	306681	2923
Santa Rosa	RW.9	White	11	0	122	88412	11964	4945	299302	2928

Sample Name	39K	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu
RBK.22.4	19006	54787	4	763	30	16	54858	9576	38	58	542
RBK.22.5	28859	73795	5	1156	38	21	86705	12145	79	114	492
RBK.22.6	33173	77949	4	1032	33	21	53841	10971	37	62	495
RBK.23	31296	60083	4	628	29	18	72361	16080	88	171	744
RBK.24.1	39094	76314	5	804	30	15	54573	11229	22	32	1416
RBK.24.2	38465	56526	3	349	10	8	2833	4457	7	53	196
RBK.25	25131	61857	5	1029	39	21	44657	11789	35	78	408
RBK.26	37964	58386	4	470	20	14	50932	6589	37	56	623
RBK.27	21438	44284	8	1774	72	36	86942	20461	52	88	457
RBK.28	28268	62215	4	812	26	15	39257	10657	24	31	340
RBK.29	21908	72731	4	1038	36	20	58401	13082	50	92	495
RBK.3	35669	62201	5	723	28	15	42535	9378	16	24	427
RBK.30	24960	72432	6	1099	36	22	38966	10891	22	54	164
RBK.4.1	19669	60624	5	1325	47	22	62218	15348	32	35	668
RBK.4.2	25608	67238	5	1003	35	20	58275	12089	37	61	691
RBK.5	19934	78148	7	1370	46	25	78096	17537	85	86	643
RBK.6	22108	66777	5	1463	45	24	50515	13849	36	80	325
RBK.7	20898	68763	6	1288	40	28	49560	11804	39	70	895
RBK.8	30033	66651	5	822	26	16	46789	8557	53	67	600
RBK.9	34324	60889	3	418	21	11	41725	6495	44	49	820
RW.1	27708	63749	7	319	7	7	2260	3848	7	24	136
RW.10	40319	54663	4	342	9	7	4058	3245	7	13	130
RW.11	26628	54236	5	355	9	8	885	4713	4	14	132
RW.12	33087	58770	5	359	9	7	1570	4334	3	7	109
RW.13	29327	70422	5	456	8	9	1669	4441	5	40	279
RW.14	26391	55594	5	320	9	8	1134	4590	4	16	167
RW.15	20251	86317	6	516	13	12	861	5769	4	12	173
RW.16	27274	59439	4	264	8	7	7107	2854	16	17	157
RW.17	28448	82684	5	369	9	8	1869	4491	6	14	54
RW.2.1	33667	81195	7	580	12	9	4192	5674	4	12	268
RW.2.2	34791	63711	7	301	7	6	1485	3444	4	8	94
RW.3	29159	66702	7	338	9	11	1753	3956	6	21	140
RW.4	67754	68082	6	362	8	6	3349	4542	8	22	55
RW.5	29323	66216	6	357	8	9	2746	3641	6	23	107
RW.6	36146	60919	6	394	10	8	2834	4403	7	41	173
RW.7	46251	62608	5	320	7	6	1812	3524	6	14	84
RW.8	39496	63419	6	369	9	7	1340	3756	10	21	1238
RW.9	26843	67549	5	308	8	8	1680	4222	6	20	156

Sample Name	66Zn	75As	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	107Ag	111Cd	118Sn
RBK.22.4	80	75	10	625	5	32	2	2	0	0	34
RBK.22.5	428	128	15	705	8	56	4	4	3	1	82
RBK.22.6	106	85	17	785	6	54	6	3	1	0	25
RBK.23	92	372	17	661	7	68	2	4	0	0	64
RBK.24.1	91	207	17	883	10	90	3	3	0	0	28
RBK.24.2	107	41	13	698	2	26	1	1	1	0	33
RBK.25	91	81	15	788	6	45	4	1	0	0	22
RBK.26	80	89	18	648	4	26	2	2	1	0	48
RBK.27	86	152	15	560	11	62	6	2	1	0	40
RBK.28	85	146	13	846	7	42	3	1	0	0	40
RBK.29	85	225	13	726	8	54	3	1	0	0	65
RBK.3	90	152	23	737	8	77	3	2	0	0	10
RBK.30	78	54	10	996	7	55	4	1	0	0	6
RBK.4.1	82	220	10	710	9	57	4	2	0	0	33
RBK.4.2	99	94	15	722	6	47	3	1	1	0	31
RBK.5	72	384	14	677	11	59	4	3	0	0	111
RBK.6	70	110	14	765	9	60	4	1	0	0	11
RBK.7	76	87	14	704	8	53	4	2	0	0	43
RBK.8	75	114	14	751	7	52	3	1	1	0	30
RBK.9	66	253	13	700	5	25	2	2	0	0	89
RW.1	134	63	13	540	2	17	1	1	1	0	4
RW.10	60	24	20	510	2	21	1	1	0	0	3
RW.11	86	144	14	466	2	17	1	1	0	0	1
RW.12	106	71	16	504	2	28	1	1	0	0	4
RW.13	112	109	16	697	3	27	2	1	1	1	78
RW.14	84	137	13	486	2	19	1	1	0	1	1
RW.15	54	21	14	242	7	38	2	1	1	0	9
RW.16	76	28	28	679	2	14	1	1	0	0	2
RW.17	53	90	13	388	3	29	2	1	0	0	2
RW.2.1	338	35	14	920	4	43	2	1	3	2	10
RW.2.2	119	81	19	749	2	20	1	1	1	1	2
RW.3	88	108	16	552	2	25	2	1	0	0	5
RW.4	61	80	78	902	3	24	1	1	0	1	3
RW.5	90	91	15	726	2	18	1	1	0	0	3
RW.6	105	36	17	730	3	30	2	1	0	0	34
RW.7	74	42	12	692	2	28	1	1	0	1	4
RW.8	107	32	13	746	2	30	1	1	2	1	10
RW.9	165	78	12	574	2	20	1	1	1	1	3

Sample Name	121Sb	133Cs	137Ba	139La	140Ce	141Pr	146Nd	147Sm	153Eu	157Gd
RBK.22.4	3225	0	540	5	10	1	6	1	0	1
RBK.22.5	3058	0	955	7	16	2	7	2	0	1
RBK.22.6	743	0	598	7	13	2	7	1	0	1
RBK.23	1834	0	881	7	11	2	7	1	0	1
RBK.24.1	333	0	662	10	16	2	9	2	0	1
RBK.24.2	42021	0	112	3	7	1	3	1	0	0
RBK.25	876	0	454	7	14	2	7	1	0	1
RBK.26	2038	0	536	4	8	1	4	1	0	1
RBK.27	412	0	974	11	23	3	11	2	1	2
RBK.28	1008	0	672	8	12	2	8	2	0	2
RBK.29	3050	0	936	9	15	2	8	1	0	2
RBK.3	408	0	525	8	14	2	7	1	0	1
RBK.30	562	0	487	7	14	2	7	1	0	1
RBK.4.1	1679	0	796	10	15	2	10	2	0	2
RBK.4.2	2458	0	636	7	13	2	7	1	0	1
RBK.5	583	0	823	12	17	3	11	3	1	2
RBK.6	381	0	625	9	16	2	8	2	1	2
RBK.7	3158	0	570	7	14	2	8	1	0	1
RBK.8	1614	0	516	6	9	1	6	1	0	1
RBK.9	818	0	524	5	7	1	4	1	0	1
RW.1	40268	0	86	2	5	1	2	0	0	0
RW.10	2520	0	95	3	6	1	3	0	0	0
RW.11	37502	0	62	2	5	0	2	0	0	0
RW.12	43043	0	77	3	6	1	3	0	0	1
RW.13	51207	0	88	3	5	1	3	1	0	1
RW.14	37362	0	64	3	5	1	2	0	0	0
RW.15	43331	0	53	6	11	1	6	1	0	1
RW.16	2597	0	115	2	5	1	2	0	0	1
RW.17	50225	0	65	4	7	1	3	1	0	1
RW.2.1	43804	0	151	5	9	1	4	1	0	1
RW.2.2	40874	0	80	3	5	0	2	0	0	0
RW.3	41272	0	70	3	5	1	3	0	0	0
RW.4	25190	0	84	3	6	1	3	0	0	0
RW.5	35022	0	109	2	5	1	2	0	0	0
RW.6	44663	0	98	4	7	1	3	1	0	1
RW.7	45844	0	97	4	5	1	3	0	0	1
RW.8	44313	0	125	3	6	1	2	0	0	0
RW.9	49484	0	77	3	5	1	2	1	0	0

Sample Name	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W
RBK.22.4	0	1	0	1	0	0	0	1	0	0
RBK.22.5	0	2	0	1	0	1	0	1	0	1
RBK.22.6	0	1	0	1	0	1	0	1	0	1
RBK.23	0	1	0	1	0	0	0	1	0	2
RBK.24.1	0	2	0	1	0	1	0	2	0	1
RBK.24.2	0	0	0	0	0	0	0	1	0	0
RBK.25	0	1	0	0	0	1	0	1	0	0
RBK.26	0	1	0	0	0	0	0	1	0	1
RBK.27	0	2	0	1	0	1	0	2	0	1
RBK.28	0	1	0	1	0	1	0	1	0	0
RBK.29	0	1	0	1	0	1	0	2	0	0
RBK.3	0	1	0	1	0	1	0	2	0	1
RBK.30	0	1	0	1	0	1	0	2	0	0
RBK.4.1	0	2	0	1	0	1	0	1	0	1
RBK.4.2	0	1	0	0	0	1	0	1	0	0
RBK.5	0	2	0	1	0	1	0	2	0	1
RBK.6	0	2	0	1	0	1	0	2	0	1
RBK.7	0	1	0	1	0	1	0	1	0	1
RBK.8	0	1	0	1	0	1	0	1	0	0
RBK.9	0	1	0	0	0	0	0	1	0	1
RW.1	0	0	0	0	0	0	0	0	0	0
RW.10	0	0	0	0	0	0	0	1	0	0
RW.11	0	0	0	0	0	0	0	0	0	0
RW.12	0	0	0	0	0	0	0	1	0	0
RW.13	0	1	0	0	0	0	0	1	0	0
RW.14	0	0	0	0	0	0	0	0	0	0
RW.15	0	1	0	0	0	0	0	1	0	0
RW.16	0	0	0	0	0	0	0	0	0	0
RW.17	0	1	0	0	0	0	0	1	0	0
RW.2.1	0	1	0	1	0	0	0	1	0	0
RW.2.2	0	0	0	0	0	0	0	0	0	0
RW.3	0	0	0	0	0	0	0	1	0	0
RW.4	0	0	0	0	0	0	0	1	0	0
RW.5	0	0	0	0	0	0	0	0	0	0
RW.6	0	1	0	0	0	0	0	1	0	0
RW.7	0	0	0	0	0	0	0	1	0	0
RW.8	0	0	0	0	0	0	0	1	0	0
RW.9	0	0	0	0	0	0	0	0	0	0

Sample Name	197Au	208Pb	209Bi	232Th	238U
RBK.22.4	0	4273	11	1	2
RBK.22.5	0	15752	37	2	3
RBK.22.6	0	3298	8	1	1
RBK.23	0	2933	63	1	2
RBK.24.1	0	3410	9	2	2
RBK.24.2	0	705	12	1	1
RBK.25	0	1661	15	2	2
RBK.26	0	1715	12	1	2
RBK.27	0	1921	5	2	2
RBK.28	0	1420	11	2	2
RBK.29	0	4400	35	2	3
RBK.3	0	1931	4	2	1
RBK.30	0	405	4	2	2
RBK.4.1	0	3367	9	2	2
RBK.4.2	0	7644	9	1	1
RBK.5	0	3720	74	2	2
RBK.6	0	1446	41	2	1
RBK.7	0	4155	15	2	1
RBK.8	0	4507	24	1	1
RBK.9	0	11178	25	1	2
RW.1	0	1094	4	1	1
RW.10	0	351	4	1	1
RW.11	0	308	3	1	1
RW.12	0	505	1	1	1
RW.13	0	3413	5	1	0
RW.14	0	298	4	1	1
RW.15	0	1324	1	2	1
RW.16	0	57	5	1	1
RW.17	0	161	10	1	1
RW.2.1	0	1599	5	1	1
RW.2.2	0	678	5	1	0
RW.3	0	247	6	1	1
RW.4	0	759	10	1	1
RW.5	0	771	5	1	1
RW.6	0	583	7	1	1
RW.7	0	514	8	1	1
RW.8	0	1000	12	1	1
RW.9	0	1408	5	1	1

Appendix E: Lead Shot Morphometric Data

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1	8ES1354	95N	1301	11	1	36.9
2	8ES1354	95N	1350	4	1	2.8
3	8ES1354	95N	1436	23	1	0.15
4	8ES1354	95N	1436	24	1	0.7
5	8ES1354	95N	1436	25	3	0.6
6	8ES1354	95N	1436	25	3	0.6
7	8ES1354	95N	1436	25	3	0.6
8	8ES1354	95N	1439	19	1	0.8
9	8ES1354	95N	1439	20	2	0.3
10	8ES1354	95N	1439	20	2	0.3
11	8ES1354	95N	1455	12	1	3.5
12	8ES1354	95N	1460	3	1	0.4
13	8ES1354	95N	1460	4	1	0.2
14	8ES1354	95N	1463	5	2	1.2
15	8ES1354	95N	1463	5	2	1.2
16	8ES1354	95N	1463	6	4	0.6
17	8ES1354	95N	1463	6	4	0.6
18	8ES1354	95N	1463	6	4	0.6
19	8ES1354	95N	1463	6	4	0.6
20	8ES1354	95N	1463	7	1	0.2
21	8ES1354	95N	1481	5	1	0.4
22	8ES1354	95N	1528	5	2	0.2
23	8ES1354	95N	1528	5	2	0.2
24	8ES1354	95N	1528	7	1	2.7
25	8ES1354	95N	1528	8	1	0.1
26	8ES1354	95N	1529	24	2	1
27	8ES1354	95N	1529	24	2	1
28	8ES1354	95N	1529	25	1	0.4
29	8ES1354	95N	1529	26	2	0.3
30	8ES1354	95N	1529	26	2	0.3
31	8ES1354	95N	1530	3	3	0.5
32	8ES1354	95N	1530	3	3	0.5
33	8ES1354	95N	1530	3	3	0.5
34	8ES1354	95N	1530	4	4	1.2
35	8ES1354	95N	1530	4	4	1.2
36	8ES1354	95N	1530	4	4	1.2
37	8ES1354	95N	1530	4	4	1.2
38	8ES1354	95N	1530	6	1	3.6

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1	IRON?	CAST	21.55	0.848	COMPLETE
2	LEAD	CAST	7.84	0.309	COMPLETE
3	LEAD	CAST	3.78	0.149	COMPLETE
4	LEAD	DROPPED	4.6	0.181	COMPLETE
5	LEAD	DROPPED	2.79	0.110	COMPLETE
6	LEAD	DROPPED	2.71	0.107	COMPLETE
7	LEAD	DROPPED	2.58	0.102	COMPLETE
8	LEAD	DROPPED	5.15	0.203	COMPLETE
9	LEAD	DROPPED	2.81	0.111	COMPLETE
10	LEAD	DROPPED	2.81	0.111	COMPLETE
11	LEAD	CAST	7.98	0.314	COMPLETE
12	LEAD	DROPPED	4.37	0.172	COMPLETE
13	LEAD	DROPPED	2.76	0.109	COMPLETE
14	LEAD	DROPPED	4.32	0.170	COMPLETE
15	LEAD	DROPPED	4.69	0.185	COMPLETE
16	LEAD	DROPPED	2.74	0.108	COMPLETE
17	LEAD	DROPPED	2.8	0.110	COMPLETE
18	LEAD	DROPPED	2.82	0.111	COMPLETE
19	LEAD	DROPPED	2.53	0.100	INCOMPLETE
20	LEAD	DROPPED	3.16	0.124	COMPLETE
21	LEAD	DROPPED	3.83	0.151	COMPLETE
22	LEAD	DROPPED	2.97	0.117	COMPLETE
23	LEAD	DROPPED	3.03	0.119	COMPLETE
24	LEAD	DROPPED	7.84	0.309	INCOMPLETE
25	LEAD	DROPPED	4.08	0.161	COMPLETE
26	LEAD	DROPPED	4.18	0.165	COMPLETE
27	LEAD	DROPPED	4.3	0.169	COMPLETE
28	LEAD	DROPPED	4.39	0.173	COMPLETE
29	LEAD	DROPPED	3.07	0.121	COMPLETE
30	LEAD	DROPPED	2.92	0.115	COMPLETE
31	LEAD	DROPPED	2.93	0.115	COMPLETE
32	LEAD	DROPPED	2.49	0.098	COMPLETE
33	LEAD	DROPPED	2.78	0.109	COMPLETE
34	LEAD	DROPPED	3.64	0.143	COMPLETE
35	LEAD	DROPPED	3.92	0.154	INCOMPLETE
36	LEAD	DROPPED	3.46	0.136	INCOMPLETE
37	LEAD	DROPPED	3.64	0.143	COMPLETE
38	LEAD	DROPPED	8.43	0.332	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
39	8ES1354	95N	1534	7	1	0.2
40	8ES1354	95N	1572	19	2	0.8
41	8ES1354	95N	1572	19	2	0.8
42	8ES1354	95N	1577	127	5	0.95
43	8ES1354	95N	1577	127	5	0.95
44	8ES1354	95N	1577	127	5	0.95
45	8ES1354	95N	1577	127	5	0.95
46	8ES1354	95N	1577	127	5	0.95
47	8ES1354	95N	1581	3	1	37
48	8ES1354	95N	1596	8	5	0.5
49	8ES1354	95N	1596	8	5	0.5
50	8ES1354	95N	1596	8	5	0.5
51	8ES1354	95N	1596	8	5	0.5
52	8ES1354	95N	1596	8	5	0.5
53	8ES1354	95N	1596	9	6	1.9
54	8ES1354	95N	1596	9	6	1.9
55	8ES1354	95N	1596	9	6	1.9
56	8ES1354	95N	1596	9	6	1.9
57	8ES1354	95N	1596	9	6	1.9
58	8ES1354	95N	1596	9	6	1.9
59	8ES1354	95N	1748	6	1	8
60	8ES1354	95N	1783	26	1	16.6
61	8ES1354	95N	1828	1	1	16.7
62	8ES1354	96N	2127	21	3	1.7
63	8ES1354	96N	2127	21	3	1.7
64	8ES1354	96N	2127	21	3	1.7
65	8ES1354	96N	2129	27	1	15.4
66	8ES1354	96N	2129	28	6	1.8
67	8ES1354	96N	2129	28	6	1.8
68	8ES1354	96N	2129	28	6	1.8
69	8ES1354	96N	2129	28	6	1.8
70	8ES1354	96N	2129	28	6	1.8
71	8ES1354	96N	2129	28	6	1.8
72	8ES1354	96N	2129	29	1	14.1
73	8ES1354	96N	2149	2	2	0.1
74	8ES1354	96N	2149	2	2	0.1
75	8ES1354	96N	2150	6	1	9.7
76	8ES1354	96N	2153	6	3	0.9

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
39	LEAD	DROPPED	3.52	0.139	COMPLETE
40	LEAD	DROPPED	4.26	0.168	COMPLETE
41	LEAD	DROPPED	3.6	0.142	COMPLETE
42	LEAD	DROPPED	4.52	0.178	COMPLETE
43	LEAD	DROPPED	3.63	0.143	COMPLETE
44	IRON?	DROPPED	4.84	0.191	INCOMPLETE
45	IRON?	DROPPED	4.5	0.177	INCOMPLETE
46	IRON?	DROPPED	3.61	0.142	INCOMPLETE
47	LEAD	CAST	18.92	0.745	COMPLETE
48	LEAD	DROPPED	2.77	0.109	COMPLETE
49	LEAD	DROPPED	2.78	0.109	COMPLETE
50	LEAD	DROPPED	2.81	0.111	COMPLETE
51	LEAD	DROPPED	3.22	0.127	COMPLETE
52	LEAD	DROPPED	3.62	0.143	COMPLETE
53	LEAD	DROPPED	3.89	0.153	COMPLETE
54	LEAD	DROPPED	4.49	0.177	COMPLETE
55	LEAD	DROPPED	3.87	0.152	COMPLETE
56	LEAD	DROPPED	4.22	0.166	COMPLETE
57	LEAD	DROPPED	2.86	0.113	COMPLETE
58	LEAD	DROPPED	3.43	0.135	COMPLETE
59	LEAD	CAST	11.92	0.469	COMPLETE
60	LEAD	CAST	14.23	0.560	COMPLETE
61	LEAD	CAST	14.25	0.561	COMPLETE
62	LEAD	DROPPED	4.76	0.187	COMPLETE
63	LEAD	DROPPED	3.26	0.128	COMPLETE
64	LEAD	CAST	5.41	0.213	COMPLETE
65	LEAD	CAST	16.23	0.639	COMPLETE
66	LEAD	DROPPED	3.52	0.139	COMPLETE
67	LEAD	DROPPED	3.67	0.144	COMPLETE
68	LEAD	DROPPED	6.08	0.239	COMPLETE
69	LEAD	DROPPED	4.27	0.168	COMPLETE
70	LEAD	DROPPED	4.98	0.196	COMPLETE
71	LEAD	DROPPED	2.71	0.107	COMPLETE
72	LEAD	DROPPED	14.7	0.579	COMPLETE
73	LEAD	DROPPED	1.46	0.057	COMPLETE
74	LEAD	DROPPED	1.72	0.068	COMPLETE
75	LEAD	CAST	14.61	0.575	COMPLETE
76	LEAD	DROPPED	3.97	0.156	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
77	8ES1354	96N	2153	6	3	0.9
78	8ES1354	96N	4448	2	10	3
79	8ES1354	96N	4448	2	10	3
80	8ES1354	96N	4448	2	10	3
81	8ES1354	96N	4448	2	10	3
82	8ES1354	96N	4448	2	10	3
83	8ES1354	96N	4448	2	10	3
84	8ES1354	96N	4448	2	10	3
85	8ES1354	96N	4448	2	10	3
86	8ES1354	96N	4448	2	10	3
87	8ES1354	96N	4448	2	10	3
88	8ES1354	96N	4528	21	1	10.2
89	8ES1354	96N	4529	4	1	0.4
90	8ES1354	96N	4529	5	4	78.7
91	8ES1354	96N	4529	5	4	78.7
92	8ES1354	96N	4529	5	4	78.7
93	8ES1354	96N	4529	5	4	78.7
94	8ES1354	96N	4539	3	3	3.2
95	8ES1354	96N	4539	3	3	3.2
96	8ES1354	96N	4539	3	3	3.2
97	8ES1354	96N	4541	3	1	33.6
98	8ES1354	96N	4542	10	1	25
99	8ES1354	96N	4542	22	3	2.5
100	8ES1354	96N	4542	22	3	2.5
101	8ES1354	96N	4542	22	3	2.5
102	8ES1354	96N	4549	16	1	0.7
103	8ES1354	96N	4615	14	3	2.5
104	8ES1354	96N	4615	14	3	2.5
105	8ES1354	96N	4615	14	3	2.5
106	8ES1354	96N	4633	15	5	1.4
107	8ES1354	96N	4633	15	5	1.4
108	8ES1354	96N	4633	15	5	1.4
109	8ES1354	96N	4633	15	5	1.4
110	8ES1354	96N	4633	15	5	1.4
111	8ES1354	96N	4673	2	48	3
112	8ES1354	96N	4673	2	48	3
113	8ES1354	96N	4673	2	48	3
114	8ES1354	96N	4673	2	48	3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
77	LEAD	DROPPED	4.71	0.185	COMPLETE
78	LEAD	DROPPED	3.74	0.147	COMPLETE
79	LEAD	DROPPED	3.71	0.146	COMPLETE
80	LEAD	DROPPED	3.93	0.155	COMPLETE
81	LEAD	DROPPED	3.79	0.149	COMPLETE
82	LEAD	DROPPED	3.58	0.141	COMPLETE
83	LEAD	DROPPED	3.53	0.139	COMPLETE
84	LEAD	DROPPED	3.55	0.140	COMPLETE
85	LEAD	DROPPED	3.62	0.143	COMPLETE
86	LEAD	DROPPED	3.61	0.142	COMPLETE
87	LEAD	DROPPED	4.2	0.165	COMPLETE
88	LEAD	CAST	12.25	0.482	COMPLETE
89	LEAD	DROPPED	4.63	0.182	COMPLETE
90	LEAD	CAST	14.45	0.569	COMPLETE
91	LEAD	CAST	15.11	0.595	COMPLETE
92	LEAD	CAST	15.24	0.600	COMPLETE
93	LEAD	CAST	13.39	0.527	COMPLETE
94	LEAD	DROPPED	4.75	0.187	COMPLETE
95	LEAD	DROPPED	7.28	0.287	COMPLETE
96	LEAD	DROPPED	4.16	0.164	COMPLETE
97	LEAD	CAST	17.99	0.708	COMPLETE
98	LEAD	CAST	21.88	0.861	COMPLETE
99	LEAD	CAST	4.67	0.184	COMPLETE
100	LEAD	CAST	5.05	0.199	COMPLETE
101	LEAD	CAST	4.8	0.189	COMPLETE
102	LEAD	DROPPED	4.08	0.161	COMPLETE
103	LEAD	DROPPED	5.21	0.205	COMPLETE
104	LEAD	DROPPED	5.21	0.205	COMPLETE
105	LEAD	DROPPED	4.22	0.166	COMPLETE
106	LEAD	DROPPED	4.07	0.160	COMPLETE
107	LEAD	DROPPED	4.37	0.172	COMPLETE
108	LEAD	DROPPED	4.03	0.159	COMPLETE
109	LEAD	DROPPED	4.59	0.181	COMPLETE
110	LEAD	DROPPED	3.48	0.137	INCOMPLETE
111	LEAD	DROPPED	5.01	0.197	COMPLETE
112	LEAD	DROPPED	3.08	0.121	COMPLETE
113	LEAD	DROPPED	2.98	0.117	COMPLETE
114	LEAD	DROPPED	2.86	0.113	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
115	8ES1354	96N	4673	2	48	3
116	8ES1354	96N	4673	2	48	3
117	8ES1354	96N	4673	2	48	3
118	8ES1354	96N	4673	2	48	3
119	8ES1354	96N	4673	2	48	3
120	8ES1354	96N	4673	2	48	3
121	8ES1354	96N	4673	2	48	3
122	8ES1354	96N	4673	2	48	3
123	8ES1354	96N	4673	2	48	3
124	8ES1354	96N	4673	2	48	3
125	8ES1354	96N	4673	2	48	3
126	8ES1354	96N	4673	2	48	3
127	8ES1354	96N	4673	2	48	3
128	8ES1354	96N	4673	2	48	3
129	8ES1354	96N	4673	2	48	3
130	8ES1354	96N	4673	2	48	3
131	8ES1354	96N	4673	2	48	3
132	8ES1354	96N	4673	2	48	3
133	8ES1354	96N	4673	2	48	3
134	8ES1354	96N	4673	2	48	3
135	8ES1354	96N	4673	2	48	3
136	8ES1354	96N	4673	2	48	3
137	8ES1354	96N	4673	2	48	3
138	8ES1354	96N	4673	2	48	3
139	8ES1354	96N	4673	2	48	3
140	8ES1354	96N	4673	2	48	3
141	8ES1354	96N	4673	2	48	3
142	8ES1354	96N	4673	2	48	3
143	8ES1354	96N	4673	2	48	3
144	8ES1354	96N	4673	2	48	3
145	8ES1354	96N	4673	2	48	3
146	8ES1354	96N	4673	2	48	3
147	8ES1354	96N	4673	2	48	3
148	8ES1354	96N	4673	2	48	3
149	8ES1354	96N	4673	2	48	3
150	8ES1354	96N	4673	2	48	3
151	8ES1354	96N	4673	2	48	3
152	8ES1354	96N	4673	2	48	3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
115	LEAD	DROPPED	2.41	0.095	COMPLETE
116	LEAD	DROPPED	3.62	0.143	COMPLETE
117	LEAD	DROPPED	3.12	0.123	COMPLETE
118	LEAD	DROPPED	4.27	0.168	COMPLETE
119	LEAD	DROPPED	2.63	0.104	COMPLETE
120	LEAD	DROPPED	3.97	0.156	COMPLETE
121	LEAD	DROPPED	3.05	0.120	COMPLETE
122	LEAD	DROPPED	3.23	0.127	COMPLETE
123	LEAD	DROPPED	3.6	0.142	COMPLETE
124	LEAD	DROPPED	2.73	0.107	COMPLETE
125	LEAD	DROPPED	3.24	0.128	COMPLETE
126	LEAD	DROPPED	3.39	0.133	COMPLETE
127	LEAD	DROPPED	2.85	0.112	COMPLETE
128	LEAD	DROPPED	1.7	0.067	COMPLETE
129	LEAD	DROPPED	1.34	0.053	COMPLETE
130	LEAD	DROPPED	1.57	0.062	COMPLETE
131	LEAD	DROPPED	1.79	0.070	COMPLETE
132	LEAD	DROPPED	2.13	0.084	COMPLETE
133	LEAD	DROPPED	1.94	0.076	COMPLETE
134	LEAD	DROPPED	2.82	0.111	COMPLETE
135	LEAD	DROPPED	2.85	0.112	COMPLETE
136	LEAD	DROPPED	3.31	0.130	COMPLETE
137	LEAD	DROPPED	2.51	0.099	COMPLETE
138	LEAD	DROPPED	2.44	0.096	COMPLETE
139	LEAD	DROPPED	2.76	0.109	COMPLETE
140	LEAD	DROPPED	3.11	0.122	COMPLETE
141	LEAD	DROPPED	2.08	0.082	COMPLETE
142	LEAD	DROPPED	2.1	0.083	COMPLETE
143	LEAD	DROPPED	2.49	0.098	COMPLETE
144	LEAD	DROPPED	3.33	0.131	COMPLETE
145	LEAD	DROPPED	2.33	0.092	COMPLETE
146	LEAD	DROPPED	3.64	0.143	COMPLETE
147	LEAD	DROPPED	3.24	0.128	COMPLETE
148	LEAD	DROPPED	2.61	0.103	COMPLETE
149	LEAD	DROPPED	2.37	0.093	COMPLETE
150	LEAD	DROPPED	3.51	0.138	COMPLETE
151	LEAD	DROPPED	2.7	0.106	COMPLETE
152	LEAD	DROPPED	1.8	0.071	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
153	8ES1354	96N	4673	2	48	3
154	8ES1354	96N	4673	2	48	3
155	8ES1354	96N	4673	2	48	3
156	8ES1354	96N	4673	2	48	3
157	8ES1354	96N	4673	2	48	3
158	8ES1354	96N	4673	2	48	3
159	8ES1354	96N	4673	2	48	3
160	8ES1354	96N	4674	10	1	18.8
161	8ES1354	96N	4674	11	209	11.2
162	8ES1354	96N	4674	11	209	11.2
163	8ES1354	96N	4674	11	209	11.2
164	8ES1354	96N	4674	11	209	11.2
165	8ES1354	96N	4674	11	209	11.2
166	8ES1354	96N	4674	11	209	11.2
167	8ES1354	96N	4674	11	209	11.2
168	8ES1354	96N	4674	11	209	11.2
169	8ES1354	96N	4674	11	209	11.2
170	8ES1354	96N	4674	11	209	11.2
171	8ES1354	96N	4674	11	209	11.2
172	8ES1354	96N	4674	11	209	11.2
173	8ES1354	96N	4674	11	209	11.2
174	8ES1354	96N	4674	11	209	11.2
175	8ES1354	96N	4674	11	209	11.2
176	8ES1354	96N	4674	11	209	11.2
177	8ES1354	96N	4674	11	209	11.2
178	8ES1354	96N	4674	11	209	11.2
179	8ES1354	96N	4674	11	209	11.2
180	8ES1354	96N	4674	11	209	11.2
181	8ES1354	96N	4674	11	209	11.2
182	8ES1354	96N	4674	11	209	11.2
183	8ES1354	96N	4674	11	209	11.2
184	8ES1354	96N	4674	11	209	11.2
185	8ES1354	96N	4674	11	209	11.2
186	8ES1354	96N	4674	11	209	11.2
187	8ES1354	96N	4674	11	209	11.2
188	8ES1354	96N	4674	11	209	11.2
189	8ES1354	96N	4674	11	209	11.2
190	8ES1354	96N	4674	11	209	11.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
153	LEAD	DROPPED	1.58	0.062	COMPLETE
154	LEAD	DROPPED	1.51	0.059	COMPLETE
155	LEAD	DROPPED	2.21	0.087	COMPLETE
156	LEAD	DROPPED	3.3	0.130	COMPLETE
157	LEAD	DROPPED	2.39	0.094	COMPLETE
158	LEAD	DROPPED	1.61	0.063	COMPLETE
159	LEAD	DROPPED	1.87	0.074	COMPLETE
160	LEAD	CAST	15.14	0.596	COMPLETE
161	LEAD	DROPPED	1.39	0.055	COMPLETE
162	LEAD	DROPPED	1.74	0.069	COMPLETE
163	LEAD	DROPPED	1.48	0.058	COMPLETE
164	LEAD	DROPPED	1.69	0.067	COMPLETE
165	LEAD	DROPPED	2.63	0.104	COMPLETE
166	LEAD	DROPPED	3.67	0.144	COMPLETE
167	LEAD	DROPPED	2.46	0.097	COMPLETE
168	LEAD	DROPPED	3.15	0.124	COMPLETE
169	LEAD	DROPPED	1.78	0.070	COMPLETE
170	LEAD	DROPPED	2.1	0.083	COMPLETE
171	LEAD	DROPPED	2.02	0.080	COMPLETE
172	LEAD	DROPPED	3.14	0.124	COMPLETE
173	LEAD	DROPPED	1.48	0.058	COMPLETE
174	LEAD	DROPPED	4.02	0.158	COMPLETE
175	LEAD	DROPPED	3.58	0.141	COMPLETE
176	LEAD	DROPPED	3.52	0.139	COMPLETE
177	LEAD	DROPPED	1.59	0.063	COMPLETE
178	LEAD	DROPPED	2.5	0.098	COMPLETE
179	LEAD	DROPPED	1.93	0.076	COMPLETE
180	LEAD	DROPPED	2.12	0.083	COMPLETE
181	LEAD	DROPPED	1.41	0.056	COMPLETE
182	LEAD	DROPPED	2.01	0.079	COMPLETE
183	LEAD	DROPPED	2.16	0.085	COMPLETE
184	LEAD	DROPPED	1.78	0.070	COMPLETE
185	LEAD	DROPPED	2.21	0.087	COMPLETE
186	LEAD	DROPPED	2.74	0.108	COMPLETE
187	LEAD	DROPPED	2.57	0.101	COMPLETE
188	LEAD	DROPPED	1.84	0.072	COMPLETE
189	LEAD	DROPPED	1.78	0.070	COMPLETE
190	LEAD	DROPPED	1.79	0.070	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
191	8ES1354	96N	4674	11	209	11.2
192	8ES1354	96N	4674	11	209	11.2
193	8ES1354	96N	4674	11	209	11.2
194	8ES1354	96N	4674	11	209	11.2
195	8ES1354	96N	4674	11	209	11.2
196	8ES1354	96N	4674	11	209	11.2
197	8ES1354	96N	4674	11	209	11.2
198	8ES1354	96N	4674	11	209	11.2
199	8ES1354	96N	4674	11	209	11.2
200	8ES1354	96N	4674	11	209	11.2
201	8ES1354	96N	4674	11	209	11.2
202	8ES1354	96N	4674	11	209	11.2
203	8ES1354	96N	4674	11	209	11.2
204	8ES1354	96N	4674	11	209	11.2
205	8ES1354	96N	4674	11	209	11.2
206	8ES1354	96N	4674	11	209	11.2
207	8ES1354	96N	4674	11	209	11.2
208	8ES1354	96N	4674	11	209	11.2
209	8ES1354	96N	4674	11	209	11.2
210	8ES1354	96N	4674	11	209	11.2
211	8ES1354	96N	4674	11	209	11.2
212	8ES1354	96N	4674	11	209	11.2
213	8ES1354	96N	4674	11	209	11.2
214	8ES1354	96N	4674	11	209	11.2
215	8ES1354	96N	4674	11	209	11.2
216	8ES1354	96N	4674	11	209	11.2
217	8ES1354	96N	4674	11	209	11.2
218	8ES1354	96N	4674	11	209	11.2
219	8ES1354	96N	4674	11	209	11.2
220	8ES1354	96N	4674	11	209	11.2
221	8ES1354	96N	4674	11	209	11.2
222	8ES1354	96N	4674	11	209	11.2
223	8ES1354	96N	4674	11	209	11.2
224	8ES1354	96N	4674	11	209	11.2
225	8ES1354	96N	4674	11	209	11.2
226	8ES1354	96N	4674	11	209	11.2
227	8ES1354	96N	4674	11	209	11.2
228	8ES1354	96N	4674	11	209	11.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
191	LEAD	DROPPED	1.84	0.072	COMPLETE
192	LEAD	DROPPED	3.14	0.124	COMPLETE
193	LEAD	DROPPED	1.66	0.065	COMPLETE
194	LEAD	DROPPED	2.05	0.081	COMPLETE
195	LEAD	DROPPED	1.66	0.065	COMPLETE
196	LEAD	DROPPED	4.06	0.160	COMPLETE
197	LEAD	DROPPED	1.87	0.074	COMPLETE
198	LEAD	DROPPED	3.55	0.140	COMPLETE
199	LEAD	DROPPED	2.18	0.086	COMPLETE
200	LEAD	DROPPED	1.53	0.060	COMPLETE
201	LEAD	DROPPED	3.21	0.126	COMPLETE
202	LEAD	DROPPED	1.53	0.060	COMPLETE
203	LEAD	DROPPED	2.43	0.096	COMPLETE
204	LEAD	DROPPED	1.65	0.065	COMPLETE
205	LEAD	DROPPED	1.94	0.076	COMPLETE
206	LEAD	DROPPED	1.95	0.077	COMPLETE
207	LEAD	DROPPED	3.04	0.120	COMPLETE
208	LEAD	DROPPED	1.6	0.063	COMPLETE
209	LEAD	DROPPED	1.86	0.073	COMPLETE
210	LEAD	DROPPED	1.62	0.064	COMPLETE
211	LEAD	DROPPED	1.92	0.076	COMPLETE
212	LEAD	DROPPED	2.37	0.093	COMPLETE
213	LEAD	DROPPED	1.55	0.061	COMPLETE
214	LEAD	DROPPED	1.51	0.059	COMPLETE
215	LEAD	DROPPED	1.41	0.056	COMPLETE
216	LEAD	DROPPED	1.2	0.047	COMPLETE
217	LEAD	DROPPED	1.98	0.078	COMPLETE
218	LEAD	DROPPED	1.63	0.064	COMPLETE
219	LEAD	DROPPED	1.79	0.070	COMPLETE
220	LEAD	DROPPED	2.54	0.100	COMPLETE
221	LEAD	DROPPED	3.96	0.156	COMPLETE
222	LEAD	DROPPED	4.21	0.166	COMPLETE
223	LEAD	DROPPED	3.97	0.156	COMPLETE
224	LEAD	DROPPED	1.7	0.067	COMPLETE
225	LEAD	DROPPED	1.74	0.069	COMPLETE
226	LEAD	DROPPED	2.07	0.081	COMPLETE
227	LEAD	DROPPED	1.26	0.050	COMPLETE
228	LEAD	DROPPED	2.28	0.090	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
229	8ES1354	96N	4674	11	209	11.2
230	8ES1354	96N	4674	11	209	11.2
231	8ES1354	96N	4674	11	209	11.2
232	8ES1354	96N	4674	11	209	11.2
233	8ES1354	96N	4674	11	209	11.2
234	8ES1354	96N	4674	11	209	11.2
235	8ES1354	96N	4674	11	209	11.2
236	8ES1354	96N	4674	11	209	11.2
237	8ES1354	96N	4674	11	209	11.2
238	8ES1354	96N	4674	11	209	11.2
239	8ES1354	96N	4674	11	209	11.2
240	8ES1354	96N	4674	11	209	11.2
241	8ES1354	96N	4674	11	209	11.2
242	8ES1354	96N	4674	11	209	11.2
243	8ES1354	96N	4674	11	209	11.2
244	8ES1354	96N	4674	11	209	11.2
245	8ES1354	96N	4674	11	209	11.2
246	8ES1354	96N	4674	11	209	11.2
247	8ES1354	96N	4674	11	209	11.2
248	8ES1354	96N	4674	11	209	11.2
249	8ES1354	96N	4674	11	209	11.2
250	8ES1354	96N	4674	11	209	11.2
251	8ES1354	96N	4674	11	209	11.2
252	8ES1354	96N	4674	11	209	11.2
253	8ES1354	96N	4674	11	209	11.2
254	8ES1354	96N	4674	11	209	11.2
255	8ES1354	96N	4674	11	209	11.2
256	8ES1354	96N	4674	11	209	11.2
257	8ES1354	96N	4674	11	209	11.2
258	8ES1354	96N	4674	11	209	11.2
259	8ES1354	96N	4674	11	209	11.2
260	8ES1354	96N	4674	11	209	11.2
261	8ES1354	96N	4674	11	209	11.2
262	8ES1354	96N	4674	11	209	11.2
263	8ES1354	96N	4674	11	209	11.2
264	8ES1354	96N	4674	11	209	11.2
265	8ES1354	96N	4674	11	209	11.2
266	8ES1354	96N	4674	11	209	11.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
229	LEAD	DROPPED	1.73	0.068	COMPLETE
230	LEAD	DROPPED	1.87	0.074	COMPLETE
231	LEAD	DROPPED	2.38	0.094	COMPLETE
232	LEAD	DROPPED	1.9	0.075	COMPLETE
233	LEAD	DROPPED	1.48	0.058	COMPLETE
234	LEAD	DROPPED	1.27	0.050	COMPLETE
235	LEAD	DROPPED	1.96	0.077	COMPLETE
236	LEAD	DROPPED	1.99	0.078	COMPLETE
237	LEAD	DROPPED	1.49	0.059	COMPLETE
238	LEAD	DROPPED	3.16	0.124	COMPLETE
239	LEAD	DROPPED	1.56	0.061	COMPLETE
240	LEAD	DROPPED	2.26	0.089	COMPLETE
241	LEAD	DROPPED	2.77	0.109	COMPLETE
242	LEAD	DROPPED	1.21	0.048	COMPLETE
243	LEAD	DROPPED	1.39	0.055	COMPLETE
244	LEAD	DROPPED	1.46	0.057	COMPLETE
245	LEAD	DROPPED	1.82	0.072	COMPLETE
246	LEAD	DROPPED	1.38	0.054	COMPLETE
247	LEAD	DROPPED	1.52	0.060	COMPLETE
248	LEAD	DROPPED	1.79	0.070	COMPLETE
249	LEAD	DROPPED	2.38	0.094	COMPLETE
250	LEAD	DROPPED	1.66	0.065	COMPLETE
251	LEAD	DROPPED	2.72	0.107	COMPLETE
252	LEAD	DROPPED	1.71	0.067	COMPLETE
253	LEAD	DROPPED	1.97	0.078	COMPLETE
254	LEAD	DROPPED	1.95	0.077	COMPLETE
255	LEAD	DROPPED	2.29	0.090	COMPLETE
256	LEAD	DROPPED	1.66	0.065	COMPLETE
257	LEAD	DROPPED	1.72	0.068	COMPLETE
258	LEAD	DROPPED	1.6	0.063	COMPLETE
259	LEAD	DROPPED	2.75	0.108	COMPLETE
260	LEAD	DROPPED	2.33	0.092	COMPLETE
261	LEAD	DROPPED	2.74	0.108	COMPLETE
262	LEAD	DROPPED	1.44	0.057	COMPLETE
263	LEAD	DROPPED	1.71	0.067	COMPLETE
264	LEAD	DROPPED	1.88	0.074	COMPLETE
265	LEAD	DROPPED	1.7	0.067	COMPLETE
266	LEAD	DROPPED	2.37	0.093	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
267	8ES1354	96N	4674	11	209	11.2
268	8ES1354	96N	4674	11	209	11.2
269	8ES1354	96N	4674	11	209	11.2
270	8ES1354	96N	4674	11	209	11.2
271	8ES1354	96N	4674	11	209	11.2
272	8ES1354	96N	4674	11	209	11.2
273	8ES1354	96N	4674	11	209	11.2
274	8ES1354	96N	4674	11	209	11.2
275	8ES1354	96N	4674	11	209	11.2
276	8ES1354	96N	4674	11	209	11.2
277	8ES1354	96N	4674	11	209	11.2
278	8ES1354	96N	4674	11	209	11.2
279	8ES1354	96N	4674	11	209	11.2
280	8ES1354	96N	4674	11	209	11.2
281	8ES1354	96N	4674	11	209	11.2
282	8ES1354	96N	4674	11	209	11.2
283	8ES1354	96N	4674	11	209	11.2
284	8ES1354	96N	4674	11	209	11.2
285	8ES1354	96N	4674	11	209	11.2
286	8ES1354	96N	4674	11	209	11.2
287	8ES1354	96N	4674	11	209	11.2
288	8ES1354	96N	4674	11	209	11.2
289	8ES1354	96N	4674	11	209	11.2
290	8ES1354	96N	4674	11	209	11.2
291	8ES1354	96N	4674	11	209	11.2
292	8ES1354	96N	4674	11	209	11.2
293	8ES1354	96N	4674	11	209	11.2
294	8ES1354	96N	4674	11	209	11.2
295	8ES1354	96N	4674	11	209	11.2
296	8ES1354	96N	4674	11	209	11.2
297	8ES1354	96N	4674	11	209	11.2
298	8ES1354	96N	4674	11	209	11.2
299	8ES1354	96N	4674	11	209	11.2
300	8ES1354	96N	4674	11	209	11.2
301	8ES1354	96N	4674	11	209	11.2
302	8ES1354	96N	4674	11	209	11.2
303	8ES1354	96N	4674	11	209	11.2
304	8ES1354	96N	4674	11	209	11.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
267	LEAD	DROPPED	1.62	0.064	COMPLETE
268	LEAD	DROPPED	2.19	0.086	COMPLETE
269	LEAD	DROPPED	2.16	0.085	COMPLETE
270	LEAD	DROPPED	1.96	0.077	COMPLETE
271	LEAD	DROPPED	1.97	0.078	COMPLETE
272	LEAD	DROPPED	2.77	0.109	COMPLETE
273	LEAD	DROPPED	1.69	0.067	COMPLETE
274	LEAD	DROPPED	3.12	0.123	COMPLETE
275	LEAD	DROPPED	2.21	0.087	COMPLETE
276	LEAD	DROPPED	1.64	0.065	COMPLETE
277	LEAD	DROPPED	2.48	0.098	COMPLETE
278	LEAD	DROPPED	2.26	0.089	COMPLETE
279	LEAD	DROPPED	1.97	0.078	COMPLETE
280	LEAD	DROPPED	1.84	0.072	COMPLETE
281	LEAD	DROPPED	1.63	0.064	COMPLETE
282	LEAD	DROPPED	2.4	0.094	COMPLETE
283	LEAD	DROPPED	2.94	0.116	COMPLETE
284	LEAD	DROPPED	1.99	0.078	COMPLETE
285	LEAD	DROPPED	1.55	0.061	COMPLETE
286	LEAD	DROPPED	3.22	0.127	COMPLETE
287	LEAD	DROPPED	2.72	0.107	COMPLETE
288	LEAD	DROPPED	1.79	0.070	COMPLETE
289	LEAD	DROPPED	1.67	0.066	COMPLETE
290	LEAD	DROPPED	3.95	0.156	COMPLETE
291	LEAD	DROPPED	1.37	0.054	COMPLETE
292	LEAD	DROPPED	3.34	0.131	COMPLETE
293	LEAD	DROPPED	2.73	0.107	COMPLETE
294	LEAD	DROPPED	2.47	0.097	COMPLETE
295	LEAD	DROPPED	1.81	0.071	COMPLETE
296	LEAD	DROPPED	1.61	0.063	COMPLETE
297	LEAD	DROPPED	1.58	0.062	COMPLETE
298	LEAD	DROPPED	1.63	0.064	COMPLETE
299	LEAD	DROPPED	1.82	0.072	COMPLETE
300	LEAD	DROPPED	2.06	0.081	COMPLETE
301	LEAD	DROPPED	2.88	0.113	COMPLETE
302	LEAD	DROPPED	1.83	0.072	COMPLETE
303	LEAD	DROPPED	2.76	0.109	COMPLETE
304	LEAD	DROPPED	1.39	0.055	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
305	8ES1354	96N	4674	11	209	11.2
306	8ES1354	96N	4674	11	209	11.2
307	8ES1354	96N	4674	11	209	11.2
308	8ES1354	96N	4674	11	209	11.2
309	8ES1354	96N	4674	11	209	11.2
310	8ES1354	96N	4674	11	209	11.2
311	8ES1354	96N	4674	11	209	11.2
312	8ES1354	96N	4674	11	209	11.2
313	8ES1354	96N	4674	11	209	11.2
314	8ES1354	96N	4674	11	209	11.2
315	8ES1354	96N	4674	11	209	11.2
316	8ES1354	96N	4674	11	209	11.2
317	8ES1354	96N	4674	11	209	11.2
318	8ES1354	96N	4674	11	209	11.2
319	8ES1354	96N	4674	11	209	11.2
320	8ES1354	96N	4674	11	209	11.2
321	8ES1354	96N	4674	11	209	11.2
322	8ES1354	96N	4674	11	209	11.2
323	8ES1354	96N	4674	11	209	11.2
324	8ES1354	96N	4674	11	209	11.2
325	8ES1354	96N	4674	11	209	11.2
326	8ES1354	96N	4674	11	209	11.2
327	8ES1354	96N	4674	11	209	11.2
328	8ES1354	96N	4674	11	209	11.2
329	8ES1354	96N	4674	11	209	11.2
330	8ES1354	96N	4674	11	209	11.2
331	8ES1354	96N	4674	11	209	11.2
332	8ES1354	96N	4674	11	209	11.2
333	8ES1354	96N	4674	11	209	11.2
334	8ES1354	96N	4674	11	209	11.2
335	8ES1354	96N	4674	11	209	11.2
336	8ES1354	96N	4674	11	209	11.2
337	8ES1354	96N	4674	11	209	11.2
338	8ES1354	96N	4674	11	209	11.2
339	8ES1354	96N	4674	11	209	11.2
340	8ES1354	96N	4674	11	209	11.2
341	8ES1354	96N	4674	11	209	11.2
342	8ES1354	96N	4674	11	209	11.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
305	LEAD	DROPPED	2.29	0.090	COMPLETE
306	LEAD	DROPPED	2.11	0.083	COMPLETE
307	LEAD	DROPPED	1.76	0.069	COMPLETE
308	LEAD	DROPPED	3.32	0.131	COMPLETE
309	LEAD	DROPPED	1.58	0.062	COMPLETE
310	LEAD	DROPPED	2.06	0.081	COMPLETE
311	LEAD	DROPPED	1.95	0.077	COMPLETE
312	LEAD	DROPPED	2.66	0.105	COMPLETE
313	LEAD	DROPPED	1.78	0.070	COMPLETE
314	LEAD	DROPPED	1.31	0.052	COMPLETE
315	LEAD	DROPPED	2.1	0.083	COMPLETE
316	LEAD	DROPPED	1.99	0.078	COMPLETE
317	LEAD	DROPPED	2.48	0.098	COMPLETE
318	LEAD	DROPPED	2.69	0.106	COMPLETE
319	LEAD	DROPPED	1.91	0.075	COMPLETE
320	LEAD	DROPPED	1.56	0.061	COMPLETE
321	LEAD	DROPPED	2.34	0.092	COMPLETE
322	LEAD	DROPPED	1.81	0.071	COMPLETE
323	LEAD	DROPPED	2.78	0.109	COMPLETE
324	LEAD	DROPPED	1.97	0.078	COMPLETE
325	LEAD	DROPPED	1.77	0.070	COMPLETE
326	LEAD	DROPPED	2.62	0.103	COMPLETE
327	LEAD	DROPPED	2.06	0.081	COMPLETE
328	LEAD	DROPPED	1.4	0.055	COMPLETE
329	LEAD	DROPPED	1.57	0.062	COMPLETE
330	LEAD	DROPPED	2.27	0.089	COMPLETE
331	LEAD	DROPPED	1.64	0.065	COMPLETE
332	LEAD	DROPPED	1.75	0.069	COMPLETE
333	LEAD	DROPPED	2.12	0.083	COMPLETE
334	LEAD	DROPPED	2.12	0.083	COMPLETE
335	LEAD	DROPPED	2.62	0.103	COMPLETE
336	LEAD	DROPPED	1.99	0.078	COMPLETE
337	LEAD	DROPPED	3.01	0.119	COMPLETE
338	LEAD	DROPPED	3.44	0.135	COMPLETE
339	LEAD	DROPPED	1.71	0.067	COMPLETE
340	LEAD	DROPPED	1.93	0.076	COMPLETE
341	LEAD	DROPPED	1.8	0.071	COMPLETE
342	LEAD	DROPPED	1.62	0.064	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
343	8ES1354	96N	4674	11	209	11.2
344	8ES1354	96N	4674	11	209	11.2
345	8ES1354	96N	4674	11	209	11.2
346	8ES1354	96N	4674	11	209	11.2
347	8ES1354	96N	4674	11	209	11.2
348	8ES1354	96N	4674	11	209	11.2
349	8ES1354	96N	4674	11	209	11.2
350	8ES1354	96N	4674	11	209	11.2
351	8ES1354	96N	4674	11	209	11.2
352	8ES1354	96N	4674	11	209	11.2
353	8ES1354	96N	4674	11	209	11.2
354	8ES1354	96N	4674	11	209	11.2
355	8ES1354	96N	4674	11	209	11.2
356	8ES1354	96N	4674	11	209	11.2
357	8ES1354	96N	4674	11	209	11.2
358	8ES1354	96N	4674	11	209	11.2
359	8ES1354	96N	4674	11	209	11.2
360	8ES1354	96N	4674	11	209	11.2
361	8ES1354	96N	4674	11	209	11.2
362	8ES1354	96N	4674	11	209	11.2
363	8ES1354	96N	4674	11	209	11.2
364	8ES1354	96N	4674	11	209	11.2
365	8ES1354	96N	4674	11	209	11.2
366	8ES1354	96N	4674	11	209	11.2
367	8ES1354	96N	4674	11	209	11.2
368	8ES1354	96N	4674	11	209	11.2
369	8ES1354	96N	4674	11	209	11.2
370	8ES1354	96N	4674	11	209	11.2
371	8ES1354	96N	4720	3	1	0.6
372	8ES1354	96N	4730	10	2	0.5
373	8ES1354	96N	4730	10	2	0.5
374	8ES1354	96N	4732	7	1	0.4
375	8ES1354	96N	4795	10	3	0.1
376	8ES1354	96N	4795	10	3	0.1
377	8ES1354	96N	4795	10	3	0.1
378	8ES1354	96N	4797	4	1	20
379	8ES1354	96N	4797	8	2	0.9
380	8ES1354	96N	4797	8	2	0.9

