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CERAMICS EXCAVATED FROM THE LOWER COLORADO RIVER REGION BY THE NORTH BAJA PIPELINE PROJECT

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**A VIEW ACROSS THE CULTURAL LANDSCAPE OF THE  
LOWER COLORADO DESERT  
Cultural Resource Investigations for the  
North Baja Pipeline Project**

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Pacific Railroad, List of Sites in Table 1-1

7.5' USGS Quadrangles: Blythe, Ripley, Roosevelt  
Mine, Thumb Peak, Palo Verde, Cibola, Palo Verde  
Peak, Buzzards Peak, Mount Barrow, Ninemile Wash,  
Quartz Peak, Hedges, Clyde, Ogilby, Grays Well NE

**CHAPTER 17**  
**CERAMICS EXCAVATED FROM THE LOWER COLORADO RIVER REGION**  
**BY THE NORTH BAJA PIPELINE PROJECT**  
*by John A. Hildebrand*

*“The truth is rarely pure and never simple.”*  
Oscar Wilde

Of all southwest ceramic traditions, the Patayan of the lower Colorado River area has received the least study because of a lack of stratified sites and consequent poor dating. Lower Colorado River ceramics are known primarily from surface collections made along trails crossing the adjacent desert areas. Buried sites along the lower Colorado River have been difficult to identify, perhaps due to poor preservation and/or high sedimentation rates within the Colorado River floodplain.

This report presents analysis of Lower Colorado Buffware recovered from two locations in the Palo Verde region. New data are presented on the time frame and sequence of ceramic types produced. Lower Colorado Buffware ceramics were discovered in association with charcoal-rich features during construction of the NBP. Dates obtained from these charcoal layers suggest that the Lower Colorado Buffware chronology of Rogers (1945) and Waters (1982a) should be modified. In some cases, ceramic types are shown to persist for longer than predicted by the Rogers/Waters chronology. As yet, unidentified ceramic types are present in the oldest layers.

In the lower Colorado River area and in the Salton Trough, late prehistoric Patayan peoples produced light-colored buffware ceramics, generally termed Lower Colorado Buffware (Colton 1945; Rogers 1945; Schroeder 1958; Waters 1982a). These ceramics consist of vessels thinned with paddle and anvil and fired in an uncontrolled atmosphere. They are plainware vessels ranging from buff to gray or brown in color. Lower Colorado River ceramic production is traditionally thought to have begun at about A.D. 700 (Schroeder 1952) and continued into recent times among the Yuman speakers of this region, descendants of the Patayan (Rogers 1936). Few buried sites have been found in this region, and dating of Lower Colorado Buffware has been based primarily on its

association with surface features such as trails and trail shrines (Rogers 1945; Waters 1982a, 1982b, 1982c).

The Patayan cultural sequence has been divided into three phases based on changes in material culture and settlement pattern (Rogers 1945; Waters 1982a:281). Patayan I (A.D. 600-1000) is characterized by the beginning of ceramic production near the Colorado River, the use of small projectile points, cremation of the dead, and the beginning of maize agriculture. The principal area of Patayan I settlement was within the lower Colorado and Gila river valleys. Additional settlement was within the eastern portion of the Salton Trough.

During Patayan II times (A.D. 1000-1500), new ceramic forms were developed within the Colorado and Gila river valleys and within the Salton Trough, possibly reflecting changes in diet and cooking practices related to expansion of maize agriculture in the Colorado River Valley. The water level of Lake Cahuilla was at its maximum height during much of this time, and settlement data show occupation of the lakeshore was intensified (Rogers 1945; Wilke 1978).

During Patayan III times (A.D. 1500-1769), ceramics were used along the Colorado River, in the Peninsular Ranges of southern California, in northwestern Arizona, and in the Salton Trough (Waters 1982a:292). The Patayan III period ended with the arrival of Europeans. Documentary evidence for cultural identity between the Patayan III and the historic Yumans (e.g., Quechan, Kamia, and Kumeyaay) is related by Spanish chroniclers and missionaries (Forbes 1965). Ceramics continued to be made in all areas until the 1930s, with potters making innovations in both utilitarian and decorative items for the Euroamerican market (Schaefer 1994; Griset 1996).

## LOWER COLORADO BUFFWARE CERAMIC TYPOLOGY

A system of types has been presented for Lower Colorado Buffware (Waters 1982b), based on the work of Malcolm Rogers (1945). In defining these types, the primary ceramic traits were variations in surface treatment, jar rim form, and vessel form. Temper and/or inclusion were of secondary importance in type definition, but these traits are important to subsequent classification of sherd collections, since on most sherds, rim and vessel form are indeterminate. Based on recent excavations, the Waters/Rogers typological system has been modified for type geographical and temporal distribution (Schaefer 1994).

Following Waters (1982b:537), typing Patayan sherds follows a procedure of first identifying the rim form (if present). Direct rims have been considered diagnostic of Patayan I; whereas recurved or reinforced rims have been considered diagnostic of Patayan II and III periods. Temper and surface treatment (burnished and/or slipped) are additional diagnostic traits that allow identification of specific type.

Table 17-1 presents the characteristics used to identify the ceramic types found in the NBP project sample. There were a total of 1,052 sherds recovered during the NBP project, representing nine ceramic types. The key attributes for the types Colorado Beige and Colorado Red are surface burnishing and slip. For types Black Mesa, Tumco, and Colorado Buff, there are few mineral inclusions and the presence of clay/sherd inclusions. The surface roughness and wall thickness help to differentiate among these types with Black Mesa showing a rough surface/thick wall, Tumco showing a smooth surface and medium wall thickness, and Colorado Buff showing a well-smoothed surface and thin wall. For Salton Buff, Topoc Buff, and Parker Buff, there are extensive mineral inclusions. Salton Buff has a rough surface with exposed rounded quartz grains; whereas Topoc Buff has exposed variable quartz grains. Parker Buff has a smooth surface and angular quartz grains. Palomas Buff has a soft surface and easily crumbled edge. It is thought to be found primarily along the lower Gila River and only a trace amount of it was detected among the NBP project ceramics.

