

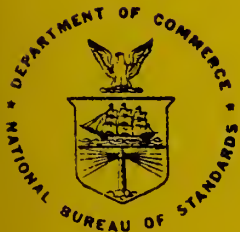
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Coal Taxonomy Thesaurus of Terms

December 1981



U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS



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COAL TAXONOMY THESAURUS OF TERMS

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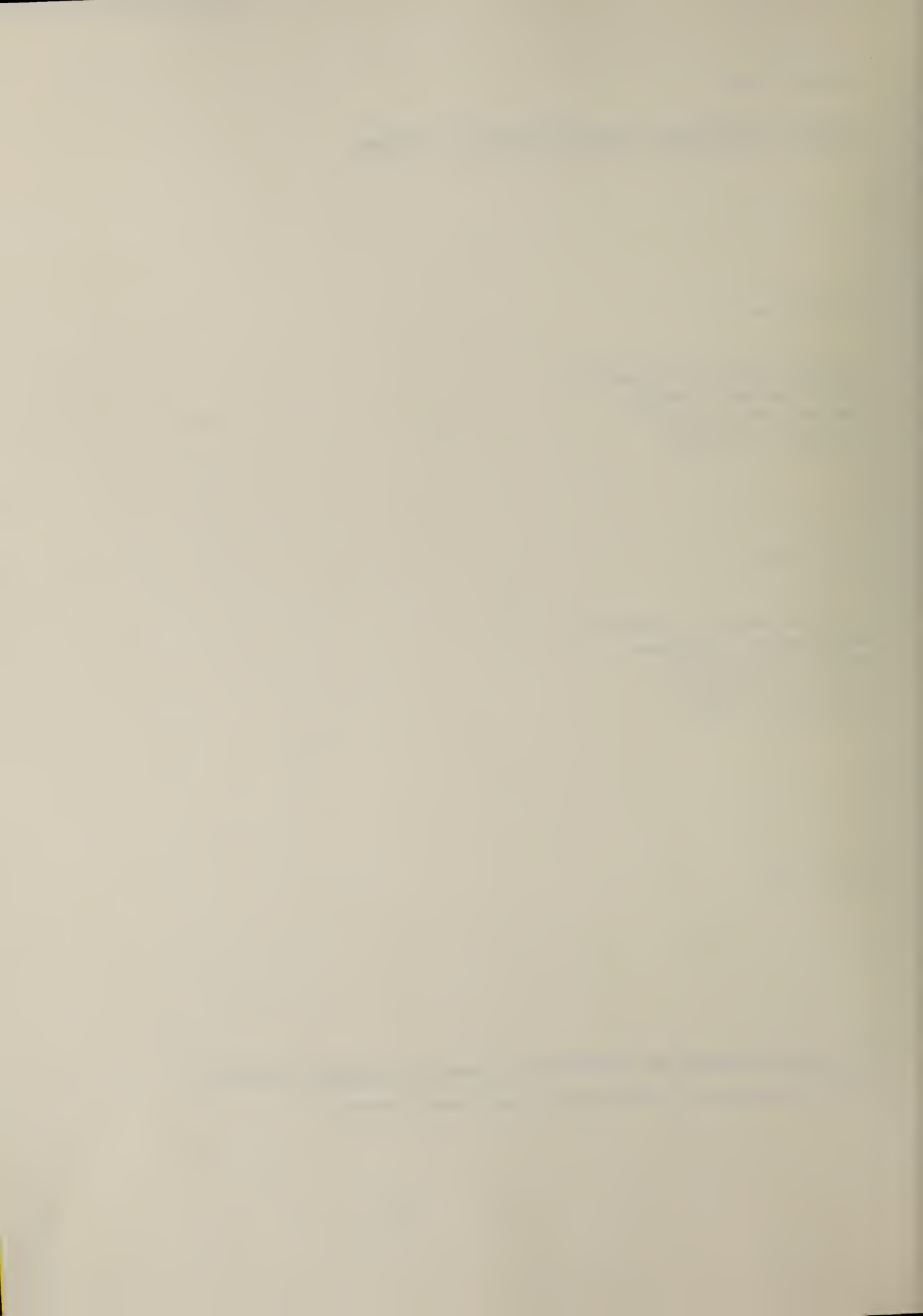
