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Department of Energy

RECON TRAINING MATERIALS

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Terminal Commands

DOCUMENT DELIVERY

EVALUATION QUESTIONNAIRE

RECON REMINDER

COMMAND KEYS

COMMAND →	BEGIN	EXPAND	SELECT	COMBINE	DISPLAY set	PRINT	KEEP	LIMIT	PAGE	END	DISPLAY SET
Operand(s) →		term	term	set nos.	ITEM +	set	set	set/range/type	+		HISTORY
Symbol →	!	"	#	\$	%	&	(	)	Ø	=	@

Command keys are depressed while holding down the SHIFT key. All commands must be transmitted by using INT.

!	BEGIN	Begins search process. Initiates address request.
"	EXPAND	Displays various searchable dictionaries, such as subject (index term) or author, e.g., "AU=SMITH, K. and others. For more info, use ?EXP as command.
#	SELECT	Selects terms from EXPAND display by using E numbers; e.g., #e6. For more info, use ?SEL as command.
\$	COMBINE	Combines sets in Boolean logic + = OR; * = AND; - = NOT. Be careful that the logic you ask for is the logic you want. For more info, use ?COM as command.
%	DISPLAY	Displays search results. (Use %/set no./format/range) or single items (e.g., %76.1242). For more info, use ?DIS as command; use ?FORMAT for discussion of formats. Once search display has begun, use % to advance, %- to back up.
&	PRINT	Causes search results to be printed at ORNL and mailed to LLL. Same formats as DISPLAY. To dump items from screen directly on terminal printer, press the OUT button; if printer stops before all material is printed, press OUT button again. To stop printer, press MASTER CLEAR. (Note: Dial-up RECON terminals may initiate printer differently.)
Ø		Turns page. Ø- backs up page.
@	DISPLAY SET HISTORY	Displays list of sets that have been created.
(	KEEP	Transfers items to set 99 for later use; for more info, use ?KEEP as command.
?FILES		Displays list of available files.
?HELP		Initiates On-Line Help Package. For human help, contact the Reference Desk.

DOCUMENT DELIVERY BY THE DOE'S TECHNICAL INFORMATION CENTER

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- a. Journals — TIC usually retains the Journals received for two years. Julia Daniel, Journal Desk (FTS 850-4271), can tell you whether TIC has the journal issue you need.
- b. Conferences — TIC tries to obtain a copy of the proceedings for all conferences cited in the data bases. Doris McGinnis, Publications Acquisitions (FTS 850-4271), can help you with conference questions.
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Date _____

EVALUATION Questionnaire
Department of Energy / RECON Training Workshop

Level of Experience (please check all that are applicable):

- _____ Experienced on RECON
_____ Experienced on other systems
_____ Little or no experience on RECON
_____ Little or no experience on other systems

Subject specialty (e.g., energy, environment, physics, etc.):

PLEASE RATE THE FOLLOWING ITEMS ON THE SCALE OF 1-5 AS SHOWN. ALL RESPONSES ARE ANONYMOUS. SPACE FOR COMMENTS IS GIVEN AT THE END OF THE QUESTIONNAIRE.

I. Program Segments

1. Data base presentations:
2. Time allotted to each data base

	<u>too little</u>				<u>too much</u>
EDB	1	2	3	4	5
NSA	1	2	3	4	5
GAP	1	2	3	4	5
WRA	1	2	3	4	5
ESI	1	2	3	4	5
EIA	1	2	3	4	5
NSIC	1	2	3	4	5
RIP	1	2	3	4	5
Referral Files	1	2	3	4	5
EI	1	2	3	4	5

Comments about particular presentations (Space for general workshop comments is provided on the reverse side.):

3. RECON System presentations:

4. Time allotted to each presentation:

<u>too little</u>				<u>too much</u>
1	2	3	4	5

Comments about a particular presentation:

5. The data base search samples:
6. How valuable were the samples?
7. The sample searches were:

<u>not very</u>			<u>very</u>	
1	2	3	4	5
<u>too few</u>			<u>too many</u>	
1	2	3	4	5
<u>too difficult</u>			<u>too easy</u>	
1	2	3	4	5

II. General Workshop Content

1. Taken as a whole, the workshop was:
2. Length of the workshop (2 1/2 days)
3. The coverage was:
4. The level was:
5. The content will be useful to me
in my job:
6. The audiovisual aids were:
7. Question answering
Time allotted to this segment was
8. Hands-on terminal experience was

<u>too elementary</u>			<u>too advanced</u>	
1	2	3	4	5
<u>too short</u>			<u>too long</u>	
1	2	3	4	5
<u>too theoretical</u>			<u>too practical</u>	
1	2	3	4	5
<u>too general</u>			<u>too specific</u>	
1	2	3	4	5
<u>not useful</u>			<u>very useful</u>	
1	2	3	4	5
<u>hard to see</u>			<u>easy to see</u>	
1	2	3	4	5
<u>too little</u>			<u>too much</u>	
1	2	3	4	5
<u>not useful</u>			<u>very useful</u>	
1	2	3	4	5

III. Comments:

RECON Data Bases

EDB

ERDA Energy Data Base (TIC)

TIC SUBJECT SPECIALISTS

TIC ABSTRACTING AND INDEXING GUIDE

(DRAFT SECTIONS)

<u>Section Chief</u>	<u>Subject Responsibility</u>	<u>Subject Category Code</u>
Mary C. Grissom Telephone: FTS 850-4426 Comm. 483-8611 Ext. 3-4426	COAL AND COAL PRODUCTS	010000
	PETROLEUM	020000
	NATURAL GAS	030000
	OIL SHALES AND TAR SANDS	040000
	FISSION FUELS	050000
	HYDROGEN	080000
	OTHER SYNTHETIC AND NATURAL FUELS	090000
	CHEMISTRY	400000
Lila B. Smith Telephone: FTS 850-4561 Comm. 483-8611 Ext. 3-4561	FUSION FUELS	060000
	SOLAR ENERGY	140000
	GEOTHERMAL ENERGY	150000
	MHD GENERATORS	300100
	EHD GENERATORS	300200
	FUEL CELLS	300500
	INSTRUMENTATION	440000
	MAGNETIC FUSION ENERGY	700000
Robert C. Kelly Telephone: FTS 850-4426 Comm. 483-8611 Ext. 3-4426	ISOTOPE AND RADIATION SOURCE TECHNOLOGY	070000
	HYDRO ENERGY	130000
	ELECTRIC POWER ENGINEERING	200000
	ENERGY STORAGE	250000
	ENERGY CONVERSION	300000
	ENERGY CONSERVATION, CONSUMPTION, AND UTILIZATION	320000
	ADVANCED AUTOMOTIVE PROPULSION SYSTEMS	330000
	ENGINEERING	420000
	PARTICLE ACCELERATORS	430000
	EXPLOSIONS AND EXPLOSIVES	450000
Henry D. Raleigh Telephone: FTS 850-4426 Comm. 483-8611 Ext. 3-4426	TIDAL POWER	160000
	WIND POWER	170000
	NUCLEAR POWER PLANTS	210000
	NUCLEAR REACTOR TECHNOLOGY	220000
Charles E. Stuber Telephone: FTS 850-4426 Comm. 483-8611 Ext. 3-4426	BATTERIES	250900
	MATERIALS	360000
	PHYSICS RESEARCH	640000
	NUCLEAR PHYSICS	651000
Lee M. Thompson Telephone: FTS 850-4426 Comm. 483-8611 Ext. 3-4426	ENERGY MANAGEMENT AND POLICY	290000

<u>Section Chief</u>	<u>Subject Responsibility</u>	<u>Subject Category Code</u>
Sidney F. Lanier	ENVIRONMENTAL SCIENCES, ATMOSPHERIC	500000
Telephone:	ENVIRONMENTAL SCIENCES, TERRESTRIAL	510000
FTS 850-4426	ENVIRONMENTAL SCIENCES, AQUATIC	520000
Comm. 483-8611	ENVIRONMENTAL-SOCIAL ASPECTS OF ENERGY	
Ext. 3-4426	TECHNOLOGIES	530000
	BIOMEDICAL SCIENCES, BASIC STUDIES	550000
	BIOMEDICAL SCIENCES, APPLIED STUDIES	560000
	HEALTH AND SAFETY	570000
	GEOSCIENCES	580000

Nancy Hardin - Problem of obtaining books, journals, and conferences

Telephone:
FTS 850-4271
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Hannah Mayfield - Problem of obtaining reports

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FTS 850-4672
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Dora H. Moneyhun - Problems with data base content

Telephone:
FTS 850-4426
Comm. 483-8611
Ext. 3-4426

Leon Yount - Problems with hardware

Telephone:
FTS 850-1319
Comm. 483-8611
Ext. 3-1319

FOR PROBLEMS WITH
RADIATION SHIELDING CODES

RSC, CALL

BETTY MCGILL
FTS 850-6944

Area Code for all numbers is 615

BATTERIES

Interest is concentrated on secondary batteries of sufficient energy to be useful for vehicle propulsion or load-leveling or that show promise for future development to meet such needs. Indexing patterns are straightforward. The most specific descriptor available for the battery considered is used as a subject descriptor; the qualifier is the aspect considered, e.g., design, performance, some component or auxiliary. The battery type is also used as a qualifier for the application, if one is addressed. These principles are illustrated below:

LEAD-ACID BATTERIES/CATHODES
AUTOMOBILES/LEAD-ACID BATTERIES
SODIUM-SULFUR BATTERIES/DESIGN
ELECTRIC-POWERED VEHICLES/SODIUM-SULFUR BATTERIES

If the battery is used as the power source for a car, the descriptor ELECTRIC-POWERED VEHICLES is used as the subject descriptor, not AUTOMOBILES; AUTOMOBILES is used as the subject descriptor if the car has an internal combustion engine. ELECTRIC-POWERED VEHICLES (or HYBRID ELECTRIC-POWERED VEHICLES) and OFF-PEAK ENERGY STORAGE are the most common applications.

Papers describing work of general application may implicitly require several index points; for instance, "Development of improved cadmium battery anode" without a qualification as to the specific battery involved requires the following three subject-qualifier pairs:

NICKEL-CADMIUM BATTERIES/ANODES
SILVER-CADMIUM BATTERIES/ANODES
METAL-METAL OXIDE BATTERIES/ANODES

The descriptor CADMIUM is also assigned. This procedure is necessary to enable retrieval of this paper by someone interested in batteries with Cd anodes and cathodes of some element other than Ag or Ni.

If no specific battery type can be determined (or if the paper is extremely general), the subject descriptor ELECTRIC BATTERIES is used; the qualifier is the aspect studied, e.g., ELECTRIC BATTERIES/PERFORMANCE TESTING. However, if that aspect is peculiar to batteries, it may be used as the subject descriptor, e.g., BATTERY SEPARATORS/FABRICATION. If the separator is for a specific battery, the indexing is LITHIUM-SULFUR BATTERIES/BATTERY SEPARATORS, and BATTERY SEPARATORS is *not* used as a subject descriptor.

Patents require the use of the word "Patent" in the augmentation. Generally, papers on electric-powered vehicles should be cross-categorized to ADVANCED AUTOMOTIVE PROPULSION SYSTEMS—Electric-Powered Systems.

COAL

Terminology used in indexing coal information can be categorized as properties, production, preparation, processing, and utilization terms. The descriptor COAL, or a narrower term based chiefly on coal rank, ANTHRACITE, BROWN COAL, LIGNITE, etc., may be necessary.

Coal mining may be indexed using that term plus specific terms to describe the type of mining or the equipment used such as SURFACE MINING, LONGWALL MINING, DRILL BITS, CONVEYORS, etc. Such terms as GROUND SUBSIDENCE, ROCK MECHANICS, VENTILATION, and ROOF BOLTS are also used. The descriptor COAL PREPARATION and such specific descriptors as GRINDING, SORTING, FRAGMENTATION, WASHING, etc., are used to convey this concept. The precoordinated terms COAL GASIFICATION and COAL LIQUEFACTION were introduced to more specifically identify this information.

FLUIDIZED-BED COMBUSTION, BY-PRODUCTS, CHARs, FLY ASH, FLUE GAS, PROCESS DEVELOPMENT UNITS, DEMONSTRATION PLANTS, DESULFURIZATION, and PETROLOGY are some additional descriptors used to index information on coal.

After a complete set of descriptors is assigned to a document, M's and Q's are selected based on rules outlined in the general indexing section of this guide. The term M is used for either M, T, or A, and because it will be applicable in most situations. Augmentations should be used whenever needed to provide essential information.

COAL GASIFICATION, COAL LIQUEFACTION, or a specific process name may be used as an M. Examples include: COAL GASIFICATION/CHEMICAL REACTION KINETICS; HYGAS PROCESS/PILOT PLANTS; BI-GAS PROCESS/ECONOMICS; COAL LIQUEFACTION/ENVIRONMENTAL EFFECTS. For the evaluation of nickel as a catalyst for coal gasification using steam, the descriptor pairs COAL GASIFICATION/CATALYSTS; NICKEL/CATALYTIC EFFECTS and the descriptors HIGH BTU GAS; BENCH-SCALE EXPERIMENTS; PRODUCTION; STEAM; COMPARATIVE EVALUATIONS; and any other descriptors necessary to describe the concepts of the paper are used. COAL PASTES/GASIFICATION or LIGNITE/LIQUEFACTION, etc., are *not* used. For other processes applied to coal or coal products, the specific material (COKE, ANTHRACITE, COAL LIQUIDS, etc.) is used as the M with the process as Q. Examples include: COKE/BRIQUETTING; COAL GAS/CHEMICAL ANALYSIS; LIGNITE/COMBUSTION; BITUMINOUS COAL/DESULFURIZATION; ANTHRACITE/PETROLOGY; or BROWN COAL/GRINDING. M/Q pairs of the type COAL FINES/HYDROGENATION or COAL PREPARATION/CLEANING are *not* used. For purification of coal or coal products, the descriptor COAL (or a more specific term) is paired with DESULFURIZATION, DENITRIFICATION, other specific descriptors, or PURIFICATION as Q's. Descriptors for the specific materials removed are used as M's with the specific separation method or REMOVAL as Q's.

To index a method of cyclic countercurrent washing of flue gases containing sulfur oxides, the descriptor pairs FLUE GAS/WASHING and SULFUR OXIDES/REMOVAL and the descriptors CALCIUM CARBONATES, CALCIUM SULFATES, CALCIUM SULFIDES, COUNTER CURRENT, and DESULFURIZATION were needed.

The term CATALYSTS or the name of a specific material used as a catalyst may be paired with such Q's as CHEMICAL PREPARATION, POISONING, REGENERATION, etc., and the specific material may be paired with the Q, CATALYTIC EFFECTS.

ENGINEERING

Engineering information is indexed for the data base using subject descriptors for specific equipment, facilities, and processes. Such qualifiers as **EFFICIENCY**, **DESIGN**, **HEAT TRANSFER**, **OPERATION**, and **PERFORMANCE** are commonly used as are qualifiers designating parts or components of a facility, process, or piece of equipment. In some cases, but not all, these "parts or components" will also be used as subject descriptors.

Facilities and Equipment

Energy-related information on the design, construction, operation, and applied mechanics studies (stress, strain, motion, vibration, elasticity, deformation, etc.) of facilities and equipment including components of such facilities and equipment, e.g., pilot plants, laboratories, test facilities, etc. is indexed as follows:

Relationship between various pressure vessel and piping codes.

Pressure Vessels; Standards; Specifications; Pipes; Stresses; Safety; Fracture Properties

PRESSURE VESSELS/STANDARDS

PIPES/STANDARDS

Cryogenic and Superconducting Equipment and Devices

Information on the design, fabrication, performance, and testing of superconducting equipment and devices, e.g., superconducting cables, magnets, generators, etc., or equipment and devices using superconductors or superconducting junctions as a component, e.g., superconducting quantum interference devices (SQUIDS), Josephson junctions, etc., and cryogenic equipment and devices when such equipment and devices are used in the production of low temperatures or in studies of superconductivity is indexed as follows:

Performance of helium dilution refrigerators for cooling large superconducting magnets.