## THIN SECTIONS

A total of 62 Lower Colorado Buffware sherds from the NBP project were examined by petrographic thin section analysis (Appendix K). Thin sections allow observation of mineral and other inclusions and/or temper. To prepare the thin sections, a portion of the sherd was cast in epoxy resin, polished, cemented to a glass-slide, cut, polished to a thickness of 3 cm (1 in.), and sealed with a glass-coverslip. For the NBP sherds, the key inclusions are unground bits of clay and/or sherd temper, and minerals that are either residual from the parent source rock, or purposefully added as temper. Table 17-2 gives the portion of the sherd comprised of clay inclusions (including sherd temper) and quartz inclusions, and other trace minerals.

The two ceramic types with surface burnishing and slip, Colorado Beige and Colorado Red, have the most complex and varied inclusions. Colorado Beige has more clay than quartz (Qz) inclusions (15% clay, 9% Qz); whereas Colorado Red has more quartz than clay (29% Qz, 13% clay). Both these types have a broad range of trace minerals, including both feldspars and micas.

The types of ceramic with few mineral inclusions are Black Mesa Buff, Tumco Buff, and Colorado Buff. Black Mesa has a high percentage of clay and low percentage of quartz inclusions (28% clay, 9% Qz), Tumco has moderate clay and low quartz (16% clay, 8% Qz), and Colorado Buff has a low percentage of both clay and quartz (10% Qz, 9% clay). Likewise, Black Mesa has only biotite mica trace minerals, Tumco has both biotite mica and orthoclase feldspar, and Colorado Buff has a broad range of both mica and feldspar inclusions.

Three ceramic types have extensive mineral inclusions: Salton Buff, Topoc Buff, and Parker Buff. All three types have extensive quartz inclusions (29-36%); in Salton Buff these grains tend to be rounded or subrounded; whereas in Parker Buff the grains tend to be angular or sub-angular. Other significant inclusions include micas and feldspars. Palomas Buff, which is also known to have extensive mineral inclusions, was represented in the sample by only two sherds and was not studied by petrographic thin section analysis.

**Table 17-1. Lower Colorado Buffware Ceramic Types**

Type	Abbreviation	Rim	Wall	Surface	Temper
<i>Types with surface burnishing and slip:</i>					
Colorado Beige	CB	direct	thick-medium	burnish/ crème slip	variable
Colorado Red	CR	direct	thick-medium	burnish/ red slip	variable
<i>Types with few mineral inclusions:</i>					
Black Mesa Buff	BM	direct	thick	rough	clay
Tumco Buff	TU	recurve	medium	smooth	clay
Colorado Buff	C	recurve	thin	well smooth	few/none
<i>Types with extensive mineral inclusions:</i>					
Salton Buff	SB	variable	medium-thin	rough/grains	round Qz
Topoc Buff	TO	variable	variable	rough/grains	variable
Parker Buff	PB	recurve	variable	smooth	angular Qz
Palomas Buff	PA	recurve	variable	soft	variable

**Table 17-2. Clay and Mineral Inclusion in NBP Sherds**

Type	Number	Percent			Other Trace Minerals <sup>1</sup> in Order of Percent				
		Clay	Qz						
Colorado Beige	10	15±8	9±6	Plag	Mus	Bio	Kspar	Epi	
Colorado Red	4	13±13	29±18	Plag	Kspar	Bio			
Black Mesa	15	28±17	9±4	Bio					
Tumco Buff	11	16±10	8±4	Bio	Kspar				
Colorado Buff	7	9±8	10±4	Bio	Mus	Plag	Kspar		
Salton Buff	4	0±0	36±19	Plag	Mus	Kspar	Bio	Epi	
Topoc Buff	4	0±0	35±25	Bio	Mus	Plag	Kspar		
Parker Buff	7	0±0	29±13	Plag	Kspar	Bio	Mus		

<sup>1</sup>Note: Plag = plagioclase, Kspar = orthoclase, Bio = biotite, Mus = muscovite, Epi = epidote

**REGIONAL DESCRIPTION AND DISTRIBUTION OF PROJECT SHERDS**

The NBP project is located in southeast California, along the Colorado River drainage. It covers 79.8 miles (128.4 km) along the eastern flank of the Colorado River, from the town of Ehrenberg, Arizona, on the north, to the United States - Mexico border on the south. The pipeline corridor is located in the Colorado River drainage and its tributary washes along its northern portion, and in the alluvial plain that flanks the south side of the Chocolate Mountains along its southern portion.

A total of 1,052 sherds were analyzed from 29 sites during the NBP project. Their distribution by site and type is given in order by milepost in Table 17-3. No clear spatial separation of pottery types is observed along the pipeline route. Types that occur with significant frequency are seen both in the northern and southern sections of the route. Of the types with sherd or clay temper, the most common is Tumco Buff in terms of the total number of sherds (350) and the number of sites at which it was found (16). Black Mesa is found with roughly one-fourth the total numbers of sherds (82) and at half as many sites (8). Colorado Buff

**Table 17-3. NBP Sherd Counts by Site**

<b>Milepost</b>	<b>Site Number</b>	<b>Site Type</b>	<b>TU</b>	<b>BM</b>	<b>C</b>	<b>CB</b>	<b>CR</b>	<b>SB</b>	<b>PB</b>	<b>TO</b>	<b>PA</b>	<b>IND*</b>
20.7	CA-RIV-5540	trail, scatter					18					
21.8	CA-RIV-5543	scatter	1									
25.4	CA-IMP-7911/H	buried	1	29		81		1	3		2	26
28.3	CA-IMP-7778	trail, scatter	34	6		20		2	2			2
28.7	CA-IMP-8187/H	trail, scatter	2		1	1		1	3	5		
29	CA-IMP-8182	pot drop	13			2		2				
29.04	CA-IMP-8188	trail, scatter								2		
29.1	CA-IMP-8046	buried		6		2			2			
29.5	CA-IMP-7914	trail, scatter	7			1		1	1	1		1
29.6	CA-IMP-8041	scatter	2			1						
31.5	CA-IMP-8189/H	trail, scatter	30			14		33	21	1		
31.9	CA-IMP-8038	scatter				1						
32	CA-IMP-7009	trail, scatter	9		1							
46.6	CA-IMP-8170/H	pot drop				4						
47.6	CA-IMP-7249/H	scatter			2							
49.5	CA-IMP-7250	pot drop			1							
49.85	CA-IMP-7252	scatter					1					
50.11	CA-IMP-396	trail, scatter	1			13	163	1				
50.6	CA-IMP-398	trail, pot drops	21	1		6	11	9	2	2		
66.4	CA-IMP-8198/H	trail, pot drops		1		5						
66.7	CA-IMP-8199	trail, pot drops	6									
66.9	CA-IMP-8201/H	scatter	86	6		16				7		
71.32	CA-IMP-8191/H	Ogilby Townsite					8	1				
71.62	CA-IMP-8192/H	scatter				1						
77.9	CA-IMP-8193	pot drop		20								
78.9	CA-IMP-8054	pot drop	102	13		1						
79.36	CA-IMP-8053/H	scatter	19		27							
79.4	CA-IMP-8194	pot drop	16									
79.5	CA-IMP-8051	pot drop						84				
<b>Total Sherds</b>			<b>350</b>	<b>82</b>	<b>32</b>	<b>169</b>	<b>201</b>	<b>135</b>	<b>34</b>	<b>18</b>	<b>2</b>	<b>29</b>
<b>Total Sites</b>			<b>16</b>	<b>8</b>	<b>5</b>	<b>16</b>	<b>5</b>	<b>10</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>3</b>