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
343	LEAD	DROPPED	2.03	0.080	COMPLETE
344	LEAD	DROPPED	1.77	0.070	COMPLETE
345	LEAD	DROPPED	1.71	0.067	COMPLETE
346	LEAD	DROPPED	2.92	0.115	COMPLETE
347	LEAD	DROPPED	3.22	0.127	COMPLETE
348	LEAD	DROPPED	3.6	0.142	COMPLETE
349	LEAD	DROPPED	2.61	0.103	COMPLETE
350	LEAD	DROPPED	1.49	0.059	COMPLETE
351	LEAD	DROPPED	2.18	0.086	COMPLETE
352	LEAD	DROPPED	1.71	0.067	COMPLETE
353	LEAD	DROPPED	1.59	0.063	COMPLETE
354	LEAD	DROPPED	1.77	0.070	COMPLETE
355	LEAD	DROPPED	1.9	0.075	COMPLETE
356	LEAD	DROPPED	1.99	0.078	COMPLETE
357	LEAD	DROPPED	2.19	0.086	COMPLETE
358	LEAD	DROPPED	1.52	0.060	COMPLETE
359	LEAD	DROPPED	1.83	0.072	COMPLETE
360	LEAD	DROPPED	1.94	0.076	COMPLETE
361	LEAD	DROPPED	1.95	0.077	COMPLETE
362	LEAD	DROPPED	2.29	0.090	COMPLETE
363	LEAD	DROPPED	1.67	0.066	COMPLETE
364	LEAD	DROPPED	2.05	0.081	COMPLETE
365	LEAD	DROPPED	1.71	0.067	COMPLETE
366	LEAD	DROPPED	1.76	0.069	COMPLETE
367	LEAD	DROPPED	2.7	0.106	COMPLETE
368	LEAD	DROPPED	1.18	0.046	COMPLETE
369	LEAD	DROPPED	2.51	0.099	COMPLETE
370	IRON	DROPPED	2.75	0.108	COMPLETE
371	LEAD	DROPPED	4.58	0.180	COMPLETE
372	LEAD	DROPPED	3.88	0.153	COMPLETE
373	LEAD	DROPPED	4.16	0.164	COMPLETE
374	LEAD	DROPPED	3.94	0.155	COMPLETE
375	LEAD	DROPPED	2.1	0.083	COMPLETE
376	LEAD	DROPPED	2.02	0.080	COMPLETE
377	LEAD	DROPPED	1.8	0.071	COMPLETE
378	LEAD	CAST	15.18	0.598	COMPLETE
379	LEAD	DROPPED	3.15	0.124	COMPLETE
380	LEAD	DROPPED	3.53	0.139	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
381	8ES1354	96N	4798	7	1	0.2
382	8ES1354	96N	4801	13	1	0.2
383	8ES1354	96N	4802	9	7	0.6
384	8ES1354	96N	4802	9	7	0.6
385	8ES1354	96N	4802	9	7	0.6
386	8ES1354	96N	4802	9	7	0.6
387	8ES1354	96N	4802	9	7	0.6
388	8ES1354	96N	4802	9	7	0.6
389	8ES1354	96N	4802	9	7	0.6
390	8ES1354	96N	4818	9	2	1.3
391	8ES1354	96N	4818	9	2	1.3
392	8ES1354	96N	4838	3	1	0.4
393	8ES1354	96N	4845	13	6	1.2
394	8ES1354	96N	4845	13	6	1.2
395	8ES1354	96N	4845	13	6	1.2
396	8ES1354	96N	4845	13	6	1.2
397	8ES1354	96N	4845	13	6	1.2
398	8ES1354	96N	4845	13	6	1.2
399	8ES1354	96N	4847	17	2	1
400	8ES1354	96N	4847	17	2	1
401	8ES1354	96N	4848	1	3	1
402	8ES1354	96N	4848	1	3	1
403	8ES1354	96N	4848	1	3	1
404	8ES1354	96N	4849	61	1	19.4
405	8ES1354	96N	4849	68	9	3.9
406	8ES1354	96N	4849	68	9	3.9
407	8ES1354	96N	4849	68	9	3.9
408	8ES1354	96N	4849	68	9	3.9
409	8ES1354	96N	4849	68	9	3.9
410	8ES1354	96N	4849	68	9	3.9
411	8ES1354	96N	4849	68	9	3.9
412	8ES1354	96N	4849	68	9	3.9
413	8ES1354	96N	4849	68	9	3.9
414	8ES1354	96N	4849	69	7	8.2
415	8ES1354	96N	4849	69	7	8.2
416	8ES1354	96N	4849	69	7	8.2
417	8ES1354	96N	4849	69	7	8.2
418	8ES1354	96N	4849	69	7	8.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
381	LEAD	DROPPED	3.74	0.147	COMPLETE
382	LEAD	DROPPED	3.34	0.131	COMPLETE
383	LEAD	DROPPED	3.1	0.122	COMPLETE
384	LEAD	DROPPED	3.43	0.135	COMPLETE
385	LEAD	DROPPED	1.85	0.073	COMPLETE
386	LEAD	DROPPED	2.51	0.099	COMPLETE
387	LEAD	DROPPED	3.87	0.152	COMPLETE
388	LEAD	DROPPED	2.36	0.093	COMPLETE
389	LEAD	DROPPED	1.85	0.073	COMPLETE
390	LEAD	DROPPED	5.41	0.213	COMPLETE
391	LEAD	DROPPED	4.32	0.170	COMPLETE
392	LEAD	DROPPED	4.49	0.177	COMPLETE
393	LEAD	DROPPED	5.27	0.207	COMPLETE
394	LEAD	DROPPED	3.67	0.144	COMPLETE
395	LEAD	DROPPED	1.87	0.074	COMPLETE
396	LEAD	DROPPED	2.78	0.109	COMPLETE
397	LEAD	DROPPED	3.21	0.126	COMPLETE
398	LEAD	DROPPED	1.9	0.075	COMPLETE
399	LEAD	DROPPED	4.6	0.181	COMPLETE
400	LEAD	DROPPED	4.57	0.180	INCOMPLETE
401	LEAD	DROPPED	2.98	0.117	COMPLETE
402	LEAD	DROPPED	4.52	0.178	COMPLETE
403	LEAD	DROPPED	4.54	0.179	COMPLETE
404	LEAD	CAST	15.05	0.593	COMPLETE
405	LEAD	DROPPED	4.22	0.166	COMPLETE
406	LEAD	DROPPED	4.64	0.183	COMPLETE
407	LEAD	DROPPED	3.66	0.144	COMPLETE
408	LEAD	DROPPED	4	0.157	COMPLETE
409	LEAD	DROPPED	4.89	0.193	COMPLETE
410	LEAD	DROPPED	3.54	0.139	COMPLETE
411	LEAD	DROPPED	3.2	0.126	COMPLETE
412	LEAD	DROPPED	3.31	0.130	COMPLETE
413	LEAD	DROPPED	5.18	0.204	COMPLETE
414	LEAD	DROPPED	4.64	0.183	COMPLETE
415	LEAD	DROPPED	5.54	0.218	COMPLETE
416	LEAD	DROPPED	6.18	0.243	COMPLETE
417	LEAD	DROPPED	4.18	0.165	COMPLETE
418	LEAD	DROPPED	3.94	0.155	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
419	8ES1354	96N	4849	69	7	8.2
420	8ES1354	96N	4850	43	4	2.2
421	8ES1354	96N	4850	43	4	2.2
422	8ES1354	96N	4850	43	4	2.2
423	8ES1354	96N	4850	43	4	2.2
424	8ES1354	96N	4850	46	1	17.8
425	8ES1354	96N	4850	47	4	0.7
426	8ES1354	96N	4850	47	4	0.7
427	8ES1354	96N	4850	47	4	0.7
428	8ES1354	96N	4850	47	4	0.7
429	8ES1354	96N	4888	9	2	1.2
430	8ES1354	96N	4888	9	2	1.2
431	8ES1354	96N	4894	7	4	0.9
432	8ES1354	96N	4894	7	4	0.9
433	8ES1354	96N	4894	7	4	0.9
434	8ES1354	96N	4894	7	4	0.9
435	8ES1354	96N	4905	5	6	2.5
436	8ES1354	96N	4905	5	6	2.5
437	8ES1354	96N	4905	5	6	2.5
438	8ES1354	96N	4905	5	6	2.5
439	8ES1354	96N	4905	5	6	2.5
440	8ES1354	96N	4906	23	3	0.5
441	8ES1354	96N	4906	23	3	0.5
442	8ES1354	96N	4906	23	3	0.5
443	8ES1354	96N	4921	8	1	0.1
444	8ES1354	96N	4923	17	1	0.8
445	8ES1354	96N	4935	7	17	6
446	8ES1354	96N	4935	7	17	6
447	8ES1354	96N	4935	7	17	6
448	8ES1354	96N	4935	7	17	6
449	8ES1354	96N	4935	7	17	6
450	8ES1354	96N	4935	7	17	6
451	8ES1354	96N	4935	7	17	6
452	8ES1354	96N	4935	7	17	6
453	8ES1354	96N	4935	7	17	6
454	8ES1354	96N	4935	7	17	6
455	8ES1354	96N	4935	7	17	6
456	8ES1354	96N	4935	7	17	6

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
419	LEAD	DROPPED	5.28	0.208	COMPLETE
420	LEAD	DROPPED	4.55	0.179	COMPLETE
421	LEAD	DROPPED	5.12	0.202	COMPLETE
422	LEAD	DROPPED	4.69	0.185	COMPLETE
423	LEAD	DROPPED	4.71	0.185	COMPLETE
424	LEAD	CAST	13.69	0.539	COMPLETE
425	LEAD	DROPPED	3.68	0.145	COMPLETE
426	LEAD	DROPPED	3.17	0.125	COMPLETE
427	LEAD	DROPPED	3.5	0.138	COMPLETE
428	LEAD	DROPPED	4.28	0.169	COMPLETE
429	LEAD	DROPPED	4.06	0.160	COMPLETE
430	LEAD	DROPPED	4.12	0.162	COMPLETE
431	LEAD	DROPPED	4.51	0.178	COMPLETE
432	LEAD	DROPPED	2.33	0.092	COMPLETE
433	LEAD	DROPPED	2.08	0.082	COMPLETE
434	LEAD	DROPPED	3.61	0.142	COMPLETE
435	LEAD	DROPPED	3.85	0.152	COMPLETE
436	LEAD	DROPPED	4.63	0.182	COMPLETE
437	LEAD	DROPPED	3.46	0.136	COMPLETE
438	LEAD	DROPPED	5.19	0.204	COMPLETE
439	LEAD	DROPPED	4.61	0.181	COMPLETE
440	LEAD	DROPPED	4	0.157	COMPLETE
441	LEAD	DROPPED	4.45	0.175	COMPLETE
442	LEAD	DROPPED	3.37	0.133	COMPLETE
443	LEAD	DROPPED	3.47	0.137	COMPLETE
444	LEAD	DROPPED	4.81	0.189	COMPLETE
445	LEAD	DROPPED	5.08	0.200	COMPLETE
446	LEAD	DROPPED	3.15	0.124	COMPLETE
447	LEAD	DROPPED	3.97	0.156	COMPLETE
448	LEAD	DROPPED	4.46	0.176	COMPLETE
449	LEAD	DROPPED	4.97	0.196	COMPLETE
450	LEAD	DROPPED	3.49	0.137	COMPLETE
451	LEAD	DROPPED	4.48	0.176	COMPLETE
452	LEAD	DROPPED	4.44	0.175	COMPLETE
453	LEAD	DROPPED	3.71	0.146	COMPLETE
454	LEAD	DROPPED	3.15	0.124	COMPLETE
455	LEAD	DROPPED	3.2	0.126	COMPLETE
456	LEAD	DROPPED	5.55	0.219	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
457	8ES1354	96N	4935	7	17	6
458	8ES1354	96N	4935	7	17	6
459	8ES1354	96N	4935	7	17	6
460	8ES1354	96N	4935	7	17	6
461	8ES1354	96N	4936	2	7	5.1
462	8ES1354	96N	4936	2	7	5.1
463	8ES1354	96N	4936	2	7	5.1
464	8ES1354	96N	4936	2	7	5.1
465	8ES1354	96N	4936	2	7	5.1
466	8ES1354	96N	4936	2	7	5.1
467	8ES1354	96N	4936	2	7	5.1
468	8ES1354	96N	4936	31	5	3.8
469	8ES1354	96N	4936	31	5	3.8
470	8ES1354	96N	4936	31	5	3.8
471	8ES1354	96N	4936	31	5	3.8
472	8ES1354	96N	4936	31	5	3.8
473	8ES1354	96N	4937	5	11	3.6
474	8ES1354	96N	4937	5	11	3.6
475	8ES1354	96N	4937	5	11	3.6
476	8ES1354	96N	4937	5	11	3.6
477	8ES1354	96N	4937	5	11	3.6
478	8ES1354	96N	4937	5	11	3.6
479	8ES1354	96N	4937	5	11	3.6
480	8ES1354	96N	4937	5	11	3.6
481	8ES1354	96N	4937	5	11	3.6
482	8ES1354	96N	4937	5	11	3.6
483	8ES1354	96N	4937	5	11	3.6
484	8ES1354	96N	4997	24	9	2.6
485	8ES1354	96N	4997	24	9	2.6
486	8ES1354	96N	4997	24	9	2.6
487	8ES1354	96N	4997	24	9	2.6
488	8ES1354	96N	4997	24	9	2.6
489	8ES1354	96N	4997	24	9	2.6
490	8ES1354	96N	4997	24	9	2.6
491	8ES1354	96N	4997	24	9	2.6
492	8ES1354	96N	4997	24	9	2.6
493	8ES1354	96N	4997	28	1	23
494	8ES1354	96N	4998	4	5	2.4

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
457	LEAD	DROPPED	5.1	0.201	COMPLETE
458	LEAD	DROPPED	3.34	0.131	COMPLETE
459	LEAD	DROPPED	3.55	0.140	COMPLETE
460	LEAD	DROPPED	5.01	0.197	COMPLETE
461	LEAD	DROPPED	3.7	0.146	COMPLETE
462	LEAD	DROPPED	5.22	0.206	COMPLETE
463	LEAD	DROPPED	4.42	0.174	COMPLETE
464	LEAD	DROPPED	4.21	0.166	COMPLETE
465	LEAD	DROPPED	5.02	0.198	COMPLETE
466	LEAD	DROPPED	2.62	0.103	COMPLETE
467	LEAD	DROPPED	2.94	0.116	COMPLETE
468	LEAD	DROPPED	4.98	0.196	COMPLETE
469	LEAD	DROPPED	5.59	0.220	COMPLETE
470	LEAD	DROPPED	5.34	0.210	COMPLETE
471	LEAD	DROPPED	5.72	0.225	COMPLETE
472	LEAD	DROPPED	5.58	0.220	COMPLETE
473	LEAD	DROPPED	3.21	0.126	COMPLETE
474	LEAD	DROPPED	5.18	0.204	COMPLETE
475	LEAD	DROPPED	5.15	0.203	COMPLETE
476	LEAD	DROPPED	4.53	0.178	COMPLETE
477	LEAD	DROPPED	4.86	0.191	COMPLETE
478	LEAD	DROPPED	3.04	0.120	COMPLETE
479	LEAD	DROPPED	3.21	0.126	COMPLETE
480	LEAD	DROPPED	3.72	0.146	COMPLETE
481	LEAD	DROPPED	3.72	0.146	COMPLETE
482	LEAD	DROPPED	4.13	0.163	COMPLETE
483	LEAD	DROPPED	1.8	0.071	COMPLETE
484	LEAD	DROPPED	3.84	0.151	COMPLETE
485	LEAD	DROPPED	3.33	0.131	COMPLETE
486	LEAD	DROPPED	2.67	0.105	COMPLETE
487	LEAD	DROPPED	4.39	0.173	COMPLETE
488	LEAD	DROPPED	4.56	0.180	COMPLETE
489	LEAD	DROPPED	3.42	0.135	COMPLETE
490	LEAD	DROPPED	3.68	0.145	COMPLETE
491	LEAD	DROPPED	3.77	0.148	COMPLETE
492	LEAD	DROPPED	3.72	0.146	COMPLETE
493	LEAD	CAST	15.5	0.610	COMPLETE
494	LEAD	DROPPED	5.44	0.214	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
495	8ES1354	96N	4998	4	5	2.4
496	8ES1354	96N	4998	4	5	2.4
497	8ES1354	96N	4998	4	5	2.4
498	8ES1354	96N	4998	4	5	2.4
499	8ES1354	96N	4999	13	2	0.7
500	8ES1354	96N	4999	13	2	0.7
501	8ES1354	96N	5001	03	2	0.05
502	8ES1354	96N	5001	03	2	0.05
503	8ES1354	96N	5098	11	2	0.5
504	8ES1354	96N	5098	11	2	0.5
505	8ES1354	97N	6142	04	1	0.4
506	8ES1354	97N	6150	05	1	0.2
507	8ES1354	98N	6982	6	1	0.1
508	8ES1354	98N	6984	11	2	0.8
509	8ES1354	98N	6984	11	2	0.8
510	8ES1354	98N	6995	81	4	0.5
511	8ES1354	98N	6995	81	4	0.5
512	8ES1354	98N	6995	81	4	0.5
513	8ES1354	98N	6995	81	4	0.5
514	8ES1354	98N	6995	82	10	4.9
515	8ES1354	98N	6995	82	10	4.9
516	8ES1354	98N	6995	82	10	4.9
517	8ES1354	98N	6995	82	10	4.9
518	8ES1354	98N	6995	82	10	4.9
519	8ES1354	98N	6995	82	10	4.9
520	8ES1354	98N	6995	82	10	4.9
521	8ES1354	98N	6995	82	10	4.9
522	8ES1354	98N	6995	82	10	4.9
523	8ES1354	98N	6995	82	10	4.9
524	8ES1354	98N	6995	83	1	2.4
525	8ES1354	98N	6996	9	2	0.6
526	8ES1354	98N	6996	9	2	0.6
527	8ES1354	98N	6997	7	3	1
528	8ES1354	98N	6997	7	3	1
529	8ES1354	98N	6997	7	3	1
530	8ES1354	98N	6998	4	1	0.1
531	8ES1354	98N	6999	7	1	0.5
532	8ES1354	98N	7003	7	1	19.5

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
495	LEAD	DROPPED	5.3	0.209	COMPLETE
496	LEAD	DROPPED	4.33	0.170	COMPLETE
497	LEAD	DROPPED	3.65	0.144	COMPLETE
498	LEAD	DROPPED	3.36	0.132	COMPLETE
499	LEAD	DROPPED	3.48	0.137	COMPLETE
500	LEAD	DROPPED	4.23	0.167	COMPLETE
501	LEAD	DROPPED	1.71	0.067	COMPLETE
502	LEAD	DROPPED	2.89	0.114	COMPLETE
503	LEAD	DROPPED	3.41	0.134	COMPLETE
504	LEAD	DROPPED	4.02	0.158	COMPLETE
505	LEAD	DROPPED	4.77	0.188	COMPLETE
506	LEAD	DROPPED	3.51	0.138	COMPLETE
507	LEAD	DROPPED	2.4	0.094	COMPLETE
508	LEAD	DROPPED	5.22	0.206	COMPLETE
509	LEAD	DROPPED	2.31	0.091	COMPLETE
510	LEAD	DROPPED	4.19	0.165	COMPLETE
511	LEAD	DROPPED	3.01	0.119	COMPLETE
512	LEAD	DROPPED	3.06	0.120	COMPLETE
513	LEAD	DROPPED	2.81	0.111	COMPLETE
514	LEAD	DROPPED	5.88	0.231	COMPLETE
515	LEAD	DROPPED	4.68	0.184	COMPLETE
516	LEAD	DROPPED	4.77	0.188	COMPLETE
517	LEAD	DROPPED	5.1	0.201	COMPLETE
518	LEAD	DROPPED	4.83	0.190	COMPLETE
519	LEAD	DROPPED	5.48	0.216	COMPLETE
520	LEAD	DROPPED	4.81	0.189	COMPLETE
521	LEAD	DROPPED	4.38	0.172	COMPLETE
522	LEAD	DROPPED	4.77	0.188	COMPLETE
523	LEAD	DROPPED	4.57	0.180	COMPLETE
524	LEAD	CAST	7.51	0.296	COMPLETE
525	LEAD	DROPPED	4.09	0.161	COMPLETE
526	LEAD	DROPPED	4.61	0.181	COMPLETE
527	LEAD	DROPPED	4.7	0.185	COMPLETE
528	LEAD	DROPPED	4.53	0.178	COMPLETE
529	LEAD	DROPPED	2.96	0.117	COMPLETE
530	LEAD	DROPPED	3.18	0.125	COMPLETE
531	LEAD	CAST	5.33	0.210	COMPLETE
532	LEAD	CAST	15.08	0.594	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
533	8ES1354	98N	7004	7	1	0.4
534	8ES1354	98N	7004	8	1	0.5
535	8ES1354	98N	7150	3	1	0.6
536	8ES1354	98N	7151	12	1	0.8
537	8ES1354	98N	7152	9	1	0.6
538	8ES1354	98N	7152	14	1	0.2
539	8ES1354	98N	7154	4	2	1
540	8ES1354	98N	7154	4	2	1
541	8ES1354	98N	7154	5	1	0.7
542	8ES1354	98N	7155	1	1	0.7
543	8ES1354	98N	7156	14	1	0.6
544	8ES1354	98N	7156	15	1	0.8
545	8ES1354	98N	7163	7	1	1.3
546	8ES1354	98N	7164	4	4	1.7
547	8ES1354	98N	7164	4	4	1.7
548	8ES1354	98N	7164	4	4	1.7
549	8ES1354	98N	7164	4	4	1.7
550	8ES1354	98N	7164	18	1	19.9
551	8ES1354	98N	7199	7	4	1.4
552	8ES1354	98N	7199	7	4	1.4
553	8ES1354	98N	7199	7	4	1.4
554	8ES1354	98N	7199	7	4	1.4
555	8ES1354	98N	7200	11	12	4.6
556	8ES1354	98N	7200	11	12	4.6
557	8ES1354	98N	7200	11	12	4.6
558	8ES1354	98N	7200	11	12	4.6
559	8ES1354	98N	7200	11	12	4.6
560	8ES1354	98N	7200	11	12	4.6
561	8ES1354	98N	7200	11	12	4.6
562	8ES1354	98N	7200	11	12	4.6
563	8ES1354	98N	7200	11	12	4.6
564	8ES1354	98N	7200	11	12	4.6
565	8ES1354	98N	7200	11	12	4.6
566	8ES1354	98N	7200	11	12	4.6
567	8ES1354	98N	7200	12	1	0.9
568	8ES1354	98N	7200	13	1	2.5
569	8ES1354	98N	7201	11	3	1.3
570	8ES1354	98N	7201	11	3	1.3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
533	LEAD	DROPPED	4.68	0.184	COMPLETE
534	LEAD	DROPPED	4.9	0.193	COMPLETE
535	LEAD	DROPPED	4.95	0.195	COMPLETE
536	LEAD	DROPPED	5.14	0.202	COMPLETE
537	LEAD	DROPPED	5.17	0.204	COMPLETE
538	LEAD	DROPPED	3.48	0.137	COMPLETE
539	LEAD	DROPPED	4.68	0.184	COMPLETE
540	LEAD	DROPPED	4.56	0.180	COMPLETE
541	LEAD	DROPPED	5.2	0.205	COMPLETE
542	LEAD	DROPPED	5.26	0.207	COMPLETE
543	LEAD	DROPPED	5.12	0.202	COMPLETE
544	LEAD	DROPPED	5.1	0.201	COMPLETE
545	LEAD	DROPPED	6.31	0.248	INCOMPLETE
546	LEAD	DROPPED	4.11	0.162	COMPLETE
547	LEAD	DROPPED	3.12	0.123	COMPLETE
548	LEAD	DROPPED	4.88	0.192	COMPLETE
549	LEAD	DROPPED	4.08	0.161	COMPLETE
550	LEAD	DROPPED	15.54	0.612	COMPLETE
551	LEAD	DROPPED	5.05	0.199	COMPLETE
552	LEAD	DROPPED	3.48	0.137	COMPLETE
553	LEAD	DROPPED	3.07	0.121	COMPLETE
554	LEAD	DROPPED	4.94	0.194	COMPLETE
555	LEAD	DROPPED	5	0.197	COMPLETE
556	LEAD	DROPPED	4.78	0.188	COMPLETE
557	LEAD	DROPPED	4.53	0.178	COMPLETE
558	LEAD	DROPPED	3.64	0.143	COMPLETE
559	LEAD	DROPPED	3.46	0.136	COMPLETE
560	LEAD	DROPPED	3.58	0.141	COMPLETE
561	LEAD	DROPPED	3.56	0.140	COMPLETE
562	LEAD	DROPPED	3.34	0.131	COMPLETE
563	LEAD	DROPPED	4.21	0.166	COMPLETE
564	LEAD	DROPPED	4.09	0.161	COMPLETE
565	LEAD	DROPPED	4.98	0.196	COMPLETE
566	LEAD	DROPPED	3.57	0.141	COMPLETE
567	LEAD	DROPPED	5.75	0.226	COMPLETE
568	LEAD	DROPPED	8.19	0.322	COMPLETE
569	LEAD	DROPPED	3.67	0.144	COMPLETE
570	LEAD	DROPPED	5.14	0.202	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
571	8ES1354	98N	7201	11	3	1.3
572	8ES1354	98N	7201	12	1	0.6
573	8ES1354	98N	7201	13	1	0.8
574	8ES1354	98N	7281	3	1	0.1
575	8ES1354	98N	7282	14	1	0.7
576	8ES1354	98N	7284	8	9	1.6
577	8ES1354	98N	7284	8	9	1.6
578	8ES1354	98N	7284	8	9	1.6
579	8ES1354	98N	7284	8	9	1.6
580	8ES1354	98N	7284	8	9	1.6
581	8ES1354	98N	7284	8	9	1.6
582	8ES1354	98N	7284	8	9	1.6
583	8ES1354	98N	7284	8	9	1.6
584	8ES1354	98N	7284	8	9	1.6
585	8ES1354	98N	7285	3	2	0.8
586	8ES1354	98N	7285	3	2	0.8
587	8ES1354	98N	7292	11	2	0.5
588	8ES1354	98N	7292	11	2	0.5
589	8ES1354	98N	7329	11	1	21.2
590	8ES1354	98N	7332	4	1	0.1
591	8ES1354	98N	7334	49	1	0.5
592	8ES1354	98N	7338	3	1	0.9
593	8ES1354	98N	7341	9	1	0.1
594	8ES1354	98N	7341	10	1	0.1
595	8ES1354	98N	7346	9	2	0.7
596	8ES1354	98N	7346	9	2	0.7
597	8ES1354	98N	7346	10	2	1.3
598	8ES1354	98N	7346	10	2	1.3
599	8ES1354	98N	7348	15	1	0.6
600	8ES1354	98N	7348	16	1	0.5
601	8ES1354	98N	7349	2	10	6.4
602	8ES1354	98N	7349	2	10	6.4
603	8ES1354	98N	7349	2	10	6.4
604	8ES1354	98N	7349	2	10	6.4
605	8ES1354	98N	7349	2	10	6.4
606	8ES1354	98N	7349	2	10	6.4
607	8ES1354	98N	7349	2	10	6.4
608	8ES1354	98N	7349	2	10	6.4

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
571	LEAD	DROPPED	4.16	0.164	COMPLETE
572	LEAD	DROPPED	5.1	0.201	COMPLETE
573	LEAD	DROPPED	5.53	0.218	COMPLETE
574	LEAD	DROPPED	2.31	0.091	COMPLETE
575	LEAD	DROPPED	5.4	0.213	COMPLETE
576	LEAD	DROPPED	5.08	0.200	COMPLETE
577	LEAD	DROPPED	4.15	0.163	COMPLETE
578	LEAD	DROPPED	3.1	0.122	COMPLETE
579	LEAD	DROPPED	2.99	0.118	COMPLETE
580	LEAD	DROPPED	3.09	0.122	COMPLETE
581	LEAD	DROPPED	2.11	0.083	COMPLETE
582	LEAD	DROPPED	2.35	0.093	COMPLETE
583	LEAD	DROPPED	1.66	0.065	COMPLETE
584	LEAD	DROPPED	2.2	0.087	COMPLETE
585	LEAD	DROPPED	4.26	0.168	COMPLETE
586	LEAD	DROPPED	4.62	0.182	COMPLETE
587	LEAD	DROPPED	4.79	0.189	COMPLETE
588	LEAD	DROPPED	1.71	0.067	COMPLETE
589	LEAD	CAST	15.42	0.607	COMPLETE
590	LEAD	DROPPED	2.07	0.081	COMPLETE
591	LEAD	DROPPED	4.64	0.183	COMPLETE
592	LEAD	DROPPED	4.22	0.166	COMPLETE
593	LEAD	DROPPED	3.77	0.148	COMPLETE
594	LEAD	DROPPED	5.09	0.200	COMPLETE
595	LEAD	DROPPED	4.7	0.185	COMPLETE
596	LEAD	DROPPED	4.34	0.171	COMPLETE
597	LEAD	DROPPED	5.62	0.221	COMPLETE
598	LEAD	DROPPED	4.45	0.175	COMPLETE
599	LEAD	DROPPED	4.67	0.184	COMPLETE
600	LEAD	DROPPED	5.03	0.198	COMPLETE
601	LEAD	DROPPED	5.1	0.201	COMPLETE
602	LEAD	DROPPED	5.48	0.216	COMPLETE
603	LEAD	DROPPED	5.19	0.204	COMPLETE
604	LEAD	DROPPED	4.94	0.194	COMPLETE
605	LEAD	DROPPED	5.8	0.228	COMPLETE
606	LEAD	DROPPED	5.42	0.213	COMPLETE
607	LEAD	DROPPED	5.01	0.197	COMPLETE
608	LEAD	DROPPED	5.45	0.215	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
609	8ES1354	98N	7349	2	10	6.4
610	8ES1354	98N	7349	2	10	6.4
611	8ES1354	98N	7349	3	2	0.3
612	8ES1354	98N	7349	3	2	0.3
613	8ES1354	98N	7350	1	6	3.4
614	8ES1354	98N	7350	1	6	3.4
615	8ES1354	98N	7350	1	6	3.4
616	8ES1354	98N	7350	1	6	3.4
617	8ES1354	98N	7350	1	6	3.4
618	8ES1354	98N	7350	1	6	3.4
619	8ES1354	98N	7350	2	1	0.1
620	8ES1354	98N	7351	3	3	0.8
621	8ES1354	98N	7351	3	3	0.8
622	8ES1354	98N	7351	3	3	0.8
623	8ES1354	98N	7351	4	2	1.3
624	8ES1354	98N	7351	4	2	1.3
625	8ES1354	98N	7360	29	2 (1)	0.7
626	8ES1354	98N	7444	6	3	1
627	8ES1354	98N	7444	6	3	1
628	8ES1354	98N	7444	6	3	1
629	8ES1354	98N	7444	7	1	0.8
630	8ES1354	98N	7445	4	4	0.6
631	8ES1354	98N	7445	4	4	0.6
632	8ES1354	98N	7445	4	4	0.6
633	8ES1354	98N	7445	4	4	0.6
634	8ES1354	98N	7446	17	1	0.3
635	8ES1354	98N	7446	18	1	0.7
636	8ES1354	98N	7459	5	1	0.2
637	8ES1354	98N	7460	3	3	0.8
638	8ES1354	98N	7460	3	3	0.8
639	8ES1354	98N	7460	3	3	0.8
640	8ES1354	98N	7462	3	1	0.6
641	8ES1354	98N	7463	7	1	0.1
642	8ES1354	98N	7469	2	3	2.4
643	8ES1354	98N	7469	2	3	2.4
644	8ES1354	98N	7469	2	3	2.4
645	8ES1354	98N	7471	18	1	0.4
646	8ES1354	98N	7520	12	1	1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
609	LEAD	DROPPED	5.11	0.201	COMPLETE
610	LEAD	DROPPED	4.76	0.187	COMPLETE
611	LEAD	DROPPED	3.47	0.137	COMPLETE
612	LEAD	DROPPED	3.03	0.119	COMPLETE
613	LEAD	DROPPED	5.41	0.213	COMPLETE
614	LEAD	DROPPED	5.74	0.226	COMPLETE
615	LEAD	DROPPED	5.13	0.202	COMPLETE
616	LEAD	DROPPED	4.3	0.169	COMPLETE
617	LEAD	DROPPED	5.65	0.222	INCOMPLETE
618	LEAD	DROPPED	5.08	0.200	INCOMPLETE
619	LEAD	DROPPED	2.82	0.111	COMPLETE
620	LEAD	DROPPED	4.94	0.194	COMPLETE
621	LEAD	DROPPED	4.04	0.159	COMPLETE
622	LEAD	DROPPED	2.74	0.108	COMPLETE
623	LEAD	DROPPED	5.36	0.211	COMPLETE
624	LEAD	DROPPED	4.77	0.188	COMPLETE
625	LEAD	DROPPED	3.09	0.122	COMPLETE
626	LEAD	DROPPED	4.51	0.178	COMPLETE
627	LEAD	DROPPED	4.49	0.177	COMPLETE
628	LEAD	DROPPED	2.04	0.080	COMPLETE
629	LEAD	DROPPED	6	0.236	COMPLETE
630	LEAD	DROPPED	3.03	0.119	COMPLETE
631	LEAD	DROPPED	3.03	0.119	COMPLETE
632	LEAD	DROPPED	3.21	0.126	COMPLETE
633	LEAD	DROPPED	3.15	0.124	COMPLETE
634	LEAD	DROPPED	3.54	0.139	COMPLETE
635	LEAD	DROPPED	5.03	0.198	COMPLETE
636	LEAD	DROPPED	2.68	0.106	COMPLETE
637	LEAD	DROPPED	2.24	0.088	COMPLETE
638	LEAD	DROPPED	5	0.197	COMPLETE
639	LEAD	DROPPED	5.53	0.218	COMPLETE
640	LEAD	DROPPED	4.88	0.192	COMPLETE
641	LEAD	DROPPED	2.52	0.099	COMPLETE
642	LEAD	DROPPED	4.31	0.170	COMPLETE
643	LEAD	DROPPED	5.04	0.198	COMPLETE
644	LEAD	DROPPED	6.47	0.255	COMPLETE
645	LEAD	DROPPED	4.66	0.183	COMPLETE
646	LEAD	DROPPED	5.3	0.209	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
647	8ES1354	98N	7520	13	1	2.6
648	8ES1354	98N	7710	3	1	0.6
649	8ES1354	98N	7713	2	2	0.2
650	8ES1354	98N	7713	2	2	0.2
651	8ES1354	98N	7739	2	1	0.3
652	8ES1354	98N	7740	7	1	19.1
653	8ES1354	98N	7741	16	4	1
654	8ES1354	98N	7741	16	4	1
655	8ES1354	98N	7741	16	4	1
656	8ES1354	98N	7741	16	4	1
657	8ES1354	98N	7743	3	1	0.1
658	8ES1354	98N	7745	15	1	1.5
659	8ES1354	98N	7745	50	1	0.6
660	8ES1354	98N	7751	18	5	1.8
661	8ES1354	98N	7751	18	5	1.8
662	8ES1354	98N	7751	18	5	1.8
663	8ES1354	98N	7751	18	5	1.8
664	8ES1354	98N	7751	18	5	1.8
665	8ES1354	98N	7752	12	1	0.1
666	8ES1354	98N	7756	2	1	19.5
667	8ES1354	98N	7761	26	1	0.3
668	8ES1354	98N	7762	10	1	0.1
669	8ES1354	98N	7767	12	1	20
670	8ES1354	98N	7767	25	1	0.1
671	8ES1354	98N	7768	44	3	1.4
672	8ES1354	98N	7768	44	3	1.4
673	8ES1354	98N	7768	44	3	1.4
674	8ES1354	98N	7769	9	2	0.7
675	8ES1354	98N	7769	9	2	0.7
676	8ES1354	98N	7773	15	1	18.7
677	8ES1354	98N	7780	9	1	0.1
678	8ES1354	98N	7802	20	1	0.3
679	8ES1354	98N	7803	7	1	0.3
680	8ES1354	98N	7803	10	1	7.8
681	8ES1354	98N	7809	4	3	0.9
682	8ES1354	98N	7809	4	3	0.9
683	8ES1354	98N	7809	4	3	0.9
684	8ES1354	98N	7818	5	1	38.6

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
647	LEAD	DROPPED	8.11	0.319	COMPLETE
648	LEAD	DROPPED	5.15	0.203	COMPLETE
649	LEAD	DROPPED	2.94	0.116	COMPLETE
650	LEAD	DROPPED	3.24	0.128	COMPLETE
651	LEAD	DROPPED	4.02	0.158	COMPLETE
652	LEAD	CAST	15.29	0.602	COMPLETE
653	LEAD	DROPPED	2.93	0.115	COMPLETE
654	LEAD	DROPPED	3.1	0.122	COMPLETE
655	LEAD	DROPPED	5.2	0.205	COMPLETE
656	LEAD	DROPPED	2.55	0.100	COMPLETE
657	LEAD	DROPPED	2.76	0.109	COMPLETE
658	LEAD	DROPPED	5.03	0.198	COMPLETE
659	LEAD	DROPPED	5.29	0.208	COMPLETE
660	LEAD	DROPPED	4.39	0.173	COMPLETE
661	LEAD	DROPPED	4.94	0.194	COMPLETE
662	LEAD	DROPPED	3.33	0.131	COMPLETE
663	LEAD	DROPPED	5	0.197	COMPLETE
664	LEAD	DROPPED	3.09	0.122	COMPLETE
665	LEAD	DROPPED	2.34	0.092	COMPLETE
666	LEAD	CAST	15.38	0.606	COMPLETE
667	LEAD	DROPPED	3.93	0.155	COMPLETE
668	LEAD	DROPPED	2.7	0.106	COMPLETE
669	LEAD	CAST	16	0.630	COMPLETE
670	LEAD	DROPPED	3.28	0.129	COMPLETE
671	LEAD	DROPPED	4.76	0.187	COMPLETE
672	LEAD	DROPPED	4.85	0.191	COMPLETE
673	LEAD	DROPPED	3.2	0.126	COMPLETE
674	LEAD	DROPPED	2.87	0.113	COMPLETE
675	LEAD	DROPPED	4.57	0.180	COMPLETE
676	LEAD	CAST	16.2	0.638	COMPLETE
677	LEAD	DROPPED	3.1	0.122	COMPLETE
678	LEAD	DROPPED	2.94	0.116	COMPLETE
679	LEAD	DROPPED	4.19	0.165	COMPLETE
680	LEAD	CAST	0	0.000	INCOMPLETE
681	LEAD	DROPPED	4.79	0.189	COMPLETE
682	LEAD	DROPPED	3.03	0.119	COMPLETE
683	LEAD	DROPPED	3.88	0.153	COMPLETE
684	LEAD	CAST	18.86	0.743	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
685	8ES1354	98N	7821	11	1	13.5
686	8ES1354	98N	7821	12	2	0.6
687	8ES1354	98N	7821	12	2	0.6
688	8ES1354	98N	7836	1	2	0.4
689	8ES1354	98N	7836	1	2	0.4
690	8ES1354	98N	7842	8	1	11.8
691	8ES1354	98N	7844	8	4	1.3
692	8ES1354	98N	7844	8	4	1.3
693	8ES1354	98N	7844	8	4	1.3
694	8ES1354	98N	7844	8	4	1.3
695	8ES1354	98N	7846	69	1	0.7
696	8ES1354	98N	7846	90	9	2.3
697	8ES1354	98N	7846	90	9	2.3
698	8ES1354	98N	7846	90	9	2.3
699	8ES1354	98N	7846	90	9	2.3
700	8ES1354	98N	7846	90	9	2.3
701	8ES1354	98N	7846	90	9	2.3
702	8ES1354	98N	7846	90	9	2.3
703	8ES1354	98N	7846	90	9	2.3
704	8ES1354	98N	7846	90	9	2.3
705	8ES1354	98N	7855	5	2	0.7
706	8ES1354	98N	7855	5	2	0.7
707	8ES1354	98N	7856	11	1	0.8
708	8ES1354	98N	7856	12	1	0.6
709	8ES1354	98N	7856	13	1	2.6
710	8ES1354	98N	7861	7	2	0.7
711	8ES1354	98N	7861	7	2	0.7
712	8ES1354	98N	7862	12	3	0.2
713	8ES1354	98N	7862	12	3	0.2
714	8ES1354	98N	7862	12	3	0.2
715	8ES1354	98N	7863	10	2	0.3
716	8ES1354	98N	7863	10	2	0.3
717	8ES1354	98N	7865	2	2	0.3
718	8ES1354	98N	7865	2	2	0.3
719	8ES1354	98N	7867	7	2	0.2
720	8ES1354	98N	7867	7	2	0.2
721	8ES1354	98N	7869	1	7	2.3
722	8ES1354	98N	7869	1	7	2.3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
685	LEAD	CAST	16.03	0.631	COMPLETE
686	LEAD	DROPPED	5.11	0.201	COMPLETE
687	LEAD	DROPPED	3.38	0.133	COMPLETE
688	LEAD	DROPPED	4.66	0.183	COMPLETE
689	LEAD	DROPPED	1.51	0.059	COMPLETE
690	LEAD	CAST	13.06	0.514	COMPLETE
691	LEAD	DROPPED	3.98	0.157	COMPLETE
692	LEAD	DROPPED	4.77	0.188	COMPLETE
693	LEAD	DROPPED	4	0.157	COMPLETE
694	LEAD	DROPPED	4.75	0.187	COMPLETE
695	LEAD	DROPPED	5.12	0.202	COMPLETE
696	LEAD	DROPPED	4.48	0.176	COMPLETE
697	LEAD	DROPPED	4.13	0.163	COMPLETE
698	LEAD	DROPPED	4.55	0.179	COMPLETE
699	LEAD	DROPPED	3.49	0.137	COMPLETE
700	LEAD	DROPPED	3.1	0.122	COMPLETE
701	LEAD	DROPPED	2.5	0.098	COMPLETE
702	LEAD	DROPPED	3.36	0.132	COMPLETE
703	LEAD	DROPPED	5.44	0.214	COMPLETE
704	LEAD	DROPPED	4.19	0.165	INCOMPLETE
705	LEAD	DROPPED	4.49	0.177	COMPLETE
706	LEAD	DROPPED	3.91	0.154	COMPLETE
707	LEAD	DROPPED	5.57	0.219	COMPLETE
708	LEAD	DROPPED	5.42	0.213	COMPLETE
709	LEAD	CAST	8.62	0.339	COMPLETE
710	LEAD	DROPPED	3.78	0.149	COMPLETE
711	LEAD	DROPPED	4.68	0.184	COMPLETE
712	LEAD	DROPPED	3.62	0.143	COMPLETE
713	LEAD	DROPPED	3.69	0.145	COMPLETE
714	LEAD	DROPPED	1.96	0.077	COMPLETE
715	LEAD	DROPPED	2.46	0.097	COMPLETE
716	LEAD	DROPPED	4.41	0.174	COMPLETE
717	LEAD	DROPPED	3.72	0.146	COMPLETE
718	LEAD	DROPPED	3.52	0.139	COMPLETE
719	LEAD	DROPPED	3.91	0.154	COMPLETE
720	LEAD	DROPPED	2.16	0.085	COMPLETE
721	LEAD	DROPPED	3.18	0.125	COMPLETE
722	LEAD	DROPPED	3.91	0.154	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
723	8ES1354	98N	7869	1	7	2.3
724	8ES1354	98N	7869	1	7	2.3
725	8ES1354	98N	7869	1	7	2.3
726	8ES1354	98N	7869	1	7	2.3
727	8ES1354	98N	7869	1	7	2.3
728	8ES1354	98N	7872	6	1	0.5
729	8ES1354	98N	7873	4	1	0.7
730	8ES1354	98N	7892	18	1	0.1
731	8ES1354	98N	7896	21	1	0.4
732	8ES1354	98N	7903	12	3	0.8
733	8ES1354	98N	7903	12	3	0.8
734	8ES1354	98N	7903	12	3	0.8
735	8ES1354	98N	7916	7	2	1
736	8ES1354	98N	7916	7	2	1
737	8ES1354	98N	7917	6	2	0.3
738	8ES1354	98N	7917	6	2	0.3
739	8ES1354	98N	7922	10	1	18.5
740	8ES1354	98N	7922	11	5	0.4
741	8ES1354	98N	7922	11	5	0.4
742	8ES1354	98N	7922	11	5	0.4
743	8ES1354	98N	7922	11	5	0.4
744	8ES1354	98N	7922	11	5	0.4
745	8ES1354	98N	7923	8	1	0.1
746	8ES1354	98N	7925	6	3	0.9
747	8ES1354	98N	7925	6	3	0.9
748	8ES1354	98N	7925	6	3	0.9
749	8ES1354	98N	7929	5	1	0.3
750	8ES1354	98N	8025	13	1	0.2
751	8ES1354	98N	8025	33	3	1.9
752	8ES1354	98N	8025	33	3	1.9
753	8ES1354	98N	8025	33	3	1.9
754	8ES1354	98N	8099	7	3	1.8
755	8ES1354	98N	8099	7	3	1.8
756	8ES1354	98N	8099	7	3	1.8
757	8ES1354	98N	8113	8	3	1.9
758	8ES1354	98N	8113	8	3	1.9
759	8ES1354	98N	8113	8	3	1.9
760	8ES1354	98N	8114	13	1	0.8