Helium Dilution Refrigerators; Superconducting Magnets; Helium; Cost; Performance; Energy Consumption; Cooling

HELIUM DILUTION REFRIGERATORS/PERFORMANCE

SUPERCONDUCTING MAGNETS/COOLING

Protective Structures and Equipment

Information on structures and equipment designed primarily for equipment and personnel protection, e.g., blast and fallout shelters, shielding—except for accelerators and reactors—clean rooms, air filtration systems, fire protection systems, masks, and special clothing, is indexed as follows:

Cost estimates for home basement fallout shelters.

Fallout Shelters; Buildings; Cost; Radiation Protection

FALLOUT SHELTERS/COST

Handling Equipment and Procedures

Information on design, construction, and operation of equipment and facilities for handling energy-related materials, e.g., remote-handling equipment, glove boxes, and hot cells, and nonreactor criticality studies are indexed as follows:

1. Steel glove box ventilation.

Gloveboxes; Steels; Design; Radioactive Materials; Ventilation

GLOVEBOXES/VENTILATION

2. Radiological design of hot laboratories.

Hot Labs; Design; Radiation Protection; Plutonium; Transplutonium Elements

HOT LABS/DESIGN

Shipping Containers

Information on the design, development, evaluation, safety analyses, and testing of radioactive materials shipping containers is indexed as follows:

1. Radioactive material shipping container testing.

Casks; Design; Safety; Radioactive Materials; Transport; Testing

CASKS/TESTING

RADIOACTIVE MATERIALS/TRANSPORT

2. Shipping cask for spent nuclear fuel assemblies.

Spent Fuel Elements; Spent Fuel Casks; Uranium; Stainless Steels; Transport; Impact Tests

SPENT FUEL CASKS/IMPACT TESTS

SPENT FUEL ELEMENTS/TRANSPORT

Transport and Storage Facilities

Information on the design, development, evaluation, and testing of tanks, pipelines, tanker vessels, and other containers and their auxiliary equipment for transport and storage of nonradioactive energy-related materials is indexed as follows:

Fabrication of storage tanks for cryogenic fluids.

Cryogenic Fluids; Storage; Fabrication; Tanks; Steels; Valves; Pumps

CRYOGENIC FLUIDS/STORAGE

TANKS/FABRICATION

Mining and Drilling Equipment and Facilities

Information on equipment and facilities for mining and drilling when no specific application is given, e.g., offshore platforms and drilling rigs, is indexed as follows:

Construction of offshore platforms and pipelines in deep water.

Offshore Platforms; Pipelines; Construction; Welding; Seawater

OFFSHORE PLATFORMS/CONSTRUCTION

PIPELINES/CONSTRUCTION

Lasers

Information on laser research and development (not applications) is indexed as follows:

1. Microwave waveguide modulators for CO₂ lasers.

Carbon Dioxide Lasers; Microwave Radiation; Modulation; Waveguides

CARBON DIOXIDE LASERS/MODULATION

2. Electron beam excitation of gas lasers.

Gas Lasers; Electron Beams; Excitation; Efficiency; Measuring Methods

GAS LASERS/EXCITATION

Heat Transfer and Fluid Flow

Information on heat transfer and fluid flow studies (if nucleate boiling, boiling burnout, critical heat flux, two-phase flow, flow in rod bundles, or liquid metals is considered) is indexed as follows:

1. Heat and mass transfer from freely falling drops.

Droplets; Heat Transfer; Mass Transfer; Motion; Liquids; Shape; Acceleration

DROPLETS/HEAT TRANSFER

DROPLETS/MASS TRANSFER

2. Numerical calculation of two-phase flow in a shock tube.

Two-Phase Flow; Water; Steam; Shock Tubes; Numerical Solution; Two-Dimensional Equations

TWO-PHASE FLOW/NUMERICAL SOLUTION

Materials Testing

Information on destructive and nondestructive materials testing (if a direct application to energy research and development is indicated) is indexed as follows:

1. Neutron sources for radiography and gaging.

Neutron Sources; Neutron Radiography; Reviews; Cost

NEUTRON RADIOGRAPHY/NEUTRON SOURCES

NEUTRON SOURCES/REVIEWS

2. Apparatus for carrying out ultrasonic inspection of pressure vessels.

Pressure Vessels; Ultrasonic Testing; Remote Handling Equipment; Operation

PRESSURE VESSELS/ULTRASONIC TESTING

Safety Engineering

Information on safety studies at energy research or production facilities is indexed as follows:

High-pressure safety at the Lawrence Livermore Laboratory, an energy research facility.

Lawrence Livermore Laboratory; Safety Engineering; Accidents; Pressure Vessels; High Pressure; Research Programs

LAWRENCE LIVERMORE LABORATORY/SAFETY ENGINEERING

SAFETY ENGINEERING/RESEARCH PROGRAMS

Vacuum Engineering

Information on ultrahigh (10^{-9} or greater) vacuum systems and equipment is indexed as follows:

Apparatus for detecting leaks in vacuum systems.

Vacuum Systems; Leak Testing; Leak Detectors; Design

VACUUM SYSTEMS/LEAK TESTING

LEAK DETECTORS/DESIGN

Electronic Circuits and Devices

Information on the design, development, performance, and testing of electronic circuits and devices is indexed as follows:

High current capacity electrical connector.

Connectors; Electric Currents; Configuration; Design; Fabrication; Stresses

CONNECTORS/DESIGN

CONNECTORS/FABRICATION

Waste Processing Plants and Equipment

Information on facilities and equipment for collecting, sorting, or processing agricultural, industrial, or municipal wastes for conversion or recycle is indexed as follows:

1. St. Louis refuse processing plant: equipment, facility, and environmental evaluations.

Waste Processing Plants; Design; Equipment; Environmental Effects; Municipal Wastes; Boiler Fuel;

Waste Processing; Boilers

WASTE PROCESSING PLANTS/DESIGN

WASTE PROCESSING PLANTS/ENVIRONMENTAL EFFECTS

MUNICIPAL WASTES/WASTE PROCESSING

2. Evaporative concentration of waste sludges with incinerator exhaust gases.

Sewage Sludge; Incinerators; Drying; Evaporation; Flue Gas; Heat Recovery; Combustion; Fluidized Bed

SEWAGE SLUDGE/DRYING

FLUE GAS/HEAT RECOVERY

Combustion Systems

Information on the design and development of more efficient, less polluting combustion systems, such as boilers, furnaces, incinerators, etc., and their components, and the adaptation of existing designs to new fuels or fuel mixtures is indexed as follows:

1. Stokers for industrial boilers: assessment of technical, economic, and environmental factors.

Stokers; Industrial Plants; Boilers; Economics; Environmental Effects; Coal

BOILERS/STOKERS

STOKERS/ECONOMICS

STOKERS/ENVIRONMENTAL EFFECTS

2. Performance prediction of tangentially fired utility boilers by computer model.

Boilers; Performance; Fossil-Fuel Power Plants; Computer Calculations

BOILERS/PERFORMANCE

Underground Engineering

Information on equipment, facilities, and methods, including economic and feasibility studies, for construction of underground structures, e.g., cavities, drill holes, mine shafts, tunnels, etc., related to the production, storage, utilization, or conversion of energy and on the construction of tunnels for more efficient, less polluting underground power distribution systems and transportation systems, as well as the construction of underground cavities for storage and waste disposal, is indexed as follows:

Thermal analysis of some subterrene penetrators.

Subterrene Penetrators; Operation; Thermal Analysis; Rocks; Melting; Heaters

SUBTERRENE PENETRATORS/OPERATION

SUBTERRENE PENETRATORS/THERMAL ANALYSIS

Marine Engineering

Information on the design, construction, operation, emplacement, auxiliary equipment, power supplies, and communication systems for offshore operations related to energy production, storage, conversion, or utilization is indexed as follows:

Power generation for underwater drilling operations.

Offshore Operations; Power Generation; Underwater; Direct Current; Drilling Fluids

OFFSHORE OPERATIONS/POWER GENERATION

POWER GENERATION

HIGH-ENERGY PHYSICS

The discovery and understanding of the basic symmetries and basic laws of structure of the material universe, which are the goals of high-energy physics, are pursued mainly through studies of the interactions and properties of the so-called "elementary particles" as well as theories and hypotheses that attempt to classify and explain the regularities of these interactions and properties. Descriptors are chosen to reflect the total information content. Guidelines for subject indexing are given below.

As a general rule, experimental and theoretical information is indexed by using subject descriptors for the specific particles, e.g., ETA-958 RESONANCES, types of particles, e.g., BARYONS, specific particle-particle interactions, e.g., PION PLUS-PROTON INTERACTIONS, or types of interactions, e.g., WEAK INTERACTIONS. Qualifying terms should reflect the significant features studied. In addition, specific models or theories investigated should also be indexed by use of appropriate subject descriptors. These guidelines are illustrated below for specific subject areas.

In indexing information on particle interactions subject descriptors are used for the specific interaction or type of interaction, and qualifiers reflect the specific feature or property studied. If the interaction is used as a tool for investigating a particular theory or model or testing the predictions of a theory or model, subject descriptors should be included for the specific theory or model with qualifiers reflecting the significant aspects; for example,

PION-PION INTERACTIONS/TOTAL CROSS SECTIONS
STRONG INTERACTIONS/REGGE POLES
MULTIPERIPHERAL MODEL/INCLUSIVE INTERACTIONS
REGGE POLES/SCATTERING AMPLITUDES

Information on particle properties is indexed by using subject descriptors for specific particles or classes of particles and qualifiers for the specific property discussed, e.g.,

HADRONS/ELECTROMAGNETIC FORM FACTORS
F-1260 RESONANCES/ISOSPIN
DELTA-1236 RESONANCES/LIFETIME

Information on the properties of specific particles or types of particles should *not* be indexed by using subject descriptors for the property, e.g., information on the isospin of N*resonances is indexed by using the subject descriptor N*RESONANCES not ISOSPIN.

Information on the decay of particles is indexed by using subject descriptors for the specific particle or type of particle and the qualifying term DECAY or the specific type of decay discussed, e.g., LEPTONIC DECAY. Only information of a very broad or general nature not dealing with specific particles is indexed by using the subject descriptor DECAY. Of course, descriptors are also used for significant models and theories.

Hypernuclei are indexed by using the subject descriptor for the specific nuclide and the qualifying term HYPERNUCLEI and, in addition, are indexed by using the subject descriptor HYPERNUCLEI and an appropriate qualifier reflecting the feature discussed in the paper; for example,

HELIUM 5/HYPERNUCLEI
HYPERNUCLEI/BINDING ENERGY

A significant number of the papers encountered in the field of particle physics are of a theoretical nature not dealing with specific particles or specific interactions. These papers discuss new mathematical techniques, models, and theories concerned with illuminating and extending the relationships between domains of particle phenomena. Such topics as current algebra, symmetry groups, quantum electrodynamics, quantum field theory, dispersion relations, Regge pole theory, etc., fall in this category. Information in these areas is indexed by using appropriate subject descriptors and qualifiers reflecting the aspect discussed. Note that highly specific descriptors need not have a qualifying term. Similarly, information of a very broad nature treating numerous aspects of a given subject need not have a qualifying term used with the subject descriptor (unless such descriptors as REVIEWS, LECTURES, MEETINGS, or BIBLIOGRAPHIES are appropriate).

HYDROGEN

The main industrial processes for producing hydrogen have been introduced as descriptors. The descriptor **HYDROGEN PRODUCTION** is used as the index point with the specific process as the qualifier. For example, a paper on hydrogen production from water by reactor heat would be indexed **HYDROGEN PRODUCTION/THERMOCHEMICAL PROCESSES**. Additional descriptors would be **PROCESS HEAT REACTORS**, **WATER**, and the various chemical compounds used. For these processes for which there are no specific descriptors, the title is augmented to indicate the process used. If applicable, a general term such as **pyrolysis** is used as the qualifier.

The descriptor **HYDROGEN STORAGE** has been introduced for indexing material on the storage of hydrogen. Qualifiers are the vessels used or in the case of storage by chemisorption, the metal hydride. A paper on application of metal hydrides to ground transport would be indexed **HYDROGEN STORAGE/IRON HYDRIDES**, **HYDROGEN STORAGE/TITANIUM HYDRIDES**, **AUTOMOBILES/HYDROGEN STORAGE**, **IRON ALLOYS/SORPTIVE PROPERTIES**, and **TITANIUM ALLOYS/SORPTIVE PROPERTIES**. **CHEMISORPTION** is also used as a descriptor.

Material on the use of hydrogen as a fuel is indexed using the descriptor **HYDROGEN FUELS**. For example a paper on hydrogen's potential as an automotive fuel is indexed **AUTOMOBILES/HYDROGEN FUELS**, **AUTOMOBILES/HYDROGEN STORAGE**, **HYDROGEN STORAGE/TANKS**. If the performance of hydrogen as a fuel is studied, then an additional index point would be **HYDROGEN FUELS/PERFORMANCE**. Papers on use of hydrogen as an automotive fuel are cross categorized to 330800.

OIL SHALES AND TAR SANDS

In indexing of oil shale literature, subject descriptors reflect the compounds, minerals, and materials associated with the industry. As significant and distinctive processes are introduced, they are also used as subject descriptors. Qualifying descriptors are usually processing terms, properties, and reactions. Titles are augmented with specific data and/or concise, descriptive statements.

Frequently used subject descriptors are: SHALE OIL, OIL SHALES, SHALE TAR, SHALE TAR OILS, SPENT SHALES, OIL SANDS, BITUMENS, BITUMINOUS MATERIALS, NAHCOLITE, DAWSONITE, GREEN RIVER FORMATION, etc.

The descriptor OIL SHALES is used for bituminous shales, kerosene shale, bitumen-containing shales, kerogen shales, and for oil-shale-denoting terms used in certain locales, such as kukersite (Estonia) and tasmanite (Tasmania). (TORBANITE, an oil-yielding rock having characteristics intermediate between oil shale and coal, is a descriptor.) (BLACK SHALES, which sometimes do and sometimes do not yield oil, is also a descriptor.) The term OIL SANDS is used to describe finely divided rocks that are actually impregnated with oil, such as tar sands, bituminous sands, bitumen-containing sands, asphaltic sands, etc. The descriptor BITUMINOUS MATERIALS is used to describe those materials for which there is no specific descriptor and which cannot be accurately described by OIL SHALES, OIL SANDS, COAL, LIGNITE, TORBANITE, etc. For bituminous schists and pyroschists the descriptors BITUMINOUS MATERIALS and SCHISTS are used.

Qualifying terms such as MINING, RETORTING, IN-SITU RETORTING, STRUCTURAL CHEMICAL ANALYSIS, WASTE DISPOSAL, etc., are used as applicable. Process headings, such as GAS COMBUSTION PROCESS, PARAHO PROCESS, and PETROSIX PROCESS, are used as qualifying terms and also stand alone as main headings. The term PROCESSING (or IN-SITU PROCESSING) is used to denote the study of several stages in the treatment of oil shales or sands. Its use should be limited to survey papers, whenever possible. Typical examples of indexing are OIL SHALES/IN-SITU RETORTING, OIL SANDS/GEOCHEMISTRY, SHALE OIL/REFINING, SHALE TAR OILS/STRUCTURAL CHEMICAL ANALYSIS, and BITUMENS/HYDROCRACKING.