\* Note: IND = indeterminate type. See Table 17-1 for other type name abbreviations.

is relatively rare in the project area, being represented by 32 sherds found at five sites. Among the slipped types, Colorado Beige is found at more locations (16 sites) than Colorado Red (5 sites), but Colorado Red is represented by a greater number of sherds (201) than Colorado Beige

(169).<sup>1</sup> Of the types with substantial mineral inclusions, Salton Buff dominates both in the

<sup>1</sup> Collection protocol may account for some differences in counts.

number of sites containing it (10) and the number of sherds (135). Sites with other mineral inclusion-tempered sherds have moderate numbers – Parker Buff (7 sites), Topoc Buff (6 sites), or they are rare Palomas Buff (1 site). Sherds of indeterminate type (total of 29) were found at three sites.

## **BURIED SITES DESCRIPTION**

The pipeline is adjacent to the modern floodplain of the Colorado River in the Palo Verde region. In this area, a broad elevated river terrace (Palo Verde Mesa) is present along the eastern flank of the Colorado River. Numerous charcoal-rich lenses and ash layers were encountered in the walls of the pipeline trench in the Palo Verde region. Many of these charcoal-rich deposits appeared to represent in situ burning of woody materials in shallow-pit depressions, consistent with the presence of buried archaeological features. Buried ceramic materials were encountered in association with these charcoal layers at two locations in the Palo Verde region, designated the North Stallard locality (CA-IMP-7911/H) and the South Stallard locality (CA-IMP-8046).

### **North Stallard Locality (CA-IMP-7911/H)**

The North Stallard locality (CA-IMP-7911/H) is on an elevated surface between the floodplain of the Colorado River and a remnant of Palo Verde Mesa. Sediment deposits at this location consist of massively bedded, loosely consolidated sand, with dispersed pebble gravels as small lenses and discontinuous layers. Aeolian activity and alluvial/colluvial sheet wash are the likely sediment transport and deposition mechanisms. Numerous charcoal-rich lenses and ash layers were encountered in the pipeline trench in this area, some of which included cultural materials such as flaked lithics, groundstone, eggshell, faunal bone, and ceramics. A total of 140 sherds were analyzed from 26 EUs at CA-IMP-7911/H (Table 17-4). In the feature descriptions that follow, locations are given by station along the pipeline route. The stationing is distance in feet, starting at Ehrenberg, Arizona, which is designated as 0+00. These values increase toward the south with hundreds of feet to the left of the + sign and feet to the right.

Between stations 1345+29 and 1345+34 along the pipeline, a buried charcoal layer (Feature 14a) was

exposed along 2 m (7 ft.) of the pipeline trench wall at about a depth of 70 to 110 cm (28-43 in.) beneath the original ground surface. Charred material from Feature 14a was dated to about A.D. 1000 to 1210 (Beta 169215, 920±60 B.P.; 175301, 920±40 B.P.; 176895, 980±40 B.P.). Two units were excavated adjacent to the eastern trench wall, to depth of about 1.5 m (5 ft.). A total of seven sherds were recovered from these units (see Table 17-4). Three Parker Buff sherds were found within the charcoal feature, and four Colorado Beige sherds were found 10 to 20 cm (4-8 in.) beneath the feature.

Feature 15a is a buried charcoal layer exposed along 1.5 m (5 ft.) of the pipeline trench wall (1343+5.0 to 1343+8.3) at about 90 to 115 cm (35-45 in.) beneath the original ground surface. No dates were obtained from this feature. Fourteen Colorado Beige sherds were obtained in association with this feature, including one direct rim sherd. Four of these sherds contained carbon deposits that could be subjected to dating.

Feature 15b is a buried charcoal layer extending 14 m (46 ft.) along the pipeline trench wall (1343+25 to 1343+72) at about 45 to 65 cm (18-26 in.) beneath the original ground surface. Six units were excavated along the east wall of the trench within this feature, yielding 42 sherds. Charcoal materials from EU 6 date the feature to A.D. 1425 to 1630 (Beta 171461, 420±40 B.P.; Beta 175302, 390±40 B.P.). Nine sherds of Black Mesa Buff were found in association with this feature, including one direct rim sherd. The sherds were located within the charcoal sherds layer and as much as 30 cm (12 in.) above and 10 cm (4 in.) below the feature. Thirty-one Colorado Beige sherds, including five direct rim sherds, were found within the charcoal layer and as much as 30 cm (12 in.) above or below the feature. One sherd of indeterminate type also was found associated with this feature. Two sherds of Palomas Buff were found 20 to 30 cm (8-12 in.) above the charcoal layer.