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
723	LEAD	DROPPED	4.68	0.184	COMPLETE
724	LEAD	DROPPED	3.1	0.122	COMPLETE
725	LEAD	DROPPED	5.26	0.207	COMPLETE
726	LEAD	DROPPED	2.98	0.117	COMPLETE
727	LEAD	DROPPED	0	0.000	INCOMPLETE
728	LEAD	DROPPED	4.77	0.188	COMPLETE
729	LEAD	DROPPED	6.39	0.252	COMPLETE
730	LEAD	DROPPED	2.91	0.115	COMPLETE
731	LEAD	DROPPED	4.38	0.172	COMPLETE
732	LEAD	DROPPED	4.03	0.159	COMPLETE
733	LEAD	DROPPED	2.98	0.117	COMPLETE
734	LEAD	DROPPED	3.69	0.145	COMPLETE
735	LEAD	DROPPED	4.63	0.182	COMPLETE
736	LEAD	DROPPED	4.46	0.176	COMPLETE
737	LEAD	DROPPED	2.16	0.085	COMPLETE
738	LEAD	DROPPED	3.68	0.145	COMPLETE
739	LEAD	CAST	14.46	0.569	COMPLETE
740	LEAD	DROPPED	2.48	0.098	COMPLETE
741	LEAD	DROPPED	2.58	0.102	COMPLETE
742	LEAD	DROPPED	2.87	0.113	COMPLETE
743	LEAD	DROPPED	3.65	0.144	COMPLETE
744	LEAD	DROPPED	2.5	0.098	COMPLETE
745	LEAD	DROPPED	2.43	0.096	COMPLETE
746	LEAD	DROPPED	5.19	0.204	COMPLETE
747	LEAD	DROPPED	3.33	0.131	COMPLETE
748	LEAD	DROPPED	3.44	0.135	COMPLETE
749	LEAD	DROPPED	4.22	0.166	COMPLETE
750	LEAD	DROPPED	3.61	0.142	COMPLETE
751	LEAD	DROPPED	5.21	0.205	COMPLETE
752	LEAD	DROPPED	5.27	0.207	COMPLETE
753	LEAD	DROPPED	4.53	0.178	COMPLETE
754	LEAD	DROPPED	5.44	0.214	COMPLETE
755	LEAD	DROPPED	4.5	0.177	COMPLETE
756	LEAD	DROPPED	3.09	0.122	COMPLETE
757	LEAD	DROPPED	5.03	0.198	COMPLETE
758	LEAD	DROPPED	4.94	0.194	COMPLETE
759	LEAD	DROPPED	2.51	0.099	COMPLETE
760	LEAD	DROPPED	3.72	0.146	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
761	8ES1354	98N	8115	2	1	1.2
762	8ES1354	98N	8151	7	1	0.2
763	8ES1354	98N	8153	7	1	0.6
764	8ES1354	98N	8159	9	7	4
765	8ES1354	98N	8159	9	7	4
766	8ES1354	98N	8159	9	7	4
767	8ES1354	98N	8159	9	7	4
768	8ES1354	98N	8159	9	7	4
769	8ES1354	98N	8159	9	7	4
770	8ES1354	98N	8159	9	7	4
771	8ES1354	98N	8165	11	1	0.2
772	8ES1354	98N	8166	16	2	0.2
773	8ES1354	98N	8166	16	2	0.2
774	8ES1354	98N	8181	9	2	0.1
775	8ES1354	98N	8181	9	2	0.1
776	8ES1354	98N	8196	6	1	0.5
777	8ES1354	98N	8201	5	1	0.5
778	8ES1354	98N	8202	4	1	0.2
779	8ES1354	98N	8203	16	1	0.1
780	8ES1354	98N	8219	14	1	0.7
781	8ES1354	98N	8219	15	3	1.1
782	8ES1354	98N	8219	15	3	1.1
783	8ES1354	98N	8219	15	3	1.1
784	8ES1354	98N	8224	45	6	2.1
785	8ES1354	98N	8224	45	6	2.1
786	8ES1354	98N	8224	45	6	2.1
787	8ES1354	98N	8224	45	6	2.1
788	8ES1354	98N	8224	45	6	2.1
789	8ES1354	98N	8224	45	6	2.1
790	8ES1354	98N	8225	1	2	1.4
791	8ES1354	98N	8225	1	2	1.4
792	8ES1354	98N	8227	16	1	0.2
793	8ES1354	98N	8232	4	1	0.3
794	8ES1354	98N	8240	9	1	0.6
795	8ES1354	98N	8241	2	1	0.3
796	8ES1354	98N	8241	3	1	0.7
797	8ES1354	98N	8247	17	1	0.1
798	8ES1354	98N	8248	3	3	0.8

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
761	LEAD	DROPPED	5.34	0.210	COMPLETE
762	LEAD	DROPPED	2.63	0.104	COMPLETE
763	LEAD	DROPPED	4.64	0.183	COMPLETE
764	LEAD	DROPPED	4.86	0.191	COMPLETE
765	LEAD	DROPPED	4.41	0.174	COMPLETE
766	LEAD	DROPPED	5.19	0.204	COMPLETE
767	LEAD	DROPPED	5.56	0.219	COMPLETE
768	LEAD	DROPPED	4.91	0.193	COMPLETE
769	LEAD	DROPPED	5.09	0.200	COMPLETE
770	LEAD	DROPPED	5.05	0.199	COMPLETE
771	LEAD	DROPPED	3.41	0.134	COMPLETE
772	LEAD	DROPPED	2.39	0.094	COMPLETE
773	LEAD	DROPPED	3.21	0.126	COMPLETE
774	LEAD	DROPPED	2.45	0.096	COMPLETE
775	LEAD	DROPPED	1.73	0.068	COMPLETE
776	LEAD	DROPPED	5.36	0.211	COMPLETE
777	LEAD	DROPPED	3.7	0.146	COMPLETE
778	LEAD	DROPPED	3.01	0.119	COMPLETE
779	LEAD	DROPPED	1.97	0.078	COMPLETE
780	LEAD	DROPPED	5.72	0.225	COMPLETE
781	LEAD	DROPPED	5.33	0.210	COMPLETE
782	LEAD	DROPPED	1.89	0.074	COMPLETE
783	LEAD	DROPPED	4.06	0.160	COMPLETE
784	LEAD	DROPPED	3.54	0.139	COMPLETE
785	LEAD	DROPPED	4.9	0.193	COMPLETE
786	LEAD	DROPPED	4.88	0.192	COMPLETE
787	LEAD	DROPPED	3.95	0.156	COMPLETE
788	LEAD	DROPPED	3.81	0.150	COMPLETE
789	LEAD	DROPPED	3.56	0.140	COMPLETE
790	LEAD	DROPPED	5.32	0.209	COMPLETE
791	LEAD	DROPPED	5.05	0.199	COMPLETE
792	LEAD	DROPPED	3.8	0.150	COMPLETE
793	LEAD	DROPPED	4.36	0.172	COMPLETE
794	LEAD	DROPPED	4.89	0.193	COMPLETE
795	LEAD	DROPPED	3.56	0.140	COMPLETE
796	LEAD	DROPPED	4.62	0.182	COMPLETE
797	LEAD	DROPPED	2.83	0.111	COMPLETE
798	LEAD	DROPPED	4.72	0.186	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
799	8ES1354	98N	8248	3	3	0.8
800	8ES1354	98N	8248	3	3	0.8
801	8ES22	03P	0054	002	1	0.2
802	8ES22	03P	0399	001	1	0.3
803	8ES22	03P	881	52	2	
804	8ES22	03P	881	52	2	
805	8ES22	03P	881	53	1	
806	8ES22	03P	1034	006	1	0.3
807	8ES22	03P	1034	007	1	0.1
808	8ES22	03P	1034	008	1	0.1
809	8ES22	03P	1061	052	2	0.5
810	8ES22	03P	1061	052	2	0.5
811	8ES22	03P	1061	053	3	0.9
812	8ES22	03P	1061	053	3	0.9
813	8ES22	03P	1061	053	3	0.9
814	8ES22	03P	1061	054	1	0.5
815	8ES22	03P	1067	035	2	1
816	8ES22	03P	1067	035	2	1
817	8ES22	03P	1067	036	3	1.1
818	8ES22	03P	1067	036	3	1.1
819	8ES22	03P	1067	036	3	1.1
820	8ES22	03P	1067	037	2	0.4
821	8ES22	03P	1067	037	2	0.4
822	8ES22	03P	1082	064	4	0.9
823	8ES22	03P	1082	064	4	0.9
824	8ES22	03P	1082	064	4	0.9
825	8ES22	03P	1082	064	4	0.9
826	8ES22	03P	1082	065	1	0.3
827	8ES22	03P	1082	066	1	0.4
828	8ES22	03P	1082	067	6	1.8
829	8ES22	03P	1082	067	6	1.8
830	8ES22	03P	1082	067	6	1.8
831	8ES22	03P	1082	067	6	1.8
832	8ES22	03P	1082	067	6	1.8
833	8ES22	03P	1082	067	6	1.8
834	8ES22	03P	1082	068	1	0.4
835	8ES22	03P	1082	069	1	0.1
836	8ES22	03P	1084	037	5	1.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
799	LEAD	DROPPED	2.73	0.107	COMPLETE
800	LEAD	DROPPED	3.35	0.132	COMPLETE
801	LEAD	DROPPED	3.33	0.131	COMPLETE
802	LEAD	DROPPED	3.77	0.148	COMPLETE
803	LEAD	DROPPED	3.69	0.145	COMPLETE
804	LEAD	DROPPED	3.61	0.142	COMPLETE
805	LEAD	DROPPED	3.23	0.127	COMPLETE
806	LEAD	DROPPED	4.87	0.192	COMPLETE
807	LEAD	DROPPED	2.54	0.100	COMPLETE
808	LEAD	DROPPED	3.87	0.152	COMPLETE
809	LEAD	DROPPED	3.67	0.144	COMPLETE
810	LEAD	DROPPED	3.68	0.145	COMPLETE
811	LEAD	DROPPED	3.84	0.151	COMPLETE
812	LEAD	DROPPED	4.05	0.159	COMPLETE
813	LEAD	DROPPED	3.98	0.157	COMPLETE
814	LEAD	DROPPED	4.85	0.191	COMPLETE
815	LEAD	DROPPED	4.89	0.193	COMPLETE
816	LEAD	DROPPED	4.5	0.177	COMPLETE
817	LEAD	DROPPED	4.33	0.170	COMPLETE
818	LEAD	DROPPED	4.47	0.176	COMPLETE
819	LEAD	DROPPED	4.19	0.165	COMPLETE
820	LEAD	DROPPED	3.63	0.143	COMPLETE
821	LEAD	DROPPED	3.33	0.131	COMPLETE
822	LEAD	DROPPED	3.89	0.153	COMPLETE
823	LEAD	DROPPED	3.58	0.141	COMPLETE
824	LEAD	DROPPED	3.79	0.149	COMPLETE
825	LEAD	DROPPED	3.87	0.152	COMPLETE
826	LEAD	DROPPED	0	0.000	COMPLETE
827	LEAD	DROPPED	4.86	0.191	COMPLETE
828	LEAD	DROPPED	4.47	0.176	COMPLETE
829	LEAD	DROPPED	3.92	0.154	COMPLETE
830	LEAD	DROPPED	3.95	0.156	COMPLETE
831	LEAD	DROPPED	4.15	0.163	COMPLETE
832	LEAD	DROPPED	3.81	0.150	COMPLETE
833	LEAD	DROPPED	3.96	0.156	COMPLETE
834	LEAD	DROPPED	4.78	0.188	COMPLETE
835	LEAD	DROPPED	3.06	0.120	COMPLETE
836	LEAD	DROPPED	4.39	0.173	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
837	8ES22	03P	1084	037	5	1.1
838	8ES22	03P	1084	037	5	1.1
839	8ES22	03P	1084	037	5	1.1
840	8ES22	03P	1084	037	5	1.1
841	8ES22	03P	1084	041	7	0.7
842	8ES22	03P	1084	041	7	0.7
843	8ES22	03P	1084	041	7	0.7
844	8ES22	03P	1084	041	7	0.7
845	8ES22	03P	1084	041	7	0.7
846	8ES22	03P	1084	041	7	0.7
847	8ES22	03P	1084	041	7	0.7
848	8ES22	03P	1084	042	2	0.8
849	8ES22	03P	1084	042	2	0.8
850	8ES22	03P	1084	044	6	2.3
851	8ES22	03P	1084	044	6	2.3
852	8ES22	03P	1084	044	6	2.3
853	8ES22	03P	1084	044	6	2.3
854	8ES22	03P	1084	044	6	2.3
855	8ES22	03P	1084	044	6	2.3
856	8ES22	03P	1204	030	1	0.1
857	8ES22	03P	1204	032	2	0.1
858	8ES22	03P	1204	032	2	0.1
859	8ES22	03P	1204	033	1	0.1
860	8ES22	03P	1204	034	1	0.1
861	8ES22	03P	1228	008	2	0.8
862	8ES22	03P	1228	008	2	0.8
863	8ES22	03P	1267	001	1	0.6
864	8ES22	03P	1296	056	4	0.2
865	8ES22	03P	1296	056	4	0.2
866	8ES22	03P	1296	056	4	0.2
867	8ES22	03P	1296	056	4	0.2
868	8ES22	03P	1296	057	1	0.1
869	8ES22	03P	1310	025	1	0.2
870	8ES22	03P	1311	005	2	0.3
871	8ES22	03P	1311	005	2	0.3
872	8ES22	03P	1347	020	1	0.1
873	8ES22	03P	1363	005	1	0.2
874	8ES22	03P	1380	021	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
837	LEAD	DROPPED	3.93	0.155	COMPLETE
838	LEAD	DROPPED	3.97	0.156	COMPLETE
839	LEAD	DROPPED	4.03	0.159	COMPLETE
840	LEAD	DROPPED	3.99	0.157	COMPLETE
841	LEAD	DROPPED	3.86	0.152	COMPLETE
842	LEAD	DROPPED	3.6	0.142	COMPLETE
843	LEAD	DROPPED	3.51	0.138	COMPLETE
844	LEAD	DROPPED	3.14	0.124	COMPLETE
845	LEAD	DROPPED	2.97	0.117	COMPLETE
846	LEAD	DROPPED	3.78	0.149	COMPLETE
847	LEAD	DROPPED	3.45	0.136	COMPLETE
848	LEAD	DROPPED	4.31	0.170	COMPLETE
849	LEAD	DROPPED	4.06	0.160	COMPLETE
850	LEAD	DROPPED	4.98	0.196	COMPLETE
851	LEAD	DROPPED	4.44	0.175	COMPLETE
852	LEAD	DROPPED	3.96	0.156	COMPLETE
853	LEAD	DROPPED	4.44	0.175	COMPLETE
854	LEAD	DROPPED	4.08	0.161	COMPLETE
855	LEAD	DROPPED	5.15	0.203	COMPLETE
856	LEAD	DROPPED	2.15	0.085	COMPLETE
857	LEAD	DROPPED	2.87	0.113	COMPLETE
858	LEAD	DROPPED	2.61	0.103	COMPLETE
859	LEAD	DROPPED	1.79	0.070	COMPLETE
860	LEAD	DROPPED	1.37	0.054	COMPLETE
861	LEAD	DROPPED	4.89	0.193	COMPLETE
862	LEAD	DROPPED	4.98	0.196	COMPLETE
863	LEAD	DROPPED	4.79	0.189	COMPLETE
864	LEAD	DROPPED	1.96	0.077	COMPLETE
865	LEAD	DROPPED	2.1	0.083	COMPLETE
866	LEAD	DROPPED	2.61	0.103	COMPLETE
867	LEAD	DROPPED	1.69	0.067	COMPLETE
868	LEAD	DROPPED	2.88	0.113	COMPLETE
869	LEAD	DROPPED	3.79	0.149	COMPLETE
870	LEAD	DROPPED	3.45	0.136	COMPLETE
871	LEAD	DROPPED	3.41	0.134	COMPLETE
872	LEAD	DROPPED	3.63	0.143	COMPLETE
873	LEAD	DROPPED	3.3	0.130	COMPLETE
874	LEAD	DROPPED	3.45	0.136	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
875	8ES22	03P	1380	022	2	0.6
876	8ES22	03P	1380	022	2	0.6
877	8ES22	03P	1417	005	1	0.1
878	8ES22	03P	1423	004	1	0.1
879	8ES22	03P	1491	003	1	0.2
880	8ES22	03P	1491	004	1	6.1
881	8ES22	03P	1548	001	1	0.1
882	8ES22	03P	1549	015	1	0.1
883	8ES22	03P	1567	006	1	0.3
884	8ES22	03P	1567	012	1	0.1
885	8ES22	03P	1568	005	1	0.7
886	8ES22	03P	1585	032	2	1.3
887	8ES22	03P	1585	032	2	1.3
888	8ES22	03P	1585	033	1	0.1
889	8ES22	03P	1585	034	1	0.1
890	8ES22	03P	1598	011	1	0.1
891	8ES22	03P	1628	013	1	0.1
892	8ES22	03P	1633	010	1	0.1
893	8ES22	03P	1633	011	2	0.1
894	8ES22	03P	1633	011	2	0.1
895	8ES22	03P	1640	023	1	0.1
896	8ES22	03P	1644	001	2	0.3
897	8ES22	03P	1644	002	1	0.2
898	8ES22	03P	1649	003	1	0.2
899	8ES22	03P	1656	003	1	0.4
900	8ES22	03P	1671	016	1	0.1
901	8ES22	03P	1727	005	2	0.1
902	8ES22	03P	1727	005	2	0.1
903	8ES22	03P	1741	005	1	0.3
904	8ES22	04P	0021	002	1	0.1
905	8ES22	04P	0024	001	1	0.1
906	8ES22	04P	0157	003	1	0.1
907	8ES22	04P	0163	005	1	0.3
908	8ES22	04P	0165	002	1	0.5
909	8ES22	04P	0173	002	1	0.4
910	8ES22	04P	0175	005	1	0.2
911	8ES22	04P	0176	005	3	0.1
912	8ES22	04P	0176	005	3	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
875	LEAD	DROPPED	4.2	0.165	COMPLETE
876	LEAD	DROPPED	3.37	0.133	COMPLETE
877	LEAD	DROPPED	3.18	0.125	COMPLETE
878	LEAD	DROPPED	2.17	0.085	COMPLETE
879	LEAD	DROPPED	3.64	0.143	COMPLETE
880	LEAD	DROPPED	13.01	0.512	COMPLETE
881	LEAD	DROPPED	2.89	0.114	COMPLETE
882	LEAD	DROPPED	3.07	0.121	COMPLETE
883	LEAD	DROPPED	4.28	0.169	COMPLETE
884	LEAD	DROPPED	2.36	0.093	COMPLETE
885	LEAD	DROPPED	4.95	0.195	COMPLETE
886	LEAD	DROPPED	4.91	0.193	COMPLETE
887	LEAD	DROPPED	5.04	0.198	COMPLETE
888	LEAD	DROPPED	2.88	0.113	COMPLETE
889	LEAD	DROPPED	3.19	0.126	COMPLETE
890	LEAD	DROPPED	1.89	0.074	COMPLETE
891	LEAD	DROPPED	3.84	0.151	COMPLETE
892	LEAD	DROPPED	2.05	0.081	COMPLETE
893	LEAD	DROPPED	2.14	0.084	COMPLETE
894	LEAD	DROPPED	2.16	0.085	COMPLETE
895	LEAD	DROPPED	2.43	0.096	COMPLETE
896	LEAD	DROPPED	3.75	0.148	COMPLETE
897	LEAD	DROPPED	2.95	0.116	COMPLETE
898	LEAD	DROPPED	2.9	0.114	COMPLETE
899	LEAD	DROPPED	4.16	0.164	COMPLETE
900	LEAD	DROPPED	2.03	0.080	COMPLETE
901	LEAD	DROPPED	2	0.079	COMPLETE
902	LEAD	DROPPED	2.05	0.081	COMPLETE
903	LEAD	DROPPED	3.13	0.123	COMPLETE
904	LEAD	DROPPED	3.29	0.130	COMPLETE
905	LEAD	DROPPED	3.79	0.149	COMPLETE
906	LEAD	DROPPED	3.47	0.137	COMPLETE
907	LEAD	DROPPED	3.44	0.135	COMPLETE
908	LEAD	DROPPED	4.01	0.158	COMPLETE
909	LEAD	DROPPED	3.99	0.157	COMPLETE
910	LEAD	DROPPED	3.1	0.122	COMPLETE
911	LEAD	DROPPED	2.06	0.081	COMPLETE
912	LEAD	DROPPED	2.06	0.081	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
913	8ES22	04P	0176	005	3	0.1
914	8ES22	04P	0195	003	1	0.1
915	8ES22	04P	0222	008	2	0.7
916	8ES22	04P	0222	008	2	0.7
917	8ES22	04P	0222	009	3	0.6
918	8ES22	04P	0222	009	3	0.6
919	8ES22	04P	0222	009	3	0.6
920	8ES22	04P	0222	010	3	0.1
921	8ES22	04P	0222	010	3	0.1
922	8ES22	04P	0222	010	3	0.1
923	8ES22	04P	0228	005	1	0.4
924	8ES22	04P	0229	003	1	0.1
925	8ES22	04P	0229	004	1	0.1
926	8ES22	04P	0236	006	1	0.1
927	8ES22	04P	0236	007	1	0.1
928	8ES22	04P	0236	008	1	0.3
929	8ES22	04P	0251	004	1	0.2
930	8ES22	04P	0294	002	1	0.3
931	8ES22	04P	0320	003	1	0.2
932	8ES22	04P	0320	004	1	0.1
933	8ES22	04P	0337	006	1	0.4
934	8ES22	04P	0337	007	1	0.1
935	8ES22	04P	0337	010	1	0.1
936	8ES22	04P	0340	008	1	0.1
937	8ES22	04P	0340	009	1	0.1
938	8ES22	04P	0346	003	1	0.3
939	8ES22	04P	0346	004	1	0.1
940	8ES22	04P	0346	005	1	0.3
941	8ES22	04P	0357	003	2	0.7
942	8ES22	04P	0357	003	2	0.7
943	8ES22	04P	0364	002	1	0.5
944	8ES22	04P	0365	001	1	0.1
945	8ES22	04P	0412	003	1	0.1
946	8ES22	04P	0434	005	1	0.1
947	8ES22	04P	0435	003	1	0.2
948	8ES22	04P	0435	032	1	0.3
949	8ES22	04P	0444	001	1	0.2
950	8ES22	04P	0455	005	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
913	LEAD	DROPPED	2.12	0.083	COMPLETE
914	LEAD	DROPPED	3.23	0.127	COMPLETE
915	LEAD	DROPPED	4.06	0.160	COMPLETE
916	LEAD	DROPPED	4.05	0.159	COMPLETE
917	LEAD	DROPPED	2.95	0.116	COMPLETE
918	LEAD	DROPPED	2.58	0.102	COMPLETE
919	LEAD	DROPPED	3.11	0.122	COMPLETE
920	LEAD	DROPPED	2.02	0.080	COMPLETE
921	LEAD	DROPPED	1.87	0.074	COMPLETE
922	LEAD	DROPPED	1.48	0.058	COMPLETE
923	LEAD	DROPPED	4.56	0.180	COMPLETE
924	LEAD	DROPPED	2.72	0.107	COMPLETE
925	LEAD	DROPPED	1.74	0.069	COMPLETE
926	LEAD	DROPPED	3.32	0.131	COMPLETE
927	LEAD	DROPPED	2.6	0.102	COMPLETE
928	LEAD	DROPPED	4.29	0.169	COMPLETE
929	LEAD	DROPPED	3.4	0.134	COMPLETE
930	LEAD	DROPPED	4.04	0.159	COMPLETE
931	LEAD	DROPPED	3.44	0.135	COMPLETE
932	LEAD	DROPPED	2	0.079	COMPLETE
933	LEAD	DROPPED	4.5	0.177	COMPLETE
934	LEAD	DROPPED	3.32	0.131	COMPLETE
935	LEAD	DROPPED	1.51	0.059	COMPLETE
936	LEAD	DROPPED	2.67	0.105	COMPLETE
937	LEAD	DROPPED	1.92	0.076	COMPLETE
938	LEAD	DROPPED	3.72	0.146	COMPLETE
939	LEAD	DROPPED	3.02	0.119	COMPLETE
940	LEAD	DROPPED	3.61	0.142	COMPLETE
941	LEAD	DROPPED	3.9	0.154	COMPLETE
942	LEAD	DROPPED	3.9	0.154	COMPLETE
943	LEAD	DROPPED	5.15	0.203	COMPLETE
944	LEAD	DROPPED	3.02	0.119	COMPLETE
945	LEAD	DROPPED	2.5	0.098	COMPLETE
946	LEAD	DROPPED	2.76	0.109	COMPLETE
947	LEAD	DROPPED	3	0.118	COMPLETE
948	LEAD	DROPPED	3.96	0.156	COMPLETE
949	LEAD	DROPPED	3.22	0.127	COMPLETE
950	LEAD	DROPPED	3.23	0.127	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
951	8ES22	04P	0455	006	1	0.1
952	8ES22	04P	0466	004	1	0.4
953	8ES22	04P	0466	005	2	0.2
954	8ES22	04P	0466	005	2	0.2
955	8ES22	04P	0468	004	1	0.1
956	8ES22	04P	0483	001	1	0.1
957	8ES22	04P	0557	003	1	0.5
958	8ES22	04P	0564	001	1	0.3
959	8ES22	04P	0568	003	1	0.1
960	8ES22	04P	0573	003	1	0.3
961	8ES22	04P	0645	003	2	0.5
962	8ES22	04P	0645	003	2	0.5
963	8ES22	04P	0688	001	1	0.5
964	8ES22	04P	0688	002	1	0.3
965	8ES22	04P	0694	001	1	2.3
966	8ES22	04P	0796	002	1	0.5
967	8ES22	04P	0804	011	1	23.5
968	8ES22	04P	0804	012	2	0.9
969	8ES22	04P	0804	012	2	0.9
970	8ES22	04P	0804	013	1	0.2
971	8ES22	04P	0804	014	1	0.3
972	8ES22	04P	0804	015	1	0.1
973	8ES22	04P	0804	016	1	0.1
974	8ES22	04P	0804	017	2	0.1
975	8ES22	04P	0804	017	2	0.1
976	8ES22	04P	0807	005	1	0.3
977	8ES22	04P	0808	005	1	0.3
978	8ES22	04P	0824	003	1	0.2
979	8ES22	04P	0832	002	1	0.1
980	8ES22	04P	0839	003	1	0.1
981	8ES22	04P	0859	009	1	0.2
982	8ES22	04P	0859	010	1	0.3
983	8ES22	04P	0875	002	1	0.1
984	8ES22	04P	0875	003	1	0.1
985	8ES22	04P	0878	002	1	0.1
986	8ES22	04P	0910	003	1	0.2
987	8ES22	04P	0911	004	1	0.2
988	8ES22	04P	0916	002	1	0.7

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
951	LEAD	DROPPED	2.7	0.106	COMPLETE
952	LEAD	DROPPED	4.04	0.159	COMPLETE
953	LEAD	DROPPED	3.5	0.138	COMPLETE
954	LEAD	DROPPED	3.63	0.143	COMPLETE
955	LEAD	DROPPED	3.53	0.139	COMPLETE
956	LEAD	DROPPED	2.26	0.089	COMPLETE
957	LEAD	DROPPED	4.23	0.167	COMPLETE
958	LEAD	DROPPED	2.99	0.118	COMPLETE
959	LEAD	DROPPED	2.04	0.080	COMPLETE
960	LEAD	DROPPED	3.96	0.156	COMPLETE
961	LEAD	DROPPED	3.44	0.135	COMPLETE
962	LEAD	DROPPED	3.5	0.138	COMPLETE
963	LEAD	DROPPED	5.35	0.211	COMPLETE
964	LEAD	DROPPED	4.33	0.170	COMPLETE
965	LEAD	DROPPED	4.03	0.159	COMPLETE
966	LEAD	DROPPED	4.96	0.195	COMPLETE
967	LEAD	CAST	16.23	0.639	COMPLETE
968	LEAD	DROPPED	4.44	0.175	COMPLETE
969	LEAD	DROPPED	4.02	0.158	COMPLETE
970	LEAD	DROPPED	3.62	0.143	COMPLETE
971	LEAD	DROPPED	3.9	0.154	COMPLETE
972	LEAD	DROPPED	3.88	0.153	INCOMPLETE
973	LEAD	DROPPED	3.03	0.119	COMPLETE
974	LEAD	DROPPED	2.04	0.080	COMPLETE
975	LEAD	DROPPED	2.06	0.081	COMPLETE
976	LEAD	DROPPED	4.09	0.161	COMPLETE
977	LEAD	DROPPED	2.09	0.082	COMPLETE
978	LEAD	DROPPED	4.26	0.168	COMPLETE
979	LEAD	DROPPED	1.34	0.053	COMPLETE
980	LEAD	DROPPED	2.28	0.090	COMPLETE
981	LEAD	DROPPED	3	0.118	COMPLETE
982	LEAD	DROPPED	3.9	0.154	COMPLETE
983	LEAD	DROPPED	4.15	0.163	COMPLETE
984	LEAD	DROPPED	2.35	0.093	COMPLETE
985	LEAD	DROPPED	3.09	0.122	COMPLETE
986	LEAD	DROPPED	4.05	0.159	COMPLETE
987	LEAD	DROPPED	2.97	0.117	COMPLETE
988	LEAD	DROPPED	4.59	0.181	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
989	8ES22	04P	0921	002	1	0.1
990	8ES22	04P	0921	003	1	0.1
991	8ES22	04P	0923	005	1	0.1
992	8ES22	04P	0923	006	1	0.3
993	8ES22	04P	0948	002	1	0.1
994	8ES22	04P	0950	002	1	0.5
995	8ES22	04P	0957	002	1	0.1
996	8ES22	04P	0967	004	1	0.4
997	8ES22	04P	0974	002	1	0.1
998	8ES22	04P	0974	003	2	0.5
999	8ES22	04P	0974	003	2	0.5
1000	8ES22	04P	0975	001	1	0.1
1001	8ES22	04P	0986	004	1	0.1
1002	8ES22	04P	0986	005	1	0.1
1003	8ES22	04P	0992	003	1	0.5
1004	8ES22	04P	1058	001	1	0.2
1005	8ES22	04P	1082	005	2	0.1
1006	8ES22	04P	1082	005	2	0.1
1007	8ES22	04P	1111	003	1	0.1
1008	8ES22	04P	1112	004	1	0.1
1009	8ES22	04P	1112	005	1	0.1
1010	8ES22	04P	1112	006	1	0.1
1011	8ES22	04P	1112	007	1	0.1
1012	8ES22	04P	1159	002	1	0.1
1013	8ES22	04P	1206	004	2	0.5
1014	8ES22	04P	1206	004	2	0.5
1015	8ES22	04P	1206	005	1	0.1
1016	8ES22	04P	1254	003	1	0.3
1017	8ES22	04P	1254	004	1	0.1
1018	8ES22	04P	1256	002	1	0.1
1019	8ES22	04P	1256	003	2	0.1
1020	8ES22	04P	1256	003	2	0.1
1021	8ES22	04P	1296	18	1	
1022	8ES22	04P	1314	003	1	0.1
1023	8ES22	04P	1388	005	1	0.1
1024	8ES22	04P	1408	002	1	0.1
1025	8ES22	04P	1437	006	1	0.3
1026	8ES22	04P	1437	007	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
989	LEAD	DROPPED	4.5	0.177	COMPLETE
990	LEAD	DROPPED	2.69	0.106	COMPLETE
991	LEAD	DROPPED	1.79	0.070	COMPLETE
992	LEAD	DROPPED	4.06	0.160	COMPLETE
993	LEAD	DROPPED	1.75	0.069	COMPLETE
994	LEAD	DROPPED	4.89	0.193	COMPLETE
995	LEAD	DROPPED	2.29	0.090	COMPLETE
996	LEAD	DROPPED	3.87	0.152	COMPLETE
997	LEAD	DROPPED	1.75	0.069	COMPLETE
998	LEAD	DROPPED	4.46	0.176	COMPLETE
999	LEAD	DROPPED	4.19	0.165	COMPLETE
1000	LEAD	DROPPED	4.81	0.189	COMPLETE
1001	LEAD	DROPPED	2.79	0.110	COMPLETE
1002	LEAD	DROPPED	1.6	0.063	COMPLETE
1003	LEAD	DROPPED	4.61	0.181	COMPLETE
1004	LEAD	DROPPED	3.44	0.135	COMPLETE
1005	LEAD	DROPPED	3.97	0.156	COMPLETE
1006	LEAD	DROPPED	3.81	0.150	COMPLETE
1007	LEAD	DROPPED	2.07	0.081	COMPLETE
1008	LEAD	DROPPED	4.39	0.173	COMPLETE
1009	LEAD	DROPPED	1.81	0.071	COMPLETE
1010	LEAD	DROPPED	4.99	0.196	COMPLETE
1011	LEAD	DROPPED	2.06	0.081	COMPLETE
1012	LEAD	DROPPED	2.11	0.083	COMPLETE
1013	LEAD	DROPPED	3.77	0.148	COMPLETE
1014	LEAD	DROPPED	3.53	0.139	COMPLETE
1015	LEAD	DROPPED	3.36	0.132	COMPLETE
1016	LEAD	DROPPED	4.03	0.159	COMPLETE
1017	LEAD	DROPPED	1.61	0.063	COMPLETE
1018	LEAD	DROPPED	2.92	0.115	COMPLETE
1019	LEAD	DROPPED	1.71	0.067	COMPLETE
1020	LEAD	DROPPED	1.87	0.074	COMPLETE
1021	LEAD	DROPPED	4.58	0.180	COMPLETE
1022	LEAD	DROPPED	1.36	0.054	COMPLETE
1023	LEAD	DROPPED	1.85	0.073	COMPLETE
1024	LEAD	DROPPED	2.69	0.106	COMPLETE
1025	LEAD	DROPPED	3.99	0.157	COMPLETE
1026	LEAD	DROPPED	3.16	0.124	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1027	8ES22	04P	1482	003	1	0.1
1028	8ES22	04P	1502	002	1	0.4
1029	8ES22	04P	1512	003	1	0.3
1030	8ES22	04P	1575	008	7	0.4
1031	8ES22	04P	1575	008	7	0.4
1032	8ES22	04P	1575	008	7	0.4
1033	8ES22	04P	1575	008	7	0.4
1034	8ES22	04P	1575	008	7	0.4
1035	8ES22	04P	1575	008	7	0.4
1036	8ES22	04P	1575	008	7	0.4
1037	8ES22	04P	1575	009	2	0.1
1038	8ES22	04P	1575	009	2	0.1
1039	8ES22	04P	1575	010	1	0.5
1040	8ES22	04P	1605	003	1	0.4
1041	8ES22	04P	1623	003	1	0.1
1042	8ES22	04P	1655	004	1	0.1
1043	8ES22	04P	1655	005	1	0.3
1044	8ES22	04P	1674	003	1	0.2
1045	8ES22	04P	1702	002	1	0.1
1046	8ES22	04P	1729	001	1	0.4
1047	8ES22	04P	1784	013	1	0.4
1048	8ES22	04P	1784	014	1	0.3
1049	8ES22	04P	1784	015	1	0.2
1050	8ES22	04P	1784	016	1	0.1
1051	8ES22	04P	1816	003	1	0.1
1052	8ES22	04P	1861	006	1	0.5
1053	8ES22	04P	1861	007	1	0.2
1054	8ES22	04P	1861	008	1	0.5
1055	8ES22	04P	1898	002	1	0.2
1056	8ES22	04P	1898	003	1	0.2
1057	8ES22	04P	1911	002	1	0.1
1058	8ES22	04P	1927	002	1	0.1
1059	8ES22	04P	1936	005	1	0.4
1060	8ES22	04P	1939	004	1	0.1
1061	8ES22	04P	1986	001	1	0.1
1062	8ES1150	05F	0739	014	2	0.4
1063	8ES1150	05F	0739	014	2	0.4
1064	8ES1150	05F	0821	013	2	1.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1027	LEAD	DROPPED	3.33	0.131	COMPLETE
1028	LEAD	DROPPED	4.5	0.177	COMPLETE
1029	LEAD	DROPPED	3.87	0.152	COMPLETE
1030	LEAD	DROPPED	2.41	0.095	COMPLETE
1031	LEAD	DROPPED	2.17	0.085	COMPLETE
1032	LEAD	DROPPED	2.81	0.111	COMPLETE
1033	LEAD	DROPPED	2.06	0.081	COMPLETE
1034	LEAD	DROPPED	2.37	0.093	COMPLETE
1035	LEAD	DROPPED	2.14	0.084	COMPLETE
1036	LEAD	DROPPED	2.29	0.090	COMPLETE
1037	LEAD	DROPPED	1.82	0.072	COMPLETE
1038	LEAD	DROPPED	1.56	0.061	COMPLETE
1039	LEAD	DROPPED	5.17	0.204	COMPLETE
1040	LEAD	DROPPED	4.14	0.163	COMPLETE
1041	LEAD	DROPPED	2.37	0.093	INCOMPLETE
1042	LEAD	DROPPED	3.18	0.125	COMPLETE
1043	LEAD	DROPPED	3.2	0.126	COMPLETE
1044	LEAD	DROPPED	3.8	0.150	COMPLETE
1045	LEAD	DROPPED	2.5	0.098	COMPLETE
1046	LEAD	DROPPED	4.73	0.186	COMPLETE
1047	LEAD	DROPPED	4.38	0.172	COMPLETE
1048	LEAD	DROPPED	4.21	0.166	COMPLETE
1049	LEAD	DROPPED	3.48	0.137	COMPLETE
1050	LEAD	DROPPED	2.19	0.086	COMPLETE
1051	LEAD	DROPPED	2.35	0.093	COMPLETE
1052	LEAD	DROPPED	4.96	0.195	INCOMPLETE
1053	LEAD	DROPPED	3.46	0.136	COMPLETE
1054	LEAD	DROPPED	4.81	0.189	COMPLETE
1055	LEAD	DROPPED	3.33	0.131	COMPLETE
1056	LEAD	DROPPED	3.75	0.148	COMPLETE
1057	LEAD	DROPPED	2.59	0.102	COMPLETE
1058	LEAD	DROPPED	1.73	0.068	COMPLETE
1059	LEAD	DROPPED	4.6	0.181	COMPLETE
1060	LEAD	DROPPED	3.49	0.137	COMPLETE
1061	LEAD	DROPPED	1.68	0.066	COMPLETE
1062	LEAD	DROPPED	3.13	0.123	COMPLETE
1063	LEAD	DROPPED	3.1	0.122	COMPLETE
1064	LEAD	DROPPED	4.72	0.186	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1065	8ES1150	05F	0821	013	2	1.2
1066	8ES1150	05F	0893	068	1	0.5
1067	8ES1150	05F	0893	069	1	0.7
1068	8ES1150	05F	0975	060	1	19.9
1069	8ES1150	05F	0976	042	1	0.4
1070	8ES1150	05F	0979	024	2	0.5
1071	8ES1150	05F	0979	024	2	0.5
1072	8ES1150	05F	0985	010	1	0.2
1073	8ES1150	05F	1006	004	1	0.2
1074	8ES1150	05F	1093	016	1	0.1
1075	8ES1150	05F	1093	017	2	0.2
1076	8ES1150	05F	1093	017	2	0.2
1077	8ES1150	05F	1093	018	3	0.3
1078	8ES1150	05F	1093	018	3	0.3
1079	8ES1150	05F	1093	018	3	0.3
1080	8ES1150	05F	1093	019	1	0.4
1081	8ES1150	05F	1097	006	2	1
1082	8ES1150	05F	1097	006	2	1
1083	8ES1150	05F	1097	007	2	0.3
1084	8ES1150	05F	1097	007	2	0.3
1085	8ES1150	05F	1154	009	1	0.5
1086	8ES1150	05F	1159	005	1	0.1
1087	8ES1150	05F	1265	003	1	0.3
1088	8ES1150	05F	1348	020	1	0.6
1089	8ES1150	05F	1401	020	1	0.3
1090	8ES1150	05F	1494	040	1	0.3
1091	8ES1150	05F	1494	041	1	0.2
1092	8ES1150	05F	1500	011	1	0.1
1093	8ES1150	05F	1532	010	1	0.1
1094	8ES1150	05F	1532	011	1	0.2
1095	8ES1150	05F	1539	017	1	0.3
1096	8ES1150	05F	1651	005	1	0.2
1097	8ES1150	05F	1684	006	1	0.2
1098	8ES1150	05F	1684	007	1	0.3
1099	8ES1150	05F	1686	005	4	1.8
1100	8ES1150	05F	1686	005	4	1.8
1101	8ES1150	05F	1686	005	4	1.8
1102	8ES1150	05F	1686	005	4	1.8

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1065	LEAD	DROPPED	4.95	0.195	COMPLETE
1066	LEAD	DROPPED	3.94	0.155	COMPLETE
1067	LEAD	DROPPED	4.4	0.173	COMPLETE
1068	LEAD	CAST	14.99	0.590	COMPLETE
1069	LEAD	DROPPED	3.52	0.139	COMPLETE
1070	LEAD	DROPPED	3.77	0.148	COMPLETE
1071	LEAD	DROPPED	3.48	0.137	COMPLETE
1072	LEAD	DROPPED	2.89	0.114	COMPLETE
1073	LEAD	DROPPED	3.26	0.128	COMPLETE
1074	LEAD	DROPPED	2.07	0.081	COMPLETE
1075	LEAD	DROPPED	2.42	0.095	COMPLETE
1076	LEAD	DROPPED	2.55	0.100	COMPLETE
1077	LEAD	DROPPED	2.93	0.115	COMPLETE
1078	LEAD	DROPPED	3.19	0.126	COMPLETE
1079	LEAD	DROPPED	3.27	0.129	COMPLETE
1080	LEAD	DROPPED	4.59	0.181	COMPLETE
1081	LEAD	DROPPED	4.75	0.187	COMPLETE
1082	LEAD	DROPPED	4.7	0.185	COMPLETE
1083	LEAD	DROPPED	2.87	0.113	COMPLETE
1084	LEAD	DROPPED	2.99	0.118	COMPLETE
1085	LEAD	DROPPED	4.52	0.178	COMPLETE
1086	LEAD	DROPPED	1.91	0.075	COMPLETE
1087	LEAD	DROPPED	4.06	0.160	COMPLETE
1088	LEAD	DROPPED	4.4	0.173	COMPLETE
1089	LEAD	DROPPED	3.49	0.137	COMPLETE
1090	LEAD	DROPPED	3.92	0.154	COMPLETE
1091	LEAD	DROPPED	3.24	0.128	COMPLETE
1092	LEAD	DROPPED	3.13	0.123	COMPLETE
1093	LEAD	DROPPED	2.83	0.111	COMPLETE
1094	LEAD	DROPPED	3.76	0.148	INCOMPLETE
1095	LEAD	DROPPED	4.16	0.164	COMPLETE
1096	LEAD	DROPPED	3.69	0.145	COMPLETE
1097	LEAD	DROPPED	3.04	0.120	COMPLETE
1098	LEAD	DROPPED	3.02	0.119	COMPLETE
1099	LEAD	DROPPED	3.17	0.125	COMPLETE
1100	LEAD	DROPPED	3.21	0.126	COMPLETE
1101	LEAD	DROPPED	3.19	0.126	COMPLETE
1102	LEAD	DROPPED	3.23	0.127	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1103	8ES1150	05F	1686	006	1	0.3
1104	8ES1150	05F	1686	007	1	0.1
1105	8ES1150	05F	1689	015	1	0.7
1106	8ES1150	05F	1694	017	1	0.3
1107	8ES1150	05F	1733	029	1	0.2
1108	8ES1150	05F	1733	030	2	0.2
1109	8ES1150	05F	1733	030	2	0.2
1110	8ES1150	05F	1733	031	1	0.1
1111	8ES1150	05F	1817	019	1	0.4
1112	8ES1150	05F	1817	020	1	0.2
1113	8ES1150	05F	1818	032	1	0.1
1114	8ES1150	05F	1818	033	2	0.6
1115	8ES1150	05F	1818	033	2	0.6
1116	8ES1150	05F	1818	034	1	0.2
1117	8ES1150	05F	1818	035	2	1.1
1118	8ES1150	05F	1818	035	2	1.1
1119	8ES1150	05F	1818	036	1	0.7
1120	8ES1150	05F	1822	009	1	0.1
1121	8ES1150	05F	1826	019	2	0.5
1122	8ES1150	05F	1826	019	2	0.5
1123	8ES1150	05F	1826	021	1	0.5
1124	8ES1150	05F	1835	028	1	0.3
1125	8ES1150	05F	1872	016	1	0.4
1126	8ES1150	05F	1875	022	1	3.3
1127	8ES1150	05F	1875	023	1	0.2
1128	8ES1150	05F	1875	024	1	0.3
1129	8ES1150	05F	1876	021	1	0.4
1130	8ES1150	05F	1876	022	1	0.5
1131	8ES1150	05F	1876	030	1	0.3
1132	8ES1150	05F	1885	010	1	0.1
1133	8ES1150	05F	1892	064	1	0.4
1134	8ES1150	05F	1892	104	3	1.7
1135	8ES1150	05F	1892	104	3	1.7
1136	8ES1150	05F	1892	104	3	1.7
1137	8ES1150	05F	1892	105	1	0.8
1138	8ES1150	05F	1892	106	1	0.3
1139	8ES1150	05F	1902	009	1	0.2
1140	8ES1150	05F	1986	017	1	0.5