The following examples are presented according to main category; in some cases cross-categorization is desirable. M/Q pairs are given except when an M is intended to stand alone. *Additional descriptors are used as needed.*

General, Survey

1. "Present Trends in Estonian-Russian Work on Oil Shale" (Emphasis placed on processing)
OIL SHALES/PROCESSING
USSR/OIL SHALE INDUSTRY
2. Other examples
OIL SANDS/RESEARCH PROGRAMS
OIL SAND INDUSTRY/REVIEWS
OIL SHALES/BIBLIOGRAPHIES

Reserves and Exploration

1. "Bituminous Rocks and Their Utilization" (General survey of world resources)
BITUMINOUS MATERIALS/RESERVES
2. "Alaskan Oil Shales"
OIL SHALES/RESERVES
ALASKA/OIL SHALES
3. "Progress Report on Bureau of Mines—AEC Corehole Rio Blanco County, Colo."
OIL SHALES/DRILL CORES
PICEANCE CREEK BASIN/DRILL CORES

Site Geology and Hydrology

Site Geology

1. "Geology of Oil Shale Resources of the Green River Formation"
OIL SHALES/GEOLOGY
GREEN RIVER FORMATION/GEOLOGY

2. "Genesis of Carbonates in Mahogany Zone Oil Shales"

OIL SHALES/GEOCHEMISTRY

CARBONATES/ORIGIN

MAHOGANY ZONE/GEOCHEMISTRY

Other appropriate qualifying terms: STRATIGRAPHY, LITHOLOGY, GEOMORPHOLOGY, MINERALOGY, and PETROLOGY

Site Hydrology

1. "Artesian Aquifer, New Fork Tongue of the Wasatch Formation, North Green River Basin"

WASATCH FORMATION/AQUIFERS

2. "Present and Estimated Future Depletions in the Colorado River Basin Chargeable to Colorado"

GREEN RIVER FORMATION/WATER RESOURCES

COLORADO RIVER BASIN/WATER RESOURCES

Drilling, Fracturing, and Mining

1. "Argument for Strip-Mining of Colorado Oil Shales"

OIL SHALES/SURFACE MINING

COLORADO/OIL SHALES

2. "The Fracturing of Oil Shale with Electricity"

OIL SHALES/FRACTURING

OIL SHALES/ELECTROCARBONIZATION

Some other appropriate descriptors are: UNDERGROUND MINING, BOREHOLES, ROCK MECHANICS, ROCK DRILLING, GROUND MOTION, CUTTING TOOLS, CHEMICAL EXPLOSIONS. Indexing on studies on the use of nuclear explosives includes NUCLEAR EXPLOSIONS or the specific event, for example, RIO BLANCO EVENT, as M terms. (These studies should usually be crossed to the in-situ processing category and to the category for peaceful applications of nuclear explosions.)

Oil Production, Recovery, and Refining

Process headings include GAS COMBUSTION PROCESS, HOLZHEIMER PROCESS, LURGI-RUHRGAS PROCESS, PARAHO PROCESS, STEAM SOAK PROCESS, TOSCO PROCESS, UNION OIL PROCESS, GARRETT PROCESS, MODIFIED IN-SITU PROCESSES, and RISE. The appropriate category should be used, Surface or In-Situ.

In-Situ Methods, True and Modified

1. "Potential for In-Situ Retorting of Oil Shale in the Piceance Creek Basin"

OIL SHALES/IN-SITU RETORTING

PICEANCE CREEK BASIN/OIL SHALES

2. "Rubble In-Situ Extraction (RISE): A Proposed Program for Recovery of Oil from Oil Shale"

RISE/PLANNING

OIL SHALES/UNDERGROUND MINING

OIL SHALES/IN-SITU RETORTING

Surface Methods

1. "Gas Combustion Retorting Performance in a Large Demonstration Retort"

OIL SHALES/GAS COMBUSTION PROCESS

RETORTS/PERFORMANCE TESTING

GAS COMBUSTION PROCESS/PERFORMANCE TESTING

2. "Tetralin Extraction of Jordan Oil Shale with Ultrasonic Irradiation" (Kinetics of dissolution of decarbonated oil shale)

OIL SHALES/SOLVENT EXTRACTION

TETRALIN/SOLVENT PROPERTIES

ULTRASONIC WAVES/USES

Refining

1. "Catalytic Cracking of Shale Oil Over a Zeolite Catalyst"

SHALE OIL/CRACKING

ZEOLITES/CATALYTIC EFFECTS

2. "Hydrocracking of Synthetic Oils"
 SYNTHETIC PETROLEUM/HYDROCRACKING
 SHALE OIL/HYDROCRACKING
 NAPHTHA/PRODUCTION
 COKE/PRODUCTION
 METHANE/PRODUCTION
 ETHANE/PRODUCTION
 PROPANE/PRODUCTION
 BUTANE/PRODUCTION

Purification

1. "Gas Chromatographic Separation of Sulfur and Nitrogen Compounds from Athabasca Bitumen"
 BITUMENS/DESULFURIZATION
 BITUMENS/DENITRIFICATION
 SULFUR/REMOVAL
 NITROGEN/REMOVAL

Properties and Composition

1. "Tri- and Tetraterpenoid Hydrocarbons in the Messel Oil Shale" (Perhydrolycopene and analogs, series of 4-methylsteranes, pentacyclic triterpanes, and triterpenes detected by gas chromatography/mass spectroscopy)
 OIL SHALES/CHEMICAL COMPOSITION
 HYDROCARBONS/GAS CHROMATOGRAPHY
 HYDROCARBONS/MASS SPECTROSCOPY
 TERPENES/GAS CHROMATOGRAPHY
 TERPENES/MASS SPECTROSCOPY
2. "Heat Contents of Some Green River Oil Shales" (Burned, spent, and raw)
 OIL SHALES/CALORIFIC VALUE
 SPENT SHALES/CALORIFIC VALUE
3. "A Rapid Method for Estimating Oil Yields of Oil Shales by Broad-Line NMR Spectrometry" (Comparison of organic carbon (combustion), Fischer Assay and NMR Methods)
 OIL SHALES/OIL YIELDS
4. "The Infrared Spectrum of Dawsonite" (Comparison of spectra of three natural and one synthetic samples)
 DAWSONITE/INFRARED SPECTRA

Uses and By-Products

1. "Extracting Aluminum Compounds from Dawsonite and Dawsonitic Oil Shale" (Leaching using hot water, aqueous NaOH, or sulfuric acid with and without heating to 400 to 1000°F)
 DAWSONITE/LEACHING
 ALUMINIUM OXIDES/EXTRACTION
2. "Shale Oils and Ichthyols; Thiophene Derivatives"
 OIL SHALES/BY-PRODUCTS
 ICHTHAMMOL/CHEMICAL PREPARATION
 SHALE OIL/SULFONATION

Health and Safety

1. "Carcinogenic Qualities of Oil Shale Products and Possibilities of Prophylaxis of Cancer" (Carcinogenicity of substances produced during thermal processing)
 SHALE TAR/CARCINOGENESIS
 SHALE OIL/CARCINOGENESIS
2. "Toxicological Characteristics of Bituminous Shale and Hygienic Working Conditions During its Use" (Results of observations of exposed workers and experiments on laboratory animals)
 OIL SHALES/TOXICITY
 PERSONNEL/HEALTH HAZARDS

3. "Carcinogenicity of Oil Shale Soot"
FLY ASH/CARCINOGENESIS

Marketing and Economics

1. "Comparative Study of Oil Shale, Tar Sands and Coal as Sources of Oil" (Technology, raw material characteristics and cost; economics of synthetic fuel production)
OIL SHALES/ECONOMICS
OIL SANDS/ECONOMICS
COAL LIQUEFACTION/ECONOMICS
2. "Economic Analysis of Oil Shale Operations Featuring Gas Combustion Retorting."
OIL SHALE INDUSTRY/ECONOMICS
GAS COMBUSTION PROCESS/ECONOMICS

Waste Research and Management

1. "Water Requirements for Stabilization of Spent Shale" (Hypothetical 250,000 bpd industry in Piceance Basin)
OIL SHALE INDUSTRY/WATER REQUIREMENTS
SPENT SHALES/REVEGETATION
2. "Method of Reclaiming Waste Water from Oil-Shale Processing" (Treatment with lime, activated C, anion and cation exchange resins)
WASTE WATER/WASTE PROCESSING
OIL SHALES/WASTE PROCESSING
CARBONATES/REMOVAL
AMMONIA/REMOVAL
ORGANIC COMPOUNDS/REMOVAL
SODIUM CHLORIDES/REMOVAL
3. "Water Pollution Potential of Spent Shale Residues from Above-Ground Retorting" (Percolation experiments)
SURFACE WATERS/WATER POLLUTION
GROUND WATER/WATER POLLUTION
SPENT SHALES/LEACHING
CALCIUM COMPOUNDS/LEACHING
MAGNESIUM COMPOUNDS/LEACHING
SODIUM COMPOUNDS/LEACHING

ENVIRONMENTAL ASPECTS

1. "Migratory Water Fowl and the Syncrude Tar Sands Lease: A Report" (In-depth study)
OIL SAND INDUSTRY/ENVIRONMENTAL EFFECTS
ALBERTA/ECOSYSTEMS
BIRDS/POPULATION DYNAMICS
2. "Beaver Creek: An Ecological Baseline Survey"
OIL SAND INDUSTRY/ENVIRONMENTAL EFFECTS
ALBERTA/AQUATIC ECOSYSTEMS

Regulations

1. "Energy Fuel Mineral Resources of the Public Lands, Vol. V.: Legal Study of Oil Shale on Public Lands, Interim Report."
OIL SHALE INDUSTRY/LEGAL ASPECTS

REACTOR TECHNOLOGY

Through a careful examination of the descriptor and cross reference structure in TID-7000, the indexer should thoroughly acquaint himself with the various types of reactor descriptors. These may be divided into three types:

1. Descriptors for specific reactors, e.g., IRT REACTOR, SAXTON REACTOR
2. Descriptors for reactors with common physics or engineering characteristics, e.g., FAST REACTORS, ORGANIC COOLED REACTORS, PWR TYPE REACTORS
3. Descriptors for reactors having a common purpose, e.g., POWER REACTORS, SPACE PROPULSION REACTORS

When indexing information on specific reactors, type (1) subject descriptors are used. If a descriptor naming a specific reactor does not appear in TID-7000, a request should be submitted to the thesaurus specialist. The request should bear the name of the reactor and enough information about the reactor to allow complete cross referencing, e.g., type of coolant and moderator, reactor purpose. *In general, additional reactor descriptors are not required when indexing information on specific reactors.* For example, "Fuel densification effects on LOCA heat transfer in Turkey Point Station, Unit 3" is indexed:

TURKEY POINT-3 REACTOR/FUEL DENSIFICATION

Title

TURKEY POINT-3 REACTOR/LOSS OF COOLANT

Title

When indexing information on classes or types of reactors, subject descriptors of types (2) or (3) are used. While all type (2) or (3) descriptors applicable to a given document must be included in the total descriptor input, all are not necessarily subject descriptors. For example, a heavy-water-moderated organic-cooled power reactor requires the descriptors HEAVY WATER MODERATED REACTORS, ORGANIC COOLED REACTORS, and POWER REACTORS, but one of these might be sufficient as a subject descriptor. Additional examples are: BWR TYPE REACTORS will often be a sufficient subject descriptor for boiling light water-cooled and moderated reactors as will HTGR TYPE REACTORS for high temperature gas-cooled graphite-moderated reactors.

The qualifier for a reactor subject descriptor should usually be either a component, e.g., CONTROL ELEMENTS, STEAM GENERATORS, or a characteristic of operation, e.g., ECONOMICS, FUEL CYCLE, REACTIVITY, REACTOR START-UP, SCRAM. If type (2) or (3) subject descriptors are paired with a qualifier naming a component, the qualifying descriptor should also be used as a subject descriptor. For example, "Effects of turbulent gas flow on heat transfer from HTR fuel elements" is indexed:

HTGR TYPE REACTORS/FUEL ELEMENTS

Title

FUEL ELEMENTS/HEAT TRANSFER

Title

Subject descriptors naming materials in reactor components are included when information is present that is peculiar to the material. For example, "Ph effects on corrosion of stainless steel in PWR primary circuits," is indexed:

PWR TYPE REACTORS/PRIMARY COOLANT CIRCUITS

Title

PRIMARY COOLANT CIRCUITS/CORROSION

Title

STAINLESS STEELS/CORROSION

Title

"Measurement of the fission ratios of ^{235}U and ^{238}Pu in the central zone of a fast reactor" is indexed:

FAST REACTORS/REACTOR KINETICS

Title

PLUTONIUM 238/FISSION RATIO

Title

URANIUM 235/FISSION RATIO

Title

Title augmentation is especially important when indexing materials in reactor components. For example, (PuO₂-UO₂) should be used as augmentation for mixed-oxide fuels if the title is not specific. Other alloy or compound designations should be used as augmentation when appropriate. Refer to the CHEMISTRY and MATERIALS sections of this Guide for proper procedures for indexing materials or compounds.

Indexing of Specific Document Types

Descriptor assignment and M-Q tagging for US NRC regulatory guides (reports containing the REG/G designation) should follow the example below. "Reporting of Operating Information" is indexed:

NUCLEAR POWER PLANTS/REACTOR OPERATION

REACTOR OPERATION/REGULATORY GUIDES

This format should be followed for all REG/G reports with the subject of the guide (reactor sites, fuel elements, pressure vessels, etc.) substituted for REACTOR OPERATION. Always include US NRC in the descriptor string.

Power Reactor Docket Information (PRDI) issues should be indexed:

NUCLEAR POWER PLANTS/REACTOR LICENSING

REACTOR LICENSING

Additional descriptors should include REACTOR SAFETY, LEGAL ASPECTS, USA, and DOCUMENT TYPES:

Fiche Index to Nuclear Dockets (FIND) reports are indexed:

(reactor name)/REACTOR LICENSING

Include REACTOR SAFETY and INDEXES in the descriptor string.

Index the Nuclear Regulatory Commission Issuances (NRCI):

US NRC/REACTOR LICENSING

REACTOR LICENSING/LEGAL ASPECTS

An additional descriptor is REACTOR SAFETY.

PRDI INDEXING

General

1. No categories are assigned.
2. All dockets *must* have augmentation.
3. When part of the title can be used as augmentation, *underline* the title on the cataloging form and arrow it to the augmentation area.
4. Assign all appropriate descriptors. Do not leave out terms of potential value for a RECON search.
5. Use "A" tags on reactor names.
Use "X" tags on other descriptors.

PSAR's and FSAR's

For initial volumes use as augmentation:

"PSAR Volume 1; general description; site characteristics." Use reactor descriptor tag A only. No Q. Use X on chapter headings, e.g., "REACTOR SITES (X)". No Q.

For amendments or supplements use as augmentation:

"PSAR Amendment 10; responses to ERDA questions; etc."
Use reactor descriptor tag A only. No Q.

Environmental Reports (ER)

Augment in similar manner as PSAR and FSAR.

For all ER's and Supplements, use

PDQ REACTOR (A)/ENVIRONMENTAL EFFECTS (Q).

For initial ER *only* (not supplements), use

ENVIRONMENTAL EFFECTS as X term. No Q.

For environmental monitoring reports, use

PDQ REACTOR (A)/ENVIRONMENT (Q) and

ENVIRONMENT (X)/MONITORING (Q) or RADIATION MONITORING (Q).

Technical Specifications

For technical specifications that are included in SAR or Environmental Reports, use augmentation and indexing as previously stated for these two types of dockets.

For changes or requested changes, use as augmentation the subject of the Specification, e.g., "respirator usage," "containment leak-rate testing," "reactor operation." Index to: PDQ REACTOR (A)/SPECIFICATIONS (Q). No X terms.

NRC Safety Evaluation

PDQ REACTOR (A)/REACTOR SAFETY (Q)

Semi-Annual Operations Reports

- (1) Power generation, shutdowns, maintenance, etc.:
PDQ REACTOR (A)/REACTOR OPERATION (Q)
REACTOR OPERATION (X)
- (2) Environmental Monitoring (Non-Effluent):
PDQ REACTOR (A)/ENVIRONMENT (Q)
ENVIRONMENT (X)/MONITORING (Q)
- (3) Radioactive waste Discharges and Radiation Monitoring:
PDQ REACTOR (A)/RADIOACTIVE EFFLUENTS (Q)
PDQ REACTOR (A)/RADIATION MONITORING (Q)
RADIOACTIVE EFFLUENTS (X). No Q.
- (4) Chemical and Thermal Effluents:
PDQ REACTOR (A)/CHEMICAL EFFLUENTS (Q)
PDQ REACTOR (A)/THERMAL EFFLUENTS (Q)
CHEMICAL EFFLUENTS (X). No Q.
THERMAL EFFLUENTS (X). No Q.