Feature 15c is a buried charcoal layer extended 2 m (7 ft.) along the pipeline trench wall (1343+80.6 to 1343+87.6) at about 50 to 60 cm (20-24 in.) beneath the original ground surface. Two units were excavated along the east wall of the pipeline trench, yielding one Colorado Beige sherd within the charcoal layer. No dates were

**Table 17-4. North Stallard Locality (CA-IMP-7911/H) Ceramic Stratigraphy**

<b>Feature</b>	<b>EU</b>	<b>Depth (cm)</b>	<b>Type</b>	<b>Sherd</b>	<b>Rim</b>	<b>Age</b>	<b>Calendar Date</b>
14a	1	70-90	Charcoal			920±60 B.P.	A.D. 1000-1250
14a	1	90-100	Charcoal			980±40 B.P.	A.D. 990-1160
14a	1	100-110	Parker Buff	2			
14a	2	90-100	Parker Buff	1			
14a	2	100-110	Charcoal			920±40 B.P.	A.D. 1020-1210
14a	2	120-130	Colorado Beige	4			
15a	1	90-115	Charcoal				
15a	1	90-100	Colorado Beige	2			
15a	1	100-110	Colorado Beige	10	1		
15a	1	110-120	Colorado Beige	1			
15a	1	80-120	Colorado Beige	1			
15b	1	35	Colorado Beige	2	1		
15b	1	45-55	Charcoal				
15b	1	45-55	Colorado Beige	2	1		
15b	1	55-65	Charcoal				
15b	1	55-65	Black Mesa	1	1		
15b	2	30	Black Mesa	1			
15b	2	40-50	Colorado Beige	1			
15b	2	45-50	Palomas Buff	1			
15b	2	50-60	Colorado Beige	3			
15b	2	63-70	Charcoal				
15b	2	70-80	Charcoal				
15b	2	70-80	Black Mesa	1			
15b	2	90-100	Colorado Beige	2			
15b	2	100-110	Colorado Beige	1			
15b	3	33-40	Charcoal				
15b	3	40-48	Charcoal				
15b	3	40-50	Colorado Beige	1			
15b	3	40-50	Black Mesa	1			
15b	3	50-60	Colorado Beige	1	1		
15b	3	50-60	Black Mesa	2			
15b	5	30	Colorado Beige	2			
15b	5	30	Black Mesa	1			
15b	5	30	Palomas Buff	1			
15b	5	30	Black Mesa	1			
15b	5	50-60	Black Mesa	1			
15b	5	50-60	Colorado Beige	2	1		



**Table 17-4. Continued**

<b>Feature</b>	<b>EU</b>	<b>Depth (cm)</b>	<b>Type</b>	<b>Sherd</b>	<b>Rim</b>	<b>Age</b>	<b>Calendar Date</b>
15b	5	58-60	Charcoal				
15b	5	60-70	Colorado Beige	2	1		
15b	5	70-78	Charcoal				
15b	6	60-70	Colorado Beige	2			
15b	6	62-70	Charcoal				
15b	6	70-74	Charcoal			390±40 B.P.	A.D. 1430-1530/ A.D. 1550-1630
15b	6	70-80	Colorado Beige	8			
15b	6	80-90	Charcoal			420±40 B.P.	A.D. 1425-1515/ A.D. 1590-1620
15b	6	80-90	Indeterminate	2			
15b	7	50-60	Colorado Beige	1			
15b	7	60-70	Charcoal				
15b	7	70-80	Colorado Beige	1			
15c	1	50-60	Colorado Beige	1			
15c	1	50-60	Charcoal				
15h	1	90-100	Charcoal				
15h	1	90-100	Colorado Beige	1			
15h	1	100-110	Charcoal				
15h	2	73-83	Black Mesa	2			
15h	2	83-93	Charcoal				
15h	3	93-103	Charcoal				
15h	3	103-113	Charcoal				
15i	1	30-40	Charcoal				
15i	2	12-13	Charcoal				
15i	2	13-23	Charcoal				
15i	2	23-30	Charcoal				
15i	2	23-33	Colorado Beige	1			
15i	3	83-93	Black Mesa	4			
15i	3	83-93	Charcoal				
15j	1	100-110	Charcoal				
15j	1	100-110	Colorado Beige	3			
15j	1	110-120	Colorado Beige	4	1		
15j	1	120-130	Colorado Beige	1			
15j	2	110-120	Charcoal				
15j	2	110-120	Colorado Beige	1			
15j	2	120-130	Charcoal			590±40 B.P.	A.D. 1300-1420
15j	2	120-130	Colorado Beige	6			
15j	3	100-110	Charcoal			600±40 B.P.	A.D. 1295-1420

**Table 17-4. Continued**

<b>Feature</b>	<b>EU</b>	<b>Depth (cm)</b>	<b>Type</b>	<b>Sherd</b>	<b>Rim</b>	<b>Age</b>	<b>Calendar Date</b>
15j	3	100-110	Colorado Beige	6	1		
15l	Trench wall @10		Black Mesa	1	1		
15m	1	110-120	Charcoal			670±40 B.P.	A.D. 1270-1325/ A.D. 1345-1395
15m	1	110-120	Black Mesa	4	1		
15m	1	110-120	Colorado Beige	2			
16a	1	60-80	Charcoal			340±40 B.P.	A.D. 1450-1650
16a	Trench wall @ 60		Salton Buff	1	1		
18d	1	40-50	Charcoal				
18d	1	60-70	Colorado Beige	1			
18f	1	20-30	Colorado Beige	1	1		
18f	1	50-70	Charcoal				
18f	1	50-60	Colorado Beige	1			
18f	2	40-50	Colorado Beige	4			
18f	2	50-60	Charcoal			1110±40 B.P.	A.D. 870-1010
18f	2	50-70	Charcoal			1030±40 B.P.	A.D. 970-1040
18f	2	50-60	Indeterminate	12			
18f	2	50-60	Parker Buff	1			
19d	1	190-200	Charcoal			1780±90 B.P.	A.D. 50-430
19d	1	180-190	Indeterminate	1			
19d	2	190-200	Charcoal			1240±60 B.P.	A.D. 660-910/ A.D. 920-960
19u	1	72-82	Charcoal				
19u	1	72-82	Black Mesa	1			
19u	1	82-83	Charcoal				
19u	1	92-102	Black Mesa	1			
19u	2	82-92	Charcoal				
19u	2	92-102	Charcoal			350±40 B.P.	A.D. 1445-1645
19u	2	100-102	Black Mesa	1	1		
19u	2	100-102	Colorado Beige	1	1		
19u	2	102	Black Mesa	2			
19u	3	89-92	Charcoal				
19u	3	92-102	Charcoal				
19u	3	92-102	Black Mesa	3			
19u	3	122-132	Charcoal			400±40 B.P.	A.D. 1430-1530/ A.D. 1560-1630
19u	3	122-132	Black Mesa	1			
19u	3	132-134	Charcoal				
19y	1	91-95	Charcoal			1530±40 B.P.	A.D. 430-620
19y	1	95-105	Indeterminate	5			

**Table 17-4. Continued**

<b>Feature</b>	<b>EU</b>	<b>Depth (cm)</b>	<b>Type</b>	<b>Sherd</b>	<b>Rim</b>	<b>Age</b>	<b>Calendar Date</b>
19y	1	105-115	Charcoal				
19y	1	105-115	Indeterminate	4			
19y	1	115-117	Charcoal				

obtained from this feature, although charcoal fragments from the feature, and carbon deposits from the sherd surface, would be suitable for dating.