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1103	LEAD	DROPPED	3.55	0.140	COMPLETE
1104	LEAD	DROPPED	3.38	0.133	COMPLETE
1105	LEAD	DROPPED	4.76	0.187	COMPLETE
1106	LEAD	DROPPED	4.12	0.162	COMPLETE
1107	LEAD	DROPPED	3.52	0.139	COMPLETE
1108	LEAD	DROPPED	3.29	0.130	COMPLETE
1109	LEAD	DROPPED	3.08	0.121	COMPLETE
1110	LEAD	DROPPED	2.78	0.109	COMPLETE
1111	LEAD	DROPPED	3.9	0.154	COMPLETE
1112	LEAD	DROPPED	3.34	0.131	COMPLETE
1113	LEAD	DROPPED	2.79	0.110	COMPLETE
1114	LEAD	DROPPED	3.23	0.127	COMPLETE
1115	LEAD	DROPPED	3.19	0.126	COMPLETE
1116	LEAD	DROPPED	3.19	0.126	COMPLETE
1117	LEAD	DROPPED	4.66	0.183	COMPLETE
1118	LEAD	DROPPED	4.41	0.174	COMPLETE
1119	LEAD	DROPPED	4.74	0.187	COMPLETE
1120	LEAD	DROPPED	3.43	0.135	COMPLETE
1121	LEAD	DROPPED	3.4	0.134	COMPLETE
1122	LEAD	DROPPED	3.66	0.144	COMPLETE
1123	LEAD	DROPPED	4.75	0.187	COMPLETE
1124	LEAD	DROPPED	3.09	0.122	COMPLETE
1125	LEAD	DROPPED	3.67	0.144	COMPLETE
1126	LEAD	CAST	8.56	0.337	COMPLETE
1127	LEAD	DROPPED	3.31	0.130	COMPLETE
1128	LEAD	DROPPED	4.03	0.159	COMPLETE
1129	LEAD	DROPPED	4.13	0.163	COMPLETE
1130	LEAD	DROPPED	4.6	0.181	COMPLETE
1131	LEAD	DROPPED	3.15	0.124	COMPLETE
1132	LEAD	DROPPED	2.79	0.110	COMPLETE
1133	LEAD	DROPPED	4.17	0.164	COMPLETE
1134	LEAD	DROPPED	4.49	0.177	COMPLETE
1135	LEAD	DROPPED	4.49	0.177	COMPLETE
1136	LEAD	DROPPED	4.62	0.182	COMPLETE
1137	LEAD	DROPPED	4.98	0.196	COMPLETE
1138	LEAD	DROPPED	3.16	0.124	COMPLETE
1139	LEAD	DROPPED	3.48	0.137	COMPLETE
1140	LEAD	DROPPED	4.65	0.183	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1141	8ES1150	05F	1986	018	1	0.4
1142	8ES1150	05F	1986	019	1	0.3
1143	8ES1150	05F	2007	024	1	0.1
1144	8ES1150	05F	2014	007	1	0.3
1145	8ES1150	05F	2043	017	1	0.4
1146	8ES1150	05F	2043	018	1	0.5
1147	8ES1150	05F	2044	011	3	0.5
1148	8ES1150	05F	2044	011	3	0.5
1149	8ES1150	05F	2044	011	3	0.5
1150	8ES1150	05F	2062	021	1	0.3
1151	8ES1150	05F	2062	022	1	0.5
1152	8ES1150	05F	2062	023	4	0.7
1153	8ES1150	05F	2062	023	4	0.7
1154	8ES1150	05F	2062	023	4	0.7
1155	8ES1150	05F	2062	023	4	0.7
1156	8ES1150	05F	2107	010	1	0.6
1157	8ES1150	05F	2124	031	1	0.7
1158	8ES1150	05F	2198	003	1	0.2
1159	8ES1150	05F	2223	083	1	0.8
1160	8ES1150	05F	2223	086	2	0.4
1161	8ES1150	05F	2223	086	2	0.4
1162	8ES1150	05F	2223	087	4	0.8
1163	8ES1150	05F	2223	087	4	0.8
1164	8ES1150	05F	2223	087	4	0.8
1165	8ES1150	05F	2223	088	1	0.1
1166	8ES1150	05F	2223	089	5	0.2
1167	8ES1150	05F	2223	089	5	0.2
1168	8ES1150	05F	2223	089	5	0.2
1169	8ES1150	05F	2223	089	5	0.2
1170	8ES1150	05F	2223	089	5	0.2
1171	8ES1150	05F	2245	007	1	0.1
1172	8ES1150	05F	2250	021	1	0.1
1173	8ES1150	05F	2250	022	2	1.1
1174	8ES1150	05F	2250	022	2	1.1
1175	8ES1150	05F	2250	023	1	0.4
1176	8ES1150	05F	2259	013	2	1.1
1177	8ES1150	05F	2259	013	2	1.1
1178	8ES1150	05F	2259	014	1	0.3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1141	LEAD	DROPPED	4.48	0.176	COMPLETE
1142	LEAD	DROPPED	3.73	0.147	COMPLETE
1143	LEAD	DROPPED	2.75	0.108	COMPLETE
1144	LEAD	DROPPED	3.73	0.147	COMPLETE
1145	LEAD	DROPPED	3.71	0.146	COMPLETE
1146	LEAD	DROPPED	4.2	0.165	COMPLETE
1147	LEAD	DROPPED	3.75	0.148	COMPLETE
1148	LEAD	DROPPED	4.09	0.161	COMPLETE
1149	LEAD	DROPPED	3.9	0.154	COMPLETE
1150	LEAD	DROPPED	3.86	0.152	COMPLETE
1151	LEAD	DROPPED	4.67	0.184	COMPLETE
1152	LEAD	DROPPED	3.38	0.133	COMPLETE
1153	LEAD	DROPPED	2.72	0.107	COMPLETE
1154	LEAD	DROPPED	3.41	0.134	COMPLETE
1155	LEAD	DROPPED	3.14	0.124	COMPLETE
1156	LEAD	DROPPED	4.71	0.185	COMPLETE
1157	LEAD	DROPPED	4.74	0.187	COMPLETE
1158	LEAD	DROPPED	3.44	0.135	COMPLETE
1159	LEAD	DROPPED	5.29	0.208	COMPLETE
1160	LEAD	DROPPED	3.3	0.130	COMPLETE
1161	LEAD	DROPPED	3.24	0.128	COMPLETE
1162	LEAD	DROPPED	3.43	0.135	COMPLETE
1163	LEAD	DROPPED	3.71	0.146	COMPLETE
1164	LEAD	DROPPED	3.55	0.140	COMPLETE
1165	LEAD	DROPPED	1.78	0.070	COMPLETE
1166	LEAD	DROPPED	2.82	0.111	COMPLETE
1167	LEAD	DROPPED	2.61	0.103	COMPLETE
1168	LEAD	DROPPED	2.95	0.116	COMPLETE
1169	LEAD	DROPPED	2.73	0.107	COMPLETE
1170	LEAD	DROPPED	2.85	0.112	COMPLETE
1171	LEAD	DROPPED	3	0.118	COMPLETE
1172	LEAD	DROPPED	2.29	0.090	COMPLETE
1173	LEAD	DROPPED	4.117	0.162	COMPLETE
1174	LEAD	DROPPED	4.57	0.180	COMPLETE
1175	LEAD	DROPPED	4.09	0.161	COMPLETE
1176	LEAD	DROPPED	4.7	0.185	COMPLETE
1177	LEAD	DROPPED	4.82	0.190	COMPLETE
1178	LEAD	DROPPED	4.18	0.165	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1179	8ES1150	05F	2259	015	1	0.2
1180	8ES1150	05F	2321	002	1	0.1
1181	8ES1150	05F	2322	008	1	0.3
1182	8ES1150	05F	2323	009	1	0.2
1183	8ES1150	05F	2343	004	1	0.2
1184	8ES1150	05F	2343	005	1	0.3
1185	8ES1150	05F	2399	018	1	0.2
1186	8ES1150	05F	2456	010	1	0.4
1187	8ES1150	05F	2456	011	1	0.2
1188	8ES1150	05F	2456	012	1	0.1
1189	8ES1150	05F	2466	016	1	0.6
1190	8ES1150	05F	2483	004	1	0.6
1191	8ES1150	05F	2483	005	1	0.2
1192	8ES1150	05F	2619	010	1	0.5
1193	8ES1150	05F	2668	032	4	1.1
1194	8ES1150	05F	2668	032	4	1.1
1195	8ES1150	05F	2668	032	4	1.1
1196	8ES1150	05F	2668	032	4	1.1
1197	8ES1150	05F	2668	033	2	0.9
1198	8ES1150	05F	2668	033	2	0.9
1199	8ES1150	05F	2668	034	2	0.2
1200	8ES1150	05F	2668	034	2	0.2
1201	8ES1150	05F	2736	003	2	0.5
1202	8ES1150	05F	2736	003	2	0.5
1203	8ES1150	05F	2736	004	1	0.4
1204	8ES1150	05F	2736	005	1	0.3
1205	8ES1150	05F	2736	006	1	0.1
1206	8ES1150	05F	2761	061	1	0.2
1207	8ES1150	05F	2761	073	1	0.3
1208	8ES1150	06F	3293	049	1	0.3
1209	8ES1150	06F	3958	005	1	0.6
1210	8ES1150	06F	3971	012	1	0.9
1211	8ES1150	06F	3999	038	1	0.3
1212	8ES1150	06F	3999	039	3	0.6
1213	8ES1150	06F	3999	039	3	0.6
1214	8ES1150	06F	3999	039	3	0.6
1215	8ES1150	06F	3999	040	1	0.4
1216	8ES1150	06F	4120	030	3	0.4

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1179	LEAD	DROPPED	3.23	0.127	COMPLETE
1180	LEAD	DROPPED	2.38	0.094	COMPLETE
1181	LEAD	DROPPED	4.86	0.191	COMPLETE
1182	LEAD	DROPPED	3.57	0.141	COMPLETE
1183	LEAD	DROPPED	3.45	0.136	COMPLETE
1184	LEAD	DROPPED	3.65	0.144	COMPLETE
1185	LEAD	DROPPED	3.69	0.145	COMPLETE
1186	LEAD	DROPPED	4.69	0.185	COMPLETE
1187	LEAD	DROPPED	4.12	0.162	COMPLETE
1188	LEAD	DROPPED	3.41	0.134	COMPLETE
1189	LEAD	DROPPED	4.56	0.180	COMPLETE
1190	LEAD	DROPPED	4.81	0.189	COMPLETE
1191	LEAD	DROPPED	3.06	0.120	COMPLETE
1192	LEAD	DROPPED	4.82	0.190	COMPLETE
1193	LEAD	DROPPED	3.38	0.133	COMPLETE
1194	LEAD	DROPPED	3.95	0.156	COMPLETE
1195	LEAD	DROPPED	3.75	0.148	COMPLETE
1196	LEAD	DROPPED	3.51	0.138	COMPLETE
1197	LEAD	DROPPED	4.49	0.177	COMPLETE
1198	LEAD	DROPPED	4.47	0.176	COMPLETE
1199	LEAD	DROPPED	2.78	0.109	COMPLETE
1200	LEAD	DROPPED	2.71	0.107	COMPLETE
1201	LEAD	DROPPED	3.4	0.134	COMPLETE
1202	LEAD	DROPPED	3.44	0.135	COMPLETE
1203	LEAD	DROPPED	4.24	0.167	COMPLETE
1204	LEAD	DROPPED	4.72	0.186	COMPLETE
1205	LEAD	DROPPED	3.04	0.120	COMPLETE
1206	LEAD	DROPPED	3.61	0.142	COMPLETE
1207	LEAD	DROPPED	3.5	0.138	COMPLETE
1208	LEAD	DROPPED	3.86	0.152	COMPLETE
1209	LEAD	DROPPED	4.57	0.180	COMPLETE
1210	LEAD	DROPPED	5.12	0.202	COMPLETE
1211	LEAD	DROPPED	3.84	0.151	COMPLETE
1212	LEAD	DROPPED	3.33	0.131	COMPLETE
1213	LEAD	DROPPED	3.52	0.139	COMPLETE
1214	LEAD	DROPPED	3.46	0.136	COMPLETE
1215	LEAD	DROPPED	4.4	0.173	COMPLETE
1216	LEAD	DROPPED	2.81	0.111	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1217	8ES1150	06F	4120	030	3	0.4
1218	8ES1150	06F	4120	030	3	0.4
1219	8ES1150	06F	4120	031	1	0.4
1220	8ES1150	06F	4120	032	1	0.2
1221	8ES1150	06F	4120	033	1	0.4
1222	8ES1150	06F	4248	024	1	0.2
1223	8ES1150	06F	4441	009	2	0.5
1224	8ES1150	06F	4441	009	2	0.5
1225	8ES1150	06F	4441	010	2	1.3
1226	8ES1150	06F	4441	010	2	1.3
1227	8ES1150	06F	4529	020	1	20.2
1228	8ES1150	06F	4989	002	1	0.1
1229	8ES1150	06F	5668	016	1	1.2
1230	8ES1150	06F	5675	008	1	0.2
1231	8ES1150	06F	5676	010	1	0.1
1232	8ES1150	06F	6440	001	1	0.3
1233	8ES115	07L	74	17	1	0.1
1234	8ES115	07L	93	12	1	1.3
1235	8ES115	07L	167	7	1	0.1
1236	8ES115	07L	212	2	1	0.4
1237	8ES115	07L	226	7	1	0.3
1238	8ES115	07L	339	15	1	0.3
1239	8ES115	07L	339	16	2	0.3
1240	8ES115	07L	339	16	2	0.3
1241	8ES115	07L	375	23	1	0.1
1242	8ES115	07L	379	14	1	0.4
1243	8ES115	07L	434	12	1	0.1
1244	8ES115	07L	514	5	1	0.4
1245	8ES115	07L	599	9	1	0.4
1246	8ES115	07L	599	10	1	0.5
1247	8ES115	07L	616	50	1	0.3
1248	8ES115	07L	619	8	1	0.3
1249	8ES115	07L	659	16	1	0.5
1250	8ES115	07L	687	25	2	1.1
1251	8ES115	07L	687	25	2	1.1
1252	8ES115	07L	710	27	4	0.9
1253	8ES115	07L	710	27	4	0.9
1254	8ES115	07L	710	27	4	0.9

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1217	LEAD	DROPPED	2.8	0.110	COMPLETE
1218	LEAD	DROPPED	2.86	0.113	COMPLETE
1219	LEAD	DROPPED	4.02	0.158	COMPLETE
1220	LEAD	DROPPED	3.25	0.128	COMPLETE
1221	LEAD	DROPPED	3.98	0.157	COMPLETE
1222	LEAD	DROPPED	3.32	0.131	COMPLETE
1223	LEAD	DROPPED	3.89	0.153	COMPLETE
1224	LEAD	DROPPED	3.86	0.152	COMPLETE
1225	LEAD	DROPPED	5.06	0.199	COMPLETE
1226	LEAD	DROPPED	5.05	0.199	COMPLETE
1227	LEAD	CAST	15.45	0.608	COMPLETE
1228	LEAD	DROPPED	3.27	0.129	COMPLETE
1229	LEAD	DROPPED	3.97	0.156	COMPLETE
1230	LEAD	DROPPED	3.43	0.135	COMPLETE
1231	LEAD	DROPPED	2.76	0.109	COMPLETE
1232	LEAD	DROPPED	4.09	0.161	COMPLETE
1233	LEAD	DROPPED	3.02	0.119	COMPLETE
1234	LEAD	DROPPED	6.35	0.250	COMPLETE
1235	LEAD	DROPPED	2.83	0.111	COMPLETE
1236	LEAD	DROPPED	4.23	0.167	COMPLETE
1237	LEAD	DROPPED	4.03	0.159	COMPLETE
1238	LEAD	DROPPED	4.27	0.168	COMPLETE
1239	LEAD	DROPPED	3.5	0.138	COMPLETE
1240	LEAD	DROPPED	3.34	0.131	COMPLETE
1241	LEAD	DROPPED	2.84	0.112	COMPLETE
1242	LEAD	DROPPED	4.03	0.159	COMPLETE
1243	LEAD	DROPPED	2.61	0.103	COMPLETE
1244	LEAD	DROPPED	3.98	0.157	COMPLETE
1245	LEAD	DROPPED	4.05	0.159	COMPLETE
1246	LEAD	DROPPED	4.45	0.175	COMPLETE
1247	LEAD	DROPPED	3.4	0.134	COMPLETE
1248	LEAD	DROPPED	3.88	0.153	COMPLETE
1249	LEAD	DROPPED	4.26	0.168	COMPLETE
1250	LEAD	DROPPED	4.84	0.191	COMPLETE
1251	LEAD	DROPPED	4.55	0.179	COMPLETE
1252	LEAD	DROPPED	3.34	0.131	COMPLETE
1253	LEAD	DROPPED	3.53	0.139	COMPLETE
1254	LEAD	DROPPED	3.46	0.136	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1255	8ES115	07L	710	27	4	0.9
1256	8ES115	07L	720	19	1	0.5
1257	8ES115	07L	791	6	1	0.8
1258	8ES3473	09F	12	6	1	2
1259	8ES3473	09F	27	6	2	0.1
1260	8ES3473	09F	27	6	2	0.1
1261	8ES3473	09F	28	6	1	0.1
1262	8ES3473	09F	36	2	1	0.2
1263	8ES3473	09F	37	3	1	0.1
1264	8ES3473	09F	51	9	1	0.1
1265	8ES3473	09F	60	12	1	0.1
1266	8ES3473	09F	71	2	1	0.1
1267	8ES3473	09F	80	15	1	0.3
1268	8ES3473	09F	95	13	1	0.2
1269	8ES3473	09F	95	14	1	0.1
1270	8ES3473	09F	98	10	1	0.1
1271	8ES3473	09F	111	2	1	0.2
1272	8ES3473	09F	113	11	1	0.2
1273	8ES3473	09F	137	8	2	0.3
1274	8ES3473	09F	137	8	2	0.3
1275	8ES3473	09F	150	3	1	0.1
1276	8ES3473	09F	153	1	1	0.2
1277	8ES3473	09F	153	2	1	0.2
1278	8ES3473	09F	181	5	1	0.1
1279	8ES3473	09F	183	2	1	0.2
1280	8ES3473	09F	192	9	1	0.1
1281	8ES3473	09F	193	9	1	0.4
1282	8ES3473	09F	197	14	1	0.3
1283	8ES3473	09F	208	2	1	0.1
1284	8ES3473	09F	231	3	1	0.3
1285	8ES3473	09F	233	2	1	0.4
1286	8ES3473	09F	238	5	1	0.1
1287	8ES3473	09F	239	4	1	0.2
1288	8ES3473	09F	240	2	1	0.1
1289	8ES3473	09F	272	2	1	0.1
1290	8ES3473	09F	272	3	1	0.1
1291	8ES3473	09F	315	2	1	0.3
1292	8ES3473	09F	333	7	2	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1255	LEAD	DROPPED	3.72	0.146	COMPLETE
1256	LEAD	DROPPED	4.08	0.161	COMPLETE
1257	LEAD	DROPPED	5.22	0.206	COMPLETE
1258	LEAD	CAST	7.22	0.284	COMPLETE
1259	LEAD	DROPPED	3.48	0.137	COMPLETE
1260	LEAD	DROPPED	3.29	0.130	COMPLETE
1261	LEAD	DROPPED	3.01	0.119	COMPLETE
1262	LEAD	DROPPED	3.23	0.127	COMPLETE
1263	LEAD	DROPPED	2.74	0.108	COMPLETE
1264	LEAD	DROPPED	2.58	0.102	COMPLETE
1265	LEAD	DROPPED	3.26	0.128	COMPLETE
1266	LEAD	DROPPED	2.49	0.098	COMPLETE
1267	LEAD	DROPPED	2.99	0.118	COMPLETE
1268	LEAD	DROPPED	3.61	0.142	COMPLETE
1269	LEAD	DROPPED	2.54	0.100	COMPLETE
1270	LEAD	DROPPED	3.1	0.122	COMPLETE
1271	LEAD	DROPPED	2.91	0.115	COMPLETE
1272	LEAD	DROPPED	4.02	0.158	COMPLETE
1273	LEAD	DROPPED	2.95	0.116	COMPLETE
1274	LEAD	DROPPED	3.15	0.124	COMPLETE
1275	LEAD	DROPPED	3.15	0.124	COMPLETE
1276	LEAD	DROPPED	3.96	0.156	COMPLETE
1277	LEAD	DROPPED	3.44	0.135	COMPLETE
1278	LEAD	DROPPED	2.47	0.097	COMPLETE
1279	LEAD	DROPPED	2.96	0.117	COMPLETE
1280	LEAD	DROPPED	2.64	0.104	COMPLETE
1281	LEAD	DROPPED	4.2	0.165	COMPLETE
1282	LEAD	DROPPED	2.93	0.115	COMPLETE
1283	LEAD	DROPPED	2.53	0.100	COMPLETE
1284	LEAD	DROPPED	3.94	0.155	COMPLETE
1285	LEAD	DROPPED	4.79	0.189	COMPLETE
1286	LEAD	DROPPED	3.08	0.121	COMPLETE
1287	LEAD	DROPPED	3.5	0.138	COMPLETE
1288	LEAD	DROPPED	3.05	0.120	COMPLETE
1289	LEAD	DROPPED	3.88	0.153	COMPLETE
1290	LEAD	DROPPED	2.73	0.107	COMPLETE
1291	LEAD	DROPPED	3.87	0.152	COMPLETE
1292	LEAD	DROPPED	2.3	0.091	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1293	8ES3473	09F	333	7	2	0.1
1294	8ES3473	09F	335	8	2	0.1
1295	8ES3473	09F	335	8	2	0.1
1296	8ES3473	09F	335	9	1	0.1
1297	8ES3473	09F	335	10	1	0.2
1298	8ES3473	09F	350	6	2	0.2
1299	8ES3473	09F	350	6	2	0.2
1300	8ES3473	09F	350	7	6	0.3
1301	8ES3473	09F	350	7	6	0.3
1302	8ES3473	09F	350	7	6	0.3
1303	8ES3473	09F	350	7	6	0.3
1304	8ES3473	09F	350	7	6	0.3
1305	8ES3473	09F	350	7	6	0.3
1306	8ES3473	09F	351	2	1	0.1
1307	8ES3473	09F	354	11	1	0.3
1308	8ES3473	09F	379	10	1	0.1
1309	8ES3473	09F	379	11	1	0.1
1310	8ES3473	09F	386	5	1	0.1
1311	8ES3473	09F	419	9	1	0.2
1312	8ES3473	09F	423	2	1	6.7
1313	8ES3473	09F	423	28	1	0.1
1314	8ES3473	09F	423	29	1	2.4
1315	8ES3473	09F	432	6	1	0.5
1316	8ES3473	09F	434	52	1	0.7
1317	8ES3473	09F	434	53	1	0.2
1318	8ES3473	09F	434	54	4	0.8
1319	8ES3473	09F	434	54	4	0.8
1320	8ES3473	09F	434	54	4	0.8
1321	8ES3473	09F	434	54	4	0.8
1322	8ES3473	09F	434	55	4	0.3
1323	8ES3473	09F	434	55	4	0.3
1324	8ES3473	09F	434	55	4	0.3
1325	8ES3473	09F	434	55	4	0.3
1326	8ES3473	09F	448	9	1	0.3
1327	8ES3473	09F	468	18	1	0.3
1328	8ES3473	09F	475	6	7	0.8
1329	8ES3473	09F	475	6	7	0.8
1330	8ES3473	09F	475	6	7	0.8

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1293	LEAD	DROPPED	2.82	0.111	COMPLETE
1294	LEAD	DROPPED	2.74	0.108	COMPLETE
1295	LEAD	DROPPED	2.82	0.111	COMPLETE
1296	LEAD	DROPPED	3.18	0.125	COMPLETE
1297	LEAD	DROPPED	3.54	0.139	COMPLETE
1298	LEAD	DROPPED	2.75	0.108	COMPLETE
1299	LEAD	DROPPED	2.99	0.118	COMPLETE
1300	LEAD	DROPPED	2.34	0.092	COMPLETE
1301	LEAD	DROPPED	1.86	0.073	COMPLETE
1302	LEAD	DROPPED	2.37	0.093	COMPLETE
1303	LEAD	DROPPED	2.64	0.104	COMPLETE
1304	LEAD	DROPPED	2.34	0.092	COMPLETE
1305	LEAD	DROPPED	2.5	0.098	COMPLETE
1306	LEAD	DROPPED	3	0.118	COMPLETE
1307	LEAD	DROPPED	3.92	0.154	COMPLETE
1308	LEAD	DROPPED	2.65	0.104	COMPLETE
1309	LEAD	DROPPED	2.23	0.088	COMPLETE
1310	LEAD	DROPPED	3.86	0.152	COMPLETE
1311	LEAD	DROPPED	3.38	0.133	COMPLETE
1312	LEAD	NA	0	0.000	COMPLETE
1313	LEAD	DROPPED	2.97	0.117	COMPLETE
1314	LEAD	DROPPED	4.72	0.186	COMPLETE
1315	LEAD	DROPPED	4.96	0.195	COMPLETE
1316	LEAD	DROPPED	5.57	0.219	COMPLETE
1317	LEAD	DROPPED	5.04	0.198	COMPLETE
1318	LEAD	DROPPED	3.72	0.146	COMPLETE
1319	LEAD	DROPPED	3.72	0.146	COMPLETE
1320	LEAD	DROPPED	3.54	0.139	COMPLETE
1321	LEAD	DROPPED	3.96	0.156	COMPLETE
1322	LEAD	DROPPED	3.18	0.125	COMPLETE
1323	LEAD	DROPPED	2.55	0.100	COMPLETE
1324	LEAD	DROPPED	2.43	0.096	COMPLETE
1325	LEAD	DROPPED	2.17	0.085	COMPLETE
1326	LEAD	DROPPED	4.43	0.174	COMPLETE
1327	LEAD	DROPPED	4	0.157	COMPLETE
1328	LEAD	DROPPED	3.18	0.125	COMPLETE
1329	LEAD	DROPPED	3.24	0.128	COMPLETE
1330	LEAD	DROPPED	3.08	0.121	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1331	8ES3473	09F	475	6	7	0.8
1332	8ES3473	09F	475	6	7	0.8
1333	8ES3473	09F	475	6	7	0.8
1334	8ES3473	09F	475	6	7	0.8
1335	8ES3473	09F	475	7	5	0.3
1336	8ES3473	09F	475	7	5	0.3
1337	8ES3473	09F	475	7	5	0.3
1338	8ES3473	09F	475	7	5	0.3
1339	8ES3473	09F	475	7	5	0.3
1340	8ES3473	09F	505	15	1	0.1
1341	8ES3473	09F	506	25	2	0.1
1342	8ES3473	09F	506	25	2	0.1
1343	8ES3473	09F	506	26	1	0.3
1344	8ES3473	09F	519	26	1	0.1
1345	8ES3473	09F	521	47	4	1
1346	8ES3473	09F	521	47	4	1
1347	8ES3473	09F	521	47	4	1
1348	8ES3473	09F	521	47	4	1
1349	8ES3473	09F	521	48	2	0.4
1350	8ES3473	09F	521	48	2	0.4
1351	8ES3473	09F	557	3	1	0.2
1352	8ES3473	09F	557	24	2	0.1
1353	8ES3473	09F	557	24	2	0.1
1354	8ES3473	09F	557	25	1	0.1
1355	8ES3473	09F	558	4	1	0.1
1356	8ES3473	09F	580	21	2	0.1
1357	8ES3473	09F	580	21	2	0.1
1358	8ES3473	09F	580	22	2	0.4
1359	8ES3473	09F	580	22	2	0.4
1360	8ES3473	09F	580	23	1	0.1
1361	8ES3473	09F	599	3	1	0.6
1362	8ES3473	09F	608	7	1	0.1
1363	8ES3473	09F	647	7	1	0.4
1364	8ES3473	10F	1005	3	1	0.6
1365	8ES3473	10F	1017	1	1	0.1
1366	8ES3473	10F	1018	3	1	0.3
1367	8ES3473	10F	1048	4	2	0.2
1368	8ES3473	10F	1048	4	2	0.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1331	LEAD	DROPPED	3.42	0.135	COMPLETE
1332	LEAD	DROPPED	3.87	0.152	COMPLETE
1333	LEAD	DROPPED	2.78	0.109	COMPLETE
1334	LEAD	DROPPED	3.71	0.146	COMPLETE
1335	LEAD	DROPPED	2.79	0.110	COMPLETE
1336	LEAD	DROPPED	2.58	0.102	COMPLETE
1337	LEAD	DROPPED	2.93	0.115	COMPLETE
1338	LEAD	DROPPED	2.53	0.100	COMPLETE
1339	LEAD	DROPPED	2.94	0.116	COMPLETE
1340	LEAD	DROPPED	3.66	0.144	COMPLETE
1341	LEAD	DROPPED	2.94	0.116	COMPLETE
1342	LEAD	DROPPED	2.98	0.117	COMPLETE
1343	LEAD	DROPPED	4.45	0.175	COMPLETE
1344	LEAD	DROPPED	3.69	0.145	COMPLETE
1345	LEAD	DROPPED	4.64	0.183	COMPLETE
1346	LEAD	DROPPED	4.43	0.174	COMPLETE
1347	LEAD	DROPPED	4.31	0.170	COMPLETE
1348	LEAD	DROPPED	3.81	0.150	INCOMPLETE
1349	LEAD	DROPPED	2.83	0.111	COMPLETE
1350	LEAD	DROPPED	2.67	0.105	COMPLETE
1351	LEAD	DROPPED	3.43	0.135	COMPLETE
1352	LEAD	DROPPED	2.29	0.090	COMPLETE
1353	LEAD	DROPPED	2.94	0.116	COMPLETE
1354	LEAD	DROPPED	3.05	0.120	COMPLETE
1355	LEAD	DROPPED	2.17	0.085	COMPLETE
1356	LEAD	DROPPED	2.63	0.104	COMPLETE
1357	LEAD	DROPPED	2.66	0.105	COMPLETE
1358	LEAD	DROPPED	3.92	0.154	COMPLETE
1359	LEAD	DROPPED	3.49	0.137	COMPLETE
1360	LEAD	DROPPED	3.5	0.138	COMPLETE
1361	LEAD	DROPPED	5.63	0.222	COMPLETE
1362	LEAD	DROPPED	2.36	0.093	COMPLETE
1363	LEAD	DROPPED	3.53	0.139	COMPLETE
1364	LEAD	DROPPED	3.64	0.143	COMPLETE
1365	LEAD	DROPPED	2.48	0.098	COMPLETE
1366	LEAD	DROPPED	4.05	0.159	COMPLETE
1367	LEAD	DROPPED	2.5	0.098	COMPLETE
1368	LEAD	DROPPED	2.73	0.107	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1369	8ES3473	10F	1081	4	1	0.1
1370	8ES3473	10F	1084	3	1	0.1
1371	8ES3473	10F	1090	6	1	0.2
1372	8ES3473	10F	1097	6	1	0.1
1373	8ES3473	10F	1105	3	1	0.2
1374	8ES3473	10F	1106	1	1	0.2
1375	8ES3473	10F	1111	3	1	0.2
1376	8ES3473	10F	1172	27	3	0.2
1377	8ES3473	10F	1172	27	3	0.2
1378	8ES3473	10F	1172	27	3	0.2
1379	8ES3473	10F	1182	4	1	0.2
1380	8ES3473	10F	1182	17	1	0.1
1381	8ES3473	10F	1183	48	4	12.3
1382	8ES3473	10F	1183	48	4	12.3
1383	8ES3473	10F	1183	48	4	12.3
1384	8ES3473	10F	1183	48	4	12.3
1385	8ES3473	10F	1183	50	4	1.1
1386	8ES3473	10F	1183	50	4	1.1
1387	8ES3473	10F	1183	50	4	1.1
1388	8ES3473	10F	1183	50	4	1.1
1389	8ES3473	10F	1183	51	3	0.2
1390	8ES3473	10F	1183	51	3	0.2
1391	8ES3473	10F	1183	51	3	0.2
1392	8ES3473	10F	1183	52	3	0.1
1393	8ES3473	10F	1183	52	3	0.1
1394	8ES3473	10F	1183	52	3	0.1
1395	8ES3473	10F	1183	53	3	0.3
1396	8ES3473	10F	1183	53	3	0.3
1397	8ES3473	10F	1183	54	1	0.6
1398	8ES3473	10F	1183	55	7	0.3
1399	8ES3473	10F	1183	55	7	0.3
1400	8ES3473	10F	1183	55	7	0.3
1401	8ES3473	10F	1183	56	1	0.3
1402	8ES3473	10F	1206	3	1	0.1
1403	8ES3473	10F	1208	16	1	0.6
1404	8ES3473	10F	1229	16	1	0.2
1405	8ES3473	10F	1266	16	1	0.6
1406	8ES3473	10F	1278	6	1	0.3

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1369	LEAD	DROPPED	2.98	0.117	COMPLETE
1370	LEAD	DROPPED	2.95	0.116	COMPLETE
1371	LEAD	DROPPED	4.57	0.180	COMPLETE
1372	LEAD	DROPPED	2.56	0.101	COMPLETE
1373	LEAD	DROPPED	2.37	0.093	COMPLETE
1374	LEAD	DROPPED	2.32	0.091	COMPLETE
1375	LEAD	DROPPED	2.8	0.110	COMPLETE
1376	LEAD	DROPPED	2.23	0.088	COMPLETE
1377	LEAD	DROPPED	3.02	0.119	COMPLETE
1378	LEAD	DROPPED	2.8	0.110	COMPLETE
1379	LEAD	DROPPED	2.83	0.111	COMPLETE
1380	LEAD	DROPPED	2.46	0.097	COMPLETE
1381	LEAD	CAST	8.19	0.322	COMPLETE
1382	LEAD	CAST	8.32	0.328	COMPLETE
1383	LEAD	CAST	8.26	0.325	COMPLETE
1384	LEAD	CAST	8.29	0.326	COMPLETE
1385	LEAD	DROPPED	4.06	0.160	COMPLETE
1386	LEAD	DROPPED	3.95	0.156	COMPLETE
1387	LEAD	DROPPED	4.2	0.165	COMPLETE
1388	LEAD	DROPPED	4.28	0.169	COMPLETE
1389	LEAD	DROPPED	3.27	0.129	COMPLETE
1390	LEAD	DROPPED	3.66	0.144	COMPLETE
1391	LEAD	DROPPED	3.24	0.128	COMPLETE
1392	LEAD	DROPPED	2.32	0.091	COMPLETE
1393	LEAD	DROPPED	2.28	0.090	COMPLETE
1394	LEAD	DROPPED	2.1	0.083	COMPLETE
1395	LEAD	DROPPED	3.29	0.130	COMPLETE
1396	LEAD	DROPPED	3.56	0.140	COMPLETE
1397	LEAD	DROPPED	5.31	0.209	COMPLETE
1398	LEAD	DROPPED	2.53	0.100	COMPLETE
1399	LEAD	DROPPED	2.65	0.104	COMPLETE
1400	LEAD	DROPPED	2.68	0.106	COMPLETE
1401	LEAD	DROPPED	4.52	0.178	COMPLETE
1402	LEAD	DROPPED	3.52	0.139	COMPLETE
1403	LEAD	DROPPED	5.22	0.206	COMPLETE
1404	LEAD	DROPPED	4.52	0.178	COMPLETE
1405	LEAD	DROPPED	4.93	0.194	COMPLETE
1406	LEAD	DROPPED	3.82	0.150	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1407	8ES3473	10F	1308	5	1	0.1
1408	8ES3473	10F	1380	7	1	0.2
1409	8ES3473	10F	1383	4	1	0.1
1410	8ES3473	10F	1409	1	1	0.1
1411	8ES3473	10F	1413	60	1	0.1
1412	8ES3473	10F	1414	16	1	0.4
1413	8ES3473	10F	1414	17	1	0.3
1414	8ES3473	10F	1414	18	5	0.5
1415	8ES3473	10F	1416	23	1	0.4
1416	8ES3473	10F	1435	24	1	3
1417	8ES3473	10F	1440	14	2	0.1
1418	8ES3473	10F	1440	14	2	0.1
1419	8ES3473	10F	1442	19	1	1.8
1420	8ES3473	10F	1461	21	1	0.5
1421	8ES3473	10F	1462	18	1	0.2
1422	8ES3473	10F	1465	12	1	0.3
1423	8ES3473	10F	1465	13	1	0.2
1424	8ES3473	10F	1548	4	1	0.4
1425	8ES3473	10F	1648	13	1	0.6
1426	8ES3473	10F	1677	11	1	0.1
1427	8ES3473	10F	1740	8	1	0.1
1428	8ES3473	10F	1828	6	2	0.3
1429	8ES3473	10F	1828	6	2	0.3
1430	8ES3473	11F	2018	12	1	0.3
1431	8ES3473	11F	2023	12	1	12
1432	8ES3473	11F	2034	13	1	0.4
1433	8ES3473	11F	2058	7	1	0.2
1434	8ES3473	11F	2060	11	2	0.3
1435	8ES3473	11F	2060	11	2	0.3
1436	8ES3473	11F	2062	5	1	0.2
1437	8ES3473	11F	2122	11	1	0.2
1438	8ES3473	11F	2270	5	1	1.7
1439	8ES3473	11F	2270	6	1	0.2
1440	8ES3473	11F	2270	7	1	0.2
1441	8ES3473	11F	2304	12	1	0.2
1442	8ES3473	11F	2331	5	1	0.1
1443	8ES3473	11F	2364	3	1	0.2
1444	8ES3473	11F	2365	2	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1407	LEAD	DROPPED	3.21	0.126	COMPLETE
1408	LEAD	DROPPED	3.78	0.149	COMPLETE
1409	LEAD	DROPPED	2.64	0.104	COMPLETE
1410	LEAD	DROPPED	2.44	0.096	COMPLETE
1411	LEAD	DROPPED	2.47	0.097	COMPLETE
1412	LEAD	DROPPED	4.52	0.178	COMPLETE
1413	LEAD	DROPPED	3.67	0.144	COMPLETE
1414	LEAD	DROPPED	2.54	0.100	COMPLETE
1415	LEAD	DROPPED	3.98	0.157	COMPLETE
1416	LEAD	NA	0	0.000	NA
1417	LEAD	DROPPED	2.44	0.096	COMPLETE
1418	LEAD	DROPPED	2.54	0.100	COMPLETE
1419	LEAD	NA	8.62	0.339	INCOMPLETE
1420	LEAD	DROPPED	4.03	0.159	COMPLETE
1421	LEAD	DROPPED	3.54	0.139	COMPLETE
1422	LEAD	DROPPED	3.57	0.141	COMPLETE
1423	LEAD	DROPPED	3.02	0.119	COMPLETE
1424	LEAD	DROPPED	4.72	0.186	COMPLETE
1425	LEAD	DROPPED	4.71	0.185	COMPLETE
1426	LEAD	DROPPED	2.3	0.091	COMPLETE
1427	LEAD	DROPPED	3.82	0.150	COMPLETE
1428	LEAD	DROPPED	3.4	0.134	COMPLETE
1429	LEAD	DROPPED	2.94	0.116	COMPLETE
1430	LEAD	DROPPED	4.25	0.167	COMPLETE
1431	LEAD	CAST	13.14	0.517	INCOMPLETE
1432	LEAD	DROPPED	4.89	0.193	COMPLETE
1433	LEAD	DROPPED	3.57	0.141	COMPLETE
1434	LEAD	DROPPED	3.81	0.150	COMPLETE
1435	LEAD	DROPPED	3.41	0.134	COMPLETE
1436	LEAD	DROPPED	4.06	0.160	COMPLETE
1437	LEAD	DROPPED	3.62	0.143	COMPLETE
1438	LEAD	DROPPED	6.6	0.260	COMPLETE
1439	LEAD	DROPPED	4.36	0.172	COMPLETE
1440	LEAD	DROPPED	3.19	0.126	COMPLETE
1441	LEAD	DROPPED	3.79	0.149	COMPLETE
1442	LEAD	DROPPED	4.08	0.161	COMPLETE
1443	LEAD	DROPPED	3.63	0.143	COMPLETE
1444	LEAD	DROPPED	3.08	0.121	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1445	8ES3473	11F	2365	3	1	0.1
1446	8ES3473	11F	2380	7	1	0.2
1447	8ES3473	11F	2382	24	1	0.3
1448	8ES3473	11F	2393	1	1	0.3
1449	8ES3473	11F	2458	8	1	0.5
1450	8ES3473	11F	2495	13	1	0.2
1451	8ES3473	11F	2502	3	1	0.5
1452	8ES3473	11F	2688	2	1	0.5
1453	8ES3473	11F	2709	16	1	0.2
1454	8ES3473	11F	2709	17	1	0.2
1455	8ES3473	11F	2762	2	1	0.3
1456	8ES3473	11F	2822	7	1	0.7
1457	8ES3473	11F	2836	3	1	0.2
1458	8ES3473	11F	2902	6	1	0.1
1459	8ES3473	12F	4009	26	1	0.2
1460	8ES3473	12F	4017	11	1	0.2
1461	8ES3473	12F	4027	9	1	0.2
1462	8ES3473	12F	4036	16	1	5.1
1463	8ES3473	12F	4036	17	1	0.2
1464	8ES3473	12F	4079	13	1	0.2
1465	8ES3473	12F	4091	30	4	0.7
1466	8ES3473	12F	4091	30	4	0.7
1467	8ES3473	12F	4091	30	4	0.7
1468	8ES3473	12F	4091	30	4	0.7
1469	8ES3473	12F	4092	19	2	0.4
1470	8ES3473	12F	4092	19	2	0.4
1471	8ES3473	12F	4102	6	1	0.2
1472	8ES3473	12F	4113	17	1	0.1
1473	8ES3473	12F	4113	18	1	0.1
1474	8ES3473	12F	4119	15	1	0.1
1475	8ES3473	12F	4121	2	1	0.6
1476	8ES3473	12F	4121	3	1	0.1
1477	8ES3473	12F	4137	5	1	0.1
1478	8ES3473	12F	4138	2	1	0.2
1479	8ES3473	12F	4168	14	1	0.1
1480	8ES3473	12F	4168	15	1	0.6
1481	8ES3473	12F	4190	5	1	0.3
1482	8ES3473	12F	4190	6	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1445	LEAD	DROPPED	4.51	0.178	COMPLETE
1446	LEAD	DROPPED	3.18	0.125	COMPLETE
1447	LEAD	DROPPED	4.62	0.182	COMPLETE
1448	LEAD	DROPPED	4.01	0.158	COMPLETE
1449	LEAD	DROPPED	4.89	0.193	COMPLETE
1450	LEAD	DROPPED	3.06	0.120	COMPLETE
1451	LEAD	DROPPED	4.83	0.190	COMPLETE
1452	LEAD	DROPPED	4.6	0.181	COMPLETE
1453	LEAD	DROPPED	4.49	0.177	COMPLETE
1454	LEAD	DROPPED	3.82	0.150	COMPLETE
1455	LEAD	DROPPED	4.33	0.170	COMPLETE
1456	LEAD	DROPPED	6.07	0.239	COMPLETE
1457	LEAD	DROPPED	3.48	0.137	COMPLETE
1458	LEAD	DROPPED	3.34	0.131	COMPLETE
1459	LEAD	DROPPED	3.9	0.154	COMPLETE
1460	LEAD	DROPPED	3.5	0.138	COMPLETE
1461	LEAD	DROPPED	3.45	0.136	COMPLETE
1462	LEAD	CAST	9.7	0.382	COMPLETE
1463	LEAD	DROPPED	3.68	0.145	COMPLETE
1464	LEAD	DROPPED	3.4	0.134	COMPLETE
1465	LEAD	DROPPED	3.17	0.125	COMPLETE
1466	LEAD	DROPPED	3.46	0.136	COMPLETE
1467	LEAD	DROPPED	3.14	0.124	COMPLETE
1468	LEAD	DROPPED	3.64	0.143	COMPLETE
1469	LEAD	DROPPED	3.8	0.150	COMPLETE
1470	LEAD	DROPPED	3.8	0.150	COMPLETE
1471	LEAD	DROPPED	3.61	0.142	COMPLETE
1472	LEAD	DROPPED	3.32	0.131	COMPLETE
1473	LEAD	DROPPED	3.61	0.142	COMPLETE
1474	LEAD	DROPPED	3.5	0.138	COMPLETE
1475	LEAD	DROPPED	4.74	0.187	COMPLETE
1476	LEAD	DROPPED	3.13	0.123	COMPLETE
1477	LEAD	DROPPED	2.6	0.102	COMPLETE
1478	LEAD	DROPPED	3.5	0.138	COMPLETE
1479	LEAD	DROPPED	2.8	0.110	COMPLETE
1480	LEAD	DROPPED	4.4	0.173	COMPLETE
1481	LEAD	DROPPED	4.38	0.172	COMPLETE
1482	LEAD	DROPPED	2.6	0.102	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1483	8ES3473	12F	4191	11	1	0.1
1484	8ES3473	12F	4206	10	1	2.5
1485	8ES3473	12F	4206	11	1	0.4
1486	8ES3473	12F	4210	11	3	0.5
1487	8ES3473	12F	4210	11	3	0.5
1488	8ES3473	12F	4210	11	3	0.5
1489	8ES3473	12F	4220	19	3	0.3
1490	8ES3473	12F	4220	19	3	0.3
1491	8ES3473	12F	4220	19	3	0.3
1492	8ES3473	12F	4220	20	2	0.3
1493	8ES3473	12F	4220	20	2	0.3
1494	8ES3473	12F	4220	21	1	2.4
1495	8ES3473	12F	4230	10	1	0.1
1496	8ES3473	12F	4230	11	1	0.1
1497	8ES3473	12F	4239	12	1	0.1
1498	8ES3473	12F	4241	28	1	0.1
1499	8ES3473	12F	4241	29	1	15.6
1500	8ES3473	12F	4264	6	1	0.2
1501	8ES3473	12F	4276	10	1	0.1
1502	8ES3473	12F	4277	18	1	0.2
1503	8ES3473	12F	4290	15	1	0.2
1504	8ES3473	12F	4333	4	2	0.4
1505	8ES3473	12F	4333	4	2	0.4
1506	8ES3473	12F	4345	4	1	0.2
1507	8ES3473	12F	4393	4	1	0.3
1508	8ES3473	12F	4407	12	1	0.1
1509	8ES3473	12F	4407	13	1	0.1
1510	8ES3473	12F	4423	3	1	0.1
1511	8ES3473	12F	4438	9	2	0.4
1512	8ES3473	12F	4438	9	2	0.4
1513	8ES3473	12F	4451	10	1	0.5
1514	8ES3473	12F	4457	8	1	0.1
1515	8ES3473	12F	4480	8	1	0.1
1516	8ES3473	12F	4507	12	1	0.1
1517	8ES3473	12F	4637	10	1	0.1
1518	8ES3473	12F	4699	4	1	0.2
1519	8ES3473	14F	5020	9	1	0.1
1520	8ES3473	14F	5033	8	1	0.1

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1483	LEAD	DROPPED	3.41	0.134	COMPLETE
1484	LEAD	DROPPED	0	0.000	INCOMPLETE
1485	LEAD	DROPPED	5.01	0.197	COMPLETE
1486	LEAD	DROPPED	3.02	0.119	COMPLETE
1487	LEAD	DROPPED	3.44	0.135	COMPLETE
1488	LEAD	DROPPED	3.2	0.126	COMPLETE
1489	LEAD	DROPPED	3	0.118	COMPLETE
1490	LEAD	DROPPED	3	0.118	COMPLETE
1491	LEAD	DROPPED	3	0.118	COMPLETE
1492	LEAD	DROPPED	3.3	0.130	COMPLETE
1493	LEAD	DROPPED	3.3	0.130	COMPLETE
1494	LEAD	CAST	7.5	0.295	COMPLETE
1495	LEAD	DROPPED	3.1	0.122	COMPLETE
1496	LEAD	DROPPED	2.6	0.102	COMPLETE
1497	LEAD	DROPPED	3.7	0.146	COMPLETE
1498	LEAD	DROPPED	2.82	0.111	COMPLETE
1499	LEAD	CAST	0	0.000	COMPLETE
1500	LEAD	DROPPED	3.42	0.135	COMPLETE
1501	LEAD	DROPPED	3.4	0.134	COMPLETE
1502	LEAD	DROPPED	3.5	0.138	COMPLETE
1503	LEAD	DROPPED	3.59	0.141	COMPLETE
1504	LEAD	DROPPED	3.5	0.138	COMPLETE
1505	LEAD	DROPPED	3.5	0.138	COMPLETE
1506	LEAD	DROPPED	4.34	0.171	COMPLETE
1507	LEAD	DROPPED	4.15	0.163	COMPLETE
1508	LEAD	DROPPED	3.1	0.122	COMPLETE
1509	LEAD	DROPPED	2.8	0.110	COMPLETE
1510	LEAD	DROPPED	2.73	0.107	COMPLETE
1511	LEAD	DROPPED	4.04	0.159	COMPLETE
1512	LEAD	DROPPED	4.02	0.158	COMPLETE
1513	LEAD	DROPPED	5.73	0.226	COMPLETE
1514	LEAD	DROPPED	3.31	0.130	COMPLETE
1515	LEAD	DROPPED	3.36	0.132	COMPLETE
1516	LEAD	DROPPED	3.43	0.135	COMPLETE
1517	LEAD	DROPPED	3.43	0.135	COMPLETE
1518	LEAD	DROPPED	3.9	0.154	COMPLETE
1519	LEAD	DROPPED	2.99	0.118	COMPLETE
1520	LEAD	DROPPED	2.87	0.113	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1521	8ES3473	14F	5043	13	1	0.2
1522	8ES3473	14F	5043	14	1	0.2
1523	8ES3473	14F	5045	5	1	0.1
1524	8ES3473	14F	5066	20	1	0.3
1525	8ES3473	14F	5112	6	1	1.5
1526	8ES3473	14F	5113	6	1	0.1
1527	8ES3473	14F	5113	7	2	1.3
1528	8ES3473	14F	5113	7	2	1.3
1529	8ES3473	14F	5113	8	1	0.1
1530	8ES3473	14F	5125	10	1	1.9
1531	8ES3473	14F	5179	22	2	0.6
1532	8ES3473	14F	5179	22	2	0.6
1533	8ES3473	14F	5182	2	1	0.1
1534	8ES3473	14F	5266	5	1	2
1535	8ES3473	14F	5351	13	1	0.1
1536	8ES3473	14F	5361	13	1	0.1
1537	8ES3473	14F	5361	14	1	0.1
1538	8ES3473	14F	5375	26	2	0.5
1539	8ES3473	14F	5375	26	2	0.5
1540	8ES3473	14F	5381	20	1	0.2
1541	8ES3473	14F	5401	17	1	0.1
1542	8ES3473	14F	5401	18	1	0.1
1543	8ES3473	14F	5458	12	1	0.4
1544	8ES3473	14F	5466	6	1	2.2
1545	8ES3473	14F	5515	5	1	0.3
1546	8ES3473	14F	5572	8	1	0.5
1547	8ES3473	14F	5619	10	2	0.2
1548	8ES3473	14F	5619	10	2	0.2
1549	8ES3473	14F	5685	5	1	0.1
1550	8ES3473	15F	6006	39	2	0.5
1551	8ES3473	15F	6006	39	2	0.5
1552	8ES3473	15F	6020	4	6	0.4
1553	8ES3473	15F	6020	4	6	0.4
1554	8ES3473	15F	6020	4	6	0.4
1555	8ES3473	15F	6020	4	6	0.4
1556	8ES3473	15F	6020	4	6	0.4
1557	8ES3473	15F	6020	4	6	0.4
1558	8ES3473	15F	6030	4	1	0.2

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1521	LEAD	DROPPED	3.22	0.127	COMPLETE
1522	LEAD	DROPPED	3.47	0.137	COMPLETE
1523	LEAD	DROPPED	3.13	0.123	COMPLETE
1524	LEAD	DROPPED	4.26	0.168	COMPLETE
1525	LEAD	DROPPED	7.38	0.291	COMPLETE
1526	LEAD	DROPPED	4.01	0.158	COMPLETE
1527	LEAD	DROPPED	5.65	0.222	COMPLETE
1528	LEAD	DROPPED	6.27	0.247	COMPLETE
1529	LEAD	DROPPED	2.97	0.117	COMPLETE
1530	LEAD	CAST	7.42	0.292	COMPLETE
1531	LEAD	DROPPED	3.91	0.154	COMPLETE
1532	LEAD	DROPPED	4.61	0.181	COMPLETE
1533	LEAD	DROPPED	2.81	0.111	COMPLETE
1534	LEAD	DROPPED	7.44	0.293	COMPLETE
1535	LEAD	DROPPED	2.29	0.090	COMPLETE
1536	LEAD	DROPPED	2.47	0.097	COMPLETE
1537	LEAD	DROPPED	3.08	0.121	COMPLETE
1538	LEAD	DROPPED	3.34	0.131	COMPLETE
1539	LEAD	DROPPED	4.34	0.171	COMPLETE
1540	LEAD	DROPPED	3.18	0.125	COMPLETE
1541	LEAD	DROPPED	3.46	0.136	COMPLETE
1542	LEAD	DROPPED	2.71	0.107	COMPLETE
1543	LEAD	DROPPED	4.32	0.170	COMPLETE
1544	LEAD	CAST	7.13	0.281	COMPLETE
1545	LEAD	DROPPED	4.04	0.159	COMPLETE
1546	LEAD	DROPPED	4.72	0.186	COMPLETE
1547	LEAD	DROPPED	2.79	0.110	COMPLETE
1548	LEAD	DROPPED	2.74	0.108	COMPLETE
1549	LEAD	DROPPED	2.59	0.102	COMPLETE
1550	LEAD	DROPPED	3.34	0.131	COMPLETE
1551	LEAD	DROPPED	3.24	0.128	COMPLETE
1552	LEAD	DROPPED	3.41	0.134	COMPLETE
1553	LEAD	DROPPED	3.06	0.120	COMPLETE
1554	LEAD	DROPPED	3.48	0.137	COMPLETE
1555	LEAD	DROPPED	3.12	0.123	COMPLETE
1556	LEAD	DROPPED	3.56	0.140	COMPLETE
1557	LEAD	DROPPED	3.17	0.125	COMPLETE
1558	LEAD	DROPPED	3.32	0.131	COMPLETE