Inspection Reports

Augment always as "Inspection of ..." and use PDQ REACTOR (A). No Q. If enough *specific* information is given, use (e.g.):

CONTAINMENT (X)/LEAK TESTING (Q).

Accidents

For specific reports of actual accidents, such as fires, use
PDQ REACTOR (A)/FIRES (Q) and FIRES (X). No Q.

For PSAR and FSAR Chapters on accidents, use above treatment for SAR and add REACTOR ACCIDENTS (X). No Q.

Reactor Dismantling

Use PDQ REACTOR (A)/REACTOR DISMANTLING (Q) and REACTOR DISMANTLING (X).
No Q.

Fuel Densification

Use augmentation Fuel Densification Effects. Indexing is:

PDQ REACTOR (A). No Q. and
FUEL DENSIFICATION (X). No Q.

General

When docket is specific enough, always index in a pattern of descending order from the reactor, the system, the component, to the problem or condition, e.g., "Malfunction of LPCI Initiation Switch" is indexed:

PDQ Reactor (A)/LPCI (Q)
LPCI (X)/SWITCHES (Q)
SWITCHES (X)/FAILURES (Q).

TIDAL POWER

Indexing of tidal power information should follow the general rules established for subject indexing. Descriptors used as "T" terms will usually be the names of power plants, energy conversion devices, or pieces of equipment. Some examples are **TIDAL POWER PLANTS, RANCE POWER PLANT, WAVE ENERGY CONVERTERS, WATER CURRENT POWER GENERATORS, and TURBOGENERATORS.** "Q" terms are usually such descriptors as **DESIGN, CONSTRUCTION, PERFORMANCE, etc.**

WIND ENERGY

Most wind energy items indexed refer to the actual wind turbines. The thesaurus term **WIND TURBINES** has narrower terms such as **VERTICAL AXIS TURBINES**, **DARRIEUS ROTORS**, and **SAVONIUS ROTORS** to provide more specific search areas. The term **WIND POWER PLANTS** is used to indicate a wind electric-generating system which will be connected to a utility grid and not for isolated or independent electrical systems. The T and Q indexing combination of **WIND** and **MONITORING** is used when meteorological data for a specific site or sites is expressed in ft/sec or km/hr at a specified time or averaged over a period of time. The T and Q indexing combination of **WIND POWER** and **AVAILABILITY** is used when data for a specific site or sites is expressed as power density in watts/square meter.

NSA

Nuclear Science Abstracts (TIC)

EXAMPLES OF INCONSISTENCY IN NSA DATA BASE DUE TO CHANGING THESAURI

Present Terminology	Other descriptors or combination of descriptors
ALUMINIUM	ALUMINUM
RADIATION SYNDROME	RADIATION SICKNESS
PHYSICAL RADIATION EFFECTS BIOLOGICAL RADIATION EFFECTS CHEMICAL RADIATION EFFECTS	RADIATION EFFECTS (early thesaurus had no breakdown)
GE SEMICONDUCTOR DETECTORS	SEMICONDUCTOR COUNTERS + GERMANIUM
LI-DRIFTED GE DETECTORS HIGH-PURITY GE DETECTORS	SOLID STATE COUNTERS + GERMANIUM
MULTIWIRE PROPORTIONAL CHAMBERS	MULTI-WIRE PROPORTIONAL COUNTERS MULTIWIRE PROPORTIONAL CHAMBERS MULTIWIRE PROPORTIONAL COUNTERS PROPORTIONAL COUNTERS + POSITION-SENSITIVE DETECTORS
CHEMICAL ANALYSIS	DETERMINATION QUANTITATIVE ANALYSIS QUALITATIVE ANALYSIS (different time span for these terms)
RADIOACTIVE WASTES	WASTE SOLUTIONS
RADIOACTIVE WASTE PROCESSING	WASTE PROCESSING
RADIOACTIVE WASTE DISPOSAL	WASTE DISPOSAL
RADIOACTIVE WASTE MANAGEMENT	WASTE MANAGEMENT
RADIOACTIVE WASTE STORAGE	WASTE STORAGE
NUCLEAR FUELS	FUELS
SPENT FUELS	SPENT FUEL ELEMENTS
REACTOR CORES	REACTOR CORE
CONTROL ROD WORTHS	CONTROL ROD WORTH
FUEL ELEMENT FAILURE	FUEL ELEMENTS + FAILURE

BWR TYPE REACTORS

PWR TYPE REACTORS

ZERO POWER REACTORS

LMFBR TYPE REACTORS

PROTON REACTIONS

ION-ATOM COLLISIONS

PION-PROTON INTERACTIONS

BOILING WATER REACTORS
BWR-TYPE REACTOR

PRESSURIZED WATER REACTORS
PWR
PWR-TYPE REACTOR

CRITICAL ASSEMBLIES

LMFBR
LIQUID METAL COOLED REACTORS +
FBR TYPE REACTORS

PROTON BEAMS +
NUCLEAR REACTIONS

ION COLLISIONS

PION BEAMS + PROTONS +
INTERACTIONS

NSC

Nuclear Safety Information Center

NSIC CATEGORY SCOPE NOTES

Brief scope notes are presented below on each of NSIC's 21 subject categories.

1. General Safety Considerations

Covers the safety aspects of radiation policy, codes and standards, economics and cost studies, socio/philosophical considerations, forecasts, public policy, public attitudes, radiation in perspective, safety principles and philosophy, insurance and liability, legalistics, benefit vs risk, probability of accidents, plant availability, concepts of reliability, safeguarding of nuclear material, nuclear emergencies, concepts of quality assurance, etc.

2. Siting of Nuclear Facilities

Includes the following subjects related to any type of nuclear facility: characteristics of the site and environs, economics of site selection, seismology, geology, seismic design of plant, environmental effects of site preparation and construction, effects on site of flooding or tornado protection, population density, power transmission effects on area, etc.

3. Transportation and Handling of Radioactive Materials

Covers shipping containers, shipping regulations, safety analysis reports for packaging (SARP), criticality safety in transit, transportation accidents, design of tiedowns, shipping condition (impact, fire, vibration, etc.), heat-transfer capability of shipping containers, etc.

4. Aerospace Safety (Inactive ~1970)

Covers safety considerations unique to nuclear systems used in aerospace vehicles - launch and re-entry problems only.

5. Heat Transfer and Thermal Hydraulics

Deals with all aspects of heat transfer and fluid flow with emphasis on postulated reactor accidents, including: burnout and critical heat flux, fission product decay heat, blowdown, hydrodynamic effects, thermal-mechanical effects, flow blockage, thermal-hydraulic modeling, two phase flow, thermophysical properties of fuels and coolants, etc. Also includes equipment involved in these processes.

6. Reactor Transients, Kinetics, and Stability

Includes studies (analytical and experimental) in which the transient behavior of reactors and criticality accidents are examined. Deals, for

6. Reactor Transients, Kinetics, and Stability (continued)

example, with reactivity effects due to voids, temperature, Doppler coefficient, etc; calculational methods, mathematical models, computer codes, and physical data which may have a direct bearing on reactor dynamic behavior; and design studies concerned with nuclear stability and the understanding of potential kinetics safety problems.

7. Fission Product Release, Transport, and Removal

Includes the release from fuel and movement of fission products within the facility; the physical and chemical characterization of the released radionuclides; and removal mechanisms such as deposition, adsorption, filtration, fallout, plateout, etc.

8. Sources of Energy Release Under Accident Conditions

Covers nuclear, Wigner, and gamma energies; energy released by chemical reactions; metal-water reactions; pyrophoric reactions; metal fires; and all other types of energy that might be released as a result of a nuclear accident (e.g., steam-engendered explosion).

9. Nuclear Instrumentation, Controls, and Safety Systems

Includes the design, fabrication, and application of components, modules, equipment, and all portions of monitoring, control, and safety systems for nuclear processes. Encompasses all devices and techniques used for surveillance and to measure, monitor, indicate, record, alarm, control, and regulate physical variables. Also covers the performance requirements for I&C hardware and systems; the related standards, specifications, codes, and guides; and the concepts of reliability, availability, maintenance, and testing in relation to I&C systems and components.

10. Electrical Power Systems

Covers all aspects of the generation, distribution, and transmission of electrical power associated with a nuclear facility. Deals with routine and emergency means of supplying electrical power to and within nuclear facilities of all kinds. Considers the reliability, availability, economics, and stability of the electrical power system and the related effects on the safety and operation of the nuclear facility.

11. Containment of Nuclear Facilities

Includes all aspects of the containment of radioactivity at all types of nuclear facilities. Barriers considered include fuel cladding, piping,

11. Containment of Nuclear Facilities (continued)

pressure vessels, containment vessels, and reactor buildings. Major concerns are design considerations, structural integrity, quality assurance, materials properties, and radiation damage to materials.

12. Plant Safety Features — Reactor

Covers all engineered safety features of reactors (except containment) that are designed to minimize the consequences of an accident in a nuclear facility. Includes systems for reducing temperature and pressure, emergency core cooling, containment spray, hydrogen recombination, emergency boration system, auxiliary feedwater system, main steam isolation valves, standby gas treatment, core isolation cooling, low pressure coolant injection, core spray, etc.

13. Plant Safety Features — Nonreactor

Deals with all safety information related to the nuclear fission fuel cycle that is external to the reactor, and therefore not characterized into one of the other categories. Included are the safety considerations of fuel reprocessing, mining, milling, enrichment, fuel fabrication, fuel storage and handling outside a reactor facility, hot cell activities, and isotope processing.

14. Radionuclide Release, Disposal, Treatment and Management (Inactive Sept. 1973)

The following subjects are included as related to any type of nuclear facility: controlled release from a facility, effluent control schemes; procedures and limits for release of low level wastes and for burial; waste treatment; long-term storage of high level wastes; waste management, etc.

15. Environmental Surveys, Monitoring and Radiation Dose Measurements (Inactive Sept. 1973)

Deals with the following Health Physics topics related to any type of nuclear facility: Environmental monitoring and personnel monitoring during accidental or routine releases of radionuclides both on and off site, monitoring of external exposure to population groups off site, monitoring techniques and instrument applications, personnel exposure to radiation, and environmental operating reports.

16. Meteorological Considerations

Includes diffusion and deposition of radioactive material near the earth's surface, atmospheric transport, and fallout. Also includes the general

16. Meteorological Considerations (continued)

considerations of meteorological processes that adversely affect the environment such as tornadoes, floods, damaging winds, etc., and possible micrometeorological effects of very large energy generation centers.

17. Operational Safety and Experience

Covers operating experience at all types of nuclear facilities. Reportable incidents during facility construction are found in both Category 17 and 18. Includes the following: Personnel exposures, periodic operating reports, reportable events, routine and abnormal releases from a facility, design modifications, backfit items, licensing correspondence for a facility with an operating license, fuel handling and storage in a reactor facility, in-service inspection.

18. Design, Construction and Licensing

Includes the following topics relating to nuclear facilities not yet licensed to operate: Research and development programs, general descriptions of reactors, design studies, licensing correspondence, construction problems (also in Category 17), responses to NRC questions, and safety analysis reports and amendments.

19. Internal Exposure Effects on Humans Due to Radioactivity in the Environment (Inactive Sept. 1973)

Includes the following topics: Metabolic effects and hazards to humans from radioactivity or toxic wastes in the environs irregardless of source with emphasis on internal exposure; data on maximum permissible concentrations in air, water or food; and environmental operating reports.

20. Effects of Thermal Modifications on Ecological Systems (Inactive Sept. 1973)

Includes the following topics: Thermal pollution of water bodies; influence of heat on uptake of radionuclides and transport in the biosphere; consideration of other cooling devices such as cooling towers, ponds, etc; beneficial use of waste heat; and environmental operating reports.

21. Radiation Effects on Ecological Systems (Inactive Sept. 1973)

Include the following: Effects of radiation or radioactivity on natural populations of organisms in the environment; effects of radiation or radioactivity on mortality, longevity, reproduction and other functions of plants and animals; cycling of radionuclides in the environment such as through the food chain, and environmental operating reports.

EMI

Environmental Mutagens

ENVIRONMENTAL MUTAGEN INFORMATION CENTER DATA BASE

OVERVIEW

Source

Subject Coverage

Document Coverage

Years of Coverage

Restrictions

EMI UNIT RECORD AND PRINTS

Complete Unit Record

Examples of RECON Prints

DESCRIPTION OF UNIT RECORD DATA ELEMENTS

Accession Number

Title

Author

Source

Citation

Literature Type

Publication

Translation

Chemical Abstracts Service Registry Numbers

Test Object(s)

Taxonomic Name

Tissue Culture

Agent(s)

SEARCHES

OVERVIEW

The Environmental Mutagen Information Center (EMIC) was organized in 1969 for the purpose of collecting, organizing, and disseminating chemical mutagenesis information. The Center is funded by the National Institute of Environmental Health Sciences (NIEHS), the National Cancer Institute (NCI), and the Energy Research and Development Administration (ERDA). The EMIC data base (EMI) on RECON contains all but the most current records contained on the EMIC master tape. Frequent updates are planned to keep the data base current.

Source

The EMI data base is supplied by the Environmental Mutagen Information Center. Questions concerning this data base should be directed to:

Beth Owens or Brad Whitfield
Environmental Mutagen Information Center
Oak Ridge National Laboratory
P. O. Box Y, Bldg. 9224
Oak Ridge, Tennessee 37830

Phone: FTS 850-5473; Commercial (615) 483-8611, ext. 3-5473

Subject Coverage

The EMI data base consists primarily of references from the open literature that report the testing of chemicals for mutagenicity. It also includes literature dealing with similar testing of biological agents, some physical agents, and general references on test systems and organisms. The data base does not include studies dealing exclusively with the mutagenicity of ionizing or ultraviolet radiation. Such agents do appear in the indexes as a result of papers which report results on both chemicals and radiation.

Document Coverage

EMIC attempts to cover the world's literature on chemical mutagenesis. References are obtained in two ways: (1) by scanning journals that report on chemical mutagenesis and (2) by obtaining pertinent references to less obvious publications from secondary sources. These secondary sources are searched by running a list of mutagenesis-related terms against the computer tapes of Chemical Abstracts, Biological Abstracts, and BioResearch Index. Each method contributes about half of EMIC's holdings.

Only after a copy of the original document is obtained is that particular citation placed in the data base. The bulk of EMIC's data base consists of journal publications reporting original data, abstracts, symposia, and reviews.

Years of Coverage

Chemical mutagenesis literature from 1969 to the present is thoroughly covered by the EMI data base. Much of the earlier literature is also included although a systematic search of the pre-1969 literature has not been undertaken. As of June 1977, the EMI RECON data base contains 19,275 records from approximately 1,900 publication sources. Quarterly updating is planned.

Restrictions

There are no restrictions on the use of EMI.

	Searchable fields	Printable fields IFN format							Abbreviations	Examples
		0	1	2	3	4	5	6		
Accession number	X	X	X	X	X	X	X	X	Direct access	%76J0023580
Title		X		X	X	X	X	X		
Author(s)	X	X		X		X	X	X	AU	AU=Smith, J. T.
Source		X		X			X	X		
Citation	X	X		X					JO	
Literature type		X		X		X	X	X		
Publication	X	X		X			X	X	PB	PB=WMG
Translation		X		X						
Chemical Abstracts Service Registry Number(s)	X	X		X					RN	RN=50-00-0
Test Object(s)	X	X		X		X	X	X	OB	OB=Chinese hamster
Taxonomic name	X	X		X					TA	TA=Cricetulus griseus
Tissue culture	X	X		X					TI	TI=HELA cells
Agent(s)	X	X		X				X	IT	IT=Formaldehyde

UNIT RECORD DATA ELEMENTS

Accession Number

The accession number is assigned by EMIC for document control. These numbers are assigned in numerical order as a publication is prepared for input. The first two digits of the number found on RECON represent the year of publication. Following these two digits is a letter representing a literature type or classification of the document (see Literature Type for explanation). These characters are then followed by a unique seven digit number assigned to each reference. A specific record can be displayed by direct access —

%	7	6	J	0	0	2	3	5	8	2
	Year of publication		Literature type	EMIC accession code						

Title

The title field contains the title of the document. For foreign language references, the title has been translated into English. This field can not be searched.