Features 15h and 15i are two buried charcoal layers, separated vertically by about 70 cm (28 in.) of sterile sand, and located from 1342+94 to 1343+31. The features extended 11 m (36 ft.) along the pipeline trench wall at about 12 to 40 cm (5-16 in.) (Feature 15i) and 83 to 113 cm (33-44 in.) (Feature 15h) beneath the original ground surface. Three units were excavated along the east wall of the pipeline trench, yielding six Black Mesa sherds and two Colorado Beige sherds. Colorado Beige was found in association with both the upper and the lower charcoal layer; whereas Black Mesa was found only in association with the lower layer. No dates were obtained from these features.

Feature 15j is a buried charcoal layer extended more than 1 m (33 ft.) along the pipeline trench wall (1342+70 to 1342+77) at about 100 to 130 cm (39-52 in.) beneath the original ground surface. Three units were excavated along the west wall of the pipeline trench, yielding 21 Colorado Beige sherds, including two direct rims, found in association with the charcoal layer and up to 20 cm (8 in.) below the feature. Charcoal materials from EU 2 date the feature to A.D. 1300 to 1420 (Beta 175303, 590±40 B.P.) and from EU 3 to A.D. 1295 to 1420 (Beta 171460, 600±40 B.P.).

One Black Mesa sherd from Feature 15l was recovered at Station 1342+72 from the trench wall at about 10 cm (4 in.) below the original ground surface. The sherd has a scalloped design below a direct rim. No date is associated with this sherd.

Feature 15m is a buried charcoal layer extended about 1 m (3 ft.) along the trench wall (1342+90 to 1342+93) at about 110 to 120 cm (43-47 in.)

beneath the original ground surface. Four Black Mesa sherds (including one direct rim) and two Colorado Beige sherds were excavated from one EU within the charcoal feature. A date of A.D. 1270 to 1395 (Beta 171455, 670±40 B.P.) was obtained from charcoal materials from the feature.

Feature 16a consists of a buried charcoal concentration found in the pipeline trench wall (1350+93 to 1350+96) at about 60 cm (24 in.) beneath the original ground surface. One Salton Buff direct rim sherd was recovered from the trench wall in association with this charcoal feature. The charcoal feature was dated to A.D. 1450 to 1650 (Beta 175304, 340±40 B.P.).

Feature 18d is a buried charcoal layer encountered along the west wall of the pipeline trench at Station 1353+48.5 to 1353+50 and about 40 to 50 cm (16-20 in.) beneath the original ground surface. One unit was excavated along the west wall of the pipeline trench, yielding one Colorado Beige sherd, about 20 cm (8 in.) below the feature. No dates were obtained from this feature.

Feature 18f is a buried charcoal layer encountered along the pipeline trench east wall at Station 1353+78 to 1353+85 and about 50 to 70 cm (20-28 in.) beneath the original ground surface. Two units were excavated yielding a total of 19 sherds, including 12 of indeterminate type, six Colorado Beige, and one Parker Buff. Colorado Beige was found within and as much as 30 cm (12 in.) above the feature. The indeterminate type and Parker Buff were found within the feature. Charcoal materials from the feature date to A.D. 870 to 1040 (Beta 175759, 1110±40 B.P.; Beta 171456, 1030±40 B.P.).

Feature 19c is located at 1350+36 to 1350+48, and Feature 19d is located at 1350+36 to 1350+68; the features are expressions of the same charcoal lens buried on the east and west side of the pipeline

trench, respectively, at about 190 to 200 cm (75-77 in.) beneath the original ground surface. Two units were excavated at Feature 19d, yielding one sherd of indeterminate type associated with the feature. Charcoal materials from the feature span a wide range of possible dates: A.D. 50 to 430 (Beta 175305, 1780±90 B.P.) for EU 1, and A.D. 660 to 960 (Beta 171459, 1240±60 B.P.) for EU 2.

Feature 19u is located at Station 1346+10 to 1346+22. Three buried charcoal layers were excavated along the pipeline trench east wall at about 70 to 80 (28-31 in.), 100 to 110 (39-43 in.), and 120 to 130 cm (47-51 in.) beneath the original ground surface. Three units were excavated at Feature 19u, yielding 10 sherds, including nine Black Mesa and one Colorado Beige. Sherds of Black Mesa were found in association with all three charcoal layers. A single sherd of Colorado Beige was found in association with the middle (100-110 cm [39-43 in.] depth) layer. No date was obtained from the upper charcoal layer. The middle layer was dated to A.D. 1445 to 1645 in EU 2 (Beta 171462, 350±40 B.P.), and the lower layer was dated to A.D. 1430 to 1630 in EU 3 (Beta 175306, 400±40 B.P.).

Feature 19y is located at Station 1345+48 to 1345+58. A buried charcoal layer was encountered along the pipeline trench wall at about 90 to 120 cm (35-47 in.) beneath the original ground surface. A unit was excavated on the west side of the trench, yielding nine sherds of indeterminate type. Eight of these sherds have carbon deposits on their surface that could be submitted for dating. Charred material from within the feature was dated to A.D. 430 to 620 (Beta 175308, 1530±40 B.P.).