Sample #	Site #	Year	Prov. #	Cat. #	Total Count	Total Weight (g)
1559	8ES3473	15F	6030	13	1	0.1
1560	8ES3473	15F	6032	35	1	0.1
1561	8ES3473	15F	6032	36	3	0.4
1562	8ES3473	15F	6032	36	3	0.4
1563	8ES3473	15F	6032	36	3	0.4
1564	8ES3473	15F	6032	37	4	0.6
1565	8ES3473	15F	6032	37	4	0.6
1566	8ES3473	15F	6032	37	4	0.6
1567	8ES3473	15F	6032	37	4	0.6
1568	8ES3473	15F	6032	38	1	0.3
1569	8ES3473	15F	6038	22	1	0.1
1570	8ES3473	15F	6087	2	1	0.1
1571	8ES3473	15F	6137	19	1	0.2
1572	8ES3473	15F	6217	6	1	0.1
1573	8ES3473	15F	6230	4	1	0.2
1574	8ES3473	15F	6308	7	1	0.8
1575	8ES3473	15F	6331	7	2	0.2
1576	8ES3473	15F	6331	7	2	0.2
1577	8ES3473	15F	6338	6	1	0.7
1578	8ES3473	15F	6338	18	1	0.5
1579	8ES3473	15F	6392	5	1	0.1
1580	8ES3473	15F	6398	39	2	0.2
1581	8ES3473	15F	6398	39	2	0.2
1582	8ES3473	15F	6398	44	1	0.2
1583	8ES3473	15F	6407	15	1	0.1
1584	8ES3473	15F	6412	10	1	0.3
1585	8ES3473	15F	6412	11	1	0.4
1586	8SR2577	15BB	9	2	1	0.1
1587	8SR2477	16G	192	30	1	0.2
1588	8SR2477	16G	198	17	1	0.1
1589	8SR2477	16G	210	4	1	2.8

Sample #	Material	Manufacture Technique	Diameter (mm)	Diameter (in)	Completeness
1559	LEAD	DROPPED	3.08	0.121	COMPLETE
1560	LEAD	DROPPED	2.71	0.107	COMPLETE
1561	LEAD	DROPPED	3.29	0.130	COMPLETE
1562	LEAD	DROPPED	3.29	0.130	COMPLETE
1563	LEAD	DROPPED	3.22	0.127	COMPLETE
1564	LEAD	DROPPED	3.3	0.130	COMPLETE
1565	LEAD	DROPPED	3.11	0.122	COMPLETE
1566	LEAD	DROPPED	3.14	0.124	COMPLETE
1567	LEAD	DROPPED	3.69	0.145	COMPLETE
1568	LEAD	DROPPED	3.42	0.135	COMPLETE
1569	LEAD	DROPPED	2.68	0.106	COMPLETE
1570	LEAD	DROPPED	2.14	0.084	COMPLETE
1571	LEAD	DROPPED	2.88	0.113	COMPLETE
1572	LEAD	DROPPED	3.37	0.133	COMPLETE
1573	LEAD	DROPPED	3.4	0.134	COMPLETE
1574	LEAD	DROPPED	0	0.000	COMPLETE
1575	LEAD	DROPPED	3.25	0.128	COMPLETE
1576	LEAD	DROPPED	3.4	0.134	COMPLETE
1577	LEAD	DROPPED	5.74	0.226	COMPLETE
1578	LEAD	DROPPED	4.51	0.178	COMPLETE
1579	LEAD	DROPPED	2.6	0.102	COMPLETE
1580	LEAD	DROPPED	3.14	0.124	COMPLETE
1581	LEAD	DROPPED	2.8	0.110	COMPLETE
1582	LEAD	DROPPED	3.56	0.140	COMPLETE
1583	LEAD	DROPPED	3.5	0.138	COMPLETE
1584	LEAD	DROPPED	3.45	0.136	COMPLETE
1585	LEAD	DROPPED	5.09	0.200	INCOMPLETE
1586	LEAD	DROPPED	2.8	0.110	COMPLETE
1587	LEAD	DROPPED	3.06	0.120	COMPLETE
1588	LEAD	DROPPED	2.33	0.092	COMPLETE
1589	LEAD	CAST	0	0.000	INCOMPLETE

Appendix F: OES Results

Sample	ppb	µl Sample	Dilute to (ml)	Final Concoction
R1	4756	26	5	25
R2	4155	30	5	25
R3	19503	6	5	25
R4	5171	24	5	25
R5	5528	23	5	25
R6	5580	22	5	25
R7	4096	31	5	25
R8	24632	5	5	25
R9	8553	15	5	25
R10	5198	24	5	25
R11	3774	33	5	25
R12	8217	15	5	25
R13	11510	11	5	25
R14	6497	19	5	25
R15	6796	18	5	25
R17	8752	14	5	25
R18	15241	8	5	25
R19	7276	17	5	25
R20	3776	33	5	25
R21	17940	7	5	25
R22	34281	4	5	25
R23	45885	3	5	25
R24	32227	4	5	25
R25	28132	4	5	25
R26	2763	45	5	25
R27	17557	7	5	25
R28	25802	5	5	25
R29	2957	42	5	25
R30	18691	7	5	25
R31	9234	14	5	25
R32	4864	26	5	25
R33	6	all	0	6
R34	18804	7	5	25
R35	22892	5	5	25
R36	24809	5	5	25
R37	13	all	0	13
R38	10485	12	5	25
R39	9669	13	5	25
R40	5472	23	5	25
R41	71896	3	5	25

Sample	ppb	µl Sample	Dilute to (ml)	Final Concoction
R42	9439	13	5	25
R43	8176	15	5	25
R44	23601	5	5	25
R45	13	all	0	13
R46	6541	19	5	25
R47	36073	3	5	25
R48	52	2404	5	25
R49	6673	19	5	25
R50	37459	3	5	25
E1	23196	5	5	25
E2	6	all	0	6
E3	17398	7	5	25
E4	17543	7	5	25
E5	9394	13	5	25
E6	9135	14	5	25
E7	10316	12	5	25
E8	14236	9	5	25
E9	14787	8	5	25
E10	8819	14	5	25
E11	5388	23	5	25
E12	5479	23	5	25
E13	4604	27	5	25
E14	12847	10	5	25
E15	14049	9	5	25
E16	9931	13	5	25
E17	15211	8	5	25
E18	18970	7	5	25
E19	33456	4	5	25
E20	9652	13	5	25
E21	16002	8	5	25
E22	20255	6	5	25
E23	26490	5	5	25
E24	41491	3	5	25
E25	9	all	0	9
E26	18	all	0	18
E27	6	all	0	6
E28	19890	6	5	25
E29	48398	3	5	25
E30	48376	3	5	25
E31	69775	2	5	25

Sample	ppb	µl Sample	Dilute to (ml)	Final Concoction
E32	48787	3	5	25
E33	52192	2	5	25
E34	55082	2	5	25
E35	28224	4	5	25
E36	25337	5	5	25
E37	14640	9	5	25
E38	46457	3	5	25
E39	74886	2	5	25
E40	66876	2	5	25
E41	41091	3	5	25
E42	50	2500	5	25
E43	46295	3	5	25
E44	38498	3	5	25
E45	174	718	5	25
E46	223	561	5	25
E47	24544	5	5	25
E48	56525	2	5	25
E49	26454	5	5	25
E50	25431	5	5	25
M1	7320	17	5	25
M2	5187	24	5	25
M3	4150	30	5	25
M4	4942	25	5	25
M5	4183	30	5	25
M6	2618	48	5	25
M7	7740	17	5	25
M8	28464	4	5	25
M9	1971	63	5	25
M10	12567	10	5	25
M11	4919	25	5	25
M12	1928	65	5	25
M13	1273	98	5	25
M14	17760	7	5	25
M15	2612	48	5	25
M16	3392	37	5	25
M17	15221	8	5	25
M18	14799	8	5	25
M19	2642	47	5	25
M20	5515	23	5	25
M21	6450	19	5	25

Sample	ppb	µl Sample	Dilute to (ml)	Final Concoction
M22	1672	75	5	25
M23	12446	10	5	25
M24	2749	45	5	25
M25	2030	62	5	25
M26	3777	33	5	25
M27	2208	57	5	25
M28	2277	55	5	25
M29	22500	6	5	25
M30	6391	20	5	25
M31	3711	34	5	25
M32	4841	26	5	25
M33	3102	40	5	25
M34	9740	13	5	25
M35	3637	34	5	25
M36	10906	11	5	25
M37	8098	15	5	25
M38	2710	46	5	25
M39	4236	30	5	25
M40	12054	10	5	25
M41	4016	31	5	25
M42	3182	39	5	25
M43	2208	57	5	25
M44	3488	36	5	25
M45	1354	92	5	25
M46	1839	68	5	25
M47	10041	12	5	25
M48	8895	14	5	25
M49	5647	22	5	25
M50	3145	40	5	25

Appendix F: Lead Isotope Data

Site Name	Artifact ID #	Sample type	204Pb/206Pb
Santa Rosa	R1	Lead Shot	0.0536
Santa Rosa	R2	Lead Shot	0.0536
Santa Rosa	R3	Lead Shot	0.0542
Santa Rosa	R4	Lead Shot	0.0543
Santa Rosa	R5	Lead Shot	0.0535
Santa Rosa	R6	Lead Shot	0.0536
Santa Rosa	R7	Lead Shot	0.0536
Santa Rosa	R8	Lead Shot	0.0533
Santa Rosa	R9	Lead Shot	0.0537
Santa Rosa	R10	Lead Shot	0.0542
Santa Rosa	R11	Lead Shot	0.0535
Santa Rosa	R12	Lead Shot	0.0542
Santa Rosa	R13	Lead Shot	0.0535
Santa Rosa	R14	Lead Shot	0.0541
Santa Rosa	R15	Lead Shot	0.0547
Santa Rosa	R17	Lead Shot	0.0536
Santa Rosa	R18	Lead Shot	0.0539
Santa Rosa	R19	Lead Shot	0.0536
Santa Rosa	R20	Lead Shot	0.0537
Santa Rosa	R21	Lead Shot	0.0545
Santa Rosa	R22	Lead Shot	0.0541
Santa Rosa	R23	Lead Shot	0.0541
Santa Rosa	R24	Lead Shot	0.0542
Santa Rosa	R25	Lead Shot	0.0545
Santa Rosa	R26	Lead Shot	0.0541
Santa Rosa	R27	Lead Shot	0.0533
Santa Rosa	R28	Lead Shot	0.0540
Santa Rosa	R29	Lead Shot	0.0538
Santa Rosa	R30	Lead Shot	0.0542
Santa Rosa	R31	Lead Shot	0.0541
Santa Rosa	R32	Lead Shot	0.0542
Santa Rosa	R33	Lead Shot	0.0540
Santa Rosa	R34	Lead Shot	0.0540
Santa Rosa	R35	Lead Shot	0.0535
Santa Rosa	R36	Lead Shot	0.0536
Santa Rosa	R37	Lead Shot	0.0541
Santa Rosa	R38	Lead Shot	0.0544
Santa Rosa	R39	Lead Shot	0.0541
Santa Rosa	R40	Lead Shot	0.0542
Santa Rosa	R41	Lead Shot	0.0546
Santa Rosa	R42	Lead Shot	0.0543

Artifact ID #	207Pb/206Pb	208Pb/206Pb	206Pb/204Pb
R1	0.838	2.072	18.662
R2	0.837	2.068	18.663
R3	0.847	2.084	18.457
R4	0.847	2.086	18.426
R5	0.836	2.065	18.679
R6	0.837	2.067	18.646
R7	0.836	2.066	18.667
R8	0.834	2.064	18.765
R9	0.841	2.075	18.611
R10	0.846	2.087	18.447
R11	0.836	2.068	18.705
R12	0.847	2.090	18.458
R13	0.838	2.073	18.677
R14	0.846	2.086	18.482
R15	0.854	2.097	18.298
R17	0.837	2.069	18.650
R18	0.841	2.077	18.568
R19	0.836	2.070	18.661
R20	0.837	2.070	18.639
R21	0.851	2.091	18.351
R22	0.845	2.082	18.492
R23	0.846	2.088	18.483
R24	0.846	2.081	18.469
R25	0.851	2.094	18.343
R26	0.845	2.087	18.483
R27	0.835	2.068	18.755
R28	0.845	2.085	18.527
R29	0.838	2.071	18.602
R30	0.847	2.089	18.446
R31	0.845	2.085	18.474
R32	0.845	2.086	18.454
R33	0.844	2.081	18.535
R34	0.844	2.084	18.504
R35	0.835	2.066	18.684
R36	0.837	2.068	18.665
R37	0.844	2.082	18.485
R38	0.849	2.090	18.395
R39	0.845	2.082	18.476
R40	0.847	2.085	18.455
R41	0.851	2.090	18.332
R42	0.847	2.088	18.427

Artifact ID #	207Pb/204Pb	208Pb/204Pb
R1	15.647	38.652
R2	15.633	38.581
R3	15.630	38.463
R4	15.604	38.429
R5	15.623	38.565
R6	15.601	38.531
R7	15.604	38.562
R8	15.653	38.727
R9	15.647	38.615
R10	15.602	38.489
R11	15.644	38.667
R12	15.628	38.563
R13	15.661	38.715
R14	15.643	38.552
R15	15.621	38.358
R17	15.616	38.574
R18	15.615	38.553
R19	15.612	38.621
R20	15.599	38.567
R21	15.614	38.372
R22	15.627	38.487
R23	15.635	38.577
R24	15.620	38.426
R25	15.615	38.403
R26	15.620	38.564
R27	15.657	38.779
R28	15.664	38.615
R29	15.601	38.518
R30	15.624	38.522
R31	15.616	38.503
R32	15.605	38.483
R33	15.647	38.556
R34	15.630	38.549
R35	15.606	38.593
R36	15.619	38.585
R37	15.596	38.469
R38	15.629	38.438
R39	15.607	38.456
R40	15.629	38.478
R41	15.607	38.309
R42	15.610	38.474

Site Name	Artifact ID #	Sample type	204Pb/206Pb
Santa Rosa	R43	Lead Shot	0.0542
Santa Rosa	R44	Lead Shot	0.0541
Santa Rosa	R45	Lead Shot	0.0538
Santa Rosa	R46	Lead Shot	0.0541
Santa Rosa	R47	Lead Shot	0.0541
Santa Rosa	R48	Lead Shot	0.0540
Santa Rosa	R49	Lead Shot	0.0542
Santa Rosa	R50	Lead Shot	0.0542
Escambe	E1	Lead Shot	0.0531
Escambe	E2	Lead Shot	0.0542
Escambe	E3	Lead Shot	0.0556
Escambe	E4	Lead Shot	0.0514
Escambe	E5	Lead Shot	0.0593
Escambe	E6	Lead Shot	0.0552
Escambe	E7	Lead Shot	0.0544
Escambe	E8	Lead Shot	0.0569
Escambe	E9	Lead Shot	0.0525
Escambe	E10	Lead Shot	0.0515
Escambe	E11	Lead Shot	0.0521
Escambe	E12	Lead Shot	0.0521
Escambe	E13	Lead Shot	0.0517
Escambe	E14	Lead Shot	0.0565
Escambe	E15	Lead Shot	0.0539
Escambe	E16	Lead Shot	0.0461
Escambe	E17	Lead Shot	0.0515
Escambe	E18	Lead Shot	0.0545
Escambe	E19	Lead Shot	0.0543
Escambe	E20	Lead Shot	0.0528
Escambe	E21	Lead Shot	0.0449
Escambe	E22	Lead Shot	0.0543
Escambe	E23	Lead Shot	0.0541
Escambe	E24	Lead Shot	0.0544
Escambe	E25	Lead Shot	0.0529
Escambe	E26	Lead Shot	0.0531
Escambe	E27	Lead Shot	0.0528
Escambe	E28	Lead Shot	0.0540
Escambe	E29	Lead Shot	0.0546
Escambe	E30	Lead Shot	0.0541
Escambe	E31	Lead Shot	0.0454
Escambe	E32	Lead Shot	0.0541
Escambe	E33	Lead Shot	0.0450

Artifact ID #	207Pb/206Pb	208Pb/206Pb	206Pb/204Pb
R43	0.847	2.087	18.456
R44	0.845	2.085	18.494
R45	0.843	2.084	18.589
R46	0.845	2.085	18.493
R47	0.845	2.083	18.472
R48	0.841	2.074	18.535
R49	0.846	2.088	18.464
R50	0.846	2.085	18.448
E1	0.830	2.055	18.842
E2	0.849	2.092	18.450
E3	0.866	2.120	17.991
E4	0.809	1.999	19.442
E5	0.914	2.176	16.853
E6	0.858	2.125	18.111
E7	0.848	2.094	18.374
E8	0.880	2.124	17.586
E9	0.822	2.042	19.066
E10	0.807	1.996	19.423
E11	0.817	2.027	19.182
E12	0.815	2.017	19.187
E13	0.810	2.003	19.351
E14	0.878	2.139	17.693
E15	0.840	2.074	18.570
E16	0.733	1.886	21.709
E17	0.808	2.003	19.405
E18	0.850	2.088	18.359
E19	0.847	2.090	18.429
E20	0.827	2.052	18.944
E21	0.717	1.885	22.264
E22	0.845	2.087	18.434
E23	0.845	2.084	18.489
E24	0.850	2.097	18.375
E25	0.829	2.047	18.909
E26	0.830	2.049	18.847
E27	0.825	2.047	18.943
E28	0.840	2.098	18.527
E29	0.851	2.092	18.327
E30	0.847	2.087	18.486
E31	0.724	1.867	22.034
E32	0.841	2.097	18.502
E33	0.718	1.869	22.247

Artifact ID #	207Pb/204Pb	208Pb/204Pb
R43	15.635	38.515
R44	15.639	38.542
R45	15.668	38.732
R46	15.633	38.544
R47	15.620	38.477
R48	15.584	38.429
R49	15.630	38.548
R50	15.612	38.452
E1	15.639	38.709
E2	15.664	38.595
E3	15.581	38.139
E4	15.734	38.858
E5	15.411	36.670
E6	15.545	38.470
E7	15.582	38.474
E8	15.481	37.348
E9	15.669	38.928
E10	15.679	38.754
E11	15.672	38.865
E12	15.645	38.693
E13	15.683	38.743
E14	15.543	37.839
E15	15.600	38.511
E16	15.924	40.926
E17	15.680	38.857
E18	15.616	38.329
E19	15.615	38.513
E20	15.672	38.861
E21	15.968	41.953
E22	15.579	38.459
E23	15.622	38.520
E24	15.615	38.517
E25	15.675	38.705
E26	15.641	38.613
E27	15.639	38.773
E28	15.559	38.852
E29	15.606	38.334
E30	15.667	38.578
E31	15.950	41.125
E32	15.556	38.797
E33	15.988	41.567

Site Name	Artifact ID #	Sample type	204Pb/206Pb
Escambe	E34	Lead Shot	0.0543
Escambe	E35	Lead Shot	0.0546
Escambe	E36	Lead Shot	0.0545
Escambe	E37	Lead Shot	0.0546
Escambe	E38	Lead Shot	0.0541
Escambe	E39	Lead Shot	0.0448
Escambe	E40	Lead Shot	0.0452
Escambe	E41	Lead Shot	0.0547
Escambe	E42	Lead Shot	0.0510
Escambe	E43	Lead Shot	0.0546
Escambe	E44	Lead Shot	0.0450
Escambe	E45	Lead Shot	0.0505
Escambe	E46	Lead Shot	0.0505
Escambe	E47	Lead Shot	0.0458
Escambe	E48	Lead Shot	0.0547
Escambe	E49	Lead Shot	0.0543
Escambe	E50	Lead Shot	0.0542
San Miguel	M1	Lead Shot	0.0540
San Miguel	M2	Lead Shot	0.0543
San Miguel	M3	Lead Shot	0.0544
San Miguel	M4	Lead Shot	0.0548
San Miguel	M5	Lead Shot	0.0548
San Miguel	M6	Lead Shot	0.0542
San Miguel	M7	Lead Shot	0.0543
San Miguel	M8	Lead Shot	0.0537
San Miguel	M9	Lead Shot	0.0543
San Miguel	M10	Lead Shot	0.0542
San Miguel	M11	Lead Shot	0.0542
San Miguel	M12	Lead Shot	0.0541
San Miguel	M13	Lead Shot	0.0542
San Miguel	M14	Lead Shot	0.0547
San Miguel	M15	Lead Shot	0.0543
San Miguel	M16	Lead Shot	0.0543
San Miguel	M17	Lead Shot	0.0547
San Miguel	M18	Lead Shot	0.0567
San Miguel	M19	Lead Shot	0.0463
San Miguel	M20	Lead Shot	0.0539
San Miguel	M21	Lead Shot	0.0542
San Miguel	M22	Lead Shot	0.0459
San Miguel	M23	Lead Shot	0.0547
San Miguel	M24	Lead Shot	0.0541

Artifact ID #	207Pb/206Pb	208Pb/206Pb	206Pb/204Pb
E34	0.852	2.098	18.406
E35	0.853	2.097	18.318
E36	0.849	2.096	18.360
E37	0.849	2.094	18.317
E38	0.845	2.094	18.486
E39	0.717	1.883	22.330
E40	0.719	1.859	22.132
E41	0.854	2.103	18.297
E42	0.803	2.011	19.594
E43	0.854	2.105	18.302
E44	0.720	1.886	22.224
E45	0.796	2.007	19.811
E46	0.796	2.004	19.813
E47	0.731	1.893	21.824
E48	0.854	2.103	18.290
E49	0.847	2.088	18.407
E50	0.845	2.084	18.468
M1	0.846	2.079	18.512
M2	0.850	2.091	18.406
M3	0.850	2.092	18.386
M4	0.854	2.098	18.260
M5	0.858	2.100	18.250
M6	0.848	2.082	18.449
M7	0.848	2.088	18.414
M8	0.840	2.089	18.634
M9	0.848	2.091	18.404
M10	0.847	2.084	18.462
M11	0.847	2.086	18.446
M12	0.844	2.085	18.491
M13	0.844	2.085	18.450
M14	0.854	2.097	18.276
M15	0.848	2.090	18.428
M16	0.848	2.086	18.431
M17	0.855	2.100	18.291
M18	0.880	2.134	17.638
M19	0.738	1.886	21.582
M20	0.843	2.077	18.557
M21	0.845	2.089	18.446
M22	0.732	1.884	21.776
M23	0.853	2.097	18.287
M24	0.845	2.083	18.503

Artifact ID #	207Pb/204Pb	208Pb/204Pb
E34	15.687	38.614
E35	15.623	38.398
E36	15.600	38.472
E37	15.548	38.346
E38	15.623	38.696
E39	16.010	42.044
E40	15.926	41.131
E41	15.625	38.474
E42	15.739	39.386
E43	15.638	38.517
E44	16.003	41.910
E45	15.781	39.759
E46	15.769	39.687
E47	15.946	41.296
E48	15.626	38.448
E49	15.599	38.421
E50	15.610	38.483
M1	15.666	38.476
M2	15.647	38.471
M3	15.636	38.465
M4	15.606	38.299
M5	15.667	38.315
M6	15.652	38.403
M7	15.627	38.441
M8	15.650	38.914
M9	15.619	38.483
M10	15.647	38.476
M11	15.625	38.471
M12	15.616	38.550
M13	15.576	38.456
M14	15.611	38.313
M15	15.629	38.513
M16	15.632	38.431
M17	15.639	38.412
M18	15.531	37.630
M19	15.935	40.691
M20	15.650	38.541
M21	15.598	38.528
M22	15.951	41.017
M23	15.609	38.334
M24	15.636	38.528

Site Name	Artifact ID #	Sample type	204Pb/206Pb
San Miguel	M25	Lead Shot	0.0543
San Miguel	M26	Lead Shot	0.0541
San Miguel	M27	Lead Shot	0.0540
San Miguel	M28	Lead Shot	0.0542
San Miguel	M29	Lead Shot	0.0545
San Miguel	M30	Lead Shot	0.0544
San Miguel	M31	Lead Shot	0.0545
San Miguel	M32	Lead Shot	0.0534
San Miguel	M33	Lead Shot	0.0549
San Miguel	M34	Lead Shot	0.0543
San Miguel	M35	Lead Shot	0.0544
San Miguel	M36	Lead Shot	0.0543
San Miguel	M37	Lead Shot	0.0542
San Miguel	M38	Lead Shot	0.0541
San Miguel	M39	Lead Shot	0.0543
San Miguel	M40	Lead Shot	0.0545
San Miguel	M41	Lead Shot	0.0541
San Miguel	M42	Lead Shot	0.0542
San Miguel	M43	Lead Shot	0.0542
San Miguel	M44	Lead Shot	0.0542
San Miguel	M45	Lead Shot	0.0544
San Miguel	M46	Lead Shot	0.0540
San Miguel	M47	Lead Shot	0.0541
San Miguel	M48	Lead Shot	0.0541
San Miguel	M49	Lead Shot	0.0542
San Miguel	M50	Lead Shot	0.0544

Artifact ID #	207Pb/206Pb	208Pb/206Pb	206Pb/204Pb
M25	0.850	2.088	18.417
M26	0.844	2.084	18.473
M27	0.842	2.076	18.527
M28	0.846	2.081	18.464
M29	0.851	2.089	18.360
M30	0.851	2.088	18.390
M31	0.850	2.089	18.356
M32	0.836	2.067	18.715
M33	0.860	2.104	18.206
M34	0.849	2.084	18.429
M35	0.850	2.088	18.397
M36	0.849	2.089	18.436
M37	0.844	2.082	18.454
M38	0.844	2.082	18.500
M39	0.849	2.089	18.424
M40	0.851	2.089	18.353
M41	0.844	2.079	18.502
M42	0.847	2.086	18.460
M43	0.846	2.083	18.468
M44	0.848	2.092	18.455
M45	0.848	2.089	18.387
M46	0.845	2.080	18.523
M47	0.849	2.088	18.474
M48	0.846	2.085	18.491
M49	0.847	2.088	18.458
M50	0.850	2.092	18.391

Artifact ID #	207Pb/204Pb	208Pb/204Pb
M25	15.652	38.447
M26	15.598	38.490
M27	15.598	38.447
M28	15.615	38.414
M29	15.621	38.350
M30	15.662	38.392
M31	15.600	38.342
M32	15.643	38.675
M33	15.668	38.304
M34	15.648	38.403
M35	15.640	38.415
M36	15.661	38.514
M37	15.582	38.421
M38	15.620	38.507
M39	15.647	38.482
M40	15.614	38.332
M41	15.621	38.461
M42	15.636	38.497
M43	15.618	38.468
M44	15.650	38.592
M45	15.591	38.396
M46	15.658	38.528
M47	15.689	38.559
M48	15.642	38.555
M49	15.639	38.536
M50	15.639	38.473

Appendix F: Comparative Data-Southwest US

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Cerrillos	Galena	2.0670	0.8381
Cerrillos	Galena	2.0713	0.8403
Cerrillos	Galena	2.0696	0.8395
Cerrillos	Galena	2.0735	0.8418
Cerrillos	Galena	2.0731	0.8415
Cerrillos	Galena	2.0725	0.8411
Cerrillos	Galena	2.0603	0.8343
Cerrillos	Galena	2.0637	0.8362
Cerrillos	Galena	2.0667	0.8380
Cerrillos	Galena	2.0638	0.8365
Cerrillos	Galena	2.0651	0.8371
Cerrillos	Galena	2.0642	0.8367
Cerrillos	Galena	2.0627	0.8359
Cerrillos	Galena	2.0571	0.8326
Cerrillos	Galena	2.0561	0.8322
Cerrillos	Galena	2.0609	0.8349
Cerrillos	Galena	2.0653	0.8369
Cerrillos	Galena	2.0667	0.8378
Cerrillos	Galena	2.0669	0.8378
Cerrillos	Galena	2.0669	0.8377
Cerrillos	Galena	2.0597	0.8338
Cerrillos	Galena	2.0647	0.8369
Cerrillos	Galena	2.0640	0.8364
Cerrillos	Galena	2.0609	0.8349
Cerrillos	Galena	2.0689	0.8393
Cerrillos	Galena	2.0707	0.8400
Cerrillos	Galena	2.0709	0.8400
Cerrillos	Galena	2.0708	0.8402
Cerrillos	Galena	2.0707	0.8402
Cerrillos	Galena	2.0686	0.8390
Cerrillos	Galena	2.0692	0.8394
Cerrillos	Galena	2.0583	0.8331
Cerrillos	Galena	2.0639	0.8365
Cerrillos	Galena	2.0661	0.8376
Magdalena	Cerrusite	2.0788	0.8460
Magdalena	Cerrusite	2.0726	0.8423
Magdalena	Cerrusite	2.0724	0.8426
Magdalena	Cerrusite	2.0860	0.8553
Hansonburg	Galena	1.8230	0.7208
Hansonburg	Galena	1.8261	0.7226
Hansonburg	Galena	1.8169	0.7181

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
Not Reported	18.606	15.593	38.458
Not Reported	18.553	15.589	38.428
Not Reported	18.566	15.587	38.426
Not Reported	18.508	15.580	38.378
Not Reported	18.518	15.582	38.388
Not Reported	18.533	15.588	38.409
Not Reported	18.702	15.601	38.530
Not Reported	18.652	15.596	38.492
Not Reported	18.606	15.591	38.454
Not Reported	18.641	15.593	38.471
Not Reported	18.630	15.596	38.473
Not Reported	18.638	15.594	38.473
Not Reported	18.662	15.598	38.494
Not Reported	18.745	15.607	38.560
Not Reported	18.753	15.606	35.559
Not Reported	18.687	15.602	38.511
Not Reported	18.636	15.597	38.490
Not Reported	18.608	15.590	38.459
Not Reported	18.614	15.595	38.470
Not Reported	18.617	15.595	38.477
Not Reported	18.718	15.607	38.522
Not Reported	18.636	15.596	38.478
Not Reported	18.650	15.598	38.491
Not Reported	18.687	15.602	38.511
Not Reported	18.573	15.588	38.424
Not Reported	18.552	15.584	38.417
Not Reported	18.559	15.589	38.433
Not Reported	18.554	15.589	38.422
Not Reported	18.553	15.588	38.417
Not Reported	18.582	15.591	38.440
Not Reported	18.571	15.588	38.428
Not Reported	18.730	15.604	38.551
Not Reported	18.646	15.596	38.482
Not Reported	18.615	15.592	38.460
Not Reported	18.398	15.566	38.248
Not Reported	18.527	15.606	38.398
Not Reported	18.478	15.571	38.292
Not Reported	18.259	15.616	38.086
Not Reported	22.073	15.911	40.240
Not Reported	22.012	15.906	40.194
Not Reported	22.172	15.921	40.284

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Hansonburg	Galena	1.8173	0.7184
Hansonburg	Galena	1.8192	0.7209
Hansonburg	Galena	1.8227	0.7203
Hansonburg	Galena	1.8225	0.7206
Hansonburg	Galena	1.8145	0.7186
Hansonburg	Galena	1.8196	0.7179
Hansonburg	Galena	1.8232	0.7146
Hansonburg	Galena	1.8231	0.7146
Hansonburg	Galena	2.0856	0.8306
Joyita Hills	Galena	1.9331	0.7545
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos South	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Cerrillos North	Galena	Not Reported	Not Reported
Pecos	Galena	Not Reported	Not Reported
Pecos	Galena	Not Reported	Not Reported

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
Not Reported	22.156	15.918	40.264
Not Reported	22.075	15.915	40.159
Not Reported	22.098	15.917	40.276
Not Reported	22.085	15.914	40.247
Not Reported	22.159	15.922	40.206
Not Reported	22.751	15.919	40.350
Not Reported	22.295	15.933	40.647
Not Reported	22.291	15.930	40.638
Not Reported	18.796	15.611	39.201
Not Reported	20.952	15.808	40.504
Not Reported	18.413	15.560	38.189
Not Reported	18.528	15.591	38.313
Not Reported	18.380	15.505	38.212
Not Reported	18.523	15.646	38.394
Not Reported	18.574	15.547	38.418
Not Reported	18.573	15.652	38.432
Not Reported	18.492	15.532	38.185
Not Reported	18.557	15.630	38.403
Not Reported	18.484	15.618	38.448
Not Reported	18.586	15.568	38.251
Not Reported	18.548	15.612	38.640
Not Reported	18.622	15.597	38.483
Not Reported	18.638	15.682	38.591
Not Reported	18.499	15.484	38.151
Not Reported	18.426	15.418	37.514
Not Reported	18.511	15.499	37.939
Not Reported	18.520	15.482	37.848
Not Reported	19.354	16.193	38.611
Not Reported	20.098	16.867	40.111
Not Reported	19.471	16.300	38.628
Not Reported	18.690	15.681	38.551
Not Reported	18.722	15.632	38.594
Not Reported	21.109	17.479	43.215
Not Reported	18.522	15.528	38.091
Not Reported	18.893	15.761	39.080
Not Reported	18.472	15.460	37.864
Not Reported	18.665	15.551	38.156
Not Reported	18.465	15.421	38.073
Not Reported	18.751	15.635	38.608
Not Reported	15.513	15.186	34.749
Not Reported	15.679	15.301	35.386

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
Not Reported	Not Reported	Not Reported	Thibodeau et al. 2013
0.0261	0.4819	0.4073	Habicht-Macuhe et al. 2002
0.0261	0.4833	0.4068	Habicht-Macuhe et al. 2002
0.0261	0.4807	0.4056	Habicht-Macuhe et al. 2002
0.0260	0.4821	0.4073	Habicht-Macuhe et al. 2002
0.0260	0.4832	0.4045	Habicht-Macuhe et al. 2002
0.0260	0.4830	0.4071	Habicht-Macuhe et al. 2002
0.0262	0.4841	0.4066	Habicht-Macuhe et al. 2002
0.0260	0.4829	0.4068	Habicht-Macuhe et al. 2002
0.0260	0.4805	0.4061	Habicht-Macuhe et al. 2002
0.0261	0.4857	0.4068	Habicht-Macuhe et al. 2002
0.0258	0.4797	0.4039	Habicht-Macuhe et al. 2002
0.0259	0.4836	0.4051	Habicht-Macuhe et al. 2002
0.0259	0.4827	0.4062	Habicht-Macuhe et al. 2002
0.0262	0.4846	0.4057	Habicht-Macuhe et al. 2002
0.0265	0.4894	0.4098	Habicht-Macuhe et al. 2002
0.0262	0.4862	0.4074	Habicht-Macuhe et al. 2002
0.0262	0.4875	0.4079	Habicht-Macuhe et al. 2002
0.0260	0.4827	0.4033	Habicht-Macuhe et al. 2002
0.0251	0.4825	0.4044	Habicht-Macuhe et al. 2002
0.0260	0.4854	0.4059	Habicht-Macuhe et al. 2002
0.0259	0.4845	0.4066	Habicht-Macuhe et al. 2002
0.0259	0.4848	0.4049	Habicht-Macuhe et al. 2002
0.0218	0.4876	0.4033	Habicht-Macuhe et al. 2002
0.0261	0.4845	0.4065	Habicht-Macuhe et al. 2002
0.0256	0.4832	0.4032	Habicht-Macuhe et al. 2002
0.0262	0.4861	0.4072	Habicht-Macuhe et al. 2002
0.0260	0.4874	0.4064	Habicht-Macuhe et al. 2002
0.0258	0.4818	0.4039	Habicht-Macuhe et al. 2002
0.0259	0.4856	0.4050	Habicht-Macuhe et al. 2002
0.0286	0.4448	0.4358	Habicht-Macuhe et al. 2002
0.0281	0.4415	0.4312	Habicht-Macuhe et al. 2002

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Pecos	Galena	Not Reported	Not Reported
Pecos	Galena	Not Reported	Not Reported
Placitas	Galena	Not Reported	Not Reported
Placitas	Galena	Not Reported	Not Reported
Placitas	Galena	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Southern Rio Grande Rift	Not Listed	Not Reported	Not Reported
Caballo Mtns.	Galena	1.9069	0.6942
Canyoncita	Galena	1.9128	0.7437
Cerrillos	Galena	2.0757	0.8439
Cerrillos	Galena	2.0772	0.8445
Cerrillos	Galena	2.0789	0.8435
Cerrillos	Galena	2.0728	0.8416
Cerrillos	Galena	2.0727	0.8412
Cerrillos	Anglesite	2.0723	0.8407
Cerrillos	Galena	2.0752	0.8426

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
Not Reported	15.757	15.341	34.223
Not Reported	15.496	15.292	34.858
Not Reported	19.432	15.565	38.853
Not Reported	19.446	15.549	38.830
Not Reported	18.789	15.739	40.209
Not Reported	17.354	15.437	37.920
Not Reported	17.745	15.515	37.940
Not Reported	17.561	15.458	37.797
Not Reported	17.292	15.424	37.518
Not Reported	17.612	15.443	37.752
Not Reported	17.201	15.387	37.237
Not Reported	18.435	15.538	38.607
Not Reported	17.795	15.472	37.727
Not Reported	18.084	15.498	38.130
Not Reported	17.112	15.408	37.139
Not Reported	17.332	15.434	37.639
Not Reported	17.039	15.404	37.094
Not Reported	17.324	15.432	37.370
Not Reported	17.127	15.410	37.170
Not Reported	17.437	15.447	37.518
Not Reported	18.492	15.498	38.091
Not Reported	18.832	15.511	38.091
Not Reported	19.054	15.534	38.421
Not Reported	19.161	15.556	38.537
Not Reported	18.866	15.543	38.380
Not Reported	17.916	15.505	37.932
Not Reported	19.698	15.684	39.411
Not Reported	19.405	15.592	39.041
Not Reported	18.520	15.507	38.134
Not Reported	18.460	15.461	38.175
Not Reported	18.922	15.493	38.403
0.0433	23.075	16.020	44.004
0.0471	21.240	15.805	40.627
0.0543	18.414	15.540	38.219
0.0543	18.425	15.560	38.270
0.0541	18.468	15.578	38.390
0.0541	18.489	15.560	38.323
0.0541	18.491	15.555	38.324
0.0540	18.500	15.553	38.335
0.0540	18.510	15.597	38.410

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
0.0294	0.4434	0.4311	Habicht-Macuhe et al. 2002
0.0285	0.4429	0.4349	Habicht-Macuhe et al. 2002
0.0256	0.4983	0.3995	Habicht-Macuhe et al. 2002
0.0256	0.4990	0.3993	Habicht-Macuhe et al. 2002
0.0247	0.4901	0.3902	Habicht-Macuhe et al. 2002
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	McMillian et al. 2000
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Cerrillos	Galena	2.0739	0.8413
Cerrillos	Wulfenite	2.0743	0.8409
Cerrillos	Galena	2.0739	0.8408
Cerrillos	Galena	2.0727	0.8406
Cerrillos	Galena	2.0768	0.8419
Cerrillos	Galena	2.0727	0.8413
Cerrillos	Galena	2.0748	0.8423
Cerrillos	Galena	2.0716	0.8405
Cerrillos	Galena	2.0766	0.8431
Cerrillos	Galena	2.0782	0.8437
Cerrillos	Galena	2.0727	0.8407
Cerrillos	Galena	2.0662	0.8388
Cerrillos	Galena	2.0726	0.8406
Cerrillos	Galena	2.0735	0.8400
Cerrillos	Galena	2.0749	0.8405
Cerrillos	Galena	2.0710	0.8421
Cerrillos	Galena	2.0730	0.8400
Cerrillos	Galena	2.0700	0.8384
Cerrillos	Galena	2.0717	0.8400
Cerrillos	Galena	2.0716	0.8399
Cerrillos	Galena	2.0713	0.8398
Cerrillos	Galena	2.0712	0.8397
Cerrillos	Galena	2.0711	0.8396
Cerrillos	Galena	2.0679	0.8388
Cerrillos	Galena	2.0665	0.8384
Cerrillos	Galena	2.0646	0.8378
Cerrillos	Galena	2.0667	0.8377
Cerrillos	Galena	2.0701	0.8398
Cerrillos	Galena	2.0628	0.8381
Cerrillos	Galena	2.0658	0.8355
Cerrillos	Galena	2.0672	0.8381
Cerrillos	Galena	2.0643	0.8376
Cerrillos	Galena	2.0668	0.8367
Cerrillos	Galena	2.0647	0.8355
Cerrillos	Galena	2.0553	0.8335
Cerrillos	Galena	2.0620	0.8344
Cerrillos	Galena	2.0593	0.8347
Cerrillos	Galena	2.0634	0.8355
Cerrillos	Galena	2.0560	0.8340

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
0.0540	18.512	15.574	38.390
0.0540	18.518	15.572	38.409
0.0540	18.530	15.580	38.426
0.0540	18.531	15.576	38.406
0.0539	18.537	15.607	38.495
0.0539	18.537	15.594	38.419
0.0539	18.538	15.614	38.460
0.0539	18.541	15.584	38.407
0.0539	18.541	15.633	38.500
0.0539	18.547	15.647	38.542
0.0539	18.547	15.592	38.440
0.0539	18.561	15.570	38.349
0.0539	18.565	15.605	38.476
0.0538	18.570	15.599	38.503
0.0538	18.582	15.619	38.554
0.0538	18.585	15.650	38.489
0.0538	18.600	15.623	38.556
0.0537	18.603	15.597	38.506
0.0537	18.616	15.585	38.467
0.0537	18.618	15.617	38.582
0.0537	18.623	15.591	38.469
0.0537	18.627	15.603	38.470
0.0537	18.628	15.610	38.478
0.0537	18.636	15.631	38.535
0.0536	18.641	15.629	38.519
0.0536	18.642	15.618	38.485
0.0536	18.645	15.619	38.532
0.0536	18.646	15.660	38.596
0.0536	18.651	15.631	38.470
0.0536	18.653	15.585	38.531
0.0536	18.659	15.638	38.568
0.0536	18.665	15.634	38.527
0.0535	18.676	15.625	38.598
0.0535	18.685	15.612	38.577
0.0535	18.700	15.587	38.431
0.0535	18.700	15.603	38.558
0.0535	18.701	15.610	38.509
0.0535	18.702	15.625	38.587
0.0534	18.725	15.617	38.495

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Cerrillos	Galena	2.0577	0.8325
Cerrillos	Galena	2.0572	0.8316
Hansonburg	Galena	1.8330	0.7285
Hansonburg	Galena	1.8273	0.7228
Hansonburg	Galena	1.8479	0.7277
Hansonburg	Galena	1.8260	0.7232
Hansonburg	Galena	1.8332	0.7262
Hansonburg	Galena	1.8300	0.7220
Hansonburg	Galena	1.8255	0.7209
Hansonburg	Galena	1.8171	0.7186
Hansonburg	Galena	1.8201	0.7190
Hansonburg	Galena	1.8243	0.7192
Hansonburg	Galena	1.8155	0.7167
Hansonburg	Galena	1.8171	0.7161
Hansonburg	Galena	1.8175	0.7225
Hansonburg	Galena	1.8315	0.7266
Hansonburg	Galena	1.8243	0.7208
Hansonburg	Galena	1.8335	0.7304
Hansonburg	Galena	1.8337	0.7230
Hansonburg	Galena	1.8109	0.7178
Hansonburg	Galena	1.8149	0.7199
Hansonburg	Galena	1.8024	0.7158
Hansonburg	Galena	1.8431	0.7328
Hansonburg	Galena	1.8213	0.7234
Hansonburg	Galena	1.8384	0.7332
Hansonburg	Galena	1.8316	0.7291
Hansonburg	Galena	1.8629	0.7350
Hansonburg	Galena	1.8478	0.7320
Hansonburg	Galena	1.8193	0.7196
Hansonburg	Galena	1.8346	0.7190
Hansonburg	Galena	1.8284	0.7273
Hansonburg	Galena	1.8194	0.7179
Hansonburg	Galena	1.8196	0.7176
Hansonburg	Galena	1.8277	0.7236
Hermosa	Carbonate	2.0138	0.7971
Joyita Hills	Galena	1.9341	0.7543
Joyita Hills	Galena	1.9350	0.7542
Joyita Hills	Galena	1.9252	0.7501
Magdalena	Cerussite	2.0907	0.8558
Magdalena	Cerussite	2.0829	0.8468

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
0.0534	18.725	15.588	38.528
0.0531	18.823	15.654	38.721
0.0461	21.692	15.812	39.761
0.0458	21.819	15.780	39.868
0.0457	21.876	15.920	40.425
0.0457	21.882	15.833	39.956
0.0457	21.886	15.904	40.120
0.0456	21.937	15.848	40.145
0.0455	21.977	15.853	40.117
0.0455	21.978	15.803	39.935
0.0453	22.064	15.872	40.158
0.0453	22.068	15.881	40.257
0.0453	22.070	15.828	40.067
0.0450	22.238	15.924	40.408
0.0453	22.090	15.961	40.149
0.0458	21.811	15.848	39.947
0.0454	22.036	15.883	40.200
0.0459	21.771	15.902	39.918
0.0456	21.951	15.870	40.251
0.0452	22.118	15.876	40.053
0.0451	22.194	15.978	40.281
0.0447	22.354	16.000	40.291
0.0461	21.703	15.903	40.001
0.0455	21.957	15.885	39.990
0.0460	21.730	15.932	39.947
0.0459	21.790	15.886	39.912
0.0464	21.574	15.857	40.191
0.0460	21.723	15.900	40.140
0.0451	22.161	15.946	40.317
0.0451	22.186	15.952	40.701
0.0457	21.901	15.928	40.044
0.0452	22.118	15.880	40.242
0.0451	22.176	15.914	40.352
0.0455	21.994	15.916	40.199
0.0509	19.666	15.675	39.602
0.0478	20.919	15.789	40.459
0.0477	20.959	15.816	40.555
0.0477	20.984	15.750	40.399
0.0550	18.169	15.558	37.985
0.0548	18.261	15.472	38.034

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
Magdalena	Cerussite	2.0684	0.8414
Magdalena	Cerussite	2.0760	0.8437
Magdalena	Cerussite	2.0738	0.8427
Magdalena	Cerussite	2.0721	0.8411
Magdalena	Cerussite	2.0680	0.8394
Magdalena	Cerussite	2.0655	0.8406
Magdalena	Galena	2.0731	0.8413
Magdalena	Galena	2.0676	0.8399
Magdalena	Galena	2.0531	0.8343
North Magdalena	Galena	2.0321	0.8239
North Magdalena	Vanadinite	2.0305	0.8229
North Magdalena	Vanadinite	2.0309	0.8222
North Magdalena	Descloizite	2.0275	0.8206
North Magdalena	Galena	2.0267	0.8188
North Magdalena	Galena	2.0300	0.8191
Organ	Carbonate	2.1749	0.8911
Willow Creek(Pecos)	Galena	2.2442	0.9794
Willow Creek(Pecos)	Galena	2.2613	0.9763
Placitas	Galena	2.0166	0.8062
Placitas	Galena	2.0162	0.8039
Placitas	Galena	2.0136	0.8005
Placitas	Galena	2.0099	0.7996
Placitas	Galena	2.0102	0.8010
Placitas	Galena	2.0114	0.8008
Placitas	Galena	2.0118	0.7994
Placitas	Galena	2.0092	0.7987
Placitas	Galena	2.0077	0.7989
Placitas	Galena	2.0111	0.7993
Placitas	Galena	2.0255	0.8042
Placitas (La Luz)	Galena	1.9481	0.7458
Placitas (La Luz)	Galena	1.9964	0.7848
Placitas (La Luz)	Galena	1.9495	0.7444
Placitas (La Luz)	Galena	1.9504	0.7450
Placitas (La Luz)	Galena	2.0027	0.7895
Placitas (La Luz)	Galena	1.9894	0.7803
San Andres Mountains	Galena	1.8695	0.7346
Socorro	Galena	1.8578	0.7298
Socorro possibly (?)	Galena	1.8769	0.7317
New Placers (San Pedro)	Galena	2.0043	0.7918
New Placers (San Pedro)	Galena	2.0079	0.7923
New Placers (San Pedro)	Galena	1.9558	0.7489

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
0.0546	18.301	15.407	37.854
0.0546	18.324	15.470	38.039
0.0544	18.371	15.490	38.097
0.0541	18.468	15.542	38.267
0.0541	18.483	15.523	38.221
0.0541	18.496	15.557	38.203
0.0540	18.513	15.575	38.380
0.0540	18.533	15.566	38.319
0.0535	18.702	15.603	38.397
0.0529	18.914	15.592	38.434
0.0529	18.914	15.573	38.404
0.0528	18.930	15.574	38.444
0.0528	18.953	15.562	38.426
0.0526	19.020	15.573	38.547
0.0526	19.021	15.581	38.614
0.0576	17.363	15.473	37.764
0.0643	15.513	15.186	34.746
0.0637	15.679	15.301	35.386
0.0514	19.459	15.690	39.226
0.0512	19.541	15.711	39.384
0.0511	19.571	15.668	39.393
0.0510	19.602	15.676	39.384
0.0510	19.603	15.703	39.389
0.0510	19.612	15.707	39.432
0.0509	19.634	15.697	39.483
0.0509	19.647	15.695	39.459
0.0508	19.665	15.712	39.468
0.0508	19.669	15.723	39.540
0.0514	19.455	15.646	39.406
0.0470	21.269	15.862	41.434
0.0498	20.062	15.745	40.052
0.0470	21.277	15.840	41.480
0.0470	21.277	15.852	41.498
0.0501	19.940	15.743	39.934
0.0496	20.145	15.720	40.077
0.0463	21.608	15.872	40.394
0.0462	21.587	15.746	40.027
0.0461	21.709	15.884	40.746
0.0504	19.823	15.695	39.731
0.0503	19.865	15.738	39.886
0.0472	21.204	15.880	41.472

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.