Author

The author field is searchable. Since authors' names are entered into the data base exactly as they appear on the document, it is best to use the expand command when searching for an author.

Names written in the Cyrillic alphabet are transliterated. Diphthongs are substituted as follows:

ae for ä and å
oe for ö and ø
ue for ü

Source

This indicates the secondary literature source, such as CA (Chemical Abstracts) or BA (Biological Abstracts) from which the entry may have been selected. Secondary sources are used to verify EMIC references, to provide English language abstracts for foreign language papers, and, in some cases, to supply new Chemical Abstracts Service (CAS) Registry numbers.

The major secondary literature sources cited in EMIC are:

CA — Chemical Abstracts
BA — Biological Abstracts
BI — BioResearch Index
GA — Genetics Abstracts
CCA — Cancer Chemotherapy Abstracts
NSA — Nuclear Science Abstracts

Citation Field

This field contains the complete citation for each record using the approved journal abbreviation, volume, page numbers, and year of publication. The publisher, city of publication, pages, and copyright year are cited in this field for books, chapters, and special publications.

Literature Type

This indicates the type of material indexed. The following list indicates the various types of literature included and the abbreviations used to indicate each type:

A — Abstract	M — Methods paper
B — Book	N — Brief note
C — Chapter in a book	P — Popular article
D — Doctoral dissertation	Q — Bibliographic list
E — Editorial	R — Report
H — Hypothesis or theory	S — Symposium paper
J — Original data	V — Review
L — Letter to the editor	W — Workshop paper

Publication Field

This field is primarily for use by EMIC and indicates the EMIC publication in which the reference has appeared.

Translation

This field is reserved for those foreign language publications (e.g., *Genetika*) which are subsequently translated and published in an English language journal (e.g., *Soviet Genetics*). The translation field cites the original publication.

Chemical Abstracts Service (CAS) Registry Number

This field contains CAS Registry numbers, whenever available, for the chemical agent tested in the reference. This field is searchable and is recommended for use in retrieving references on specific chemical agents. Use of CAS Registry numbers reduces the possibility of missing references on a chemical which may appear under several names in the agent field.

Test Object(s)

This field provides a means of searching for test organisms by common name or general category. In vitro and subcellular test systems are also indexed in this field. A test object may be an organism, a cell or tissue culture, any part of the genetic apparatus of a cell or virus, or synthetic polynucleotides. Organisms and cell cultures are indexed by general classification as well as common names. A list of the general classifications appears below.

SOME GENERAL CLASSIFICATIONS FOR ORGANISMS AS TEST OBJECTS

AMPHIBIAN	GOLDEN-BROWN ALGAE
ANNELIDA	GREEN ALGAE
ARACHNID	INSECT
AVES	MAMMAL
BACTERIA	MOLLUSCA
BLUE-GREEN ALGAE	NEMATODE
CRUSTACEAN	PLANT
DNA	PROTOZOA
ECHINODERM	REPTILE
FISH	RNA
FLATWORM	VIRUS
FUNGUS	

Common names such as mouse, tomato, tomato cell culture, human cell culture, and phage T4 are included. Some examples of test objects other than an organism or cell cultures are: DNA; RNA; etc. For best results, this field should be searched using the expand command.

Taxonomic Name

This field contains the scientific name for organisms found in the test object field including cell culture studies (Mus; Allium cepa; Amoeba; Amoeba proteus; Rattus; Salmonella typhimurium; Zea mays). When the species name is not given or implied, only the genus is indexed. Some strain designations of frequently used strains are also included (TA100; TA strains; Long-Evans; C57BL; 101 X C3H; BALB/c; Wistar; K-12). Strains are searchable separately within the field. It is again recommended that the expand command be used.

Tissue Culture

When a cell culture is used as a test object, the particular kind(s) of cells or tissues are entered in this field (HeLa cells; BHK-21 cells; liver slices; pith cells; embryo neurons). The field is best searched by using the expand command.

Agent(s)

This field contains the agents that have been tested for mutagenicity. These are indexed as they appear in the article. Exceptions include obvious misspellings, foreign spellings, and abbreviations commonly used in the field (e.g., EMS for ethyl methanesulfonate). Because of variations in names, punctuations and spellings, the chemical agents within this field may be difficult to search. For example, to obtain all references for

N-hydroxy-2-acetylaminofluorene, it is necessary to use the following synonyms: acetylaminofluorene-N-hydroxy, N-hydroxy-N2-fluorenylacetamide, N-hydroxy-N-acetyl-2-aminofluorene, and N-hydroxy-N-2-acetylaminofluorene. This task can be simplified if the user can search the CAS Registry number field for RN=53-95-2, which would automatically retrieve all references to the above compound.

Although terms indicating general groups or categories of chemicals are not routinely indexed, such terms are sometimes entered. In no case, however, can all references to a group of compounds be retrieved by using the general term. Examples are amphetamines, tryptophan metabolites, carcinogens, alkylating agents, and nitroso compounds. Also included in this field are chemicals that have been changed by the metabolic or environmental conditions of a host organism (e.g., Metronidazole, mouse-mediated).

This field also includes keywords for biological and physical agents. It is recommended that the expand command be used in searching for them. See examples listed below:

AGE	LIVER EXTRACT
AGE, MATERNAL	MEASLES VACCINE
ALCOHOLISM	MICROSOMES
ANOXIA	MICROWAVES
ANTIBODIES	MOLLUSCA EXTRACT, MYTILUS
BACTERIA, SALMONELLA TYPHIMURIUM	NEMATODES
BONE MARROW HOMOGENATE, RAT	NEUTRONS, FAST
CANCER	PLANT EXTRACT, BRACKEN FERN
CIGARETTE SMOKE	PROTEIN DEFICIENCY
CONSANGUINITY	PROTOZOA
COW DUNG	SKIN EXTRACT
DNA	SOUND
DNA, HUMAN	STARVATION
ELECTRONS	TEMPERATURE
ELECTROMAGNETIC FIELDS	ULTRASOUND
IRRADIATED STRAWBERRIES	URINARY METABOLITES
LASER RADIATION	UV
LIGHT, BLACK	VIRUS
LIGHT, SUN	WEIGHTLESSNESS
LIGHT, VISIBLE	X-RAYS

NATIONAL ENERGY REFERRAL AND INFORMATION SYSTEM

N E R I S (NER)



NERIS: A BRIEF GUIDE

INTRODUCTION

The National Energy Referral and Information System (NERIS) is produced by the Environment Information Center, Inc., and it is available on the ERDA-RECON computer network through a consortium of three government agencies: ERDA, EPA, and FEA. If you work at one of these agencies, the appropriate person to contact is:

ERDA

Charles M. Gottschalk
Systems Development
(301) 353-4035

EPA

Sarah Thomas Kadec
Chief, Library
Systems Branch
(202) 755-0353

FEA

Thomas Daugherty
National Energy
Information Center
(202) 566-9025

Individuals outside of these agencies should contact:

Karen Ziegler
Environment Information Center, Inc.
292 Madison Avenue
New York, N.Y. 10017
(212) 949-9494

FILE DESCRIPTION

NERIS provides information on over 2,800 organizations and 8,000 people who comprise the nation's energy decision-makers. Five types of organizations are covered:

- Federal Government Agencies (01), including the Senate, House, Joint Congressional Committees, Executive Office, Cabinet Departments, Independent agencies, boards, and commissions
- Regional and State Government Agencies (02), including state energy offices
- Trade, Professional, and Non-Governmental Organizations (03), including international, national, regional and state organizations

- Industry (04), including oil, gas and coal companies, electric utilities, and leading corporations
- Information Centers and Systems (05), including Federal government, trade, professional and commercial organizations, abstracting and indexing systems, legal binder services, directories, newsletters and journals

INFORMATION COVERAGE

Factual data for each organization, when applicable, includes the following:

- organization title
- organization address
- organization phone number
- energy interests
(an abstract which describes the organization's mission and activities)
- energy-related offices, advisory boards, and subcommittees with members; member addresses and phone numbers are given when they differ from the organization
- energy-related research and reports
- energy-related publications and products
- energy-related hearings
- energy-related legislation
- energy-related information services
- controlled vocabulary indexing

A special feature of NERIS is the capability to identify personnel by job function. All personnel are assigned one of the following job titles, which can be searched directly:

- chairman
- chief executive
- energy contact
- energy R & D contact
- key energy personnel
- key information contact
- key personnel
- librarian
- lobbyist
- member
- official energy contact
- public information contact
- U.S. contact

SEARCH FIELDS

CODE SEARCHING		
PREFIX	FIELD NAME	EXAMPLES
IT=	Keyterm (controlled vocabulary)	(select) IT = solar energy (expand) IT = energy conservation
AU=	Personnel	(select) AU = Udall, Morris K. (expand) AU = Dingell, John
PT=	Personnel Type	(select) PT = lobbyist
CI=	City	(select) CI = Chicago
ST=	State	(select) ST = VA
ZP	Zip Code	(select) ZP = 20515

TEXT SEARCHING		
PREFIX	FIELD NAME	EXAMPLES
FT=	Free Term	(select) FT = priorities (expand) FT = legislation

NOTE - The following parts of each entry are searchable through Free Term methods:

title

abstract

subcommittees, offices, advisory boards

research & reports

publications & products

hearings

legislation

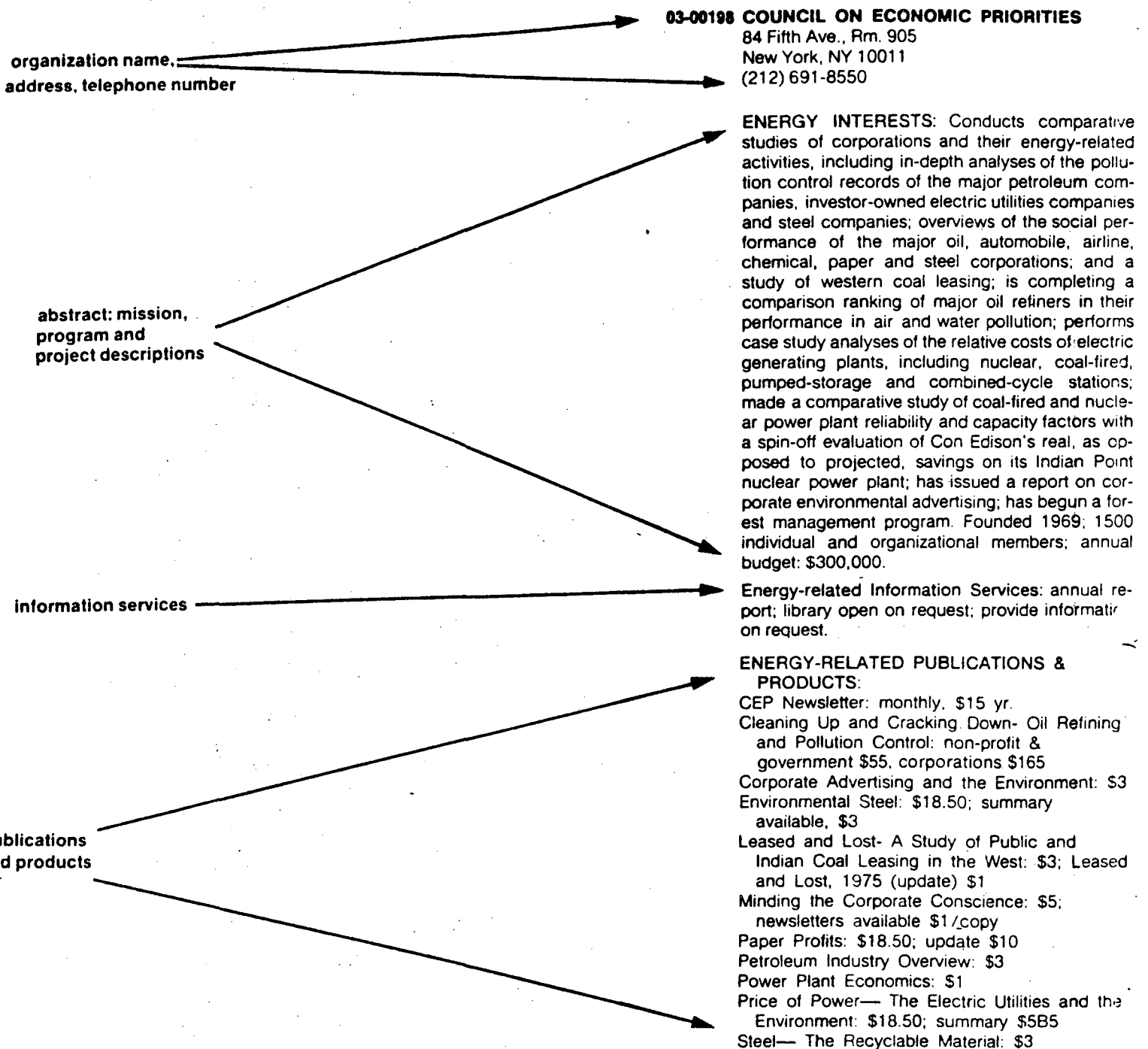
information services

DIRECT ACCESS		
PREFIX	FIELD NAME	EXAMPLES
None	Accession Number	%01R00033/4 %05R00233/0

LIMITING		
PREFIX	FIELD NAME	EXAMPLES
)	Chapter Limit	)1/01)2/03

FORMATS AVAILABLE	
Format 0 or 6	Full Record
Format 1	Accession Number
Format 2 or 5	Accession Number, Title, Address, Phone, Abstract
Format 3	Accession Number, Title
Format 4	Accession Number, Title, Address Phone, Personnel

Sample Record



key personnel

ENERGY CONTACT:

Charles Komanoff
Director, Energy

PUBLIC INFORMATION CONTACT:

Wendy C. Schwartz
Director, Promotion

CHIEF EXECUTIVE:

Alice Tepper Marlin
Executive Director

advisory boards

ENERGY RELATED ADVISORY BOARDS:

CEP Advisory Board

members

MEMBERS:

Joe Browder
Environmental Policy Center

David Brower
Friends of the Earth

Sam Brown
Treasurer, State of Colorado

Robert S. Browne
Black Economic Research Center

ERD

Energy R & D Projects (EISO)

PLEASE NOTE THAT THIS DATA BASE IS BEING SUPERSEDED BY
THE NEW R I P RESEARCH IN PROGRESS DATA BASE.

Energy Research, Development and
Demonstration Inventory
ERDD

RECON DATA BASE
ERD Energy R&D Projects (ICC)

ENERGY RESEARCH AND DEVELOPMENT INVENTORY

Information Center Complex, Information Division
Oak Ridge National Laboratory
P. O. Box X
Oak Ridge, TN 37830
G. M. Caton, Director Phone: (615) 483-8611, Ext. 3-0382

The Inventory comprises a computerized data base containing descriptions of current energy-related research and development performed or sponsored in the United States.

SCOPE:

1. All Energy Sources—Fossil Fuels, Nuclear Fuels, Unconventional Sources
2. Electric Power Generation, Transmission, Distribution, and Storage
3. Energy Uses and Conservation—Industrial, Residential, Agricultural, etc.
4. Economic and Legal Aspects of Energy-Related Research and Development
5. Environmental and Health Effects of Energy-Related Research and Development

PUBLICATION:

"Inventory of Energy Research and Development: 1973-1975", five volume set, issued as a Committee Print for the U.S. House of Representatives, Committee on Science and Technology, Serial U, January 1976. (available through the Superintendent of Documents, U.S. Government Printing Office).