#### **South Stallard Locality (CA-IMP-8046)**

The South Stallard locality (CA-IMP-8046) is located on the flank of the Palo Verde Hills, near the western margin of the Colorado River floodplain. Cultural features at site CA-IMP-8046 consisted of two features (Features 11 and 13) filled with dark grey or black soil and carbon/charcoal inclusions, as well as flaked lithics, faunal bone, and ceramics. The depth below the original ground surface was 53 to 60 cm (21-24 in.) for Feature 11 and 49 to 52 cm (19-20 in.) for Feature 13. The sand and gravel deposits containing the charcoal features show no signs of secondary soil formation. In situ burning is the

apparent formation mechanism for these features, as evidenced by the abundance of charcoal and the presence of oxidized sand immediately below each feature.

A total of 10 sherds were collected from four EUs at CA-IMP-8046 (Table 17-5). Feature 11 contained a Colorado Beige sherd (EU 1) and six Black Mesa Buff sherds (EU 4) in direct association. Feature 11 was radiocarbon dated to A.D. 1300 to 1430 (Beta 175758, 570±40 B.P.) and dates the presence of Colorado Beige and Black Mesa Buff ceramics at this site. An additional Colorado Beige sherd was found in EU 2 at about 10 cm (4 in.) above Feature 11. Feature 13 was not dated but is stratigraphically comparable in position to Feature 11; it was located about 10 cm (4 in.) above two Parker Buff sherds.

#### **DISCUSSION**

The presence of Lower Colorado Buffware ceramics in buried and dated contexts allows for testing the Waters/Rogers ceramic sequence. There are three known types that occurred in the buried sites with stratigraphic association to dated charcoal features. These are Colorado Beige, Black Mesa Buff, and Parker Buff. These represent one type from each of the three major characteristics used for sherd classification. Colorado Beige has surface burnishing and slip, Black Mesa Buff has primarily clay temper, and Parker Buff has extensive mineral inclusions.

Colorado Beige ceramics were found in association with dated materials at seven features (Figure 17-1); six from CA-IMP-7911/H (Feature 14a EU 2, Feature 15b EUs 1/2/3/5/6/7, Feature 15j EUs 1/2/3, Feature 15m EU 1, Feature 18f EUs 1/2, Feature 19u EU 2), and one from CA-IMP-8046 (Feature 11 EUs 1/2). The presence of Colorado Beige is dated by 13 samples obtained from these features (see Tables 17-4 and 17-5). The calendar dates for these features span the time period A.D. 870 to 1645 with a mean of A.D. 1348. These data suggest that there was a long time span (nearly 800 years) over which Colorado Beige ceramics were produced and/or used along the lower Colorado River. Three C-14 dates for Colorado Beige previously have been reported from southwestern Arizona (Waters 1982a, 1982b, 1982c), based on charcoal collected from hearths and roasting pits

**Table 17-5. South Stallard Locality (CA-IMP-8046) Ceramic Stratigraphy**

Feature	EU	Depth (cm)	Type	Sherd	Rim	Age	Calendar Date
11	1	56-60	Charcoal				
11	1	50-60	Colorado Beige	1			
11	2	40-50	Colorado Beige	1			
11	2	57-60	Charcoal				
11	4	53-60	Charcoal			570±40 B.P.	A.D. 1300-1430
11	4	53-60	Black Mesa	6	1 direct		
13	2	49-52	Charcoal				
13	2	55-60	Parker Buff	2			

associated with Colorado Beige: A.D. 990 (960±65 B.P.), A.D. 1015 (935±85 B.P.), and A.D. 1050 (900±56 B.P.). Waters (1982a, 1982b, 1982c) interpreted these dates as terminal ages for Colorado Beige, and under the assumption of a Patayan I age, placed Colorado Beige from about A.D. 700 to 1050. The dates reported here suggest that Colorado Beige was used over a longer time period than previously reported and indicate its use during Patayan II and III periods. Also note that the dated Colorado Beige rim sherds recovered at the North and South Stallard localities were direct, rather than recurved, suggesting that direct rims are not diagnostic of early (Patayan I) time periods.

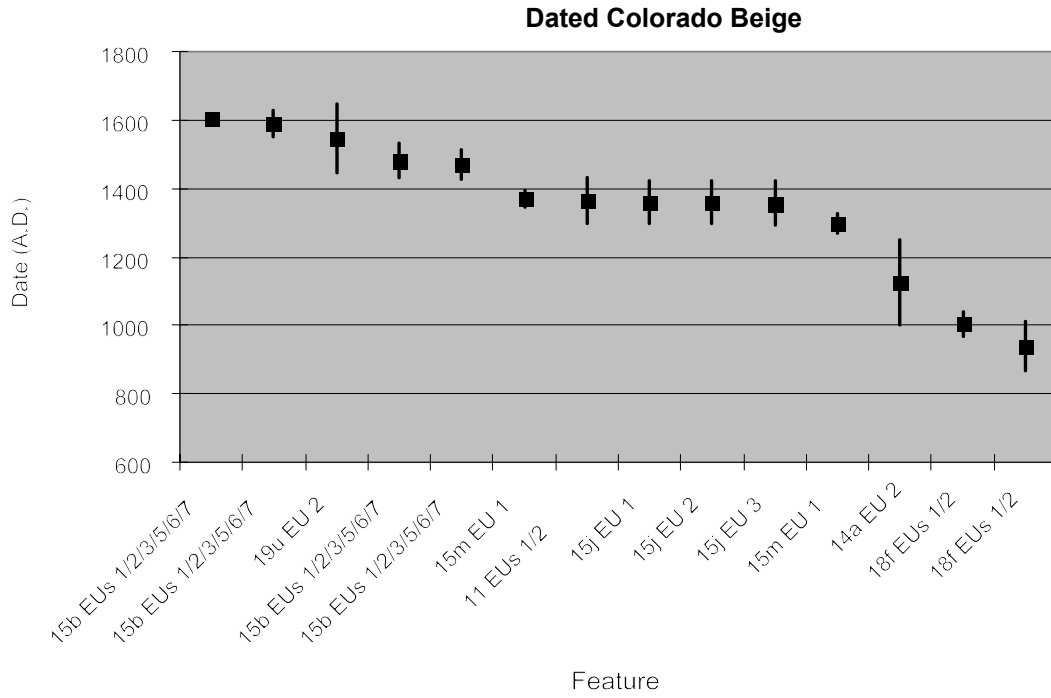
Black Mesa Buff ceramics were dated at four features (Figure 17-2); three from CA-IMP-7911/H (Feature 15b EUs 1/2/3/5, Feature 15m EU 1, Feature 19u EUs 2/3), and one from CA-IMP-8046 (Feature 11 EU 4). These features were dated by six samples (see Tables 17-4 and 17-5). The calendar dates for these features span the dates A.D. 1345 to 1645 with a mean of A.D. 1517. These dates are again significantly younger than expected for Black Mesa Buff, which was thought to be a Patayan I period ceramic type (A.D. 700 to 900), based on their association with pre-Classic Hohokam ceramics such as Santa Cruz Red-on-Buff (Waters 1982a, 1982b, 1982c). The dates presented here suggest that Black Mesa Buff spans late Patayan II and Patayan III, and again that direct rims are not diagnostic of early time periods. Taking into account the previously reported association of Black Mesa Buff with intrusive pre-Classic Hohokam ceramics, they may span at least A.D. 900 to 1645, although at the North and South