Mining District	Sample Type	208Pb/206Pb	207Pb/206Pb
New Placers (San Pedro)	Galena	2.0150	0.7976
New Placers (San Pedro)	Galena	2.0683	0.8359
Steeple Rock	Galena	2.1268	0.8629
Little Hornet Mtns.	Galena	2.1311	0.8724
Sylvanite	Galena	2.0580	0.8361
Tijeras Canyon (Manzano Mts	Galena	1.9872	0.7827
Tijeras Canyon (Manzano Mts	Galena	1.9831	0.7792
Tijeras Canyon (Manzano Mts	Galena	1.9696	0.7687
Barton (Manzano Mts)	Galena	1.9640	0.7742
Naica, Chihuahua, Mexico	Galena	2.0609	0.8366
Zacatecas, Mexico	Galena	2.0739	0.8382
Chihuahua, Mexico	Galena	2.1074	0.8631
Chihuahua, Mexico	Galena	2.0710	0.8436
Chihuahua, Mexico	Galena	2.0623	0.8359

204Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
0.0506	19.745	15.748	39.786
0.0534	18.743	15.667	38.765
0.0556	17.973	15.510	38.225
0.0563	17.749	15.484	37.826
0.0537	18.617	15.565	38.314
0.0497	20.120	15.748	39.982
0.0496	20.172	15.727	40.003
0.0487	20.536	15.786	40.447
0.0495	20.177	15.614	39.552
0.0535	18.705	15.649	38.549
0.0538	18.601	15.592	38.576
0.0553	18.093	15.616	38.130
0.0540	18.522	15.625	38.359
0.0534	18.712	15.642	38.589

204Pb/208Pb	206PB/208Pb	207Pb/208Pb	Reference
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.
Not Reported	Not Reported	Not Reported	Habicht-Macuhe pers. comm.

Appendix F: Comparative Data-Mexico

Region/Mining District	Sample type	206Pb/204Pb
Dos Marias	Limestone Deposits	18.451
Dos Marias	Limestone Deposits	18.452
Dos Marias	Limestone Deposits	18.470
Cerro Dolores	Limestone Deposits	18.517
Santa Eulalia	Limestone Deposits	18.521
Santa Eulalia	Limestone Deposits	18.532
Santa Eulalia	Limestone Deposits	18.542
Plomosas (Chihuahua)	Sedimentery Deposits	18.544
Plomosas (Chihuahua)	Sedimentery Deposits	18.564
Coyuca de C.	Vein Deposits	18.577
Cosala	Limestone Deposits	18.629
Cosala	Limestone Deposits	18.641
Campo Morado	Sulfide Deposits	18.644
Cuale	Sulfide Deposits	18.648
Cuale	Sulfide Deposits	18.653
Cosala	Limestone Deposits	18.655
El Pavo	Limestone Deposits	18.657
Campo Morado	Sulfide Deposits	18.668
Tayoltita	Vein Deposits	18.672
Tigre	Vein Deposits	18.676
Tascatito	Sedimentery Deposits	18.677
Copala	Vein Deposits	18.684
Tayoltita	Vein Deposits	18.690
Pachuca	Vein Deposits	18.712
Ojuela	Limestone Deposits	18.715
Naica	Limestone Deposits	18.715
Taxco	Vein Deposits	18.723
Taxco	Vein Deposits	18.730
Taxco	Vein Deposits	18.731
Llera	Alkaline Deposits	18.736
Plomosas (Sinaloa)	Vein Deposits	18.737
Taxco	Vein Deposits	18.739
Puerto Rico	Alkaline Deposits	18.748
Taxco	Vein Deposits	18.748
Charcas	Limestone Deposits	18.750
Copala	Vein Deposits	18.750
Angangueo	Vein Deposits	18.751
Encantada	Alkaline Deposits	18.768
Etzatlan	Vein Deposits	18.770
Etzatlan	Vein Deposits	18.775
Parral	Vein Deposits	18.805

207Pb/204Pb	208Pb/204Pb	Reference
15.601	38.289	Cummin et al. 1979
15.604	38.300	Cummin et al. 1979
15.626	38.366	Cummin et al. 1979
15.630	38.526	Cummin et al. 1979
15.611	38.426	Cummin et al. 1979
15.623	38.435	Cummin et al. 1979
15.629	38.477	Cummin et al. 1979
15.631	38.626	Cummin et al. 1979
15.627	38.583	Cummin et al. 1979
15.603	38.467	Cummin et al. 1979
15.603	38.537	Cummin et al. 1979
15.603	38.530	Cummin et al. 1979
15.667	38.682	Cummin et al. 1979
15.631	38.594	Cummin et al. 1979
15.665	38.621	Cummin et al. 1979
15.616	38.581	Cummin et al. 1979
15.632	38.567	Cummin et al. 1979
15.677	38.698	Cummin et al. 1979
15.603	38.600	Cummin et al. 1979
15.626	38.597	Cummin et al. 1979
15.630	38.551	Cummin et al. 1979
15.603	38.596	Cummin et al. 1979
15.612	38.569	Cummin et al. 1979
15.629	38.654	Cummin et al. 1979
15.647	38.651	Cummin et al. 1979
15.648	38.579	Cummin et al. 1979
15.623	38.626	Cummin et al. 1979
15.638	38.695	Cummin et al. 1979
15.625	38.642	Cummin et al. 1979
15.654	38.713	Cummin et al. 1979
15.637	38.594	Cummin et al. 1979
15.643	38.691	Cummin et al. 1979
15.642	38.765	Cummin et al. 1979
15.658	38.747	Cummin et al. 1979
15.625	38.679	Cummin et al. 1979
15.653	38.644	Cummin et al. 1979
15.630	38.640	Cummin et al. 1979
15.625	38.729	Cummin et al. 1979
15.634	38.653	Cummin et al. 1979
15.640	38.680	Cummin et al. 1979
15.637	38.695	Cummin et al. 1979

Region/Mining District	Sample type	206Pb/204Pb
Real de Angeles	Vein Deposits	18.809
Velardena	Vein Deposits	18.811
Parral	Vein Deposits	18.817
Parral	Vein Deposits	18.821
Zacatecas	Vein Deposits	18.823
Fresnillo	Vein Deposits	18.825
Fresnillo	Vein Deposits	18.826
Fresnillo	Vein Deposits	18.829
Fresnillo	Vein Deposits	18.833
Zimapan	Limestone Deposits	18.834
Velardena	Vein Deposits	18.836
Fresnillo	Vein Deposits	18.838
Fresnillo	Vein Deposits	18.846
Fresnillo	Vein Deposits	18.847
Fresnillo	Vein Deposits	18.848
Fresnillo	Vein Deposits	18.851
El Diente	Limestone Deposits	18.865
Reforma	Limestone Deposits	18.891
Avino	Vein Deposits	18.909
La Paz	Limestone Deposits	18.926
Avino	Vein Deposits	18.928
La Paz	Limestone Deposits	18.936
Chihuahua, Mexico	Galena	18.093
Chihuahua, Mexico	Galena	18.522
Zacatecas, Mexico	Galena	18.601
Naica, Chihuahua, Mexico	Galena	18.705
Chihuahua, Mexico	Galena	18.712
Far northwest Trans-Pecos	Mafic dike	15.260
Northwest Province	Basalt	17.477
Boffecillos Mountains	Rhyolite	17.521
Chinati Mountains	Ashflow tuff	17.592
Northwest Province	Basalt	17.614
Davis Mountains	Ashflow tuff	17.639
Northwest Province	Basalt	17.642
Davis Mountains	Ashflow tuff	17.689
Infiernito Caldera	Ashflow tuff	17.689
Davis Mountains	Ashflow tuff	17.703
Chinati Mountains	Basalt	17.716
Southeastern Province	Basalt	17.720
Infiernito Caldera	Ashflow tuff	17.722
Chinati Mountains	Rhyolite	17.732

207Pb/204Pb	208Pb/204Pb	Reference
15.626	38.707	Cummin et al. 1979
15.612	38.635	Cummin et al. 1979
15.637	38.692	Cummin et al. 1979
15.642	38.693	Cummin et al. 1979
15.629	38.706	Cummin et al. 1979
15.645	38.721	Cummin et al. 1979
15.632	38.714	Cummin et al. 1979
15.624	38.684	Cummin et al. 1979
15.659	38.781	Cummin et al. 1979
15.661	38.780	Cummin et al. 1979
15.627	38.665	Cummin et al. 1979
15.660	38.818	Cummin et al. 1979
15.656	38.813	Cummin et al. 1979
15.637	38.766	Cummin et al. 1979
15.643	38.791	Cummin et al. 1979
15.661	38.825	Cummin et al. 1979
15.657	38.847	Cummin et al. 1979
15.656	38.845	Cummin et al. 1979
15.628	38.747	Cummin et al. 1979
15.658	38.876	Cummin et al. 1979
15.639	38.703	Cummin et al. 1979
15.678	38.937	Cummin et al. 1979
15.616	38.130	Habicht-Mauche pers. comm.
15.625	38.359	Habicht-Mauche pers. comm.
15.592	38.576	Habicht-Mauche pers. comm.
15.649	38.549	Habicht-Mauche pers. comm.
15.642	38.589	Habicht-Mauche pers. comm.
15.500	37.882	James and Henry 1993
15.471	37.251	James and Henry 1993
15.440	37.197	James and Henry 1993
15.453	37.389	James and Henry 1993
15.474	37.361	James and Henry 1993
15.449	37.606	James and Henry 1993
15.486	37.402	James and Henry 1993
15.445	37.521	James and Henry 1993
15.450	37.628	James and Henry 1993
15.452	37.601	James and Henry 1993
15.515	37.525	James and Henry 1993
15.516	37.342	James and Henry 1993
15.449	37.639	James and Henry 1993
15.480	37.558	James and Henry 1993

Region/Mining District	Sample type	206Pb/204Pb
Infiernito Caldera	Rhyolite	17.755
Boffecillos Mountains	Rhyolite	17.760
Chinati Mountains	Ashflow tuff	17.761
Chinati Mountains	Ashflow tuff	17.771
Chinati Mountains	Ashflow tuff	17.782
Infiernito Caldera	Granodiorite	17.789
Northwest Province	Basalt	17.823
Far northwest Trans-Pecos	Rhyolite	17.837
Davis Mountains	Ashflow tuff	17.846
Davis Mountains	Rhyolite	17.869
Davis Mountains	Rhyolite	17.870
Far northwest Trans-Pecos	Quartz	17.877
Chinati Mountains	Peralkaline rhyolite	17.880
Infiernito Caldera	Trachyte	17.880
Infiernito Caldera	Trachyte	17.897
Sierra Vieja	Basalt	17.906
Sierra Vieja	Basalt	17.908
Sierra Vieja	Rhyolite	17.914
Davis Mountains	Ashflow tuff	17.929
Far northwest Trans-Pecos	Quartz	17.931
Far northwest Trans-Pecos	Pegmatite	17.940
Boffecillos Mountains	Quartz	17.949
Davis Mountains	Rhyolite	17.969
Chinati Mountains	Ashflow tuff	17.971
Davis Mountains	Ashflow tuff	17.990
Infiernito Caldera	Trachyte	17.993
Infiernito Caldera	Ashflow tuff	18.010
Sierra Vieja	Rhyolite	18.018
Chinati Mountains	Ashflow tuff	18.032
Boffecillos Mountains	Quartz	18.043
Chinati Mountains	Ashflow tuff	18.054
Chinati Mountains	Granodiorite	18.060
Chihuahua	Rhyolite	18.060
Chinati Mountains	Granodiorite	18.075
Southeastern Province	Basalt	18.083
Chinati Mountains	Ashflow tuff	18.095
Boffecillos Mountains	Trachyte	18.098
Big Bend and Christmas Mts.	Basalt	18.118
Northwest Province	Basalt	18.144
Boffecillos Mountains	Ashflow tuff	18.148
Far northwest Trans-Pecos	Quartz	18.156

207Pb/204Pb	208Pb/204Pb	Reference
15.449	37.607	James and Henry 1993
15.458	37.262	James and Henry 1993
15.475	37.560	James and Henry 1993
15.490	37.611	James and Henry 1993
15.504	37.650	James and Henry 1993
15.444	37.447	James and Henry 1993
15.477	37.562	James and Henry 1993
15.486	38.110	James and Henry 1993
15.474	37.904	James and Henry 1993
15.480	37.853	James and Henry 1993
15.475	37.845	James and Henry 1993
15.448	37.874	James and Henry 1993
15.100	37.730	James and Henry 1993
15.479	37.771	James and Henry 1993
15.469	37.789	James and Henry 1993
15.488	37.576	James and Henry 1993
15.477	37.521	James and Henry 1993
15.507	37.971	James and Henry 1993
15.469	38.057	James and Henry 1993
15.470	37.951	James and Henry 1993
15.469	37.970	James and Henry 1993
15.513	37.798	James and Henry 1993
15.493	37.986	James and Henry 1993
15.488	37.710	James and Henry 1993
15.498	37.956	James and Henry 1993
15.463	37.634	James and Henry 1993
15.488	37.722	James and Henry 1993
15.514	37.952	James and Henry 1993
15.482	37.809	James and Henry 1993
15.509	37.819	James and Henry 1993
15.483	37.809	James and Henry 1993
15.472	37.821	James and Henry 1993
15.558	37.945	James and Henry 1993
15.484	37.865	James and Henry 1993
15.538	37.852	James and Henry 1993
15.473	37.865	James and Henry 1993
15.517	37.941	James and Henry 1993
15.544	37.951	James and Henry 1993
15.508	37.666	James and Henry 1993
15.556	37.971	James and Henry 1993
15.503	38.128	James and Henry 1993

Region/Mining District	Sample type	206Pb/204Pb
Boffecillos Mountains	Ashflow tuff	18.160
Chihuahua	Ashflow tuff	18.162
Chihuahua	Ashflow tuff	18.162
Big Bend and Christmas Mts.	Basalt	18.169
Big Bend and Christmas Mts.	Basalt	18.175
Far northwest Trans-Pecos	Rhyolite	18.207
Chihuahua	Granite	18.228
Far northwest Trans-Pecos	Monzodiorite	18.231
Far northwest Trans-Pecos	Rhyolite	18.235
Far northwest Trans-Pecos	Nepheline	18.240
Far northwest Trans-Pecos	Rhyolite	18.241
Far northwest Trans-Pecos	Nepheline	18.258
Northwest Province	Basalt	18.270
Far northwest Trans-Pecos	Rhyolite	18.293
Far northwest Trans-Pecos	Nepheline	18.301
Far northwest Trans-Pecos	Rhyolite	18.309
Far northwest Trans-Pecos	Gabbro	18.355
Southeastern Province	Basalt	18.377
Central Province	Basalt	18.412
Central Province	Basalt	18.419
Central Province	Basalt	18.421
Southeastern Province	Basalt	18.432
Central Province	Basalt	18.470
Central Province	Basalt	18.471
Central Province	Basalt	18.558
Chihuahua	Ashflow tuff	18.599
Big Bend and Christmas Mts.	Trachyte	18.619
Chihuahua	Ashflow tuff	18.645
Infiernito Caldera	Ashflow tuff	18.654
Big Bend and Christmas Mts.	Quartz	18.725
Big Bend and Christmas Mts.	Quartz	18.735
Big Bend and Christmas Mts.	Rhyolite	18.759
Southeastern Province	Basalt	18.770
Southeastern Province	Basalt	18.782
Big Bend and Christmas Mts.	Syenite	18.784
Southeastern Province	Basalt	18.790
Big Bend and Christmas Mts.	Basalt	18.800
Big Bend and Christmas Mts.	Basalt	18.800
Far northwest Trans-Pecos	Ashflow tuff	18.815
Big Bend and Christmas Mts.	Basalt	18.818
Southeastern Province	Basalt	18.860

207Pb/204Pb	208Pb/204Pb	Reference
15.569	38.019	James and Henry 1993
15.558	38.302	James and Henry 1993
15.561	38.316	James and Henry 1993
15.555	37.805	James and Henry 1993
15.557	37.867	James and Henry 1993
15.487	38.429	James and Henry 1993
15.563	37.995	James and Henry 1993
15.515	38.437	James and Henry 1993
15.473	38.506	James and Henry 1993
15.502	37.944	James and Henry 1993
15.490	38.551	James and Henry 1993
15.510	37.822	James and Henry 1993
15.516	38.252	James and Henry 1993
15.497	38.618	James and Henry 1993
15.521	37.990	James and Henry 1993
15.509	38.556	James and Henry 1993
15.527	38.050	James and Henry 1993
15.560	38.142	James and Henry 1993
15.531	38.071	James and Henry 1993
15.563	38.149	James and Henry 1993
15.539	37.863	James and Henry 1993
15.582	38.231	James and Henry 1993
15.580	38.390	James and Henry 1993
15.527	38.034	James and Henry 1993
15.582	38.228	James and Henry 1993
15.620	38.558	James and Henry 1993
15.607	37.999	James and Henry 1993
15.636	38.625	James and Henry 1993
15.605	38.723	James and Henry 1993
15.641	38.623	James and Henry 1993
15.648	38.718	James and Henry 1993
15.609	37.725	James and Henry 1993
15.608	38.495	James and Henry 1993
15.594	38.500	James and Henry 1993
15.649	38.731	James and Henry 1993
15.630	38.556	James and Henry 1993
15.607	38.579	James and Henry 1993
15.607	38.579	James and Henry 1993
15.538	38.261	James and Henry 1993
15.602	38.635	James and Henry 1993
15.605	38.530	James and Henry 1993

Region/Mining District	Sample type	206Pb/204Pb
Big Bend and Christmas Mts.	Basalt	18.881
Big Bend and Christmas Mts.	Ashflow tuff	18.906
Big Bend and Christmas Mts.	Basalt	18.933
Nazas Volcanic Fields	Hawaiites	18.820
Nazas Volcanic Fields	Hawaiites	18.876
Nazas Volcanic Fields	Hawaiites	18.884
Rodeo Volcanic Fields	Hawaiites	18.939
Rodeo Volcanic Fields	Hawaiites	18.951
Rodeo Volcanic Fields	Hawaiites	18.997
Los Azufres	Rhyolite	18.643
Los Azufres	Rhyolite	18.653
Los Azufres	Dacite	18.670
Los Azufres	Rhyolite	18.673
Los Azufres	Dacite	18.679
Los Azufres	Rhyolite	18.688
Los Azufres	Basaltic-andesite	18.691
Los Azufres	Rhyolite	18.694
Los Azufres	Rhyolite	18.695
Los Azufres	Basaltic-andesite	18.698
Los Azufres	Rhyolite	18.713
Los Azufres	Rhyolite	18.720
Los Azufres	Rhyolite	18.720
Los Azufres	Rhyolite	18.721
Los Azufres	Rhyolite	18.725
Los Azufres	Andesite	18.728
Los Azufres	Dacite	18.730
Los Azufres	Dacite	18.747
Los Azufres	Andesite	18.770

207Pb/204Pb	208Pb/204Pb	Reference
15.632	38.759	James and Henry 1993
15.637	38.434	James and Henry 1993
15.641	38.774	James and Henry 1993
15.600	38.608	Luhr et al. 2001
15.575	38.600	Luhr et al. 2001
15.583	38.622	Luhr et al. 2001
15.594	38.697	Luhr et al. 2001
15.593	38.648	Luhr et al. 2001
15.603	38.697	Luhr et al. 2001
15.590	38.390	Verma et al. 2005
15.593	38.408	Verma et al. 2005
15.614	38.494	Verma et al. 2005
15.595	38.424	Verma et al. 2005
15.597	38.443	Verma et al. 2005
15.592	38.439	Verma et al. 2005
15.599	38.458	Verma et al. 2005
15.597	38.455	Verma et al. 2005
15.694	38.444	Verma et al. 2005
15.585	38.406	Verma et al. 2005
15.595	38.472	Verma et al. 2005
15.597	38.484	Verma et al. 2005
15.612	38.522	Verma et al. 2005
15.602	38.491	Verma et al. 2005
15.605	38.519	Verma et al. 2005
15.614	38.540	Verma et al. 2005
15.605	38.504	Verma et al. 2005
15.611	38.549	Verma et al. 2005
15.621	38.595	Verma et al. 2005

Appendix F: Comparative Data-Spain-Iberia

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Sao Domingos	Sulphide	18.163	15.63
Sao Domingos	Sulphide	18.175	15.62
Sao Domingos	Sulphide	18.188	15.637
El Carmen	Galena	18.189	15.624
Santa Ana	Galena	18.188	15.627
Sierrecilla	Galena	18.233	15.624
Sierrecilla	Sulphide	18.215	15.638
La Joya	Sulphide	18.198	15.605
La Joya	Sulphide	18.168	15.601
San Telmo	Galena	18.188	15.609
San Telmo	Galena	18.192	15.594
San Telmo	Galena	18.183	15.604
Lomero-Poyatos	Galena	18.217	15.646
La Zarza	Sulphide	18.201	15.639
La Zarza	Galena	18.183	15.629
La Zarza	Sulphide	18.187	15.623
La Zarza	Sulphide	18.192	15.637
Concepcion	Galena	18.176	15.608
San Platon	Galena	18.188	15.609
Rio Tinto, corta Dehesa	Sulphide	18.193	15.607
Rio Tinto, corta Dehesa	Sulphide	18.207	15.629
Rio Tinto, San Dionisio	Sulphide	18.188	15.636
Rio Tinto, San Dionisio	Galena	18.191	15.627
Rio Tinto, San Dionisio	Galena	18.198	15.644
Rio Tinto, San Dionisio	Sulphide	18.169	15.611
Rio Tinto, San Dionisio	Sulphide	18.182	15.624
Rio Tinto, San Dionisio	Sulphide	18.198	15.645
Rio Tinto, San Dionisio	Sulphide	18.186	15.631
Rio Tinto, San Dionisio	Sulphide	18.198	15.645
Rio Tinto, San Dionisio	Sulphide	18.192	15.639
Rio Tinto, San Dionisio	Sulphide	18.186	15.626
Rio Tinto, San Dionisio	Sulphide	18.192	15.64
Rio Tinto, San Dionisio	Galena	18.18	15.615
Rio Tinto, San Dionisio	Galena	18.19	15.63
Chaparrita	Sulphide	18.166	15.594
Pena de Hierro	Sulphide	18.18	15.605
Lagoa Salgada	Sulphide	18.19	15.622
Lagoa Salgada	Sulphide	18.181	15.619
Lagoa Salgada	Sulphide	18.203	15.651
Lousal	Sulphide	18.172	15.632
Lousal	Sulphide	18.181	15.636

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
38.228	Not Reported	Not Reported	Marcoux 1998
38.205	Not Reported	Not Reported	Marcoux 1998
38.213	Not Reported	Not Reported	Marcoux 1998
38.195	Not Reported	Not Reported	Marcoux 1998
38.19	Not Reported	Not Reported	Marcoux 1998
38.181	Not Reported	Not Reported	Marcoux 1998
38.256	Not Reported	Not Reported	Marcoux 1998
38.136	Not Reported	Not Reported	Marcoux 1998
38.128	Not Reported	Not Reported	Marcoux 1998
38.158	Not Reported	Not Reported	Marcoux 1998
38.106	Not Reported	Not Reported	Marcoux 1998
38.135	Not Reported	Not Reported	Marcoux 1998
38.272	Not Reported	Not Reported	Marcoux 1998
38.228	Not Reported	Not Reported	Marcoux 1998
38.201	Not Reported	Not Reported	Marcoux 1998
38.181	Not Reported	Not Reported	Marcoux 1998
38.229	Not Reported	Not Reported	Marcoux 1998
38.176	Not Reported	Not Reported	Marcoux 1998
38.158	Not Reported	Not Reported	Marcoux 1998
38.175	Not Reported	Not Reported	Marcoux 1998
38.207	Not Reported	Not Reported	Marcoux 1998
38.211	Not Reported	Not Reported	Marcoux 1998
38.207	Not Reported	Not Reported	Marcoux 1998
38.275	Not Reported	Not Reported	Marcoux 1998
38.153	Not Reported	Not Reported	Marcoux 1998
38.195	Not Reported	Not Reported	Marcoux 1998
38.268	Not Reported	Not Reported	Marcoux 1998
38.216	Not Reported	Not Reported	Marcoux 1998
38.26	Not Reported	Not Reported	Marcoux 1998
38.242	Not Reported	Not Reported	Marcoux 1998
38.205	Not Reported	Not Reported	Marcoux 1998
38.257	Not Reported	Not Reported	Marcoux 1998
38.162	Not Reported	Not Reported	Marcoux 1998
38.217	Not Reported	Not Reported	Marcoux 1998
38.107	Not Reported	Not Reported	Marcoux 1998
38.079	Not Reported	Not Reported	Marcoux 1998
38.193	Not Reported	Not Reported	Marcoux 1998
38.178	Not Reported	Not Reported	Marcoux 1998
38.262	Not Reported	Not Reported	Marcoux 1998
38.235	Not Reported	Not Reported	Marcoux 1998
38.248	Not Reported	Not Reported	Marcoux 1998

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Lousal	Sulphide	18.169	15.637
Lousal	Sulphide	18.185	15.623
Lousal	Sulphide	18.177	15.632
Aljustrel	Sulphide	18.201	15.629
Aljustrel	Sulphide	18.18	15.638
Aljustrel	Sulphide	18.172	15.63
Aljustrel	Sulphide	18.17	15.624
Aljustrel	Sulphide	18.173	15.627
Aljustrel	Sulphide	18.175	15.627
Aljustrel	Sulphide	18.188	15.633
Aljustrel	Sulphide	18.184	15.63
Aljustrel	Sulphide	18.214	15.638
Aljustrel	Sulphide	18.195	15.631
Aljustrel	Sulphide	18.206	15.628
Aljustrel	Sulphide	18.187	15.63
Herrerias	Galena	18.225	15.633
Tharsis	Sulphide	18.135	15.597
Tharsis	Sulphide	18.137	15.602
Almagrera	Galena	18.197	15.646
Torerera	Galena	18.175	15.634
Sotiel	Galena	18.166	15.629
Sotiel-Migollas	Galena	18.147	15.633
Campanario	Galena	18.149	15.628
Buitron	Sulphide	18.159	15.61
Montinho	Galena	18.19	15.61
Aznalcollar	Sulphide	18.161	15.622
Aznalcollar	Sulphide	18.176	15.61
Aznalcollar	Sulphide	18.199	15.646
Aznalcollar	Sulphide	18.176	15.608
Aznalcollar	Sulphide	18.178	15.622
Los Frailes	Galena	18.171	15.621
Grupo Matacabras	Galena	18.224	Not Reported
Grupo Matacabras	Galena	18.302	Not Reported
Lavadero Matacabras	Galena	18.211	Not Reported
El Centenillo	Galena	18.204	Not Reported
Las Esperanza	Galena	18.211	Not Reported
Filon el Cobre	Galena	18.273	Not Reported
Mina Santa Margarita	Galena	18.19	Not Reported
Grupo Matacabras	Galena	18.283	Not Reported
Grupo Matacabras	Galena	18.231	Not Reported
Grupo La Cruz	Galena	18.293	Not Reported

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
38.234	Not Reported	Not Reported	Marcoux 1998
38.212	Not Reported	Not Reported	Marcoux 1998
39.232	Not Reported	Not Reported	Marcoux 1998
38.204	Not Reported	Not Reported	Marcoux 1998
38.251	Not Reported	Not Reported	Marcoux 1998
38.249	Not Reported	Not Reported	Marcoux 1998
38.193	Not Reported	Not Reported	Marcoux 1998
38.211	Not Reported	Not Reported	Marcoux 1998
38.228	Not Reported	Not Reported	Marcoux 1998
38.222	Not Reported	Not Reported	Marcoux 1998
38.198	Not Reported	Not Reported	Marcoux 1998
38.229	Not Reported	Not Reported	Marcoux 1998
38.202	Not Reported	Not Reported	Marcoux 1998
38.206	Not Reported	Not Reported	Marcoux 1998
38.218	Not Reported	Not Reported	Marcoux 1998
38.223	Not Reported	Not Reported	Marcoux 1998
38.15	Not Reported	Not Reported	Marcoux 1998
38.162	Not Reported	Not Reported	Marcoux 1998
38.289	Not Reported	Not Reported	Marcoux 1998
38.225	Not Reported	Not Reported	Marcoux 1998
38.208	Not Reported	Not Reported	Marcoux 1998
38.236	Not Reported	Not Reported	Marcoux 1998
38.22	Not Reported	Not Reported	Marcoux 1998
38.17	Not Reported	Not Reported	Marcoux 1998
38.136	Not Reported	Not Reported	Marcoux 1998
38.16	Not Reported	Not Reported	Marcoux 1998
38.11	Not Reported	Not Reported	Marcoux 1998
38.223	Not Reported	Not Reported	Marcoux 1998
38.113	Not Reported	Not Reported	Marcoux 1998
38.152	Not Reported	Not Reported	Marcoux 1998
38.164	Not Reported	Not Reported	Marcoux 1998
Not Reported	2.102	0.856	Santos et al. 2004
Not Reported	2.102	0.855	Santos et al. 2004
Not Reported	2.106	0.857	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.106	0.857	Santos et al. 2004
Not Reported	2.103	0.856	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.098	0.854	Santos et al. 2004
Not Reported	2.101	0.855	Santos et al. 2004
Not Reported	2.099	0.854	Santos et al. 2004

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Grupo La Cruz	Galena	18.205	Not Reported
Grupo La Cruz	Galena	18.263	Not Reported
Los Guindos	Galena	18.244	Not Reported
Filon Arrayanes	Galena	18.198	Not Reported
La Fernandina	Galena	18.192	Not Reported
El Sinapismo	Galena	18.262	Not Reported
Mina San Andres	Galena	18.291	Not Reported
El Sinapismo	Galena	18.203	Not Reported
Mina la Aliseda	Galena	18.204	Not Reported
Mina la Trinidad	Galena	18.199	Not Reported
Mina la Venta	Galena	18.203	Not Reported
San Gabriel	Galena	18.248	Not Reported
Grupo Minero Arquillos	Galena	18.192	Not Reported
Santa Brigida	Galena	18.251	Not Reported
El Soldado	Galena	18.24	Not Reported
Morras de Cuzna	Galena	18.255	Not Reported
Guadalupe	Galena	18.231	Not Reported
Norte Torrecampo	Galena	18.297	Not Reported
Membrillejos	Galena	18.442	Not Reported
El Aguil	Galena	18.452	Not Reported
San Caetano	Galena	18.464	Not Reported
San Rafael	Galena	18.469	Not Reported
Reocin	Galena	18.723	15.663
Reocin	Galena	18.745	15.686
Reocin	Galena	18.728	15.673
Udias	Galena	18.733	15.662
Udias	Galena	18.761	15.693
Matienzo	Galena	18.586	15.663
Txomin	Galena	18.564	15.657
Anselma	Galena	18.581	15.665
Siete Puertas	Galena	18.606	15.679
La Rasa Corta	Galena	18.584	15.657
El Somo	Galena	18.587	15.657
La Rasa	Galena	18.598	15.668
Jugo	Galena	18.58	15.65
Jugo	Galena	18.608	15.653
Katabera	Galena	18.598	15.669
Katabera	Galena	18.546	15.632
Aitzgorri	Galena	18.567	15.658
Aitzgorri	Galena	18.581	15.678
Troya	Galena	18.591	15.668

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
Not Reported	2.105	0.857	Santos et al. 2004
Not Reported	2.1	0.855	Santos et al. 2004
Not Reported	2.104	0.856	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.102	0.856	Santos et al. 2004
Not Reported	2.098	0.854	Santos et al. 2004
Not Reported	2.105	0.857	Santos et al. 2004
Not Reported	2.106	0.857	Santos et al. 2004
Not Reported	2.105	0.857	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.101	0.855	Santos et al. 2004
Not Reported	2.104	0.857	Santos et al. 2004
Not Reported	2.1	Not Reported	Santos et al. 2004
Not Reported	2.101	Not Reported	Santos et al. 2004
Not Reported	2.1	Not Reported	Santos et al. 2004
Not Reported	2.102	Not Reported	Santos et al. 2004
Not Reported	2.096	Not Reported	Santos et al. 2004
Not Reported	2.091	Not Reported	Santos et al. 2004
Not Reported	2.092	Not Reported	Santos et al. 2004
Not Reported	2.093	Not Reported	Santos et al. 2004
Not Reported	2.091	Not Reported	Santos et al. 2004
38.702	Not Reported	Not Reported	Velasco et al. 1996
38.772	Not Reported	Not Reported	Velasco et al. 1996
38.723	Not Reported	Not Reported	Velasco et al. 1996
38.695	Not Reported	Not Reported	Velasco et al. 1996
38.789	Not Reported	Not Reported	Velasco et al. 1996
38.745	Not Reported	Not Reported	Velasco et al. 1996
38.71	Not Reported	Not Reported	Velasco et al. 1996
38.743	Not Reported	Not Reported	Velasco et al. 1996
38.797	Not Reported	Not Reported	Velasco et al. 1996
38.738	Not Reported	Not Reported	Velasco et al. 1996
38.739	Not Reported	Not Reported	Velasco et al. 1996
38.767	Not Reported	Not Reported	Velasco et al. 1996
38.628	Not Reported	Not Reported	Velasco et al. 1996
38.702	Not Reported	Not Reported	Velasco et al. 1996
38.73	Not Reported	Not Reported	Velasco et al. 1996
38.584	Not Reported	Not Reported	Velasco et al. 1996
38.665	Not Reported	Not Reported	Velasco et al. 1996
38.7	Not Reported	Not Reported	Velasco et al. 1996
38.66	Not Reported	Not Reported	Velasco et al. 1996

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Troya	Galena	18.608	15.665
Troya	Galena	18.591	15.665
Troya	Galena	18.593	15.664
Troya	Galena	18.621	15.66
Troya	Galena	18.595	15.657
Legorreta	Galena	18.618	15.652
Legorreta	Galena	18.553	15.648
Otxamentegi	Galena	18.442	15.667
Otxamentegi	Galena	18.421	15.651
Otxamentegi	Galena	18.41	15.649
Oportuna	Galena	18.457	15.674
Oportuna	Galena	18.437	15.661
Sta. Barbara	Galena	18.444	15.667
Sta. Barbara	Galena	18.42	15.655
Sta. Barbara	Galena	18.451	15.699
Sta. Barbara	Galena	18.425	15.655
Oportuna	Galena	18.46	15.682
Modesta	Galena	18.423	15.656
Modesta	Galena	18.443	15.662
Carmina	Galena	17.816	15.61
Najerilla	Galena	18.424	15.663
Najerilla	Galena	18.411	15.651
S. Cristobal	Galena	18.24	15.64
S. Cristobal	Galena	18.223	15.626
Atrevida	Galena	18.43	15.71
Atrevida	Galena	18.441	15.688
Atrevida	Galena	18.462	15.709
Atrevida	Galena	18.501	15.708
Atrevida	Galena	18.516	15.727
Atrevida	Galena	18.496	15.682
Argentera	Galena	18.525	15.723
Argentera	Galena	18.542	15.72
Escornalbou	Galena	18.483	15.714
Martorell	Galena	18.318	15.678
Martorell	Galena	18.366	15.708
Martorell	Galena	18.335	15.704
Martorell	Galena	18.366	15.707
Martorell	Galena	18.325	15.698
Bellmunt	Galena	18.453	15.704
Bellmunt	Galena	18.351	15.729
Bellmunt	Galena	18.337	15.717

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
38.746	Not Reported	Not Reported	Velasco et al. 1996
38.689	Not Reported	Not Reported	Velasco et al. 1996
38.771	Not Reported	Not Reported	Velasco et al. 1996
38.759	Not Reported	Not Reported	Velasco et al. 1996
38.712	Not Reported	Not Reported	Velasco et al. 1996
38.782	Not Reported	Not Reported	Velasco et al. 1996
38.664	Not Reported	Not Reported	Velasco et al. 1996
38.702	Not Reported	Not Reported	Velasco et al. 1996
38.66	Not Reported	Not Reported	Velasco et al. 1996
38.62	Not Reported	Not Reported	Velasco et al. 1996
38.735	Not Reported	Not Reported	Velasco et al. 1996
38.625	Not Reported	Not Reported	Velasco et al. 1996
38.687	Not Reported	Not Reported	Velasco et al. 1996
38.68	Not Reported	Not Reported	Velasco et al. 1996
38.709	Not Reported	Not Reported	Velasco et al. 1996
38.69	Not Reported	Not Reported	Velasco et al. 1996
38.756	Not Reported	Not Reported	Velasco et al. 1996
38.657	Not Reported	Not Reported	Velasco et al. 1996
38.695	Not Reported	Not Reported	Velasco et al. 1996
37.939	Not Reported	Not Reported	Velasco et al. 1996
38.717	Not Reported	Not Reported	Velasco et al. 1996
38.686	Not Reported	Not Reported	Velasco et al. 1996
38.412	Not Reported	Not Reported	Velasco et al. 1996
38.376	Not Reported	Not Reported	Velasco et al. 1996
38.633	Not Reported	Not Reported	Canals and Cardellach 1997
38.633	Not Reported	Not Reported	Canals and Cardellach 1997
38.703	Not Reported	Not Reported	Canals and Cardellach 1997
38.841	Not Reported	Not Reported	Canals and Cardellach 1997
38.905	Not Reported	Not Reported	Canals and Cardellach 1997
38.771	Not Reported	Not Reported	Canals and Cardellach 1997
38.833	Not Reported	Not Reported	Canals and Cardellach 1997
38.833	Not Reported	Not Reported	Canals and Cardellach 1997
38.769	Not Reported	Not Reported	Canals and Cardellach 1997
38.534	Not Reported	Not Reported	Canals and Cardellach 1997
38.629	Not Reported	Not Reported	Canals and Cardellach 1997
38.622	Not Reported	Not Reported	Canals and Cardellach 1997
38.609	Not Reported	Not Reported	Canals and Cardellach 1997
38.588	Not Reported	Not Reported	Canals and Cardellach 1997
38.6	Not Reported	Not Reported	Canals and Cardellach 1997
38.649	Not Reported	Not Reported	Canals and Cardellach 1997
38.62	Not Reported	Not Reported	Canals and Cardellach 1997

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Rigros	Galena	18.678	15.723
Rigros	Galena	18.628	15.768
Berta	Galena	18.51	15.725
Berta	Galena	18.511	15.727
Berta	Galena	18.509	15.714
Berta	Galena	18.495	15.703
Berta	Galena	18.45	15.702
Almeria	Galena	18.767	Not Reported
Almeria	Galena	18.798	Not Reported
Almeria	Galena	18.768	Not Reported
Almeria	Galena	18.787	Not Reported
Almeria	Galena	18.778	Not Reported
Almeria	Galena	18.804	Not Reported
Almeria	Galena	18.768	Not Reported
Almeria	Galena	18.783	Not Reported
Almeria	Galena	18.797	Not Reported
Almeria	Galena	18.792	Not Reported
Almeria	Galena	18.794	Not Reported
Almeria	Galena	18.854	Not Reported
Almeria	Galena	18.888	Not Reported
Almeria	Galena	18.858	Not Reported
Almeria	Galena	18.852	Not Reported
Almeria	Galena	18.729	Not Reported
Almeria	Galena	18.74	Not Reported
Almeria	Galena	18.734	Not Reported
Almeria	Galena	18.742	Not Reported
Almeria	Galena	18.74	Not Reported
Almeria	Galena	18.723	Not Reported
Almeria	Galena	18.871	Not Reported
Almeria	Galena	18.881	Not Reported
Andalusia	Galena	18.258	Not Reported
Andalusia	Galena	18.356	Not Reported
Andalusia	Galena	18.338	Not Reported
Andalusia	Galena	18.766	Not Reported
Andalusia	Galena	18.741	Not Reported
Andalusia	Galena	18.722	Not Reported
Andalusia	Galena	18.698	Not Reported
Andalusia	Galena	18.72	Not Reported
Andalusia	Galena	18.701	Not Reported
Andalusia	Galena	18.751	Not Reported
Andalusia	Galena	18.732	Not Reported

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
39.1	Not Reported	Not Reported	Canals and Cardellach 1997
39.19	Not Reported	Not Reported	Canals and Cardellach 1997
38.951	Not Reported	Not Reported	Canals and Cardellach 1997
38.942	Not Reported	Not Reported	Canals and Cardellach 1997
38.888	Not Reported	Not Reported	Canals and Cardellach 1997
38.861	Not Reported	Not Reported	Canals and Cardellach 1997
38.863	Not Reported	Not Reported	Canals and Cardellach 1997
Not Reported	2.07066	0.83467	Stos-Gale et al. 1995
Not Reported	2.0739	0.83524	Stos-Gale et al. 1995
Not Reported	2.06976	0.83479	Stos-Gale et al. 1995
Not Reported	2.0733	0.83506	Stos-Gale et al. 1995
Not Reported	2.0723	0.83483	Stos-Gale et al. 1995
Not Reported	2.0748	0.83535	Stos-Gale et al. 1995
Not Reported	2.07102	0.83487	Stos-Gale et al. 1995
Not Reported	2.07247	0.83504	Stos-Gale et al. 1995
Not Reported	2.07388	0.83515	Stos-Gale et al. 1995
Not Reported	2.0738	0.83514	Stos-Gale et al. 1995
Not Reported	2.07368	0.8351	Stos-Gale et al. 1995
Not Reported	2.06601	0.8321	Stos-Gale et al. 1995
Not Reported	2.06644	0.83164	Stos-Gale et al. 1995
Not Reported	2.06651	0.83198	Stos-Gale et al. 1995
Not Reported	2.06705	0.83227	Stos-Gale et al. 1995
Not Reported	2.07347	0.83543	Stos-Gale et al. 1995
Not Reported	2.07316	0.83532	Stos-Gale et al. 1995
Not Reported	2.07376	0.83572	Stos-Gale et al. 1995
Not Reported	2.07339	0.83538	Stos-Gale et al. 1995
Not Reported	2.07405	0.83556	Stos-Gale et al. 1995
Not Reported	2.07526	0.83608	Stos-Gale et al. 1995
Not Reported	2.06614	0.83177	Stos-Gale et al. 1995
Not Reported	2.06501	0.83159	Stos-Gale et al. 1995
Not Reported	2.11006	0.85833	Stos-Gale et al. 1995
Not Reported	2.11253	0.85819	Stos-Gale et al. 1995
Not Reported	2.11042	0.85776	Stos-Gale et al. 1995
Not Reported	2.08114	0.83617	Stos-Gale et al. 1995
Not Reported	2.07894	0.83648	Stos-Gale et al. 1995
Not Reported	2.07686	0.83606	Stos-Gale et al. 1995
Not Reported	2.07607	0.83587	Stos-Gale et al. 1995
Not Reported	2.07804	0.83618	Stos-Gale et al. 1995
Not Reported	2.07596	0.83576	Stos-Gale et al. 1995
Not Reported	2.07971	0.83638	Stos-Gale et al. 1995
Not Reported	2.07763	0.83596	Stos-Gale et al. 1995

Location/Region	Sample Type	206Pb/204Pb	207Pb/204Pb
Huelva	Galena	18.2542	Not Reported
Huelva	Galena	18.2151	Not Reported
Huelva	Galena	18.1723	Not Reported
Huelva	Galena	18.2051	Not Reported
Huelva	Galena	18.1971	Not Reported
Huelva	Galena	18.1958	Not Reported
Huelva	Galena	18.1857	Not Reported
Huelva	Galena	18.1977	Not Reported
Huelva	Galena	18.1971	Not Reported
Huelva	Galena	18.1883	Not Reported
Murcia	Galena	18.756	Not Reported
Murcia	Galena	18.774	Not Reported
Murcia	Galena	18.724	Not Reported
Murcia	Galena	18.725	Not Reported
Murcia	Galena	18.73	Not Reported
Murcia	Galena	18.722	Not Reported
Murcia	Galena	18.732	Not Reported
Murcia	Galena	18.713	Not Reported
Murcia	Galena	18.729	Not Reported
Sevilla	Galena	18.1479	Not Reported
Sevilla	Galena	18.179	Not Reported
Sevilla	Galena	18.173	Not Reported
Sevilla	Galena	18.1732	Not Reported
Sevilla	Galena	18.1885	Not Reported
Sevilla	Galena	18.1772	Not Reported
Sevilla	Galena	18.2501	Not Reported
Sevilla	Galena	18.1574	Not Reported
Sevilla	Galena	18.158	Not Reported
Sevilla	Galena	18.1908	Not Reported
Sevilla	Galena	18.1529	Not Reported

208Pb/204Pb	208Pb/206Pb	207Pb/206Pb	Reference
Not Reported	2.10095	0.85745	Stos-Gale et al. 1995
Not Reported	2.10293	0.85904	Stos-Gale et al. 1995
Not Reported	2.10218	0.85983	Stos-Gale et al. 1995
Not Reported	2.102	0.85948	Stos-Gale et al. 1995
Not Reported	2.10426	0.86028	Stos-Gale et al. 1995
Not Reported	2.10065	0.85923	Stos-Gale et al. 1995
Not Reported	2.10356	0.86	Stos-Gale et al. 1995
Not Reported	2.10172	0.85948	Stos-Gale et al. 1995
Not Reported	2.10174	0.85948	Stos-Gale et al. 1995
Not Reported	2.1006	0.85929	Stos-Gale et al. 1995
Not Reported	2.08847	0.83875	Stos-Gale et al. 1995
Not Reported	2.08765	0.83949	Stos-Gale et al. 1995
Not Reported	2.07742	0.83578	Stos-Gale et al. 1995
Not Reported	2.08006	0.83679	Stos-Gale et al. 1995
Not Reported	2.08137	0.83693	Stos-Gale et al. 1995
Not Reported	2.07989	0.83659	Stos-Gale et al. 1995
Not Reported	2.08064	0.83646	Stos-Gale et al. 1995
Not Reported	2.08002	0.83657	Stos-Gale et al. 1995
Not Reported	2.07948	0.83606	Stos-Gale et al. 1995
Not Reported	2.10368	0.86059	Stos-Gale et al. 1995
Not Reported	2.10079	0.85962	Stos-Gale et al. 1995
Not Reported	2.10105	0.85975	Stos-Gale et al. 1995
Not Reported	2.10044	0.8597	Stos-Gale et al. 1995
Not Reported	2.10129	0.8597	Stos-Gale et al. 1995
Not Reported	2.09556	0.85935	Stos-Gale et al. 1995
Not Reported	2.10073	0.85844	Stos-Gale et al. 1995
Not Reported	2.09945	0.85957	Stos-Gale et al. 1995
Not Reported	2.09838	0.85923	Stos-Gale et al. 1995
Not Reported	2.10097	0.85949	Stos-Gale et al. 1995
Not Reported	2.09834	0.85927	Stos-Gale et al. 1995

Appendix F: Comparative Data: Greater Antilles-Central America

State/Country	Sample type	206Pb/204Pb	207Pb/204Pb
Greater Antilles	mineral	18.693	15.685
Greater Antilles	mineral	18.714	15.712
Greater Antilles	mineral	19.048	15.621
Greater Antilles	mineral	19.062	15.630
Greater Antilles	mineral	18.877	15.606
Greater Antilles	mineral	18.882	15.593
Southern Central America	mineral	18.901	15.599
Southern Central America	mineral	19.054	15.627
Southern Central America	mineral	19.096	15.605
Northern Central America	mineral	18.939	15.668
Northern Central America	mineral	19.038	15.693
Northern Central America	mineral	18.816	15.653
Northern Central America	mineral	18.831	15.668
Northern Central America	mineral	18.870	15.670
Northern Central America	mineral	18.873	15.678
Northern Central America	mineral	18.737	15.642
Northern Central America	mineral	18.751	15.649
Northern Central America	mineral	18.821	15.652
Northern Central America	mineral	18.870	15.659
Northern Central America	mineral	18.771	15.637
Northern Central America	mineral	18.801	15.654
Northern Central America	mineral	18.765	15.654
Northern Central America	mineral	18.766	15.639
Northern Central America	mineral	18.776	15.634
Northern Central America	mineral	18.777	15.649
Northern Central America	mineral	18.762	15.652
Northern Central America	mineral	18.748	15.637
Northern Central America	mineral	18.760	15.638
Northern Central America	mineral	18.663	15.617
Northern Central America	mineral	18.655	15.621

208Pb/204Pb	Reference
38.828	Cumming et al. 1981
38.892	Cumming et al. 1981
38.849	Cumming et al. 1981
38.859	Cumming et al. 1981
38.646	Cumming et al. 1981
38.476	Cumming et al. 1981
38.710	Cumming et al. 1981
38.804	Cumming et al. 1981
38.812	Cumming et al. 1981
38.867	Cumming et al. 1981
39.085	Cumming et al. 1981
38.774	Cumming et al. 1981
38.790	Cumming et al. 1981
38.855	Cumming et al. 1981
38.871	Cumming et al. 1981
38.685	Cumming et al. 1981
38.676	Cumming et al. 1981
38.693	Cumming et al. 1981
38.789	Cumming et al. 1981
38.661	Cumming et al. 1981
38.714	Cumming et al. 1981
38.716	Cumming et al. 1981
38.678	Cumming et al. 1981
38.650	Cumming et al. 1981
38.703	Cumming et al. 1981
38.729	Cumming et al. 1981
38.300	Cumming et al. 1981
38.654	Cumming et al. 1981
38.481	Cumming et al. 1981
38.535	Cumming et al. 1981