Vols. I, II, and III—Information on energy R&D projects

Vol. IV—Indexes on keywords, research institution, sponsor, investigator, research location, and permuted titles

Vol. V—Summary tables of expenditures

The energy R&D projects are arranged by subject category and include, when available: Title, Research Institution, Sponsor, Investigator, Project Duration, Expenditures, Description of Research, Number of Technical Persons on Project, Research Type (Basic, Applied, Developmental), Publications, and Research Location.

SERVICES:

Preparing for publication an Inventory of descriptions of current energy-related research and development including statistical summary tables of expenditures;

Answering inquiries concerning information in this computerized data base;

Performing limited computer searches and preparing special subsets as time allows;

Providing the Energy Research and Development Inventory to ERDA and ERDA contractors via the on-line ERDA-RECON computer system.

PART I. ENERGY SOURCES

A. COAL

1. Petrology, Geology, Reserves
2. Mining R&D
3. Processing
 - a. Liquefaction
 - b. High BTU Gasification
 - c. Low BTU Gasification
 - d. Gasification, Unspecified
 - e. Desulfurization
 - f. Carbonization
 - g. General
4. Transporting
5. Combustion Studies
6. Miscellaneous Studies & Uses

B. PETROLEUM & NATURAL GAS

1. Exploration
2. Petrology, Geology, Reserves
3. Mining & Refining R&D
4. Processing & Refining R&D
5. Transporting
6. Combustion Studies
7. Miscellaneous

C. OIL SHALES & TAR SANDS

D. NUCLEAR FUELS

1. Uranium Enrichment
2. Fuel Reprocessing Studies
3. Other

E. SOLAR

1. Solar Thermal Conversion
2. Heating & Cooling
3. Wind Energy Conversion
4. Ocean Thermal Conversion
5. Photovoltaic Conversion
6. Photosynthesis, Bioconversion
7. General

F. GEOTHERMAL ENERGY

G. HYDROELECTRIC POWER SOURCES

H. SYNTHETIC FUELS (hydrogen, methane, etc.)

I. OTHER FUELS

1. Plant & Animal By-Products
2. Urban & Industrial Waste

J. GENERAL

- c. Fuel Cells
- d. Thermionic & Thermoelectric
- e. Other

7. General Energy R&D

- a. Advanced & Combined Power Cycles
- b. Other

B. ELECTRIC POWER TRANSMISSION & DISTRIBUTION

1. Undersurface Systems
 - a. Cables & Accessories
 - b. Superconductivity
 - c. Other
2. Overhead Systems
 - a. Transmission Lines & Structures
 - b. Other
3. Stations & Substations
 - a. Substation Design
 - b. Miscellaneous Station Items
4. Relaying, Metering, & Automation
5. Computer Simulation
6. Wireless Transmission (microwave & laser)
7. Miscellaneous Materials & Equip.

C. ELECTRIC POWER STORAGE

D. ELECTRIC POWER PLANNING, ENGINEERING, & OPERATIONS

1. Load Forecasting
2. System Planning
3. System Operation & Control
4. Electrical & Physical Phenomena

PART II. ELECTRIC POWER

A. ELECTRIC POWER GENERATION

1. Fossil Fueled & Unspecified
 - a. Research
 - b. Engineering Development
 - c. Materials & Equipment
 - d. Cooling Systems
2. Fission Fueled
 - a. Research & Engineering Dev.
 - b. LMFBR
 - c. LWBR
 - d. Other Breeders
 - e. HTGR
 - f. All Other Reactors
 - g. Materials & Equipment
 - h. Reactor Safety Studies
 - i. Cooling Systems
 - j. Waste Management
3. Hydroelectric
 - a. Research & Development
 - b. Pumped Storage
4. Nuclear Fusion
 - a. Plasma Properties
 - b. Plasma Production & Heating
 - c. Computer Applications
 - d. Lasers
 - e. Confinement
 - f. Engineering Development
 - g. General
5. MHD & EFD
 - a. Research
 - b. Engineering Development
6. Direct Methods
 - a. Electrode & Electrolyte Studies
 - b. Batteries & Storage Cells

PART III. ENERGY USES & CONSERVATION

A. HEATING & COOLING

1. Waste Heat Utilization
2. Building Design
3. Other

B. LIGHTING

C. APPLIANCES & EQUIPMENT

D. INDUSTRIAL & MANUFACTURING PROCESSES

E. TRANSPORTATION

1. Air & Space
 - a. Research
 - b. Engineering & Equipment Development
2. Water

3. Ground

- a. Research & Engineering Dev.
- b. Internal Combustion Systems
- c. External Combustion Systems
- d. Electrical Propulsion
- e. Efficiency & Fuel Economy
- f. Systems

F. AGRICULTURE

G. MEDICAL

H. MILITARY

I. COMMUNICATIONS

J. COMBINATION OF USES & TOTAL ENERGY

K. GENERAL

1. Public Information, Conferences, etc.
2. Research & Development Studies
3. Other

PART IV. ECONOMIC & LEGAL ASPECTS

A. SUPPLY, DEMAND, & FORECASTING

C. POLICY, LEGISLATIVE, & REGULATORY

B. ECONOMIC FEASIBILITY

D. TECHNOLOGY ASSESSMENT

PART V. ENVIRONMENT & HEALTH -- ENERGY-RELATED

A. ENVIRONMENTAL STUDIES & CONTROL

1. Air Pollution (studies, equipment, & methods)
 - a. SOx
 - b. Other Fossil Fuel Pollutants
 - c. Thermal
 - d. Particulates
 - e. Radioactivity
 - f. General
2. Water Pollution (studies, equipment, & methods)
 - a. Thermal
 - b. Mine Drainage
 - c. Radioactivity
 - d. Industrial Effluents
3. Noise
4. Oil Spills
5. Transportation Exhaust Studies
6. Transportation Emissions Control
7. Waste Product Utilization & Waste Disposal
8. Mine Safety
9. Land Reclamation
10. General Studies & Aesthetics

B. ENVIRONMENTAL & HEALTH EFFECTS

1. Ecological Systems & Effects
 - a. Terrestrial
 - b. Fresh Water
 - c. Marine
 - d. Atmospheric
 - e. Power-Plant Site Studies
 - f. Waste Heat Utilization
 - g. General
2. Biological Effects of Radiation
 - a. Cellular
 - b. Tissues, Organs, & Systems
 - c. Total Organisms, Non-human
 - d. Human
 - e. Genetics
 - f. General
3. Biological Effects of Ingested Pollutants
 - a. Non-human
 - b. Human (inc. population studies)
4. Biological Effects of Air Pollutants
 - a. Non-human
 - b. Human (inc. population studies)
5. General Studies

ENERGY RD&D INVENTORY

List of Most Frequently Used Keywords

ACCELERATORS	COAL COMBUSTION	EFFLUENTS	GENERATORS
ACCIDENTS	COAL DESULFURIZATION	ELECTRIC POWER DISTRIBUTION	BIOCHEMISTRY
ACID MINE DRAINAGE	COAL GASIFICATION	ELECTRIC POWER GENERATION	GEOLOGY
ADVANCED POWER CYCLES	COAL LIQUEFACTION	ELECTRIC POWER PLANTS	GEOTHERMAL ENERGY
AERODYNAMICS	COAL MINES	ELECTRIC POWER TRANSMISSION	GEOTHERMAL POWER GENERATION
AEROSOLS	COAL MINING	ELECTRIC VEHICLES	GEOTHERMAL RESOURCES
AGING (BIOLOGICAL)	COAL PROCESSING	ELECTRICAL EQUIPMENT	GOVERNMENT POLICIES
AGRICULTURE	COAL REACTORS	ELECTRODES	GRASSLANDS
AIR CONDITIONING	COAL RESERVES	ELECTROLYTES	GROUND WATER
AIR POLLUTION	COASTAL WATERS	ELECTRON MICROSCOPY	GROWTH MANAGEMENT (SOCIAL)
AIR POLLUTION CONTROL	COATINGS	ELEMENTS (SPECIFY)	HAZARDS
AIR QUALITY	COMBUSTION		HEALTH
AIRCRAFT	COMBUSTORS	EMISSION CONTROL	HEAT EXCHANGERS
ALGAE	COMMERCIAL SECTOR	EMISSIONS	HEAT PUMPS
ALLOYS	COMMUNITIES	EMPLOYMENT	HEAT TRANSFER
ANAEROBIC PROCESSES	COMPREHENSIVE PLAN	ENERGY CONSERVATION	HEATING
ANIMAL WASTES	COMPUTER APPLICATIONS	ENERGY CONSUMPTION	HIGH TEMPERATURE
ANIMALS	COMPUTERIZED SIMULATION	ENERGY RESOURCES	HOUSES
APPLIANCES	CONFERENCES	ENERGY STORAGE	HIGH REACTORS
AQUATIC ECOSYSTEMS	CONSTRUCTION	ENGINEERING	HUMANS
AQUIFERS	CONTAINERS	ENGINES	HYDROCARBONS
ASHES	COOLING	ENVIRONMENTAL IMPACT	HYDROELECTRIC POWER PLANTS
ATMOSPHERIC DIFFUSION	COOLING SYSTEMS	EQUIPMENT	HYDROGEN SULFIDES
AUTOMOBILES	COOLING TOWERS	ESTUARIES	HYDROLOGY
AUTOMOTIVE EMISSIONS	CORROSION	EXHAUST EMISSIONS	IMPINGEMENT
BACTERIA	COST ANALYSIS	EXPLORATION	IN-SITU PROCESSING
BATTERIES	COST BENEFIT ANALYSIS	FAST BREEDER REACTORS	IN-SITU RETORTING
BENTHIC ORGANISMS	COSTS	FFTF REACTORS	INDUSTRIAL SECTOR
BIOCHEMISTRY	COURTS	FILTERS	INFORMATION SYSTEMS
BIOLOGICAL EFFECTS	CROSS SECTIONS	FISHES	INHALATION
BIOLOGICAL RADIATION EFFECTS	CRYOGENICS	FISSION PRODUCTS	INPUT-OUTPUT ANALYSIS
BOILERS	CRYSTALS	FLAT PLATE COLLECTORS	INSTRUMENTATION
BOREHOLES	DATA ACQUISITION	FLUE GASES	INSULATION
BREEDER REACTORS	DATA ANALYSIS	FLUIDIZED BEDS	INTERNAL COMBUSTION ENGINES
BRIQS	DECOMPOSITION	FLY ASH	INVERTEBRATES
BUDGETS	DEMAND (ECONOMICS)	FLYWHEELS	IONIZING RADIATIONS
BUILDING DESIGN	DEMOGRAPHY	FOOD CHAINS	IRRADIATION
BUILDINGS	DEPOSITION	FORECASTING	ISOTOPE SEPARATION
CABLES	DESULFURIZATION	FOSSIL FUEL POLLUTION	ISOTOPES
CARBON DIOXIDE	DETECTORS	FOSSIL FUELS	KINETICS
CARBON MONOXIDE	DIESEL FUELS	FUEL ASSEMBLIES	LAKES
CARBURATORS	DISEASES	FUEL CELLS	LAND USE
CARCINOGENS	DISPLACEMENT (SOCIAL)	FUEL CONSUMPTION	LASERS
CATALYSTS	DOSIMETRY	FUEL ECONOMY	LEGISLATION
CATALYTIC CONVERTERS	DRILLING	FUEL ELEMENTS	LIMESTONE
CELLS (BIOLOGY)	DUSTS	FUEL GAS (HIGH BTU)	LIQUEFIED NATURAL GAS
CERAMICS	ECOLOGY	FUEL GAS (LOW BTU)	LMFBR REACTORS
CHEMICAL ANALYSIS	ECONOMIC ELASTICITY	FUELS	LOSS OF COOLANT
CHROMOSOMES	ECONOMIC FEASIBILITY	FURNACES	LUBRICANTS
CIRCULATORY ASSIST DEVICES	ECONOMIC IMPACT	GAMMA RADIATION	LUNGS
CLADDING	ECONOMICS	GAS TURBINES	MAGNETIC FIELDS
CLOUDS	ECOSYSTEMS	GASES	MAGNETOHYDRODYNAMICS
COAL	EDUCATION	GASOLINE	MAGNETS

MAMMALS	PETROLEUM	ROCKS	TERRESTRIAL ECOSYSTEMS
MANUFACTURING	PETROLEUM RECOVERY	SAFETY	THERMAL EFFLUENTS
MAPS	PETROLEUM REFINING	SALT WATER	THERMAL PLUMES
MARINE ECOSYSTEMS	PETROLEUM RESERVOIRS	SCRUBBERS	THERMAL POLLUTION
MATHEMATICAL MODELS	PETROLEUM SECONDARY RECOVERY	SEDIMENTS	THERMIONIC ENERGY CONVERTERS
MEMBRANES	PETROLEUM TERTIARY RECOVERY	SEISMIC SURVEYS	THIN FILMS
METABOLISM	PETROLOGY	SEISMOLOGY	TIKAMAY DEVICES
METALS	PHOTOSYNTHESIS	SEMICONDUCTORS	TOXICITY
METEOROLOGICAL DATA	PHOTOVOLTAIC CONVERSION	SHALE OIL	TRACE ELEMENTS
METEOROLOGY	PILOT PLANTS	SILICON SOLAR CELLS	TRACER TECHNIQUES
METHANE	PIPELINES	SIMULATION	TRANSFORMERS
MHD GENERATORS	PLANKTON	SITE SELECTION	TRANSMISSION LINES
MICROORGANISMS	PLANNING	SITE STUDIES	TRANSPORTATION
MILITARY	PLANTS (BOTANY)	SLUDGE	TRANSURANIUM ELEMENTS
MINI SAFETY	PLASMA CONFINEMENT	SLURRIES	TURBINES
MINERALS	PLASMA HEATING	SOCIAL IMPACT	TURBULENCE
MINING	PLASMAS (PHYSICS)	SOCIO-ECONOMIC FACTORS	ULTRAVIOLET RADIATION
MODELS	POLICIES	SOILS	UNDERGROUND TRANSMISSION
MODULAR INTEGRATED UTILITIES	POLLUTION CONTROL	SOLAR CELLS	URANIUM ENRICHMENT
MOLTEN SALTS	POLYMERS	SOLAR COLLECTORS	URBAN AREAS
MONITORING	POPULATIONS	SOLAR COOLING	URBAN TRANSPORTATION
MONITORS	PRESSURE	SOLAR ENERGY	UTILITIES
MORTALITY RATE	PROPERTY ASSESSMENT	SOLAR ENERGY CONVERSION	VEGETATION
MUNICIPAL WASTES	PROPULSION	SOLAR HEATING	VEHICLES
MUTAGENS	PUBLIC SERVICES	SOLAR POWER GENERATION	WAGES
NATURAL GAS	PUMPED STORAGE	SOLAR THERMAL CONVERSION	WASTE DISPOSAL
NEOPLASMS	PUMPS	SOLID WASTES	WASTE HEAT
NEUTRONS	PYROLYSIS	SPACECRAFT	WASTE PRODUCT UTILIZATION
NITROGEN OXIDES	QUALITY OF LIFE	SPECTROSCOPY	WASTE TREATMENT
NOISE	RADIATION	SPOILS	WASTE WATER
NUCLEAR FISSION	RADIATION EFFECTS	STACK GASES	WASTES
NUCLEAR FUEL REPROCESSING	RADIATION EXPOSURE	STANDARDS	WATER
NUCLEAR FUELS	RADIOACTIVE WASTES	STATE GOVERNMENT	WATER POLLUTION
NUCLEAR FUSION	RADIOBIOLOGY	STATISTICAL ANALYSIS	WATER QUALITY
NUCLEAR MEDICINE	RADIOISOTOPES	STEAM GENERATORS	WATER RESOURCES
NUCLEAR POWER PLANTS	RANKINE CYCLE	STORAGE	WATERSHEDS
NUCLEAR REACTOR ACCIDENTS	RAPID TRANSIT NETWORK	STORAGE CELLS	WEATHER
NUCLEAR REACTOR CORES	RARE EARTHS	STRESSES	WELLS
NUCLEAR REACTOR SAFETY	RATES (COSTS)	STRIP MINING	WIND
NUCLEAR REACTORS	RECLAMATION	SUBSTATIONS	WIND ENERGY CONVERSION
OCEAN THERMAL CONVERSION	RECYCLING	SULFUR DIOXIDE	WIND POWER GENERATION
OCEANS	REFINERIES	SUPERCONDUCTIVITY	X-RAYS
OFFSHORE DRILLING	REFINING	SUPERCONDUCTORS	
OFFSHORE STRUCTURES	REGIONAL EFFECTS	SUPPLY (ECONOMICS)	
OIL SHALES	REGULATIONS	SURFACE MINING	
OIL SPILLS	REMOTE SENSING	SURVEYS	
OSCILLATIONS	RESERVOIRS	SYNTHETIC FUELS	
OVERBURDEN	RESIDENTIAL BUILDINGS	SYNTHETIC GAS	
OXIDATION	RESIDENTIAL SECTOR	SYNTHETIC OILS	
OZONE	RESPIRATORY SYSTEM	TAR SANDS	
PARTICULATES	REVEGETATION	TAXES	
PEAKING	RIVERS	TECHNOLOGY ASSESSMENT	
ADDITIONAL KEY WORDS:		TEMPERATURE GRADIENTS	

EIX

Engineering Index (COMPENDEX)

SUBJECT HEADINGS FOR ENGINEERING :

LIST OF SHE TERMS WHICH, WHEN APPLIED BY EI INDEXERS, AUTOMATICALLY CAUSE AN ABSTRACT TO BE PLACED IN DOE'S ENERGY DATA BASE (AND TO BE RE-INDEXED ACCORDING TO THE ENERGY DATA BASE SUBJECT THESAURUS)

LIST OF JOURNALS WHICH ARE GIVEN COMPLETE COVERAGE BY EI INDEXERS, FOR THE ENERGY DATA BASE.