Stallard localities they are found only in the late portion of this time period.

Parker Buff ceramics were dated at three features (Figure 17-3); two from site CA-IMP-7911/H (Feature 14a EUs 1/2, Feature 18f EU 2), and one from site CA-IMP-8046 (Feature 13 EU 2). These features were dated by a total of six samples, which yielded calendar dates spanning A.D. 870 to 1250 with a mean of A.D. 1052. Little chronological information was previously available for Parker Buff (Waters 1982a, 1982b), although it was presumed to date from the Patayan II and III time periods (A.D. 1000 to 1769). The dates presented here suggest a late Patayan I and early Patayan II temporal placement, and/or that the use of ceramics with high percentages of mineral inclusions began at an earlier time along the lower Colorado River than previously reported.

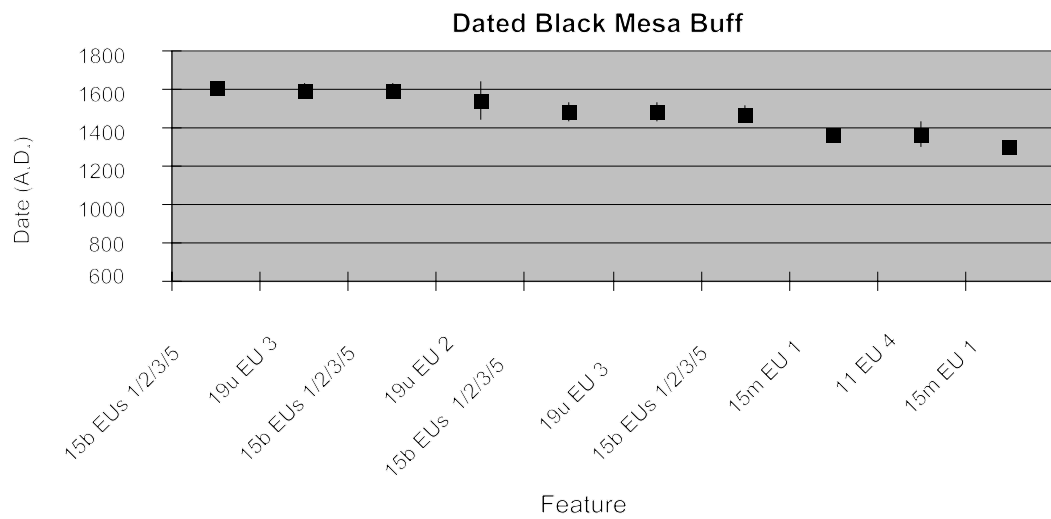
Ceramics of indeterminate type were dated at three features (Figure 17-4) in site CA-IMP-7911/H (Feature 15b EU 6, Feature 19d EU 1, Feature 19y EU 1). At Feature 15b two indeterminate sherds were dated to A.D. 1425 to 1630 and are associated with Colorado Beige. These two sherds are small fragments, probably from the same vessel, and appear to be heat or fracture spalls. They have mica inclusions as well as clay/sherd temper. They may be too small to provide diagnostic characteristics for typing.

One sherd of indeterminate type was recovered from Feature 19d. No other ceramics were associated with this feature. The indeterminate Feature 19d sherd has abundant mica on its surface

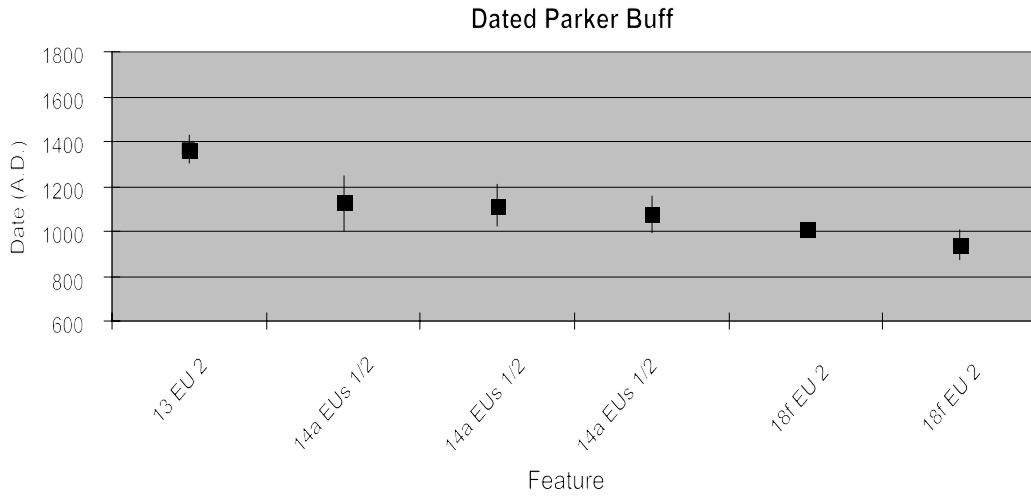


Note: Dated features are indicated along the lower axis of the plot.  
 Black squares denote mean date, with the date range indicated by the vertical bar.