Appendix F: Comparative Data-Mississippi Valley

Mine/Site Name	Sample Type	208Pb/206Pb	207Pb/206Pb
Alba	Sphalerite	Not Reported	Not Reported
Alba	Sphalerite	Not Reported	Not Reported
Carterville	Sphalerite	Not Reported	Not Reported
Carterville	Sphalerite	Not Reported	Not Reported
Picher	Sphalerite	Not Reported	Not Reported
Picher	Sphalerite	Not Reported	Not Reported
Treece	Sphalerite	Not Reported	Not Reported
Treece	Sphalerite	Not Reported	Not Reported
NA	Andesite	Not Reported	Not Reported
NA	Andesite	Not Reported	Not Reported
Beulah	Sphalerite	Not Reported	Not Reported
Davy Crockett	Sphalerite	Not Reported	Not Reported
Marguerite	Sphalerite	Not Reported	Not Reported
North Star	Sphalerite	Not Reported	Not Reported
Red Bird	Sphalerite	Not Reported	Not Reported
Excelsior	Sphalerite	Not Reported	Not Reported
Excelsior	Sphalerite	Not Reported	Not Reported
White Eagle	Sphalerite	Not Reported	Not Reported
Lucky Dog	Sphalerite	Not Reported	Not Reported
Jackpot	Sphalerite	Not Reported	Not Reported
Philadelphia	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	Reference
22.171	15.863	40.772	Potra et al. 2018
21.837	18.928	40.744	Potra et al. 2018
21.847	15.919	41.092	Potra et al. 2018
21.848	15.919	41.095	Potra et al. 2018
22.032	15.924	41.136	Potra et al. 2018
21.925	15.911	40.972	Potra et al. 2018
22.196	15.957	41.261	Potra et al. 2018
21.860	15.912	41.036	Potra et al. 2018
18.941	15.652	38.546	Potra et al. 2018
18.943	15.653	38.547	Potra et al. 2018
21.249	15.887	40.511	Potra et al. 2018
20.240	15.822	39.463	Potra et al. 2018
20.957	15.873	40.249	Potra et al. 2018
21.644	15.907	40.878	Potra et al. 2018
21.634	15.918	40.886	Potra et al. 2018
20.112	15.784	39.136	Potra et al. 2018
20.110	15.781	39.131	Potra et al. 2018
20.872	15.856	40.132	Potra et al. 2018
20.980	15.779	39.108	Potra et al. 2018
21.948	15.935	41.100	Potra et al. 2018
20.832	15.855	40.088	Potra et al. 2018
19.777	15.772	39.492	Potra et al. 2018
19.730	15.766	39.440	Potra et al. 2018
19.669	15.753	39.416	Potra et al. 2018
19.682	15.742	39.340	Potra et al. 2018
19.639	15.740	39.373	Potra et al. 2018
19.658	15.753	39.432	Potra et al. 2018
19.653	15.710	39.297	Potra et al. 2018
19.665	15.742	39.408	Potra et al. 2018
19.742	15.753	39.428	Potra et al. 2018
19.676	15.741	39.389	Potra et al. 2018
19.669	15.739	39.407	Potra et al. 2018
19.803	15.806	39.583	Potra et al. 2018
19.697	15.763	39.466	Potra et al. 2018
19.772	15.736	39.370	Potra et al. 2018
19.658	15.724	39.348	Potra et al. 2018
19.695	15.743	39.384	Potra et al. 2018
19.777	15.750	39.421	Potra et al. 2018
19.708	15.725	39.343	Potra et al. 2018
19.710	15.742	39.405	Potra et al. 2018
19.729	15.732	39.386	Potra et al. 2018

Mine/Site Name	Sample Type	208Pb/206Pb	207Pb/206Pb
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Burksville	Sphalerite	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Tennessee	Shale	Not Reported	Not Reported
Kolmer	Not Listed	1.8566	0.7200
Kolmer	Not Listed	1.8536	0.7200
Kolmer	Not Listed	1.9276	0.7710
Kolmer	Not Listed	1.9342	0.7770
Kolmer	Not Listed	1.9282	0.7713
Kolmer	Not Listed	1.8589	0.7207
Kolmer	Not Listed	1.9131	0.7716
Kolmer	Not Listed	1.9073	0.7615
Kolmer	Not Listed	1.8545	0.7225
Kolmer	Not Listed	1.8549	0.7218
Kolmer	Not Listed	1.9146	0.7635
Guebert	Not Listed	2.0836	0.8473
Guebert	Not Listed	1.8853	0.7494
Guebert	Not Listed	1.8815	0.7453
Guebert	Not Listed	1.9368	0.7805
Guebert	Not Listed	1.9219	0.7717
Guebert	Not Listed	1.9222	0.7679
Guebert	Not Listed	1.9158	0.7647
Guebert	Not Listed	1.9324	0.7777

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	Reference
19.724	15.738	39.380	Potra et al. 2018
19.689	15.747	39.405	Potra et al. 2018
19.683	15.752	39.414	Potra et al. 2018
19.697	15.718	39.325	Potra et al. 2018
19.727	15.793	39.542	Potra et al. 2018
19.656	15.743	39.412	Potra et al. 2018
19.693	15.748	39.411	Potra et al. 2018
19.696	15.745	39.406	Potra et al. 2018
19.729	15.735	39.374	Potra et al. 2018
19.659	15.744	39.410	Potra et al. 2018
19.689	15.760	39.431	Potra et al. 2018
19.746	15.746	39.412	Potra et al. 2018
19.702	15.726	39.352	Potra et al. 2018
19.653	15.709	39.294	Potra et al. 2018
19.684	15.750	39.423	Potra et al. 2018
19.570	15.692	38.421	Potra et al. 2018
19.312	15.689	38.308	Potra et al. 2018
18.911	15.664	38.626	Potra et al. 2018
18.459	15.637	38.293	Potra et al. 2018
18.760	15.654	38.334	Potra et al. 2018
18.879	15.660	38.377	Potra et al. 2018
19.017	15.665	38.689	Potra et al. 2018
22.136	Not Reported	Not Reported	Farquhar et al. 1995
22.142	Not Reported	Not Reported	Farquhar et al. 1995
20.552	Not Reported	Not Reported	Farquhar et al. 1995
20.360	Not Reported	Not Reported	Farquhar et al. 1995
20.526	Not Reported	Not Reported	Farquhar et al. 1995
22.204	Not Reported	Not Reported	Farquhar et al. 1995
20.519	Not Reported	Not Reported	Farquhar et al. 1995
20.914	Not Reported	Not Reported	Farquhar et al. 1995
22.227	Not Reported	Not Reported	Farquhar et al. 1995
22.170	Not Reported	Not Reported	Farquhar et al. 1995
20.183	Not Reported	Not Reported	Farquhar et al. 1995
18.504	Not Reported	Not Reported	Farquhar et al. 1995
21.259	Not Reported	Not Reported	Farquhar et al. 1995
21.392	Not Reported	Not Reported	Farquhar et al. 1995
20.306	Not Reported	Not Reported	Farquhar et al. 1995
20.624	Not Reported	Not Reported	Farquhar et al. 1995
20.649	Not Reported	Not Reported	Farquhar et al. 1995
20.765	Not Reported	Not Reported	Farquhar et al. 1995
20.324	Not Reported	Not Reported	Farquhar et al. 1995

Mine/Site Name	Sample Type	208Pb/206Pb	207Pb/206Pb
Guebert	Not Listed	1.9297	0.7751
Guebert	Not Listed	1.9085	0.7611
Guebert	Not Listed	1.9016	0.7581
Guebert	Not Listed	1.9003	0.7584
Guebert	Not Listed	1.9186	0.7639
Guebert	Not Listed	1.9368	0.7821
Fox Camp	Not Listed	1.8858	0.7247
Fox Camp	Not Listed	1.9240	0.7723
Fox Camp	Not Listed	1.8684	0.7278
Fox Camp	Not Listed	2.0814	0.8499
Fox Camp	Not Listed	1.8288	0.6900
Fox Camp	Not Listed	1.8327	0.6899
Newell Fort	Not Listed	1.8251	0.6865
Newell Fort	Not Listed	2.0947	0.8481
Newell Fort	Not Listed	1.8374	0.6907
Newell Fort	Not Listed	2.0829	0.8467
Newell Fort	Not Listed	2.0820	0.8474
Newell Fort	Not Listed	1.8413	0.6932
Newell Fort	Not Listed	1.9551	0.7919
Newell Fort	Not Listed	1.8860	0.7317
Newell Fort	Not Listed	1.8630	0.7233
Newell Fort	Not Listed	1.8804	0.7247
Valles Mines	Galena	1.9225	0.7577
Potosi area	Galena	1.8727	0.7272
Jackson Mine	Galena	1.8523	0.7152
Circle Mines	Galena	1.8625	0.7199
Buckshot Mines	Galena	1.8595	0.7205
Quigley Mine	Galena	1.8639	0.7221
Indian Creek Mine	Galena	1.8750	0.7321
Doe Run Lead Co	Galena	1.9165	0.7691
National Mine No. 1	Galena	1.9388	0.7836
Park City Mines	Galena	1.9303	0.7600
Mine LaMotte	Galena	1.8968	0.7489
Mine LaMotte	Galena	1.9489	0.7869
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	Reference
20.389	Not Reported	Not Reported	Farquhar et al. 1995
20.861	Not Reported	Not Reported	Farquhar et al. 1995
20.961	Not Reported	Not Reported	Farquhar et al. 1995
20.957	Not Reported	Not Reported	Farquhar et al. 1995
20.900	Not Reported	Not Reported	Farquhar et al. 1995
20.291	Not Reported	Not Reported	Farquhar et al. 1995
22.130	Not Reported	Not Reported	Farquhar et al. 1995
20.498	Not Reported	Not Reported	Farquhar et al. 1995
21.911	Not Reported	Not Reported	Farquhar et al. 1995
18.464	Not Reported	Not Reported	Farquhar et al. 1995
23.413	Not Reported	Not Reported	Farquhar et al. 1995
23.429	Not Reported	Not Reported	Farquhar et al. 1995
23.381	Not Reported	Not Reported	Farquhar et al. 1995
18.507	Not Reported	Not Reported	Farquhar et al. 1995
23.347	Not Reported	Not Reported	Farquhar et al. 1995
18.553	Not Reported	Not Reported	Farquhar et al. 1995
18.541	Not Reported	Not Reported	Farquhar et al. 1995
23.404	Not Reported	Not Reported	Farquhar et al. 1995
19.931	Not Reported	Not Reported	Farquhar et al. 1995
21.851	Not Reported	Not Reported	Farquhar et al. 1995
22.217	Not Reported	Not Reported	Farquhar et al. 1995
22.106	Not Reported	Not Reported	Farquhar et al. 1995
20.800	Not Reported	Not Reported	Farquhar et al. 1995
21.877	Not Reported	Not Reported	Farquhar et al. 1995
22.252	Not Reported	Not Reported	Farquhar et al. 1995
22.131	Not Reported	Not Reported	Farquhar et al. 1995
22.109	Not Reported	Not Reported	Farquhar et al. 1995
22.080	Not Reported	Not Reported	Farquhar et al. 1995
21.758	Not Reported	Not Reported	Farquhar et al. 1995
20.555	Not Reported	Not Reported	Farquhar et al. 1995
20.102	Not Reported	Not Reported	Farquhar et al. 1995
20.868	Not Reported	Not Reported	Farquhar et al. 1995
21.192	Not Reported	Not Reported	Farquhar et al. 1995
20.060	Not Reported	Not Reported	Farquhar et al. 1995
20.055	15.843	39.696	Field et al. 2018
18.765	15.658	38.441	Field et al. 2018
22.197	16.015	42.097	Field et al. 2018
22.182	16.006	42.060	Field et al. 2018
21.485	15.937	40.741	Field et al. 2018
18.758	15.655	38.522	Field et al. 2018
19.271	15.715	38.945	Field et al. 2018

Mine/Site Name	Sample Type	208Pb/206Pb	207Pb/206Pb
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Illinois Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Illinois Basin	Sulfides	Not Reported	Not Reported
Illinois Basin	Sulfides	Not Reported	Not Reported
Illinois Basin	Sulfides	Not Reported	Not Reported
valles Mines	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Illinois Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Forest City Basin	Sulfides	Not Reported	Not Reported
Greater UMV	Sulfides	Not Reported	Not Reported

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	Reference
19.062	15.670	38.578	Field et al. 2018
19.714	15.721	39.150	Field et al. 2018
19.734	15.748	39.091	Field et al. 2018
19.901	15.946	39.841	Field et al. 2018
19.107	15.647	38.718	Field et al. 2018
22.063	15.957	41.137	Field et al. 2018
22.063	15.958	41.140	Field et al. 2018
18.552	15.637	38.343	Field et al. 2018
19.143	15.671	38.858	Field et al. 2018
22.582	16.013	41.627	Field et al. 2018
22.585	16.006	41.593	Field et al. 2018
22.527	16.010	41.634	Field et al. 2018
18.568	15.639	38.358	Field et al. 2018
19.953	15.764	39.314	Field et al. 2018
19.108	15.688	38.652	Field et al. 2018
18.579	15.635	38.351	Field et al. 2018
18.398	15.627	38.342	Field et al. 2018
18.397	15.626	38.338	Field et al. 2018
18.661	15.649	38.483	Field et al. 2018
19.198	15.709	38.920	Field et al. 2018
20.041	15.786	39.626	Field et al. 2018
20.053	15.788	39.639	Field et al. 2018
20.041	15.786	39.626	Field et al. 2018
20.444	15.810	39.828	Field et al. 2018
20.643	15.826	39.927	Field et al. 2018
18.612	15.653	38.460	Field et al. 2018
21.225	15.937	40.550	Field et al. 2018
21.239	15.937	40.565	Field et al. 2018
21.226	15.939	40.553	Field et al. 2018
18.819	15.662	38.653	Field et al. 2018
20.932	15.907	40.336	Field et al. 2018
18.515	15.641	38.405	Field et al. 2018
18.537	15.633	38.337	Field et al. 2018
18.799	15.654	38.427	Field et al. 2018
18.724	15.649	38.455	Field et al. 2018
22.486	15.997	41.602	Field et al. 2018
19.834	15.767	39.559	Field et al. 2018
19.614	15.694	38.479	Field et al. 2018
18.930	15.657	38.454	Field et al. 2018
18.655	15.634	38.399	Field et al. 2018
19.662	15.743	39.001	Field et al. 2018

Appendix F: Comparative Data-Canada

Mine/Site Name	Sample Type	206Pb/204Pb	207Pb/206Pb
Finland	Galena	22.55	0.7117
Finland	Galena	22.57	0.7111
Finland	Galena	22.94	0.701
Finland	Galena	22.99	0.6993
Finland	Galena	22.9	0.7019
Finland	Galena	22.59	0.7106
Finland	Galena	22.38	0.716
Finland	Galena	22.39	0.7159
Finland	Galena	22.28	0.7202
Finland	Galena	22.25	0.7197
Finland	Galena	22.26	0.7198
Finland	Galena	22.14	0.7229
Finland	Galena	22.17	0.7229
Finland	Galena	22.15	0.7234
Finland	Galena	22.2	0.7219
Finland	Galena	22.26	0.7199
Bautsch Mine	Galena	22.18	0.7228
Constance Bay	Galena	19.21	0.8138
Constance Bay	Galena	19.2	0.8142
Constance Bay	Galena	19.18	0.8153
Constance Bay	Galena	19.18	0.8152
Hind	Galena	19.23	0.8131
Picton	Galena	18.73	0.8333
Picton	Galena	18.73	0.8323
Bruce Boyd	Galena	19.24	0.8126
Bruce Boyd	Galena	19.24	0.8128
Rossie Mine	Galena	19.23	0.8127

208Pb/206Pb	Reference
1.8872	Farquhar and Fletcher 1980
1.8863	Farquhar and Fletcher 1980
1.8757	Farquhar and Fletcher 1980
1.874	Farquhar and Fletcher 1980
1.8761	Farquhar and Fletcher 1980
1.8859	Farquhar and Fletcher 1980
1.8891	Farquhar and Fletcher 1980
1.8905	Farquhar and Fletcher 1980
1.8969	Farquhar and Fletcher 1980
1.8924	Farquhar and Fletcher 1980
1.8924	Farquhar and Fletcher 1980
1.8927	Farquhar and Fletcher 1980
1.8917	Farquhar and Fletcher 1980
1.8918	Farquhar and Fletcher 1980
1.8891	Farquhar and Fletcher 1980
1.8919	Farquhar and Fletcher 1980
1.8898	Farquhar and Fletcher 1980
2.0411	Farquhar and Fletcher 1980
2.0414	Farquhar and Fletcher 1980
2.0459	Farquhar and Fletcher 1980
2.0456	Farquhar and Fletcher 1980
2.0409	Farquhar and Fletcher 1980
2.0899	Farquhar and Fletcher 1980
2.0861	Farquhar and Fletcher 1980
2.0405	Farquhar and Fletcher 1980
2.0412	Farquhar and Fletcher 1980
2.0389	Farquhar and Fletcher 1980

Appendix F: Comparative Data-France

Group Location	Sample Type	208Pb/206Pb	206Pb/207Pb
les Malines trias host	Not Listed	Not Reported	Not Reported
Lias host	Not Listed	Not Reported	Not Reported
Bath host	Not Listed	Not Reported	Not Reported
Post-Bath?	Not Listed	Not Reported	Not Reported
Saint-Guiral-Liron Gran	Not Listed	Not Reported	Not Reported
Cambrian syngenetic	Not Listed	Not Reported	Not Reported
Les Malines	Not Listed	Not Reported	Not Reported
Les Malines	Not Listed	Not Reported	Not Reported
Les Malines	Not Listed	Not Reported	Not Reported
Les Malines	Not Listed	Not Reported	Not Reported
Les Malines	Not Listed	Not Reported	Not Reported
Villemagne	Not Listed	Not Reported	Not Reported
Villemagne	Not Listed	Not Reported	Not Reported
Villemagne	Not Listed	Not Reported	Not Reported
Treves	Not Listed	Not Reported	Not Reported
Treves	Not Listed	Not Reported	Not Reported
La Croix de Pallieres	Not Listed	Not Reported	Not Reported
La Gardie	Not Listed	Not Reported	Not Reported
Largentiere	Not Listed	Not Reported	Not Reported
Largentiere	Not Listed	Not Reported	Not Reported
Sain Julien	Not Listed	Not Reported	Not Reported
Le Bleymard	Not Listed	Not Reported	Not Reported
Nozieres	Not Listed	Not Reported	Not Reported
Nozieres	Not Listed	Not Reported	Not Reported
Vialas	Not Listed	Not Reported	Not Reported
Millau	Not Listed	Not Reported	Not Reported
Cusses	Not Listed	Not Reported	Not Reported
Cusses	Not Listed	Not Reported	Not Reported
Brusque	Not Listed	Not Reported	Not Reported
Mont Faulat	Not Listed	Not Reported	Not Reported
La Rabasse	Not Listed	Not Reported	Not Reported
Argenneuves	Not Listed	Not Reported	Not Reported
Bardou	Not Listed	Not Reported	Not Reported
Olargues	Not Listed	Not Reported	Not Reported
Le Pradal	Not Listed	Not Reported	Not Reported
La Loubatiere	Not Listed	Not Reported	Not Reported
La Caunette	Not Listed	Not Reported	Not Reported
Villeneuve-Minervois	Not Listed	Not Reported	Not Reported
Berlou	Not Listed	Not Reported	Not Reported
Bibaud	Not Listed	Not Reported	Not Reported
Le Beyrae	Galena	2.08674	1.1854

207Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
Not Reported	18.406	15.668	38.479
Not Reported	18.444	15.686	38.546
Not Reported	18.423	15.672	38.488
Not Reported	18.426	15.669	38.488
Not Reported	18.201	15.66	
Not Reported	17.84	15.62	37.9
Not Reported	18.406	15.668	38.479
Not Reported	18.444	15.686	38.546
Not Reported	18.423	15.672	38.488
Not Reported	18.426	15.669	38.488
Not Reported	18.41	15.67	38.48
Not Reported	18.38	15.65	38.54
Not Reported	18.43	15.65	38.56
Not Reported	18.38	15.63	38.55
Not Reported	18.42	15.64	38.49
Not Reported	18.4	15.63	38.49
Not Reported	18.63	15.68	38.75
Not Reported	18.36	15.64	38.4
Not Reported	18.28	15.63	38.37
Not Reported	18.31	15.65	38.43
Not Reported	18.58	15.64	38.55
Not Reported	18.59	15.66	38.62
Not Reported	18.51	15.67	38.66
Not Reported	18.47	15.65	38.61
Not Reported	18.62	15.66	38.73
Not Reported	18.4	15.64	38.59
Not Reported	17.8	15.63	37.88
Not Reported	18.81	15.63	37.9
Not Reported	18.76	15.59	37.78
Not Reported	18.38	15.64	38.37
Not Reported	18.28	15.67	38.42
Not Reported	18.32	15.67	38.42
Not Reported	18.42	15.67	38.5
Not Reported	18.41	15.66	38.47
Not Reported	18.36	15.64	38.41
Not Reported	17.86	15.6	37.8
Not Reported	18.41	15.7	38.52
Not Reported	17.91	15.63	37.97
Not Reported	17.94	15.64	38.06
Not Reported	17.92	15.64	38.04
0.8436	18.587	15.68	38.786

Reference
Sinclair et al. 1993
Sinclair et al. 1993
Sinclair et al. 1993
Sinclair et al. 1993
Sinclair et al. 1993
Sinclair et al. 1993
Trincherini et al. 2001
Trincherini et al. 2001
Trincherini et al. 2001

Group Location	Sample Type	208Pb/206Pb	206Pb/207Pb
Allenc	Galena	2.08421	1.18412
Eygas	Galena	2.09476	1.18014
Ramponenche Mines 1	Galena	2.10303	1.17146
Ramponenche Mines, bridge	Galena	2.09306	1.18113
Ramponenche Mines 2	Galena	2.10175	1.17208
Col du sapet	Galena	2.0891	1.17864
LE Tournel West	Galena	2.08582	1.18376
Orcieres	Galena	2.08383	1.18441
Le Tournel East	Galena	2.08396	1.18403
La Baume	Galena	2.09828	1.17693
La Passerelle	Galena	2.09408	1.18039
Ravin des Agudes 2	Galena	2.09574	1.17843
Bosviel	Galena	2.0975	1.17228
Le Colombert B	Galena	2.09957	1.17142
Le Colombert A	Galena	2.09722	1.1722
Cubieres	Galena	2.08281	1.18462
Bleymard-Mazel	Galena	2.07914	1.18831
Malecombe	Galena	2.07958	1.18625
Neyrac	Galena	2.08454	1.18362
Cubierettes	Galena	2.08193	1.18644
Lozerettes 4	Galena	2.09926	1.17185
Les Colobrieres	Galena	2.09779	1.17586
Ferrier	Galena	2.09558	1.17129
Les Bondons	Galena	2.09858	1.17646
Malaval 1	Galena	2.09205	1.18007
Malaval 2	Galena	2.08915	1.18199
Le Devois	Galena	2.09305	1.17954
Le Monet	Galena	2.09974	1.17152
Le Monet West	Galena	2.08873	1.18293
Le Marazeil	Galena	2.08677	1.18368
Lonjagnes	Galena	2.09548	1.1783
Les Combettes	Galena	2.0913	1.18031
Combe de la baume	Galena	2.08117	1.18595
La Louve 2	Galena	2.08511	1.18409

207Pb/206Pb	206Pb/204Pb	207Pb/204Pb	208Pb/204Pb
0.84451	18.563	15.677	38.69
0.84735	18.617	15.775	38.999
0.85364	18.373	15.684	38.639
0.84665	18.518	15.678	38.76
0.85318	18.377	15.679	38.623
0.84844	18.481	15.68	38.609
0.84476	18.562	15.681	38.718
0.8443	18.571	15.679	38.698
0.84457	18.577	15.689	38.713
0.84967	18.441	15.669	38.695
0.84718	18.506	15.678	38.753
0.84859	18.479	15.681	38.727
0.85304	18.372	15.672	38.536
0.85366	18.359	15.672	38.545
0.8531	18.369	15.671	38.524
0.84415	18.572	15.678	38.683
0.84153	18.636	15.683	38.747
0.84299	18.606	15.685	38.693
0.84486	18.554	15.676	38.677
0.84285	18.596	15.674	38.715
0.85335	18.437	15.673	38.704
0.85044	18.44	15.67	38.684
0.85376	18.457	15.673	38.678
0.85001	18.435	15.67	38.686
0.84741	18.489	15.667	38.679
0.84603	18.531	15.678	38.715
0.84779	18.481	15.668	38.683
0.85359	18.412	15.664	38.661
0.84536	18.531	15.677	38.706
0.84482	18.551	15.68	38.712
0.84868	18.472	15.677	38.708
0.84724	18.497	15.671	38.683
0.8432	18.603	15.686	38.715
0.84453	18.556	15.671	38.692

Reference
Baron et al. 2006
Baron et al. 2006
Baron et al. 2006

Appendix F: Comparative Data-Great Britain

Location/Region/Mining District	Sample Type	208Pb/206Pb
Abergele	Galena	2.0929
Abergele	Galena	2.08
Anglesey, Amlwch	Galena	2.08097
Anglesey, Amlwch	Galena	2.08162
Anglesey, Amlwch	Galena	2.08381
Anglesey, Amlwch	Galena	2.08139
Anglesey, Amlwch	Galena	2.09645
Bala	Galena	2.09759
Bala	Galena	2.09844
Blaenau Ffestiniog	Galena	2.10874
Conway	Galena	2.08754
Dolgellau belt	Galena	2.08351
Dolgellau belt	Galena	2.08396
Dolgellau belt	Galena	2.08289
Dolgellau belt	Galena	2.08214
Dolgellau belt	Galena	2.08239
Dolgellau belt	Galena	2.08299
Dolgellau belt	Galena	2.08266
Llanrwst	Galena	2.09746
Llanrwst	Galena	2.09697
Llanrwst	Galena	2.092
Llanrwst	Galena	2.09686
Llanrwst	Galena	2.09591
Llanrwst	Galena	2.09587
Llanrwst	Galena	2.09527
Snowdonia, Nantlle	Galena	2.09439
Snowdonia, Nantlle	Galena	2.09451
Snowdonia, Nantlle	Galena	2.0818
Snowdonia, Nantlle	Galena	2.09565
Snowdonia, Nantlle	Galena	2.09376
Snowdonia, Nantlle	Galena	2.09408
Cwmystwyth	Galena	2.10565
Cwmystwyth	Galena	2.10302
Cwmystwyth	Galena	2.10523
Cwmystwyth	Galena	2.10532
Cwmystwyth	Galena	2.10508
Cwmystwyth	Galena	2.10477
Cwmystwyth	Galena	2.10561
Cwmystwyth	Galena	2.10357
Cwmystwyth	Galena	2.10194
Cwmystwyth	Galena	2.1038

207Pb/206Pb	206Pb/204Pb	Reference
0.85435	18.291	Rohl 1996
0.84561	18.476	Rohl 1996
0.85148	18.38	Rohl 1996
0.85134	18.411	Rohl 1996
0.85172	18.424	Rohl 1996
0.85119	18.378	Rohl 1996
0.85785	18.232	Rohl 1996
0.86072	18.142	Rohl 1996
0.86091	18.149	Rohl 1996
0.86354	18.132	Rohl 1996
0.84786	18.46	Rohl 1996
0.85485	18.282	Rohl 1996
0.85423	18.328	Rohl 1996
0.85389	18.314	Rohl 1996
0.85383	18.312	Rohl 1996
0.85394	18.314	Rohl 1996
0.84403	18.319	Rohl 1996
0.8539	18.327	Rohl 1996
0.85417	18.321	Rohl 1996
0.85622	18.265	Rohl 1996
0.854	18.23	Rohl 1996
0.85605	18.246	Rohl 1996
0.85601	18.254	Rohl 1996
0.85473	18.283	Rohl 1996
0.85507	18.278	Rohl 1996
0.85947	18.206	Rohl 1996
0.85942	18.2002	Rohl 1996
0.85896	18.183	Rohl 1996
0.85968	18.212	Rohl 1996
0.8593	18.199	Rohl 1996
0.85929	18.194	Rohl 1996
0.86139	18.188	Rohl 1996
0.86087	18.163	Rohl 1996
0.86147	18.158	Rohl 1996
0.86138	18.194	Rohl 1996
0.86136	18.188	Rohl 1996
0.86129	18.188	Rohl 1996
0.8615	18.193	Rohl 1996
0.86112	18.117	Rohl 1996
0.86065	18.17	Rohl 1996
0.8578	18.251	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Cwmystwyth	Galena	2.10221
Cwmystwyth	Galena	2.10084
Cwmystwyth	Galena	2.10121
Cwmystwyth	Galena	2.1016
Cwmystwyth	Galena	2.10226
Cwmystwyth	Galena	2.10326
Cwmystwyth	Galena	2.1031
Cwmystwyth	Galena	2.10203
Cwmystwyth	Galena	2.10119
Daren	Galena	2.10852
Daren	Galena	2.10757
Daren	Galena	2.10328
Daren	Galena	2.10704
Esgairhir lode	Galena	2.10609
Glandovey	Galena	2.09741
Glandovey	Galena	2.09633
Glandovey	Galena	2.09941
Goginan	Galena	2.10282
Goginan	Galena	2.10443
Goginan	Galena	2.10251
Goginan	Galena	2.10172
Goginan	Galena	2.10494
Pontrhydfendigaid	Galena	2.101
Tal-y-bont	Galena	2.10322
Tal-y-bont	Galena	2.10401
Tal-y-bont	Galena	2.10439
Tal-y-bont	Galena	2.10466
Tal-y-bont	Galena	2.10045
Tre'r-ddol	Galena	2.10294
Tre'r-ddol	Galena	2.09592
Tre'r-ddol	Galena	2.10301
Tre'r-ddol	Galena	2.10352
Tre'r-ddol	Galena	2.1026
Tre'r-ddol	Galena	2.10388
Tre'r-ddol	Galena	2.10309
Tre'r-ddol	Galena	2.10505
Tre'r-ddol	Galena	2.10487
Tre'r-ddol	Galena	2.10364
Tre'r-ddol	Galena	2.10199
Tre'r-ddol	Galena	2.10392
Tre'r-ddol	Galena	2.10095

207Pb/206Pb	206Pb/204Pb	Reference
0.86106	18.155	Rohl 1996
0.86072	18.154	Rohl 1996
0.86068	18.16	Rohl 1996
0.86096	18.157	Rohl 1996
0.86084	18.171	Rohl 1996
0.8577	18.243	Rohl 1996
0.85767	18.243	Rohl 1996
0.8608	18.165	Rohl 1996
0.86067	18.164	Rohl 1996
0.86223	18.193	Rohl 1996
0.86206	18.187	Rohl 1996
0.8613	18.135	Rohl 1996
0.86192	18.18	Rohl 1996
0.85813	18.249	Rohl 1996
0.84971	18.44	Rohl 1996
0.8496	18.421	Rohl 1996
0.85118	18.4	Rohl 1996
0.86115	18.147	Rohl 1996
0.86133	18.165	Rohl 1996
0.8605	18.162	Rohl 1996
0.86095	18.141	Rohl 1996
0.86154	18.172	Rohl 1996
0.85746	18.236	Rohl 1996
0.86152	18.146	Rohl 1996
0.86129	18.157	Rohl 1996
0.8617	18.159	Rohl 1996
0.86168	18.166	Rohl 1996
0.85949	18.188	Rohl 1996
0.96145	18.144	Rohl 1996
0.8492	18.408	Rohl 1996
0.86077	18.17	Rohl 1996
0.86156	18.152	Rohl 1996
0.86135	18.141	Rohl 1996
0.86163	18.151	Rohl 1996
0.86136	18.159	Rohl 1996
0.8619	18.159	Rohl 1996
0.86179	18.156	Rohl 1996
0.8616	18.149	Rohl 1996
0.86114	18.144	Rohl 1996
0.8615	18.16	Rohl 1996
0.85244	18.362	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Ystrad Meurig	Galena	2.10351
Ystrad Meurig	Galena	2.10306
Ystrad Meurig	Galena	2.10222
Ystrad Meurig	Galena	2.10233
Ystrad Meurig	Galena	2.10401
Ystrad Meurig	Galena	2.10317
Ystrad Meurig	Galena	2.10591
Rhandirmwyn	Galena	2.1063
Aberhosan, east	Galena	2.10299
Aberhosan, east	Galena	2.10237
Aberhosan, south	Galena	2.10254
Cae Conroy	Galena	2.10435
Cea Conroy	Galena	2.10507
Dylife	Galena	2.1014
Dylife	Galena	2.104
Dylife	Galena	2.10137
Dylife	Galena	2.10239
Dylife, SW	Galena	2.10578
Dylife, SW	Galena	2.10153
Nantiago	Galena	2.1037
Nantiago	Galena	2.10601
Nantiago	Galena	2.10525
Nantiago	Galena	2.10708
Nantiago	Galena	2.10868
Rhayader	Galena	2.10102
Rhayader	Galena	2.10745
Van	Galena	2.10302
West Shrosphire mining district	Galena	2.11992
West Shrosphire mining district	Galena	2.09026
West Shrosphire mining district	Galena	2.09228
West Shrosphire mining district	Galena	2.08593
West Shrosphire mining district	Galena	2.10685
West Shrosphire mining district	Galena	2.1176
West Shrosphire mining district	Galena	2.09692
West Shrosphire mining district	Galena	2.09963
West Shrosphire mining district	Galena	2.09518
West Shrosphire mining district	Galena	2.0988
West Shrosphire mining district	Galena	2.09851
West Shrosphire mining district	Galena	2.08999
West Cumbria mining district	Galena	2.08723
West Cumbria mining district	Galena	2.08782

207Pb/206Pb	206Pb/204Pb	Reference
0.85656	18.298	Rohl 1996
0.86155	18.144	Rohl 1996
0.86105	18.152	Rohl 1996
0.85742	18.295	Rohl 1996
0.86153	18.157	Rohl 1996
0.86122	18.158	Rohl 1996
0.85907	18.242	Rohl 1996
0.86228	18.13	Rohl 1996
0.85615	18.241	Rohl 1996
0.85481	18.296	Rohl 1996
0.85634	18.241	Rohl 1996
0.85773	18.241	Rohl 1996
0.85803	18.241	Rohl 1996
0.85576	18.268	Rohl 1996
0.8573	18.248	Rohl 1996
0.85821	18.184	Rohl 1996
0.85744	18.233	Rohl 1996
0.8584	18.221	Rohl 1996
0.85833	18.19	Rohl 1996
0.85977	18.167	Rohl 1996
0.86001	18.198	Rohl 1996
0.86001	18.173	Rohl 1996
0.86025	18.204	Rohl 1996
0.8607	18.212	Rohl 1996
0.85479	18.321	Rohl 1996
0.85869	18.262	Rohl 1996
0.85557	18.328	Rohl 1996
0.86775	18.094	Rohl 1996
0.84756	18.506	Rohl 1996
0.8526	18.347	Rohl 1996
0.84675	18.483	Rohl 1996
0.8607	18.191	Rohl 1996
0.86652	18.103	Rohl 1996
0.8553	18.296	Rohl 1996
0.8558	18.333	Rohl 1996
0.85493	18.285	Rohl 1996
0.85602	18.278	Rohl 1996
0.85609	18.275	Rohl 1996
0.84774	18.518	Rohl 1996
0.84893	18.399	Rohl 1996
0.84928	18.396	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
West Cumbria mining district	Galena	2.09364
West Cumbria mining district	Galena	2.08766
West Cumbria mining district	Galena	2.09658
West Cumbria mining district	Galena	2.09313
West Cumbria mining district	Galena	2.09046
West Cumbria mining district	Galena	2.09467
West Cumbria mining district	Galena	2.09142
West Cumbria mining district	Galena	2.0934
West Cumbria mining district	Galena	2.09452
West Cumbria mining district	Galena	2.0916
West Cumbria mining district	Galena	2.09679
West Cumbria mining district	Galena	2.08963
West Cumbria mining district	Galena	2.09456
West Cumbria mining district	Galena	2.08246
West Cumbria mining district	Galena	2.10047
West Cumbria mining district	Galena	2.10152
West Cumbria mining district	Galena	2.08219
Isla of Man	Galena	2.09414
Isla of Man	Galena	2.09582
Isla of Man	Galena	2.08235
Isla of Man	Galena	2.09468
Isla of Man	Galena	2.08269
Isla of Man	Galena	2.08149
Isla of Man	Galena	2.09711
Isla of Man	Galena	2.093
Isla of Man	Galena	2.09302
Mendips/Bristol mining district	Galena	2.07894
Mendips/Bristol mining district	Galena	2.0797
Mendips/Bristol mining district	Galena	2.07852
Mendips/Bristol mining district	Galena	2.07639
Mendips/Bristol mining district	Galena	2.07445
Mendips/Bristol mining district	Galena	2.07381
Mendips/Bristol mining district	Galena	2.07974
Mendips/Bristol mining district	Galena	2.07649
Mendips/Bristol mining district	Galena	2.07962
Mendips/Bristol mining district	Galena	2.07684
Mendips/Bristol mining district	Galena	2.0771
Mendips/Bristol mining district	Galena	2.07941
Mendips/Bristol mining district	Galena	2.07731
Mendips/Bristol mining district	Galena	2.07686
Mendips/Bristol mining district	Galena	2.07669

207Pb/206Pb	206Pb/204Pb	Reference
0.84891	18.474	Rohl 1996
0.84886	18.406	Rohl 1996
0.85259	18.386	Rohl 1996
0.85197	18.346	Rohl 1996
0.84932	18.422	Rohl 1996
0.85327	18.331	Rohl 1996
0.85152	18.334	Rohl 1996
0.85212	18.342	Rohl 1996
0.85211	18.364	Rohl 1996
0.85161	18.336	Rohl 1996
0.85212	18.381	Rohl 1996
0.8502	18.367	Rohl 1996
0.85423	18.271	Rohl 1996
0.84292	18.552	Rohl 1996
0.85796	18.232	Rohl 1996
0.8582	18.245	Rohl 1996
0.84436	18.524	Rohl 1996
0.85505	18.27	Rohl 1996
0.85508	18.297	Rohl 1996
0.84662	18.462	Rohl 1996
0.85458	18.298	Rohl 1996
0.84511	18.495	Rohl 1996
0.84682	18.478	Rohl 1996
0.85464	18.284	Rohl 1996
0.85187	18.345	Rohl 1996
0.85322	18.307	Rohl 1996
0.8461	18.484	Rohl 1996
0.84623	18.515	Rohl 1996
0.84598	18.494	Rohl 1996
0.84534	18.511	Rohl 1996
0.84469	18.529	Rohl 1996
0.84465	18.525	Rohl 1996
0.84602	18.453	Rohl 1996
0.84542	18.506	Rohl 1996
0.846	18.528	Rohl 1996
0.84551	18.5	Rohl 1996
0.84554	18.5	Rohl 1996
0.84612	18.528	Rohl 1996
0.84545	18.501	Rohl 1996
0.84533	18.497	Rohl 1996
0.8457	18.507	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Mendips/Bristol mining district	Galena	2.07094
Mendips/Bristol mining district	Galena	2.07113
Mendips/Bristol mining district	Galena	2.07483
Mendips/Bristol mining district	Galena	2.0761
Mendips/Bristol mining district	Galena	2.08156
Mendips/Bristol mining district	Galena	2.08256
Mendips/Bristol mining district	Galena	2.07943
Mendips/Bristol mining district	Galena	2.08236
Mendips/Bristol mining district	Galena	2.08059
Mendips/Bristol mining district	Galena	2.07926
Mendips/Bristol mining district	Galena	2.07804
Mendips/Bristol mining district	Galena	2.06745
Mendips/Bristol mining district	Galena	2.07886
Mendips/Bristol mining district	Galena	2.07944
Mendips/Bristol mining district	Galena	2.09431
Mendips/Bristol mining district	Galena	2.09205
Mendips/Bristol mining district	Galena	2.09062
Mendips/Bristol mining district	Galena	2.08931
Mendips/Bristol mining district	Galena	2.09269
Mendips/Bristol mining district	Galena	2.07584
Mendips/Bristol mining district	Galena	2.0882
Mendips/Bristol mining district	Galena	2.08801
Mendips/Bristol mining district	Galena	2.08621
Mendips/Bristol mining district	Galena	2.08568
Mendips/Bristol mining district	Galena	2.08907
Mendips/Bristol mining district	Galena	2.08118
Mendips/Bristol mining district	Galena	2.078
Mendips/Bristol mining district	Galena	2.08661
Mendips/Bristol mining district	Galena	2.08595
Mendips/Bristol mining district	Galena	2.08786
Mendips/Bristol mining district	Galena	2.08865
Mendips/Bristol mining district	Galena	2.0871
Mendips/Bristol mining district	Galena	2.08719
Mendips/Bristol mining district	Galena	2.08576
Mendips/Bristol mining district	Galena	2.08692
North-East Wales mining district	Galena	2.09152
North-East Wales mining district	Galena	2.1026
North-East Wales mining district	Galena	2.0836
North-East Wales mining district	Galena	2.08953
North-East Wales mining district	Galena	2.08703
North-East Wales mining district	Galena	2.08189

207Pb/206Pb	206Pb/204Pb	Reference
0.84334	18.548	Rohl 1996
0.84349	18.538	Rohl 1996
0.84477	18.488	Rohl 1996
0.84515	18.513	Rohl 1996
0.84617	18.519	Rohl 1996
0.84647	18.515	Rohl 1996
0.84566	18.492	Rohl 1996
0.84641	18.518	Rohl 1996
0.84619	18.49	Rohl 1996
0.84558	18.486	Rohl 1996
0.84588	18.473	Rohl 1996
0.84174	18.594	Rohl 1996
0.84571	18.494	Rohl 1996
0.84648	18.465	Rohl 1996
0.85302	18.348	Rohl 1996
0.85241	18.346	Rohl 1996
0.85222	18.323	Rohl 1996
0.85201	18.311	Rohl 1996
0.85291	18.348	Rohl 1996
0.84455	18.53	Rohl 1996
0.84986	18.421	Rohl 1996
0.84972	18.429	Rohl 1996
0.84936	18.422	Rohl 1996
0.84939	18.402	Rohl 1996
0.8492	18.426	Rohl 1996
0.84675	18.473	Rohl 1996
0.84577	18.49	Rohl 1996
0.84968	18.417	Rohl 1996
0.84952	18.407	Rohl 1996
0.84988	18.421	Rohl 1996
0.84009	18.435	Rohl 1996
0.84966	18.424	Rohl 1996
0.8497	18.422	Rohl 1996
0.84973	18.402	Rohl 1996
0.84999	18.414	Rohl 1996
0.85251	18.325	Rohl 1996
0.85581	18.272	Rohl 1996
0.8485	18.401	Rohl 1996
0.85079	18.384	Rohl 1996
0.84948	18.423	Rohl 1996
0.84694	18.444	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
North-East Wales mining district	Galena	2.0949
North-East Wales mining district	Galena	2.07051
Pennines mining district	Galena	2.09194
Pennines mining district	Galena	2.09048
Pennines mining district	Galena	2.08786
Pennines mining district	Galena	2.09465
Pennines mining district	Galena	2.09347
Pennines mining district	Galena	2.09028
Pennines mining district	Galena	2.08961
Pennines mining district	Galena	2.092
Pennines mining district	Galena	2.09039
Pennines mining district	Galena	2.08566
Pennines mining district	Galena	2.07369
Pennines mining district	Galena	2.0866
Pennines mining district	Galena	2.08747
Pennines mining district	Galena	2.07941
Pennines mining district	Galena	2.08643
Pennines mining district	Galena	2.09428
Pennines mining district	Galena	2.0912
Pennines mining district	Galena	2.09517
Pennines mining district	Galena	2.08548
Pennines mining district	Galena	2.09575
Pennines mining district	Galena	2.08784
Pennines mining district	Galena	2.09974
Pennines mining district	Galena	2.09188
Pennines mining district	Galena	2.08671
Pennines mining district	Galena	2.0839
Pennines mining district	Galena	2.08922
Pennines mining district	Galena	2.08964
Pennines mining district	Galena	2.08529
Pennines mining district	Galena	2.06888
Pennines mining district	Galena	2.08776
Pennines mining district	Galena	2.08851
Pennines mining district	Galena	2.0913
Pennines mining district	Galena	2.08649
Pennines mining district	Galena	2.08707
Pennines mining district	Galena	2.08318
Pennines mining district	Galena	2.08799
Pennines mining district	Galena	2.08159
Pennines mining district	Galena	2.09285
Pennines mining district	Galena	2.0648

207Pb/206Pb	206Pb/204Pb	Reference
0.85381	18.304	Rohl 1996
0.83876	18.641	Rohl 1996
0.85023	18.42	Rohl 1996
0.85072	18.372	Rohl 1996
0.85038	18.326	Rohl 1996
0.85108	18.424	Rohl 1996
0.85079	18.409	Rohl 1996
0.8497	18.387	Rohl 1996
0.85013	18.384	Rohl 1996
0.85026	18.414	Rohl 1996
0.85051	18.382	Rohl 1996
0.84969	18.369	Rohl 1996
0.83992	18.614	Rohl 1996
0.84618	18.55	Rohl 1996
0.8474	18.462	Rohl 1996
0.84018	18.675	Rohl 1996
0.84908	18.394	Rohl 1996
0.85349	18.31	Rohl 1996
0.85072	18.403	Rohl 1996
0.85213	18.354	Rohl 1996
0.84669	18.459	Rohl 1996
0.85396	18.304	Rohl 1996
0.84875	18.416	Rohl 1996
0.85586	18.261	Rohl 1996
0.84849	18.386	Rohl 1996
0.84702	18.476	Rohl 1996
0.84854	18.372	Rohl 1996
0.8488	18.424	Rohl 1996
0.84994	18.394	Rohl 1996
0.84773	18.412	Rohl 1996
0.83603	18.742	Rohl 1996
0.84908	18.411	Rohl 1996
0.84985	18.374	Rohl 1996
0.84971	18.443	Rohl 1996
0.84673	18.489	Rohl 1996
0.84808	18.486	Rohl 1996
0.84462	18.54	Rohl 1996
0.84931	18.412	Rohl 1996
0.8445	18.549	Rohl 1996
0.85204	18.351	Rohl 1996
0.83451	18.755	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Pennines mining district	Galena	2.08926
Pennines mining district	Galena	2.0838
Pennines mining district	Galena	2.08943
Pennines mining district	Galena	2.08753
Pennines mining district	Galena	2.07762
Pennines mining district	Galena	2.10718
Pennines mining district	Galena	2.09135
Pennines mining district	Galena	2.0777
Pennines mining district	Galena	2.07166
Pennines mining district	Galena	2.0721
Southern Pennines	Galena	2.0769
Southern Pennines	Galena	2.07921
Southern Pennines	Galena	2.08067
Southern Pennines	Galena	2.07577
Southern Pennines	Galena	2.08305
Southern Pennines	Galena	2.08226
Southern Pennines	Galena	2.07956
Southern Pennines	Galena	2.09154
Southern Pennines	Galena	2.07859
Southern Pennines	Galena	2.07831
Southern Pennines	Galena	2.08035
Southern Pennines	Galena	2.07881
Southern Pennines	Galena	2.08187
Southern Pennines	Galena	2.08628
Southern Pennines	Galena	2.07973
Southern Pennines	Galena	2.08072
Southern Pennines	Galena	2.08101
Southern Pennines	Galena	2.07743
Southern Pennines	Galena	2.08096
Southern Pennines	Galena	2.0845
Southern Pennines	Galena	2.08449
Southern Pennines	Galena	2.08272
Southern Pennines	Galena	2.08362
Southern Pennines	Galena	2.08392
Southern Pennines	Galena	2.08376
Southern Pennines	Galena	2.08365
Southern Pennines	Galena	2.05446
Cornwall and Devon mining district	Galena	2.0927
Cornwall and Devon mining district	Galena	2.09018
Cornwall and Devon mining district	Galena	2.08888
Cornwall and Devon mining district	Galena	2.09308