Engineering Index Terms from Subject Headings for Engineering (SHE)
These terms cause an abstract to be selected for re-indexing with
EDB terms, for the Energy Data Base.

MANDATORY ENERGY TERMS

AIRCRAFT FUELS	FUEL ECONOMY
AUTOMOTIVE FUELS	FUEL CELLS
BUTANE	FUELS
COAL	GAS MANUFACTURE
COAL DEPOSITS	GAS OIL
COAL GASIFICATION	GASOLINE
COAL LIQUEFACTION	GASOLINE REFINING
COAL HYDROGENATION	GEOTHERMAL ENERGY
COAL MINES AND MINING	HEAT INSULATING MATERIALS
COAL RESEARCH	HYDROGEN FUELS
COMBUSTION	KEROSENE
DIESEL FUELS	LIGNITE
DIRECT ENERGY CONVERSION	LIGNITE MINES & MINING
ELECTRIC BATTERIES	LIQUID FUELS
ELECTRIC ENERGY STORAGE	LOCOMOTIVES - - Fuels
ELECTRIC POWER GENERATION	MAGNETOHYDRODYNAMIC CONVERTERS
ELECTRIC POWER UTILIZATION	MHD - MAGNETOHYDRODYNAMICS
ELECTRIC UTILITIES	METHANE
ELECTROHYDRODYNAMICS	NATURAL GAS
ENERGY CONSERVATION	NATURAL GAS, LIQUEFIED
ENERGY POLICY	NATURAL GASOLINE
ENERGY RESOURCES	NUCLEAR ENERGY
ENERGY STORAGE	NUCLEAR FUELS
ENERGY UTILIZATION	NATURAL GASOLINE
ETHANE	NUCLEAR REACTORS

NUCLEAR REACTORS, BOILING WATER
 NUCLEAR REACTORS, BREEDER
 NUCLEAR REACTORS, EXPERIMENTAL
 NUCLEAR REACTORS, FAST
 NUCLEAR REACTORS, GAS COOLED
 NUCLEAR REACTORS, HEAVY WATER
 NUCLEAR REACTORS, HIGH TEMPERATURE
 NUCLEAR REACTORS, LIGHT WATER
 NUCLEAR REACTORS, LIQUID METAL COOLED
 NUCLEAR REACTORS, PRESSURIZED WATER
 NUCLEAR REACTORS, PROCESSING HEAT
 NUCLEAR REACTORS, THERMONUCLEAR
 NUCLEAR REACTORS, WATER COOLED
 OIL FIELDS
 OIL FUEL
 OIL SANDS
 OIL SHALE
 PETROLEUM, CRUDE
 PETROLEUM GAS, LIQUEFIED
 PETROLEUM PROSPECTING
 PETROLEUM REFINERIES
 PETROLEUM REFINING
 PETROLEUM RESEARCH
 PETROLEUM RESERVOIR ENGINEERING

PHOTOVOLTAIC CELLS
 POWER GENERATION
 PROPANE
 PULVERIZED FUEL
 SEAWATER, THERMAL GRADIENTS
 SOLAR CELLS
 SOLAR ENERGY
 SOLAR RADIATION - - Collectors
 SOLAR RADIATION - - Concentrators
 STORAGE BATTERY VEHICLES
 SYNTHETIC FUELS
 THERMIONIC POWER GENERATION
 THERMOELECTRIC ENERGY CONVERSION
 TIDAL POWER
 TOKAMAK DEVICES
 URANIUM DEPOSITS
 URANIUM MINES & MINING
 WASTE HEAT UTILIZATION
 WIND POWER

Engineering Index List of Journals Covered for Energy Data Base

ERDA COMPLETE COVERAGE LIST OF JOURNALS

AMBIO
ANN MINES
BULL CAN PET GEOL
COAL MIN PROC
COLLIERY GUARDIAN
COLO SCH MINES MINER IND BULL
ERDOEL ERDGAS Z
ERDOEL KOHLE ERDGAS PETROCHEM
PRENNST CHEM
GEOTHERMICS
J CAN PET TECHNOL
J MINES MET FUELS
JPT J PET TECHNOL
MIN MAG
MIN ENG (LONDON)
OIL GAS J
Q COLO SCH MINES
S A MIN ENG J
TRANS INST MIN METALL, SECT A
TRANS INST MIN METALL, SECT B
TRANS INST MIN METALL, SECT C
CHEM ENG (NY)
CHEM ENG PROG
GAS WORLD GAS J
PET ENG
PET REV
CONSULT ENG (LONDON)
CONSULT ENG (BARRINGTON, ILL)
ENG J AM INST STEEL CONSTR
ELECTR VEH
ENERGY DIG
ENERGY SYST POLICY
ENERG ELETTR
ENERGOMASHINOSTROENIE
IZV AKAD NAUK (SSSR) ENERG TRANSP
IZV VYSSH UCHEBN ZAVED ENERG
IZV VYSSH UCHEBN ZAVED NEFT GAZ

J ILLUM ENG SOC
POWER
POWER TRANSM DES
REV ENERG
TEPLOENERGETIKA
TERNOTECNICA
ARCH ELECTROTECH
AUST MIN
CAN MIN J
MIN TECHNOL
MIN CONGRESS
WORLD MIN
BROWN BOVERIE REV
CAN MINER RESOUR DIV MINER BULL
CAN MINES BRANCH INF CIRC
J S AFR INST MIN METALL
MINER SCI ENG
MIN ENG
REV INST FR PET
SOC PET ENC AIME J
ENERG TECHNIK
ENERGIE
FUEL
GAS TURBINE INT
ENERGY COMMUN
INT J PRESSURE VESSEL PIPING
HYDROCARBON PROCESS
J ENG POWER TRANS ASME
J PRESSURE VESSEL TECHNOL TRANS ASME
NAV ENG
QUAL ASSUR
POWER ENG
MECH ENG

E S I

ENVIRONMENTAL SCIENCE INDEX

Part 1

ENVIROLINE

ENVIROLINE (Lockheed DIALOG file #40) is the online file derived from EIC's Environmental data base. This data base is held in EIC's computer system and forms the basis from which print and magnetic tape products are derived. The ENVIROLINE User Manual is designed as an aide to online users of the ENVIRONMENTAL data base. Other entry points to this information are described in Appendix E.

File Data

Inclusive dates : January 1971 to the present
Update frequency: monthly
Update size : approximately 1,000 abstracts per month, each indexed by up to 14 keyterms from the EIC master list of over 6,000 environmental descriptors
File size : 1971 through 1974 - over 38,000 citations
1975 through 1976 - more than 16,000 abstracts
Total as of December 31, 1976 - over 54,000 abstracts and citations

Origin

ENVIROLINE is produced by:

Environment Information Center, Inc.
292 Madison Avenue - 3rd Floor
New York, NY 10017
(212) 949-9494

Part 2**TNE ENVIROLINE DATABASE**

ENVIROLINE monitors the environmental and resource subject areas.

Detailed coverage and breakdown of these broad fields is provided in the Review Classifications (Appendix A). Although major reports are assigned to all Classifications, ENVIROLINE fulfills a major information management role by distilling the more important material for inclusion. In addition, some subjects engender more numerous studies of greater impact, and they, therefore, bulk larger in the data base. For these reasons, the Air Pollution and Water Pollution sections, for example, receive more abstracts per year than the Land Use and Transportation categories.

2.1 Subject Coverage

ENVIROLINE should be searched for information on the following major study units:

Air Environment, including air pollution, noise pollution, radiological contamination, and weather modification;

Environmental Health, including chemical, biological, and radiological contamination, food and drugs, noise pollution, population planning and control, certain aspects of air and water pollution;

Land Environment, including land use and misuse, environmental design, population planning and control, terrestrial resources, solid wastes, transportation, and wildlife management;

Resource Management, including renewable and non-renewable resources, terrestrial and water resources, food resources, oceans and estuaries, and solid wastes;

Solid Wastes Management, including solid wastes management, land use and misuse, terrestrial resources, and certain aspects of water pollution;

Water Environment, including water pollution, water resources, oceans and estuaries, chemical and biological contamination.

2.2 Selection Criteria

The ENVIROLINE user should understand the interdisciplinary nature of this data base. Since the subject "environment" is not a traditional scientific discipline, such as "chemistry," material is selected from an extremely broad range of sources (see paragraph 2.3 below). The non-traditional stance of this subject matter implies several key facts for the online user:

- neither the size of the file nor the number of "hits" indicate the success of a search, because all ENVIROLINE items are heavily screened before inclusion;
- since questions posed in the environmental field include scientific, technical, political, and socio-economic factors, the answers must respond to all of these facets;
- since each "hit" represents the best information from the traditional disciplines, lucid and detailed abstracts supported by full document back-up are vital.

ENVIROLINE items are selected to meet the following guidelines:

- The document must make a useful contribution. The information need not be "new," but it must shed light on its subject.
- A document which poses a new question or problem is valuable.
- If more than one document presents the same information, the better one only is chosen. If many documents discuss the

same issue, several (but rarely all) are included. Several articles on the same subject from one source may be grouped together in one abstract. (For criteria on which documents are "better," see paragraph 2.3.)

If only a portion of a more extensive document contains

- information of relevance to ENVIROLINE, that section is isolated and abstracted where possible. When a document can not be sectioned, the abstract will reflect only that aspect which is germane to this data base.
- In order to appear in ENVIROLINE, an item's shelf-life must be years rather than months or weeks. Ephemeral items, or material from "news" sources, are generally not included.
- Although every effort is made to include only recent material, the following exceptions are made: reports for which both the material and publication date are several years old, but which provide substantial and vital information; overseas journals which arrive in the United States after their cover date.

For more detail on selection criteria for each document type, see paragraph 2.3 below.

2.3 Sources

ENVIROLINE draws material from over 3,000 periodicals, thousands of symposia, governmental and institutional reports, and other primary and secondary sources. All attempts are made to monitor the literature relevant to this data base, and the screening process excludes much that is marginally outside of ENVIROLINE's purview. Rather than adhere to a standardized core list of sources, ENVIROLINE "follows" the information to its various outpourings described below.

Periodicals Journal articles comprise approximately 65 per cent of the ENVIROLINE data base. A list of journals screened is presented in Appendix B.

- major articles only are abstracted; news items, book reviews, and summaries of larger reports are generally excluded;
- although some journals (no more than 100) usually are abstracted completely, ENVIROLINE makes no attempt to always provide total coverage of any serial because some articles may be reprints, out-of-date, or otherwise outside the scope of our coverage;
- those journals which offer large numbers of items to this data base are marked in the journal list (Appendix B); the journal list contains many titles which contribute few or infrequent items; these are, nevertheless, screened because their offerings are often unique and unavailable elsewhere;
- the list displays a catholicity of sophistication and subject matter, ranging from scientific and technical to trade, professional, and general magazines;
- relevant non-English language items are chosen when an English summary is available; complete articles are not translated prior to abstracting;
- the ENVIROLINE journal list is dynamic; sources are added and deleted in response to changing issues and events; this quality makes ENVIROLINE a valuable tool for current awareness of trends and new areas as well as an information source on established problems.

Periodicals are cited according to a specific format. Although all attempts are made to provide consistent wording, variations do exist in the earlier volumes. Consult the periodicals list (Appendix B) and follow these general rules for best results:

- always abbreviate Journal as J and Bulletin as B;
- omit "of" and "of the" after J, B, Archives, and Annals (except for non-English language journals);
- always change "and" to "&" (except for non-English language journals);
- omit all apostrophes, commas, and periods;
- an organization name always comes before a journal name (e.g., AMA J, not J AMA);
- environment and environmental are usually shortened to env; this also applies to reports.

Reports These constitute 25 per cent of the ENVIROLINE data base. There is no formal list of reports or report sources monitored; however, material is drawn from the following categories.

- government documents - These are sponsored by the major departments and agencies, including the U.S. Environmental Protection Agency; Council on Environmental Quality; Departments of Interior, Commerce, Housing, Transportation, Health, Education, and Welfare; National Oceanic and Atmospheric Administration; Army Corps of Engineers; Energy Research and Development Administration; Federal Energy Administration; and the Food and Drug administration. State government reports are included when they have either broad impact or present key information on important issues. Non-U.S. government reports from Canada, Western Europe, and Asia are included whenever they do not duplicate U.S. material and are available.
- congressional hearings and reports - Transcripts and documents from U.S. House and Senate committees on such diverse topics as water resources, forest management, land use, ocean mammals, atomic energy, oil spills, food resources, and population growth

are included.

non-government reports - Research reports and monographs from private institutions, including corporations, universities, and multi-national organizations, are included. Among these groups are the following: the European Economic Community, U.N. Economic Commission of Europe, UNESCO, Food and Agricultural Organization, National Academy of Science, Rand Corporation, Society of Automotive Engineers, Ford Foundation, International Union for the Conservation of Nature, International Atomic Energy Agency, and the Sierra Club.

Reports suffer more profoundly from standardization problems than other sources. The following guidelines should be followed when identifying reports:

- remove most prepositions, articles, and conjunctions, and change "and" to "&";
- parent agency precedes the names of smaller governmental agencies (e.g., EPA Office Solid Waste Management Report 10);
- famous subdivisions do not need the parent agency (e.g., USBM Report 6511 without reference to USDI);
- use "US" without a space before all Federal governmental agencies, except for those agencies found in the Standard Abbreviations list (see Appendix C) (e.g., HEW Report, DOT Report, USACE Report, USDA Report);
- for abbreviated Federal agencies, attach "US" to the initials without a space; if the agencies are written out, then use one space after "US" (e.g., USBLM Report, US Office Education Report);
- report numbers are not preceded by "no." or "#".

Congressional hearings adhere to the following format: (name of committee)

Hearing(s) (Congress #) Con (Session #) Serial (Serial #). For example,

"Sen Comm Commerce Hearings 93 Con 2 Serial 93-129". The following committees are commonly cited.