**Figure 17-1. Calendar Dates for Features with Colorado Beige Ceramics in Buried Contexts**

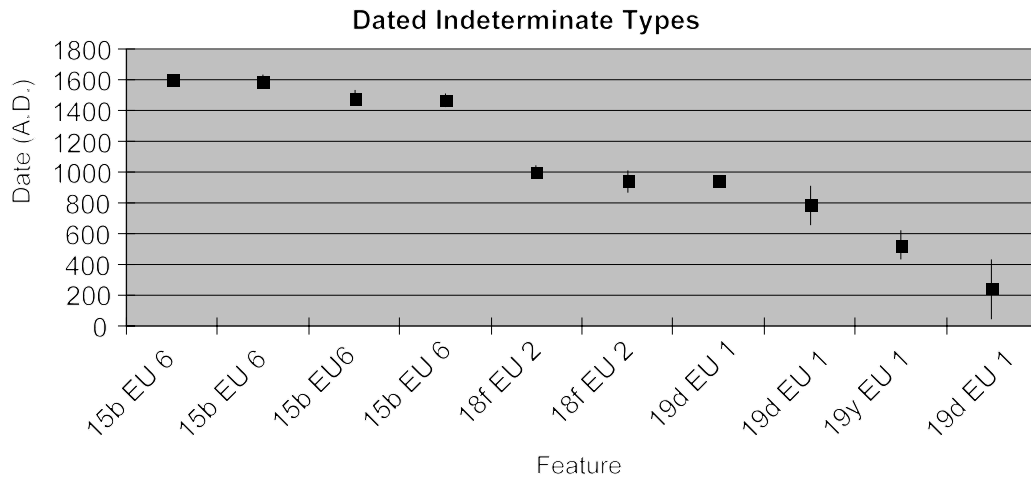


**Figure 17-2. Calendar Dates for Features with Black Mesa Buff Ceramics in Buried Contexts**



Note: Charcoal sample from 13 EU 2 was stratified above the Parker Buff sherds.

**Figure 17-3. Calendar Dates for Features with Parker Buff Ceramics in Buried Contexts**



**Figure 17-4. Calendar Dates for Features with Ceramics of Indeterminate Type in Buried Contexts**

and throughout its interior. It also has abundant angular quartz inclusions along with some feldspar. The best Lower Colorado Buffware match to this sherd would be Topoc Buff; however, the large quantity of mica is atypical for this type (see Table 17-2). It is possible that this sherd may be Gila Plain (Haury 1937:205), as it conforms well to the description of a highly micaceous plainware. The dating of Feature 19d is also problematic since the two charcoal samples from this feature submitted for dating give non-overlapping date ranges of A.D. 50 to 430 and A.D. 660 to 960. Based on the preponderance of dates at site CA-IMP-7911/H, the later time period may be most likely for the Feature 19d sherd.

Nine sherds of indeterminate type were recovered at Feature 19y, which is dated A.D. 430 to 620. At least two separate vessels are represented at Feature 19y. Five sherds recovered at 95- to 105-cm (37-41 in.) depth (see Table 17-4) have 40 percent angular-to-subangular quartz inclusion with trace amounts of plagioclase. Some mica is also present on the surface of these sherds. The form is that of a thick-walled jar, probably used for cooking, as some carbon adheres to the outside surface. The best match to a Lower Colorado Buffware type would be Parker Buff, although the coarseness and abundance of mineral temper in these sherds does not conform to what is typical for Parker Buff. Four sherds of indeterminate type were recovered at 105- to 115-cm (41-45 in.) depth at Feature 19y (see Table 17-4). These sherds have unusual temper characteristics: 30 percent of the interior is rock fragments with abundant muscovite mica inclusions, and 20 percent of the interior is shell fragments. These tempers do not conform to any of the previously described Lower Colorado Buffware types. Further work is needed to determine if these tempers could be obtained locally, or if they suggest intrusive ceramics.

These above data suggest that ceramic usage on the lower Colorado River was ongoing by perhaps A.D. 500. Early ceramic types on the lower Colorado River excavated during this project do not easily conform to the ceramic types described by Waters (1982a, 1982b, 1982c). It would be instructive to compare them to similar plainware types from this time period described for southern Arizona. However, neither of the Feature 19y sherds are a good match to the common early southern Arizona plainwares, Gila Plain and Vahki Plain (Haury 1937), as both are described as micaceous.

## CONCLUSIONS

The NBP project is located in southeast California, along the Colorado River drainage. A total of 1,052 sherds were analyzed during the evaluation and data recovery phases of the project. During construction of the pipeline project, buried Lower Colorado Buffware ceramics were encountered in the walls of the pipeline trench in the Palo Verde region of the Colorado River. A total of 153 sherds were recovered in buried contexts from two sites, designated the North Stallard Locality (CA-IMP-7911/H) and the South Stallard Locality (CA-IMP-8046). These ceramics were associated with charcoal-rich lenses and ash layers, which allow their dating. There are three known Lower Colorado Buffware types that occurred in stratigraphic association with dated charcoal features: Colorado Beige, Black Mesa Buff, and Parker Buff.

Based on 13 samples obtained from seven features, Colorado Beige ceramics span the time period A.D. 870 to 1645 with a mean of A.D. 1348. These data suggest that there was a longer time span (nearly 800 years) and later usage (Patayan II and III time periods) than expected for Colorado Beige ceramics along the lower Colorado River. In addition, the dated Colorado Beige rim sherds recovered were direct, rather than recurved, suggesting that direct rims are not diagnostic of early (Patayan I) time periods.

Black Mesa Buff ceramics were dated by six samples collected from four features to span the time period A.D. 1345 to 1645 with a mean of A.D. 1517. These dates are again younger than expected, since Black Mesa Buff was thought to be from the Patayan I period (A.D. 700 to 900), based on their previously reported association with pre-Classic Hohokam ceramics. The dates presented here suggest that Black Mesa Buff spans late Patayan II and Patayan III, and that direct rims are not diagnostic of early time periods.

Parker Buff ceramics were dated by six samples collected at three features. These features span A.D. 870 to 1250 with a mean of A.D. 1052. Little chronological information was previously available for Parker Buff. The dates presented here suggest a late Patayan I and early Patayan II temporal placement.



Ceramics of indeterminate type were dated at three features. Nine sherds of indeterminate type were dated to A.D. 430 to 620, suggesting that ceramic usage on the lower Colorado River was ongoing by A.D. 500. These early types do not easily conform to any described by Waters (1982a, 1982b) and should be compared to similar early plainware types from southern Arizona.

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