207Pb/206Pb	206Pb/204Pb	Reference
0.84976	18.396	Rohl 1996
0.84698	18.452	Rohl 1996
0.84995	18.38	Rohl 1996
0.84911	18.402	Rohl 1996
0.84187	18.582	Rohl 1996
0.86185	18.08	Rohl 1996
0.85094	18.368	Rohl 1996
0.84224	18.543	Rohl 1996
0.8413	18.571	Rohl 1996
0.84139	18.573	Rohl 1996
0.84439	18.514	Rohl 1996
0.84554	18.476	Rohl 1996
0.8459	18.483	Rohl 1996
0.84415	18.522	Rohl 1996
0.84703	18.457	Rohl 1996
0.84711	18.47	Rohl 1996
0.84554	18.481	Rohl 1996
0.85313	18.327	Rohl 1996
0.84554	18.484	Rohl 1996
0.84585	18.467	Rohl 1996
0.84648	18.45	Rohl 1996
0.84542	18.488	Rohl 1996
0.84644	18.486	Rohl 1996
0.84703	18.468	Rohl 1996
0.84608	18.461	Rohl 1996
0.84637	18.468	Rohl 1996
0.84738	18.44	Rohl 1996
0.84547	18.462	Rohl 1996
0.84601	18.521	Rohl 1996
0.84778	18.457	Rohl 1996
0.84642	18.547	Rohl 1996
0.84729	18.443	Rohl 1996
0.84804	18.458	Rohl 1996
0.84849	18.451	Rohl 1996
0.84856	18.433	Rohl 1996
0.8484	18.445	Rohl 1996
0.83532	18.747	Rohl 1996
0.85289	18.312	Rohl 1996
0.85259	18.327	Rohl 1996
0.85191	18.345	Rohl 1996
0.85381	18.275	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Cornwall and Devon mining district	Galena	2.09354
Cornwall and Devon mining district	Galena	2.0938
Cornwall and Devon mining district	Galena	2.09102
Cornwall and Devon mining district	Galena	2.08513
Cornwall and Devon mining district	Galena	2.08951
Cornwall and Devon mining district	Galena	2.09013
Cornwall and Devon mining district	Galena	2.09131
Cornwall and Devon mining district	Galena	2.09294
Cornwall and Devon mining district	Galena	2.08685
Cornwall and Devon mining district	Galena	2.08977
Cornwall and Devon mining district	Galena	2.09008
Cornwall and Devon mining district	Galena	2.0911
Cornwall and Devon mining district	Galena	2.0984
Cornwall and Devon mining district	Galena	2.08794
Cornwall and Devon mining district	Galena	2.09154
Cornwall and Devon mining district	Galena	2.09221
Cornwall and Devon mining district	Galena	2.08668
Cornwall and Devon mining district	Galena	2.08633
Cornwall and Devon mining district	Galena	2.08483
Cornwall and Devon mining district	Galena	2.0922
Cornwall and Devon mining district	Galena	2.10002
Cornwall and Devon mining district	Galena	2.0819
Cornwall and Devon mining district	Galena	2.08661
Cornwall and Devon mining district	Galena	2.08661
Cornwall and Devon mining district	Galena	2.08763
Cornwall and Devon mining district	Galena	2.08597
Cornwall and Devon mining district	Galena	2.08387
Cornwall and Devon mining district	Galena	2.08528
Cornwall and Devon mining district	Galena	2.08558
Cornwall and Devon mining district	Galena	2.09005
Cornwall and Devon mining district	Galena	2.09452
Cornwall and Devon mining district	Galena	2.08903
Cornwall and Devon mining district	Galena	2.08398
Cornwall and Devon mining district	Galena	2.08354
Cornwall and Devon mining district	Galena	2.08679
Alderley Edge mining district	Galena	2.07854
Alderley Edge mining district	Galena	2.0807
Alderley Edge mining district	Galena	2.08204
Alderley Edge mining district	Galena	2.08304
Alderley Edge mining district	Galena	2.0852
Alderley Edge mining district	Galena	2.08593

207Pb/206Pb	206Pb/204Pb	Reference
0.85402	18.28	Rohl 1996
0.85385	18.311	Rohl 1996
0.85198	18.325	Rohl 1996
0.84889	18.43	Rohl 1996
0.85097	18.379	Rohl 1996
0.84142	18.359	Rohl 1996
0.85304	18.302	Rohl 1996
0.85314	18.331	Rohl 1996
0.85074	18.345	Rohl 1996
0.85159	18.341	Rohl 1996
0.85148	18.368	Rohl 1996
0.85207	18.357	Rohl 1996
0.85586	18.237	Rohl 1996
0.85082	18.39	Rohl 1996
0.8525	18.335	Rohl 1996
0.85265	18.358	Rohl 1996
0.85075	18.362	Rohl 1996
0.85042	18.366	Rohl 1996
0.8487	18.425	Rohl 1996
0.85317	18.318	Rohl 1996
0.85536	18.313	Rohl 1996
0.84674	18.461	Rohl 1996
0.85056	18.379	Rohl 1996
0.8505	18.373	Rohl 1996
0.85028	18.376	Rohl 1996
0.84898	18.45	Rohl 1996
0.84957	18.374	Rohl 1996
0.85065	18.348	Rohl 1996
0.8508	18.343	Rohl 1996
0.85198	18.337	Rohl 1996
0.85292	18.398	Rohl 1996
0.85179	18.348	Rohl 1996
0.8503	18.347	Rohl 1996
0.84967	18.38	Rohl 1996
0.84976	18.379	Rohl 1996
0.84441	18.508	Rohl 1996
0.84619	18.453	Rohl 1996
0.84655	18.466	Rohl 1996
0.8478	18.41	Rohl 1996
0.84892	18.387	Rohl 1996
0.84887	18.408	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Alderley Edge mining district	Galena	2.0873
Alderley Edge mining district	Galena	2.0797
Alderley Edge mining district	Galena	2.08288
Alderley Edge mining district	Galena	2.08412
Alderley Edge mining district	Galena	2.08433
Alderley Edge mining district	Galena	2.08741
Alderley Edge mining district	Galena	2.07645
Alderley Edge mining district	Galena	2.07788
Alderley Edge mining district	Galena	2.08106
Alderley Edge mining district	Galena	2.0815
Alderley Edge mining district	Galena	2.08379
Alderley Edge mining district	Galena	2.08499
Alderley Edge mining district	Galena	2.08507
Alderley Edge mining district	Galena	2.08648
Scotland	Galena	2.10309
Scotland	Galena	2.10426
Scotland	Galena	2.09876
Scotland	Galena	2.12868
Scotland	Galena	2.08785
Scotland	Galena	2.0966
Scotland	Galena	2.09309
Scotland	Galena	2.09176
Scotland	Galena	2.09309
Scotland	Galena	2.09449
Scotland	Galena	2.13569
Scotland	Galena	2.09267
Scotland	Galena	2.09074
Scotland	Galena	2.07972
Scotland	Galena	2.08734
Scotland	Galena	2.08151
Scotland	Galena	2.09238
Scotland	Galena	2.09302
Scotland	Galena	2.09092
Scotland	Galena	2.09937
Scotland	Galena	2.09288
Scotland	Galena	2.09244
Scotland	Galena	2.09104
Ireland	Galena	2.08588
Ireland	Galena	2.09803
Ireland	Galena	2.10064
Ireland	Galena	2.0925

207Pb/206Pb	206Pb/204Pb	Reference
0.84934	18.434	Rohl 1996
0.84573	18.466	Rohl 1996
0.84688	18.47	Rohl 1996
0.84809	18.42	Rohl 1996
0.84792	18.417	Rohl 1996
0.85014	18.374	Rohl 1996
0.84283	18.516	Rohl 1996
0.84328	18.543	Rohl 1996
0.84637	18.422	Rohl 1996
0.84657	18.449	Rohl 1996
0.84794	18.423	Rohl 1996
0.8463	18.506	Rohl 1996
0.84869	18.413	Rohl 1996
0.84888	18.426	Rohl 1996
0.8611	18.029	Rohl 1996
0.86146	18.033	Rohl 1996
0.85826	18.084	Rohl 1996
0.87416	17.706	Rohl 1996
0.844895	18.316	Rohl 1996
0.85273	18.277	Rohl 1996
0.85169	18.266	Rohl 1996
0.8535	18.23	Rohl 1996
0.85316	18.244	Rohl 1996
0.85441	18.196	Rohl 1996
0.8758	17.631	Rohl 1996
0.85379	18.227	Rohl 1996
0.8527	18.258	Rohl 1996
0.85011	18.27	Rohl 1996
0.85583	18.106	Rohl 1996
0.85056	18.268	Rohl 1996
0.85316	18.215	Rohl 1996
0.85401	18.219	Rohl 1996
0.85341	18.214	Rohl 1996
0.85507	18.267	Rohl 1996
0.85363	18.22	Rohl 1996
0.85325	18.236	Rohl 1996
0.85309	18.21	Rohl 1996
0.84964	18.382	Rohl 1996
0.85876	18.186	Rohl 1996
0.85864	18.177	Rohl 1996
0.85303	18.313	Rohl 1996

Location/Region/Mining District	Sample Type	208Pb/206Pb
Ireland	Galena	2.09852
Ireland	Galena	2.06835
Ireland	Galena	2.10453
Ireland	Galena	2.14261
Ireland	Galena	2.0962
Ireland	Galena	2.11064
Ireland	Galena	2.09125
Ireland	Galena	2.0912
Ireland	Galena	2.08874
Ireland	Galena	2.08968
Ireland	Galena	2.08826
Ireland	Galena	2.08696
Ireland	Galena	2.09259
Ireland	Galena	2.09099

207Pb/206Pb	206Pb/204Pb	Reference
0.85653	18.228	Rohl 1996
0.83892	18.626	Rohl 1996
0.86241	18.049	Rohl 1996
0.89466	17.253	Rohl 1996
0.85806	18.172	Rohl 1996
0.8616	17.993	Rohl 1996
0.85543	18.225	Rohl 1996
0.8553	18.224	Rohl 1996
0.85423	18.242	Rohl 1996
0.85483	18.239	Rohl 1996
0.85414	18.25	Rohl 1996
0.85394	18.236	Rohl 1996
0.8511	18.406	Rohl 1996
0.85181	18.354	Rohl 1996

Appendix F: Comparative Data-Bohemia-Germany

Location/Mining District	Sample Type
Schonbrunn	Chalcopyrite
Schonbrunn-Bosenbrunn	Chalcopyrite
Lauterbach/Vogtland, St. Johannes mine	Chalcopyrite
Lauterbach/Vogtland, St. Johannes mine	Pyrite
Lauterbach/Vogtland	Chalcopyrite
Gottesberg	Chalcopyrite
Muhlleithen, Tannenbergsthal mine	Chalcopyrite
Muhlleithen, Tannenbergsthal mine	Pyrite
Klingenthal	Chalcopyrite
Klingenthal-Kraslice	Chalcopyrite
Klingenthal-Kraslice	Chalcopyrite
Barenstein, Neubeschert Gluck mine	Chalcopyrite
Barenstein, Neubeschert, sahft 328 1/2	Chalcopyrite
Annaberg, St. Michaelis mines	Bornite
Annaberg, Briccius mines	Chalcopyrite
Annaberg, Drei bruder am Zinnacker	Chalcopyrite
Medenec	Chalcopyrite
Medenec, Kupferhugel	Tenorite
Medenec	Chalcopyrite
Marienberg, Vater Abraham mine	Chalcopyrite
Marienberg, Drei Hammerschlage mine	Chalcopyrite
Marienberg, Vater Abraham mine	limonite
Marienberg-Gehringswalde, Auferstehung mine	Chalcopyrite
Marienberg-Lauta, Weißtaubner adit	Chalcopyrite
Hora Sv. Kateriny	Chalcopyrite
Hora Sv. Kateriny	Chalcopyrite
Schonborn, Clementinenshaft, dump	Galena
Schonborn	Galena
Schonborn, Clementinenshaft, dump	Galena
Gersdorf, Segen Gottes mine	Galena
Gersdorf, Segen Gottes mine	Galena
Gersdorf, Segen Gottes mine	Chalcopyrite
Freiberg, Morgenstern mine	Chalcopyrite
Freiberg, Himmelfahrt mine	Pyrite
Freiberg, Zentralrevier	Galena
Freiberg, David Shaft	Chalcopyrite
Freiberg, Himmelfahrt mine	Galena
Freiberg, Rammelsberg	Galena
Freiberg-Bran-Erbisdorf, Gluck auf shaft	Galena
Freiberg-Halsbrucke, Lorenz Gegentrum dump	Galena
Sadisdorf, Kupfergrube mine	Chalcopyrite

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.12	15.596	38.32	0.8608
18.504	15.598	38.25	0.864
18.211	15.612	38.44	0.8572
18.424	15.636	38.69	0.8487
18.284	15.609	38.35	0.8537
18.67	15.618	38.46	0.8503
18.186	15.611	38.31	0.8584
18.12	15.603	38.25	0.8611
17.797	15.564	38.02	0.8746
17.646	15.55	37.79	0.8812
17.692	15.552	37.81	0.879
18.208	15.586	38.27	0.856
18.246	15.59	38.29	0.8545
18.705	15.581	38.15	0.862
18.274	15.654	38.36	0.8566
18.398	15.608	38.38	0.8483
18.213	15.619	38.31	0.8576
17.798	15.564	37.9	0.8744
18.121	15.58	38.14	0.8598
18.38	15.599	38.38	0.8487
18.4	15.619	38.55	0.8373
17.989	15.561	37.99	0.865
18.545	15.614	38.54	0.8419
18.448	15.605	38.47	0.8459
18.137	15.577	38.12	0.8589
18.117	15.576	38.11	0.8598
18.305	15.609	38.45	0.8527
18.296	15.601	38.42	0.8527
18.297	15.598	38.42	0.8525
18.317	15.61	38.46	0.8522
18.374	15.613	38.51	0.8497
18.168	15.599	38.29	0.8586
18.149	15.584	38.23	0.8586
18.081	15.582	38.18	0.8618
18.079	15.577	38.16	0.8616
18.077	15.572	38.15	0.8615
18.129	15.579	38.21	0.8594
18.112	15.584	38.2	0.8604
18.602	15.572	38.15	0.8621
18.368	15.611	38.49	0.8499
18.682	15.624	38.49	0.8363

206Pb/207Pb	208Pb/206Pb	Reference
Not Reported	2.1149	Niederschlag et al. 2003
Not Reported	2.1185	Niederschlag et al. 2003
Not Reported	2.1108	Niederschlag et al. 2003
Not Reported	2.1	Niederschlag et al. 2003
Not Reported	2.0976	Niederschlag et al. 2003
Not Reported	2.0937	Niederschlag et al. 2003
Not Reported	2.1066	Niederschlag et al. 2003
Not Reported	2.1109	Niederschlag et al. 2003
Not Reported	2.1362	Niederschlag et al. 2003
Not Reported	2.1417	Niederschlag et al. 2003
Not Reported	2.1374	Niederschlag et al. 2003
Not Reported	2.102	Niederschlag et al. 2003
Not Reported	2.0987	Niederschlag et al. 2003
Not Reported	2.1106	Niederschlag et al. 2003
Not Reported	2.0988	Niederschlag et al. 2003
Not Reported	2.086	Niederschlag et al. 2003
Not Reported	2.1034	Niederschlag et al. 2003
Not Reported	2.1292	Niederschlag et al. 2003
Not Reported	2.1046	Niederschlag et al. 2003
Not Reported	2.0881	Niederschlag et al. 2003
Not Reported	2.0666	Niederschlag et al. 2003
Not Reported	2.1119	Niederschlag et al. 2003
Not Reported	2.078	Niederschlag et al. 2003
Not Reported	2.0851	Niederschlag et al. 2003
Not Reported	2.1016	Niederschlag et al. 2003
Not Reported	2.1033	Niederschlag et al. 2003
Not Reported	2.105	Niederschlag et al. 2003
Not Reported	2.1	Niederschlag et al. 2003
Not Reported	2.1	Niederschlag et al. 2003
Not Reported	2.0994	Niederschlag et al. 2003
Not Reported	2.0957	Niederschlag et al. 2003
Not Reported	2.1075	Niederschlag et al. 2003
Not Reported	2.1064	Niederschlag et al. 2003
Not Reported	2.115	Niederschlag et al. 2003
Not Reported	2.111	Niederschlag et al. 2003
Not Reported	2.1105	Niederschlag et al. 2003
Not Reported	2.1077	Niederschlag et al. 2003
Not Reported	2.1089	Niederschlag et al. 2003
Not Reported	2.1122	Niederschlag et al. 2003
Not Reported	2.0957	Niederschlag et al. 2003
Not Reported	2.0604	Niederschlag et al. 2003

Location/Mining District	Sample Type
Sadisdorf, Kupfergrube mine	Fahlore
Sadisdorf, Kupfergrube mine	Chalcopyrite
Sadisdorf, Kupfergrube mine	Chalcopyrite
Zinnwald	Stannite
Zinnwald	Galena
Zinnwald	Galena
Zinnwald	Galena
Zinnwald	Galena
Berggießhubel, Mutter Gottes ore body	Chalcopyrite
Ludwigsdorf, Maximilian mine	Chalcopyrite
Ludwigsdorf, Maximilian mine	Chalcopyrite
Ludwigsdorf, Maximilian mine	Chalcopyrite
Ludwigsdorf, Maximilian mine, dump	Galena
Ludwigsdorf, railway site	Chalcopyrite
Horni Slavkov	Chalcopyrite
Horni Slavkov	Chalcopyrite
Horni Slavkov	Chalcopyrite
Horni Slavkov	Chalcopyrite
Horni Slavkov	Chalcopyrite
Pribram-Vrancice	Chalcopyrite
Kunta Hora	Galena
Kunta Hora	Pyrite
Kunta Hora	Galena
Kunta Hora	Pyrite
Kunta Hora	Pyrite
Kunta Hora	Chalcopyrite
Kunta Hora	Pyrite
Rammelsberg/Harz Mountains	Chalcopyrite
Rammelsberg/Harz Mountains	Chalcopyrite
Rammelsberg/Harz Mountains	Chalcopyrite
Clausthal/Harz Mountains	Chalcopyrite
Lautenthal/Harz Mountains	Chalcopyrite
Eisleben-Helbra, Hohenthal shaft, Mansfeld area	Chalcopyrite
Eisleben-Helbra, Hohenthal shaft, Mansfeld area	Chalcopyrite
Eisleben, Vitzthum shaft, Mansfeld area	Bornite
Kamsdorf, Roter Berg, Thuringer Wald	Chalcopyrite
Kamsdorf, Thuringer Wald	Azurite
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.883	15.634	38.88	0.828
18.581	15.642	38.55	0.8418
18.241	15.598	38.17	0.8552
18.101	15.581	38.15	0.8608
18.093	15.576	38.13	0.8609
18.556	15.604	38.45	0.8409
18.082	15.58	38.13	0.8616
18.073	15.574	38.11	0.8617
18.103	15.578	38.14	0.8606
8.289	15.594	38.41	0.8526
18.277	15.592	38.37	0.8531
18.308	15.595	38.33	0.8518
18.268	15.594	38.4	0.8536
18.309	15.601	38.42	0.8521
18.897	15.648	38.23	0.828
19.002	15.647	38.41	0.8234
18.366	15.616	38.26	0.8503
18.44	15.621	38.25	0.8471
18.361	15.638	38.32	0.8517
18.117	15.599	38.17	0.861
18.113	15.581	38.09	0.8603
18.12	15.579	38.09	0.8601
18.115	15.585	38.1	0.8603
18.108	15.58	38.1	0.8603
18.11	15.578	38.09	0.8602
18.107	15.581	38.1	0.8605
18.113	15.582	38.1	0.8603
18.244	15.611	38.14	0.8557
18.245	15.619	38.17	0.8561
18.247	15.614	38.16	0.8557
18.45	15.628	38.44	0.8471
18.439	15.625	38.43	0.8474
18.341	15.607	38.31	0.8509
18.327	15.613	38.34	0.8519
18.502	15.632	38.33	0.8449
18.178	15.603	38.31	0.8583
18.188	15.622	38.37	0.8589
18.59	Not Reported	38.66	Not Reported
18.51	Not Reported	38.43	Not Reported
18.54	Not Reported	38.58	Not Reported
18.59	Not Reported	38.72	Not Reported

206Pb/207Pb	208Pb/206Pb	Reference
Not Reported	2.0592	Niederschlag et al. 2003
Not Reported	2.0747	Niederschlag et al. 2003
Not Reported	2.0925	Niederschlag et al. 2003
Not Reported	2.1074	Niederschlag et al. 2003
Not Reported	2.1072	Niederschlag et al. 2003
Not Reported	2.072	Niederschlag et al. 2003
Not Reported	2.1088	Niederschlag et al. 2003
Not Reported	2.1086	Niederschlag et al. 2003
Not Reported	2.1071	Niederschlag et al. 2003
Not Reported	2.0999	Niederschlag et al. 2003
Not Reported	2.0991	Niederschlag et al. 2003
Not Reported	2.0935	Niederschlag et al. 2003
Not Reported	2.1018	Niederschlag et al. 2003
Not Reported	2.0986	Niederschlag et al. 2003
Not Reported	2.0228	Niederschlag et al. 2003
Not Reported	2.0215	Niederschlag et al. 2003
Not Reported	2.0831	Niederschlag et al. 2003
Not Reported	2.0743	Niederschlag et al. 2003
Not Reported	2.0869	Niederschlag et al. 2003
Not Reported	2.1067	Niederschlag et al. 2003
Not Reported	2.103	Niederschlag et al. 2003
Not Reported	2.1029	Niederschlag et al. 2003
Not Reported	2.1034	Niederschlag et al. 2003
Not Reported	2.1037	Niederschlag et al. 2003
Not Reported	2.1033	Niederschlag et al. 2003
Not Reported	2.1039	Niederschlag et al. 2003
Not Reported	2.103	Niederschlag et al. 2003
Not Reported	2.0907	Niederschlag et al. 2003
Not Reported	2.0921	Niederschlag et al. 2003
Not Reported	2.0914	Niederschlag et al. 2003
Not Reported	2.0836	Niederschlag et al. 2003
Not Reported	2.084	Niederschlag et al. 2003
Not Reported	2.0889	Niederschlag et al. 2003
Not Reported	2.0919	Niederschlag et al. 2003
Not Reported	2.0714	Niederschlag et al. 2003
Not Reported	2.1074	Niederschlag et al. 2003
Not Reported	2.1096	Niederschlag et al. 2003
1.184	2.08	Monna et al. 2000
1.186	2.076	Monna et al. 2000
1.187	2.08	Monna et al. 2000
1.181	2.083	Monna et al. 2000

Location/Mining District	Sample Type
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Weser River	Sediment
Waldsassen	Galena
Waldsassen	Galena
Bodenmais	Galena
Kemlas	Galena
Wellesbach	Galena
Wallenfels	Galena
Remschlitz	Galena
Huhnergrund	Galena
Bernstein	Galena
Bernstein	Galena
Presseck	Galena
Waldel	Galena
Robach	Galena
Altrandsberg	Galena
Altrandsberg	Galena
Hunding	Galena
Kittenrain	Galena
Wolfersgrun	Galena
Wolfersgrun	Galena
Wolfersgrun	Galena
Wolfersgrun	Galena
Oberbohmsdorf	Galena
Oberbohmsdorf	Galena
Landenwolschendorf	Galena
Brandholz	Galena

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.57	Not Reported	38.45	Not Reported
18.8	Not Reported	38.91	Not Reported
18.44	Not Reported	38.36	Not Reported
18.52	Not Reported	38.43	Not Reported
18.46	Not Reported	38.28	Not Reported
18.62	Not Reported	38.75	Not Reported
18.87	Not Reported	38.96	Not Reported
19.1	Not Reported	39.21	Not Reported
18.77	Not Reported	38.68	Not Reported
18.99	Not Reported	39	Not Reported
19.2	Not Reported	39.25	Not Reported
18.68	Not Reported	38.56	Not Reported
19.03	Not Reported	38.99	Not Reported
18.74	Not Reported	3.52	Not Reported
18.98	Not Reported	38.89	Not Reported
19.04	Not Reported	38.88	Not Reported
17.678	15.589	37.893	Not Reported
17.678	15.578	37.851	Not Reported
17.677	15.585	37.901	Not Reported
18.129	15.648	38.317	Not Reported
18.197	15.671	38.394	Not Reported
18.201	15.655	38.429	Not Reported
18.146	15.629	38.284	Not Reported
18.135	15.663	38.416	Not Reported
18.129	15.614	38.279	Not Reported
18.182	15.651	38.386	Not Reported
18.05	15.624	38.3	Not Reported
18.133	15.643	38.331	Not Reported
18.178	15.65	38.333	Not Reported
18.182	15.643	38.381	Not Reported
18.172	15.63	38.361	Not Reported
18.214	15.681	38.442	Not Reported
17.664	15.572	37.846	Not Reported
18.153	15.632	38.342	Not Reported
18.098	15.66	38.359	Not Reported
18.095	15.652	38.355	Not Reported
18.196	15.683	38.49	Not Reported
18.231	15.756	38.676	Not Reported
18.165	15.676	38.433	Not Reported
18.171	15.69	38.51	Not Reported
18.441	15.62	38.336	Not Reported

206Pb/207Pb	208Pb/206Pb	Reference
1.187	2.071	Monna et al. 2000
1.194	2.07	Monna et al. 2000
1.183	2.079	Monna et al. 2000
1.187	2.076	Monna et al. 2000
1.189	2.075	Monna et al. 2000
1.184	2.081	Monna et al. 2000
0.197	2.066	Monna et al. 2000
1.209	2.053	Monna et al. 2000
1.202	2.061	Monna et al. 2000
1.209	2.052	Monna et al. 2000
1.217	2.044	Monna et al. 2000
1.197	2.65	Monna et al. 2000
1.213	2.046	Monna et al. 2000
1.207	2.055	Monna et al. 2000
1.214	2.05	Monna et al. 2000
1216	2.042	Monna et al. 2000
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986

Location/Mining District	Sample Type
Brandholz	Galena
Brandholz	Galena
Brandholz	Galena
Brandholz	Galena
Lichtenberg	Galena
Erbendorf	Galena
Erbendorf	Galena
Erbendorf	Galena
Erbendorf	Galena
Wolsendorf	Galena
Wolsendorf	Galena
Wolsendorf	Galena
Pretzabruck	Galena
Pretzabruck	Galena
Pretzabruck	Galena
Krandorf	Galena
Wundsheim	Galena
Warnbach	Galena
Nittenau	Galena
Nittenau	Galena
Wolsendorf	Galena
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.751	15.897	39.071	Not Reported
17.871	15.608	37.835	Not Reported
18.296	15.672	38.569	Not Reported
18.222	15.659	38.498	Not Reported
18.351	15.655	38.497	Not Reported
18.302	15.629	38.43	Not Reported
18.276	15.64	38.429	Not Reported
18.296	15.643	38.314	Not Reported
18.32	15.661	38.525	Not Reported
18.274	15.636	38.373	Not Reported
18.283	15.662	38.511	Not Reported
18.26	15.632	38.398	Not Reported
18.225	15.643	38.432	Not Reported
18.21	15.633	38.401	Not Reported
18.222	15.653	38.466	Not Reported
18.383	15.657	38.424	Not Reported
18.24	15.642	38.388	Not Reported
18.296	15.635	38.419	Not Reported
18.634	15.677	38.987	Not Reported
18.634	15.677	38.994	Not Reported
18.597	15.702	38.725	Not Reported
18.386	15.612	38.29	0.8491
18.411	15.616	38.35	0.8481
18.44	15.618	38.4	0.8469
18.272	15.609	38.24	0.8542
18.441	15.617	38.42	0.8469
18.413	15.614	38.35	0.8479
18.448	15.621	38.42	0.8467
18.405	15.616	38.37	0.8484
18.441	15.618	38.4	0.8469
18.443	15.618	38.41	0.8468
18.44	15.617	38.43	0.8469
18.439	15.618	38.41	0.847
18.319	15.612	38.24	0.8522
18.186	15.607	38.12	0.8581
18.258	15.608	38.22	0.8548
18.435	15.617	38.41	0.8471
18.5	15.623	38.51	0.8444
18.444	15.619	38.44	0.8468
18.438	15.616	38.4	0.8469
18.377	15.613	38.29	0.8496

206Pb/207Pb	208Pb/206Pb	Reference
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	Not Reported	Hohndorf and Dill 1986
Not Reported	2.0829	Durali-Mueller et al. 2007
Not Reported	2.0833	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0932	Durali-Mueller et al. 2007
Not Reported	2.0835	Durali-Mueller et al. 2007
Not Reported	2.083	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0847	Durali-Mueller et al. 2007
Not Reported	2.0825	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.084	Durali-Mueller et al. 2007
Not Reported	2.0833	Durali-Mueller et al. 2007
Not Reported	2.0878	Durali-Mueller et al. 2007
Not Reported	2.0965	Durali-Mueller et al. 2007
Not Reported	2.0937	Durali-Mueller et al. 2007
Not Reported	2.0837	Durali-Mueller et al. 2007
Not Reported	2.0816	Durali-Mueller et al. 2007
Not Reported	2.0841	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0839	Durali-Mueller et al. 2007

Location/Mining District	Sample Type
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Siegerland	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Lahn-Dill	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.364	15.602	38.27	0.8496
18.397	15.613	38.33	0.8486
18.383	15.609	38.31	0.8491
18.278	15.602	38.17	0.8536
18.195	15.6	38.1	0.8574
18.436	15.615	38.39	0.847
18.215	15.601	38.12	0.8564
18.481	15.621	38.48	0.8452
18.173	15.606	38.12	0.8587
18.167	15.604	38.11	0.8589
18.344	15.643	38.24	0.8527
18.188	15.603	38.11	0.8578
18.319	15.604	38.22	0.8517
18.435	15.615	38.4	0.847
18.459	15.62	38.46	0.8461
18.437	15.618	38.4	0.8471
18.365	15.61	38.27	0.85
18.45	15.617	38.42	0.8464
18.402	15.613	38.33	0.8484
18.243	15.597	38.07	0.8549
18.46	15.621	38.46	0.8462
18.48	15.622	38.49	0.8453
18.48	15.622	38.49	0.8453
18.473	15.62	38.47	0.8455
18.279	15.603	38.16	0.8536
18.492	15.622	38.5	0.8448
18.229	15.601	38.08	0.8558
18.299	15.607	38.2	0.8528
18.254	15.605	38.11	0.8549
18.328	15.592	38.41	0.8507
18.257	15.603	38.1	0.8546
18.375	15.613	38.28	0.8496
18.488	15.62	38.49	0.8449
18.468	15.622	38.47	0.8458
18.167	15.601	38.09	0.8587
18.263	15.606	38.11	0.8545
18.392	15.606	38.3	0.8485
18.346	15.604	38.24	0.8505
18.389	15.605	38.29	0.8485
18.372	15.609	38.26	0.8495
18.153	15.589	38.03	0.8587

206Pb/207Pb	208Pb/206Pb	Reference
Not Reported	2.0843	Durali-Mueller et al. 2007
Not Reported	2.0837	Durali-Mueller et al. 2007
Not Reported	2.0842	Durali-Mueller et al. 2007
Not Reported	2.0887	Durali-Mueller et al. 2007
Not Reported	2.0942	Durali-Mueller et al. 2007
Not Reported	2.0824	Durali-Mueller et al. 2007
Not Reported	2.0927	Durali-Mueller et al. 2007
Not Reported	2.0822	Durali-Mueller et al. 2007
Not Reported	2.0977	Durali-Mueller et al. 2007
Not Reported	2.0977	Durali-Mueller et al. 2007
Not Reported	2.085	Durali-Mueller et al. 2007
Not Reported	2.0955	Durali-Mueller et al. 2007
Not Reported	2.0863	Durali-Mueller et al. 2007
Not Reported	2.0833	Durali-Mueller et al. 2007
Not Reported	2.0835	Durali-Mueller et al. 2007
Not Reported	2.0827	Durali-Mueller et al. 2007
Not Reported	2.0842	Durali-Mueller et al. 2007
Not Reported	2.0826	Durali-Mueller et al. 2007
Not Reported	2.0832	Durali-Mueller et al. 2007
Not Reported	2.087	Durali-Mueller et al. 2007
Not Reported	2.0838	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.088	Durali-Mueller et al. 2007
Not Reported	2.082	Durali-Mueller et al. 2007
Not Reported	2.0889	Durali-Mueller et al. 2007
Not Reported	2.0875	Durali-Mueller et al. 2007
Not Reported	2.0879	Durali-Mueller et al. 2007
Not Reported	2.0957	Durali-Mueller et al. 2007
Not Reported	2.0869	Durali-Mueller et al. 2007
Not Reported	2.0832	Durali-Mueller et al. 2007
Not Reported	2.0832	Durali-Mueller et al. 2007
Not Reported	2.0831	Durali-Mueller et al. 2007
Not Reported	2.0967	Durali-Mueller et al. 2007
Not Reported	2.0868	Durali-Mueller et al. 2007
Not Reported	2.0824	Durali-Mueller et al. 2007
Not Reported	2.0846	Durali-Mueller et al. 2007
Not Reported	2.0822	Durali-Mueller et al. 2007
Not Reported	2.0828	Durali-Mueller et al. 2007
Not Reported	2.0952	Durali-Mueller et al. 2007

Location/Mining District	Sample Type
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Eifel	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore
Hunsrueck	Lead Ore

206Pb/204Pb	207Pb/204Pb	208Pb/204Pb	207Pb/206Pb
18.152	15.589	38.03	0.8588
18.344	15.609	38.26	0.8508
18.157	15.593	38.05	0.8588
18.159	15.593	38.05	0.8586
18.435	15.616	38.37	0.847
18.437	15.616	38.38	0.847
18.424	15.613	38.33	0.8474
18.209	15.604	38.1	0.8569
18.211	15.604	38.1	0.8568
18.254	15.604	38.09	0.8548
18.244	15.607	38.1	0.8554
18.209	15.579	38.06	0.8555
18.226	15.596	38.08	0.8557
18.285	15.606	38.13	0.8534
18.295	15.604	38.18	0.8528
18.43	15.612	38.32	0.8471
18.466	15.624	38.38	0.8461
18.312	15.606	38.22	0.8522
18.274	15.604	38.12	0.8539

206Pb/207Pb	208Pb/206Pb	Reference
Not Reported	2.0952	Durali-Mueller et al. 2007
Not Reported	2.0859	Durali-Mueller et al. 2007
Not Reported	2.0956	Durali-Mueller et al. 2007
Not Reported	2.0955	Durali-Mueller et al. 2007
Not Reported	2.0817	Durali-Mueller et al. 2007
Not Reported	2.0818	Durali-Mueller et al. 2007
Not Reported	2.0808	Durali-Mueller et al. 2007
Not Reported	2.0927	Durali-Mueller et al. 2007
Not Reported	2.0923	Durali-Mueller et al. 2007
Not Reported	2.087	Durali-Mueller et al. 2007
Not Reported	2.0883	Durali-Mueller et al. 2007
Not Reported	2.0902	Durali-Mueller et al. 2007
Not Reported	2.0894	Durali-Mueller et al. 2007
Not Reported	2.0853	Durali-Mueller et al. 2007
Not Reported	2.0869	Durali-Mueller et al. 2007
Not Reported	2.0796	Durali-Mueller et al. 2007
Not Reported	2.0784	Durali-Mueller et al. 2007
Not Reported	2.0869	Durali-Mueller et al. 2007
Not Reported	2.0863	Durali-Mueller et al. 2007

Appendix F: Comparative Data-Italy

Region	Sample Type	208Pb/206Pb	207Pb/206Pb
Sardinia Arburese	Galena	2.10095	0.85937
Sardinia Arburese	Galena	2.10411	0.85978
Sardinia Arburese	Galena	2.1056	0.86013
Sardinia Arburese	Galena	2.10525	0.85922
Sardinia Arburese	Galena	2.10551	0.8602
Sardinia Arburese	Galena	2.10783	0.86341
Sardinia Arburese	Galena	2.10698	0.86028
Sardinia Arburese	Galena	2.10539	0.86011
Sardinia Arburese	Galena	2.1073	0.86057
Sardinia Arburese	Galena	2.10634	0.86257
Sardinia Arburese	Galena	2.11118	0.86373
Sardinia Arburese	Galena	2.10613	0.86335
Sardinia Arburese	Galena	2.10698	0.86028
Sardinia Arburese	Galena	2.1116	0.86422
Sardinia Barbagia	Galena	2.10325	0.8587
Sardinia Barbagia	Galena	2.09861	0.85773
Sardinia Barbagia	Galena	2.08502	0.85599
Sardinia Barbagia	Galena	2.10004	0.85808
Sardinia Barbagia	Galena	2.10179	0.85814
Sardinia Barbagia	Galena	2.10017	0.85732
Sardinia Barbagia	Galena	2.10355	0.85919
Sardinia Barbagia	Galena	2.09895	0.85676
Sardinia Barbagia	Galena	2.09758	0.85737
Sardinia Barbagia-Gerrei	Galena	2.09782	0.85582
Sardinia Barbagia-Gerrei	Galena	2.10012	0.85611
Sardinia Barbagia-Gerrei	Galena	2.10007	0.85619
Sardinia Barbagia-Gerrei	Galena	2.10154	0.85637
Sardinia Barbagia-Gerrei	Galena	2.10156	0.85635
Sardinia Barbagia-Gerrei	Galena	2.10498	0.85813
Sardinia Barbagia-Gerrei	Galena	2.10099	0.85622
Sardinia Baronia	Galena	2.09869	0.84837
Sardinia Baronia	Galena	2.09902	0.84818
Sardinia Baronia	Galena	2.09916	0.84832
Sardinia Baronia	Galena	2.10099	0.84872
Sardinia Baronia	Galena	2.10005	0.84858
Sardinia Baronia	Galena	2.10191	0.84888
Sardinia Bosa	Galena	2.07272	0.83719
Sardinia Bosa	Galena	2.07359	0.8373
Sardinia Bosa	Galena	2.07315	0.83748
Sardinia Fluminese	Galena	2.10894	0.86284
Sardinia Fluminese	Galena	2.10799	0.86311

206Pb/204Pb	Reference
18.195	Stos-Gale et al. 1995
18.232	Stos-Gale et al. 1995
18.235	Stos-Gale et al. 1995
18.205	Stos-Gale et al. 1995
18.179	Stos-Gale et al. 1995
18.107	Stos-Gale et al. 1995
18.208	Stos-Gale et al. 1995
18.17	Stos-Gale et al. 1995
18.203	Stos-Gale et al. 1995
18.097	Stos-Gale et al. 1995
18.136	Stos-Gale et al. 1995
18.083	Stos-Gale et al. 1995
18.208	Stos-Gale et al. 1995
18.105	Stos-Gale et al. 1995
18.214	Stos-Gale et al. 1995
18.212	Stos-Gale et al. 1995
18.203	Stos-Gale et al. 1995
18.225	Stos-Gale et al. 1995
18.244	Stos-Gale et al. 1995
18.236	Stos-Gale et al. 1995
18.243	Stos-Gale et al. 1995
18.254	Stos-Gale et al. 1995
18.197	Stos-Gale et al. 1995
18.28	Stos-Gale et al. 1995
18.29	Stos-Gale et al. 1995
18.296	Stos-Gale et al. 1995
18.3	Stos-Gale et al. 1995
18.324	Stos-Gale et al. 1995
18.321	Stos-Gale et al. 1995
18.317	Stos-Gale et al. 1995
18.475	Stos-Gale et al. 1995
18.475	Stos-Gale et al. 1995
18.48	Stos-Gale et al. 1995
18.497	Stos-Gale et al. 1995
18.491	Stos-Gale et al. 1995
18.504	Stos-Gale et al. 1995
18.675	Stos-Gale et al. 1995
18.676	Stos-Gale et al. 1995
18.69	Stos-Gale et al. 1995
18.136	Stos-Gale et al. 1995
18.124	Stos-Gale et al. 1995

Region	Sample Type	208Pb/206Pb	207Pb/206Pb
Sardinia Fluminese	Galena	2.10618	0.86276
Sardinia Fluminese	Galena	2.11005	0.86536
Sardinia Fluminese	Galena	2.10625	0.86334
Sardinia Fluminese	Galena	2.10937	0.86418
Sardinia Fluminese	Galena	2.12335	0.87086
Sardinia Fluminese	Galena	2.12011	0.87126
Sardinia Fluminese	Galena	2.11767	0.87098
Sardinia Iglesiente	Galena	2.11931	0.87357
Sardinia Iglesiente	Galena	2.1205	0.87387
Sardinia Iglesiente	Galena	2.12269	0.87421
Sardinia Iglesiente	Galena	2.12304	0.87436
Sardinia Iglesiente	Galena	2.1263	0.87468
Sardinia Iglesiente	Galena	2.10534	0.85877
Sardinia Iglesiente	Galena	2.10246	0.85843
Sardinia Iglesiente	Galena	2.10678	0.86066
Sardinia Iglesiente	Galena	2.10715	0.85937
Sardinia Iglesiente	Galena	2.10366	0.85875
Sardinia Iglesiente	Galena	2.10412	0.86014
Sardinia Iglesiente	Galena	2.10438	0.85898
Sardinia Iglesiente	Galena	2.10326	0.85896
Sardinia Iglesiente	Galena	2.1036	0.85896
Sardinia Iglesiente	Galena	2.0382	0.85907
Sardinia Iglesiente	Galena	2.10696	0.86086
Sardinia Iglesiente	Galena	2.10388	0.8593
Sardinia Iglesiente	Galena	2.10308	0.86013
Sardinia Iglesiente	Galena	2.10477	0.86078
Sardinia Iglesiente	Galena	2.1043	0.85964
Sardinia Iglesiente	Galena	2.11936	0.8691
Sardinia Iglesiente	Galena	2.12148	0.86953
Sardinia Iglesiente	Galena	2.11736	0.86791
Sardinia Iglesiente	Galena	2.12188	0.87442
Sardinia Iglesiente	Galena	2.12225	0.87424
Sardinia Iglesiente	Galena	2.12255	0.87455
Sardinia Iglesiente	Galena	2.11523	0.86837
Sardinia Iglesiente	Galena	2.10944	0.86278
Sardinia Iglesiente	Galena	2.11098	0.86264
Sardinia Iglesiente	Galena	2.10853	0.86228
Sardinia Iglesiente	Galena	2.12306	0.87434
Sardinia Iglesiente	Galena	2.1187	0.87367
Sardinia Iglesiente	Galena	2.12304	0.87401
Sardinia Iglesiente	Galena	2.12025	0.87406

206Pb/204Pb	Reference
18.105	Stos-Gale et al. 1995
18.059	Stos-Gale et al. 1995
18.103	Stos-Gale et al. 1995
18.123	Stos-Gale et al. 1995
18.023	Stos-Gale et al. 1995
17.984	Stos-Gale et al. 1995
17.952	Stos-Gale et al. 1995
17.88	Stos-Gale et al. 1995
17.889	Stos-Gale et al. 1995
17.909	Stos-Gale et al. 1995
17.898	Stos-Gale et al. 1995
17.921	Stos-Gale et al. 1995
18.2332	Stos-Gale et al. 1995
18.2286	Stos-Gale et al. 1995
18.2084	Stos-Gale et al. 1995
18.2516	Stos-Gale et al. 1995
18.251	Stos-Gale et al. 1995
18.2238	Stos-Gale et al. 1995
18.252	Stos-Gale et al. 1995
18.255	Stos-Gale et al. 1995
18.241	Stos-Gale et al. 1995
18.232	Stos-Gale et al. 1995
18.2133	Stos-Gale et al. 1995
18.216	Stos-Gale et al. 1995
18.209	Stos-Gale et al. 1995
18.241	Stos-Gale et al. 1995
18.2068	Stos-Gale et al. 1995
18.044	Stos-Gale et al. 1995
18.062	Stos-Gale et al. 1995
18.075	Stos-Gale et al. 1995
17.915	Stos-Gale et al. 1995
17.885	Stos-Gale et al. 1995
17.89	Stos-Gale et al. 1995
18.006	Stos-Gale et al. 1995
18.139	Stos-Gale et al. 1995
18.159	Stos-Gale et al. 1995
18.156	Stos-Gale et al. 1995
17.895	Stos-Gale et al. 1995
17.867	Stos-Gale et al. 1995
17.903	Stos-Gale et al. 1995
17.869	Stos-Gale et al. 1995

Region	Sample Type	208Pb/206Pb	207Pb/206Pb
Sardinia Iglesiente	Galena	2.12451	0.87465
Sardinia Iglesiente	Galena	2.11947	0.87377
Sardinia Lanusei	Galena	2.10207	0.8567
Sardinia Lanusei	Galena	2.10017	0.85648
Sardinia Lanusei	Galena	2.10328	0.85699
Sardinia Oridda	Galena	2.1095	0.86377
Sardinia Oridda	Galena	2.11032	0.86398
Sardinia Oridda	Galena	2.10958	0.86431
Sardinia Oridda	Galena	2.11169	0.86415
Sardinia Oridda	Galena	2.11605	0.87063
Sardinia Oridda	Galena	2.12768	0.87412
Sardinia Oridda	Galena	2.11834	0.87269
Sardinia Oridda	Galena	2.12137	0.87301
Sardinia Sarrabus	Galena	2.09841	0.85289
Sardinia Sarrabus	Galena	2.10051	0.85332
Sardinia Sulcis	Galena	2.10023	0.85892
Sardinia Sulcis	Galena	2.10297	0.8595
Sardinia Sulcis	Galena	2.10477	0.85956
Sardinia Sulcis	Galena	2.10443	0.85949
Sardinia Sulcis	Galena	2.10075	0.85769
Sardinia Sulcis	Galena	2.10424	0.85856
Sardinia Sulcis	Galena	2.09861	0.85738
Sardinia Sulcis	Galena	2.09963	0.85769
Sardinia Sulcis	Galena	2.1024	0.85799
Sardinia Sulcis	Galena	2.09914	0.8574
Sardinia Sulcis	Galena	2.10272	0.85814
Sardinia Sulcis	Galena	2.10182	0.85801
Sardinia Sulcis	Galena	2.09738	0.85779
Sardinia Sulcis	Galena	2.09564	0.85613
Sardinia Sulcis	Galena	2.09737	0.85698
Sardinia Sulcis	Galena	2.10101	0.85822
Sardinia Sulcis	Galena	2.09894	0.85667
Sardinia Sulcis	Galena	2.09804	0.85724
Sardinia Sulcis	Galena	2.10014	0.85767
Tuscany Bocchegiano	Galena	2.08414	0.83772
Tuscany Bocchegiano	Galena	2.0849	0.83799
Tuscany Bocchegiano	Galena	2.08533	0.83789
Tuscany Bocchegiano	Galena	2.08422	0.83779
Tuscany C. Marittima	Galena	2.08004	0.83696
Tuscany C. Marittima	Galena	2.0794	0.8367
Tuscany C. Marittima	Galena	2.07809	0.83635

206Pb/204Pb	Reference
17.9	Stos-Gale et al. 1995
17.87	Stos-Gale et al. 1995
18.272	Stos-Gale et al. 1995
18.265	Stos-Gale et al. 1995
18.277	Stos-Gale et al. 1995
18.114	Stos-Gale et al. 1995
18.1165	Stos-Gale et al. 1995
18.1	Stos-Gale et al. 1995
18.118	Stos-Gale et al. 1995
17.946	Stos-Gale et al. 1995
17.926	Stos-Gale et al. 1995
17.9	Stos-Gale et al. 1995
17.921	Stos-Gale et al. 1995
18.377	Stos-Gale et al. 1995
18.395	Stos-Gale et al. 1995
18.196	Stos-Gale et al. 1995
18.232	Stos-Gale et al. 1995
18.229	Stos-Gale et al. 1995
18.227	Stos-Gale et al. 1995
18.245	Stos-Gale et al. 1995
18.243	Stos-Gale et al. 1995
18.237	Stos-Gale et al. 1995
18.247	Stos-Gale et al. 1995
18.259	Stos-Gale et al. 1995
18.246	Stos-Gale et al. 1995
18.283	Stos-Gale et al. 1995
18.277	Stos-Gale et al. 1995
18.22	Stos-Gale et al. 1995
18.247	Stos-Gale et al. 1995
18.29	Stos-Gale et al. 1995
18.221	Stos-Gale et al. 1995
18.288	Stos-Gale et al. 1995
18.232	Stos-Gale et al. 1995
18.25	Stos-Gale et al. 1995
18.733	Stos-Gale et al. 1995
18.739	Stos-Gale et al. 1995
18.743	Stos-Gale et al. 1995
18.728	Stos-Gale et al. 1995
18.78	Stos-Gale et al. 1995
18.756	Stos-Gale et al. 1995
18.758	Stos-Gale et al. 1995

Region	Sample Type	208Pb/206Pb	207Pb/206Pb
Tuscany C. Marittima	Galena	2.07921	0.83662
Tuscany C. Marittima	Galena	2.08161	0.83681
Tuscany C. Marittima	Galena	2.07941	0.83681
Tuscany Grosseto	Galena	2.08428	0.83774
Tuscany Grosseto	Galena	2.08456	0.83791
Tuscany Grosseto	Galena	2.08508	0.83804
Tuscany Grosseto	Galena	2.08442	0.83798
Tuscany Grosseto	Galena	2.08561	0.83793
Tuscany Grosseto	Galena	2.08448	0.83782
Tuscany Grosseto	Galena	2.0832	0.83762
Tuscany Grosseto	Galena	2.08402	0.83784
Tuscany Grosseto	Galena	2.0861	0.83813
Tuscany Massa Marittima	Galena	2.08307	0.83692
Tuscany Massa Marittima	Galena	2.08221	0.83659
Tuscany Massa Marittima	Galena	2.08258	0.83666
Tuscany Massa Marittima	Galena	2.0854	0.83709
Tuscany Massa Marittima	Galena	2.08207	0.83665
Tuscany Massa Marittima	Galena	2.08181	0.83671
Tuscany Massa Marittima	Galena	2.08642	0.83763
Tuscany Massa Marittima	Galena	2.08648	0.83765
Tuscany Massa Marittima	Galena	2.08631	0.83751
Tuscany Massa Marittima	Galena	2.0845	0.83714
Tuscany Massa Marittima	Galena	2.08339	0.83676
Tuscany Volterra	Galena	2.09028	0.86138
Tuscany Volterra	Galena	2.09096	0.86121

206Pb/204Pb	Reference
18.763	Stos-Gale et al. 1995
18.788	Stos-Gale et al. 1995
18.752	Stos-Gale et al. 1995
18.692	Stos-Gale et al. 1995
18.706	Stos-Gale et al. 1995
18.731	Stos-Gale et al. 1995
18.737	Stos-Gale et al. 1995
18.743	Stos-Gale et al. 1995
18.731	Stos-Gale et al. 1995
18.698	Stos-Gale et al. 1995
18.721	Stos-Gale et al. 1995
18.758	Stos-Gale et al. 1995
18.758	Stos-Gale et al. 1995
18.756	Stos-Gale et al. 1995
18.757	Stos-Gale et al. 1995
18.788	Stos-Gale et al. 1995
18.756	Stos-Gale et al. 1995
18.753	Stos-Gale et al. 1995
18.754	Stos-Gale et al. 1995
18.775	Stos-Gale et al. 1995
18.815	Stos-Gale et al. 1995
18.775	Stos-Gale et al. 1995
18.774	Stos-Gale et al. 1995
17.994	Stos-Gale et al. 1995
18.004	Stos-Gale et al. 1995

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