Hse Comm Agriculture	Joint Comm Atom Ener
Hse Comm Appropriations	Joint Comm Def Prod
Hse Comm Armed Services	Joint Economic Comm
Hse Comm Banking Currency	Sen Comm Aero Space Sciences
Hse Comm Commerce	Sen Comm Agriculture Forest
Hse Comm Conference	Sen Comm Appropriations
Hse Comm District Columbia	Sen Comm Banking Hous Urban
Hse Comm Education Labor	Sen Comm Budget
Hse Comm Foreign Affairs	Sen Comm Commerce
Hse Comm Govt Operations	Sen Comm Conference
Hse Comm Int Insular Affairs	Sen Comm District Columbia
Hse Comm Intl Relations	Sen Comm Finance
Hse Comm Intstate Forgn Comm	Sen Comm Foreign Relations
Hse Comm Merch Marine Fish	Sen Comm Govt Operations
Hse Comm Public Works	Sen Comm Int Insular Affairs
Hse Comm Science Astronautic	Sen Comm Judiciary
Hse Comm Science Tech	Sen Comm Labor Public Welfare
Hse Comm Small Business	Sen Comm Nutrition Human Needs
Hse Comm Ways Means	Sen Comm Public Works
	Sen Comm Small Business

Conference papers Although approximately only 10 per cent of ENVIROLINE consists of papers presented at conferences and symposia, this category often yields information unavailable from other sources. Total conference coverage is impracticable for a variety of reasons: an uncontrollably large number of local, national, and international meetings take place annually; papers often are never available in an accessible form; papers often are presented as preliminary findings rather than authoritative reports; and many conferences feed papers to professional journals which function as their prime outlet. ENVIROLINE's selection of conferences, therefore, takes into account these factors and others.

- papers published as long as two years after a conference are sometimes valuable since the information was not available earlier;
- published proceedings are sometimes, but not always, more valuable than preprints since they allow inclusion of statistical and bibliographic support, and final thoughts;

- papers for which full transcripts are not immediately

available often will be published in traditional sources.

The citation of conferences follows this format: presented at (name of sponsor), for/on (name of conference), (city or state or country), (date). For example, "presented at IAEA Sym on Radiation for a Clean Env, Munich, Mar 17-21, 75".

Newspapers ENVIROLINE includes major articles or commentary from the New York Times and the Wall Street Journal. While this is not comprehensive coverage of the newspaper medium, it is representative.

News items or stories that gain more detailed treatment in journals are excluded.

Federal Register The official organ of the U.S. Federal government is monitored daily. Approximately 175 items are selected annually for inclusion in ENVIROLINE.

Books Over 500 new books are chosen annually for listing in ENVIROLINE.

Films Listings are presented for approximately 100 new environmental films annually.

Selection criteria for the Federal Register, Books, and Films are similar to those for journals and reports. These sources are integrated into the more conventional data base literature in order to assure comprehensive coverage of ENVIROLINE's subject matter.

EIC KEYTERM LIST

ECON IMPACT—SOLID WASTE
 ECON IMPACT—SOLID WASTE
 CONT
 ECON IMPACT—WATER POLL
 ECON IMPACT—WATER POLL
 CONT
 ECONOMETRICS
 ECONOMIC GROWTH
 ECONOMIC GROWTH, DIMINISHED
 ECONOMIC INCENTIVES
 ECONOMIC INCENTIVES, ENV
 ECONOMICS
 ECONOMICS—FED
 ECONOMICS—INTL
 ECONOMICS—NON U S
 ECONOMICS—STATE LOCAL
 ECONOMICS, AGRI WASTE
 ENERGY
 ECONOMICS, ANIMAL WASTE
 ENERGY
 ECONOMICS, BIOCONVERSION
 ECONOMICS, COAL
 ECONOMICS, COAL EXPLORATION
 ECONOMICS, COAL MINING
 ECONOMICS, COAL PROCESSING
 ECONOMICS, COAL STORAGE
 ECONOMICS, COAL TRANSPORT
 ECONOMICS, DISTRIBUTION
 ECONOMICS, ELECTRICITY
 ECONOMICS, ENERGY
 ECONOMICS, ENERGY STORAGE
 ECONOMICS, ENERGY
 TRANSMISSION
 ECONOMICS, ENERGY USAGE
 ECONOMICS, ENERGY USAGE—
 AGRI
 ECONOMICS, ENERGY USAGE—
 COMM
 ECONOMICS, ENERGY USAGE—
 DOM
 ECONOMICS, ENERGY USAGE—
 GOVT
 ECONOMICS, ENERGY USAGE—IND
 ECONOMICS, ENERGY USAGE—
 TRANS
 ECONOMICS, ENERGY—
 UNCONVENTIONAL
 ECONOMICS, ENV
 ECONOMICS, ENV—AIR
 ECONOMICS, ENV—BIOLOGICAL
 ECONOMICS, ENV—CHEMICAL
 ECONOMICS, ENV—COAL
 ECONOMICS, ENV—DESIGN
 ECONOMICS, ENV—EDUCATION

ECONOMICS, ENV—ELECTRIC
 POWER
 ECONOMICS, ENV—ENERGY
 ECONOMICS, ENV—FED
 ECONOMICS, ENV—FOOD
 ECONOMICS, ENV—FOREST
 ECONOMICS, ENV—FUEL
 ECONOMICS, ENV—GEOTHERMAL
 ENERGY
 ECONOMICS, ENV—
 HYDROELECTRIC
 ECONOMICS, ENV—INTL
 ECONOMICS, ENV—LAND
 ECONOMICS, ENV—MARINE
 ECONOMICS, ENV—MINERAL
 ECONOMICS, ENV—NATURAL GAS
 ECONOMICS, ENV—NOISE
 ECONOMICS, ENV—NON U S
 ECONOMICS, ENV—OIL
 ECONOMICS, ENV—OIL SHALE
 ECONOMICS, ENV—PEST
 CONTROL
 ECONOMICS, ENV—POPULATION
 ECONOMICS, ENV—RADIATION
 ECONOMICS, ENV—RECREATION
 ECONOMICS, ENV—SOLAR
 ENERGY
 ECONOMICS, ENV—SOLID WASTE
 ECONOMICS, ENV—STATE LOCAL
 ECONOMICS, ENV—TAR SANDS
 ECONOMICS, ENV—THERMAL SEA
 POWER
 ECONOMICS, ENV—TIDAL ENERGY
 ECONOMICS, ENV—TRANSPORT
 ECONOMICS, ENV—WATER
 ECONOMICS, ENV—WAVE ENERGY
 ECONOMICS, ENV—WEATHER
 ECONOMICS, ENV—WILDLIFE
 ECONOMICS, FOSSIL FUEL
 ECONOMICS, FUEL
 ECONOMICS, FUEL EXPLORATION
 ECONOMICS, FUEL PROCESSING
 ECONOMICS, FUEL STORAGE
 ECONOMICS, FUEL TRANSPORT
 ECONOMICS, FUSION
 ECONOMICS, GAS PROCESSING
 ECONOMICS, GENERATION
 ECONOMICS, GEOTHERMAL
 ENERGY
 ECONOMICS, HYDROELECTRIC
 ECONOMICS, HYDROGEN
 ECONOMICS, NATURAL GAS
 ECONOMICS, NATURAL GAS DRILL
 ECONOMICS, NATURAL GAS
 EXPLOR
 ECONOMICS, NATURAL GAS
 STORAGE
 ECONOMICS, NATURAL GAS
 TRANSPORT
 ECONOMICS, NUCLEAR FUEL
 ECONOMICS, NUCLEAR POWER
 ECONOMICS, OIL
 ECONOMICS, OIL DRILLING
 ECONOMICS, OIL EXPLORATION
 ECONOMICS, OIL REFINING
 ECONOMICS, OIL SHALE
 ECONOMICS, OIL STORAGE
 ECONOMICS, OIL TRANSPORT
 ECONOMICS, PETROCHEMICAL
 ECONOMICS, PRODUCTION
 ECONOMICS, SOLAR ENERGY
 ECONOMICS, SOLID WASTE
 ENERGY
 ECONOMICS, SYNTHETIC FUEL
 ECONOMICS, TAR SAND
 ECONOMICS, THERMAL SEA
 POWER
 ECONOMICS, TIDAL ENERGY
 ECONOMICS, WIND ENERGY
 ECOSPHERE
 ECOSYSTEMS
 EQUADOR
 EDISON ELECTRIC INST
 EDUCATION
 EDUCATION CONFS
 EDUCATION, ELEMENTARY
 EDUCATION, ENV
 EDUCATION, ENV—ELEMENTARY
 EDUCATION, ENV—FINANCING
 EDUCATION, ENV—INVESTMENT
 EDUCATION, ENV—OUTDOOR
 EDUCATION, ENV—PUBLIC
 EDUCATION, ENV—SECONDARY
 EDUCATION, ENV—UNIVERSITY
 EDUCATION, PUBLIC
 EDUCATION, SECONDARY
 EDUCATION, UNIVERSITY
 EDUCATIONAL COMPARISONS
 EEL GRASS
 EFFICIENCY
 EFFLUENT CONTROL PROGRAMS
 EFFLUENT STANDARDS
 EGGSHELL THICKNESS
 EGYPT
 EHRICH, PAUL R
 EKISTICS
 EL PASO
 EL PASO NATURAL GAS CO
 EL SALVADOR
 ELECTRIC AUTOMOBILES
 ELECTRIC BUSES
 ELECTRIC COOPERATIVES
 ELECTRIC POWER
 ELECTRIC POWER DISTRIBUTION
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UGANDA	URBAN MASS TRANSPORT ACT 64	WASTE COLLECTION	WATER SOFTENING
UKRAINE	URBAN PARKS	WASTE DISPOSAL	WATER STORAGE
ULTIMATE RECOVERY	URBAN PLANNING	WASTE DISPOSAL, LAND	WATER SUPPLY
ULTRA HIGH VOLTAGE	URBAN RENEWAL	WASTE DISPOSAL, SUBSURFACE	WATER SUPPLY, DOMESTIC
TRANSMISSION	URBAN SPRAWL	WASTE DISPOSAL, WATER	WATER SUPPLY, INDUSTRIAL
ULTRAFILTRATION	URBAN WATER RESOURCES	WASTE MANAGEMENT	WATER TABLE
ULTRASONIC APPLICATIONS	URBAN—RURAL COMPARISONS	WASTE OIL	WATER TASTE
ULTRAVIOLET RADIATION	URBANIZATION	WASTE REDUCTION	WATER TEMPERATURE
ULTRAVIOLET SENSING	URS SYSTEMS CORP	WASTE REPROCESSING	WATER TRANSPORT
UMM AL QAIMAN	URUGUAY	WASTE STANDARDS	WATER TRANSPORTATION
UNDERGROUND DISTRIBUTION	USER FEES	WASTE STORAGE	WATER TURBINES
LINES	USSR	WASTE TRANSPORT	WATER VAPOR
UNDERGROUND FUEL STORAGE	UTAH	WASTE TREATMENT	WATER WELLS
UNDERGROUND MINING	UTAH, UNIV	WASTEWATER	WATER, BOTTLED
UNDERGROUND MINING, COAL	VAGINAL FOAMS	WASTEWATER ANALYSIS	WATER, BRACKISH
UNDERGROUND MINING, METAL	VAN HISE, CHARLES R	WASTEWATER COLLECTION	WATER, DRINKING
UNDERGROUND NUCLEAR POWER	VANADIUM	WASTEWATER DISPOSAL	WATERFALLS
PLANTS	VANCOUVER	WASTEWATER DISPOSAL, LAND	WATERFLOODING
UNDERGROUND POWER PLANTS	VAPOR DEGREASING	WASTEWATER MANAGEMENT	WATERFOWL
UNDERGROUND TRANSMISSION	VAPOR LOCK	WASTEWATER OUTFALLS	WATERSHED MANAGEMENT
LINES	VAPORIZATION	WASTEWATER REUSE	WATERSHEDS
UNDERWATER FUEL STORAGE	VAPORS, TOXIC	WASTEWATER REUSE, DOMESTIC	WATERWAYS
UNDERWATER NOISE	VASECTOMY	WASTEWATER REUSE, INDUSTRIAL	WAVE ENERGY
UNDERWATER NUCLEAR POWER	VATICAN CITY	WASTEWATER STORAGE	WAXES
PLANTS	VEGETABLES	WASTEWATER TRANSPORT	WAYNE STATE UNIV
UNDERWATER PIPELINES	VEGETARIANISM	WASTEWATER TREATMENT	WEAPONS TESTING
UNDERWATER POWER PLANTS	VEHICLE AGE	WATER ANALYSIS	WEATHER FORECASTING
UNDERWATER TRANSMISSION	VEHICLE INSPECTION	WATER CHEMISTRY	WEATHER MANAGEMENT
LINES	VEHICLE SPEED	WATER CLOSETS	WEATHER MODIFICTN
UNEMPLOYMENT	VEHICLE WEIGHT	WATER COLLECTION	WEATHER MODIFICTN FINANCING
UNEMPLOYMENT, NON U S	VENEZUELA	WATER COLOR	WEATHER MODIFICTN INVESTMENT
UNFINISHED OILS	VENICE	WATER CONSERVATION	WEATHER MODIFICTN RESEARCH
UNILEVER LTD		WATER CONSERVATION,	WEATHERING
UNION CAMP CORP		DOMESTIC	

ENVIRONMENTAL TERATOLOGY INFORMATION CENTER DATA BASE

(ETI)

ENVIRONMENTAL TERATOLOGY INFORMATION CENTER DATA BASE

OVERVIEW

Source

Subject Coverage

Document-type Coverage

Years of Coverage

Restrictions

ETI Unit Record and Prints

JUNE 1977

OVERVIEW

The ETI data base is the major project of the Environmental Teratology Information Center (ETIC). Teratology is the science dealing with causes, mechanisms, and manifestations of structural or functional alterations in animal development (more simply, the study of birth defects). ETIC was organized at the Oak Ridge National Laboratory in 1975 to collect, organize, and disseminate information on the testing and/or evaluation of chemical, biological, and physical agents for teratogenic activity.

Source

The ETI data base is supplied by the Environmental Teratology Information Center. Questions concerning this data base should be directed to:

Beth Owens or Brad Whitfield
Environmental Teratology Information Center
Oak Ridge National Laboratory
P. O. Box Y, Bldg. 9224
Oak Ridge, Tennessee 37830

Phone: FTS 850-5473; Commercial (615) 483-8611, ext. 3-5473

Subject Coverage

ETI contains information gathered from the open literature that reports on the testing and evaluation for teratogenesis of chemical, biological, and physical agents, and dietary deficiencies in warm-blooded animals. The main focus of the data base is on the administration of an agent to pregnant animals and examination of the offspring at or near birth for structural or functional anomalies.

Document-type Coverage

Both United States and foreign published literature containing information on teratology is covered. Prominent sources are biomedical journals dealing with teratology, toxicology, pediatrics, obstetrics, and anatomy. Many other types of publications are also represented. The following list gives these types and their corresponding abbreviations.

A — Abstract	L — Letter to the editor
B — Book	M — Methods paper
BR — Book review	N — Note
C — Chapter in a book	P — Popular article
D — Discussion	R — Report
E — Editorial	S — Symposium paper
H — Hypothesis or theory	V — Review
J — Journal (original data)	X — Patent

Years of Coverage

The goal of ETIC is for the ETI data base to provide complete coverage of all teratological literature. Material from 1912 to the most current 1977 journals is presently included in the file with literature from 1975 to 1977 being the most complete. All pertinent material in the current literature is being input while efforts to cover literature from previous years continue. It is anticipated that the entry of pre-1977 articles will be completed in the coming year.

Restrictions

There are no restrictions on the use of ETI.

ETI Unit Record and Prints

This file is similar to the EMI (Environmental Mutagen Information Center) data base and may be searched in many of the same ways. Samples and descriptions of the unit records and prints will be available as soon as ETI appears on RECON.

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