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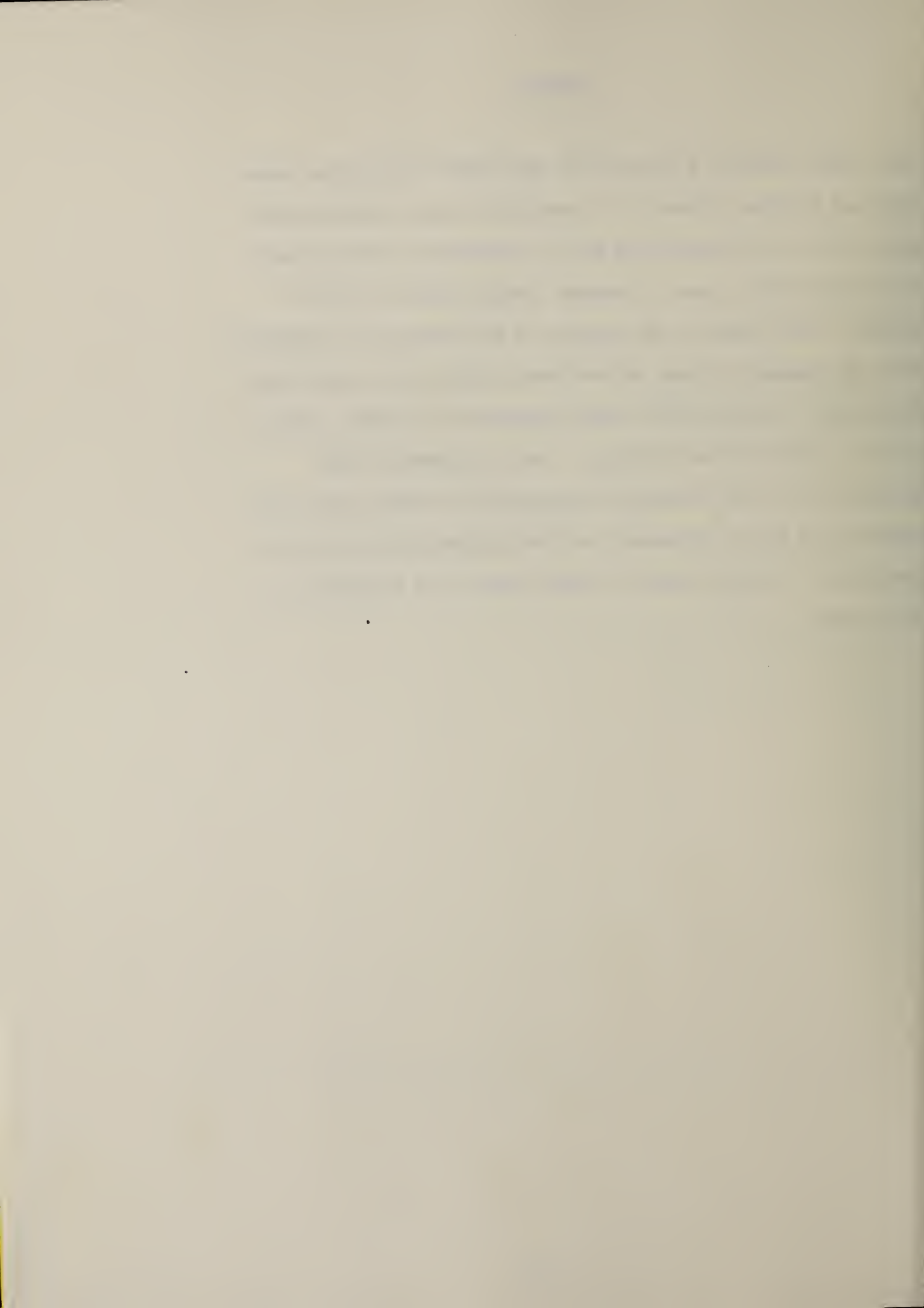
December 1981

U.S. DEPARTMENT OF COMMERCE, Malcolm Baldrige, *Secretary*
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, *Director*



ABSTRACT

This report contains a thesaurus to help public and private users find and retrieve information on regulations and standards which apply both to coal technology and to coal-related environmental, safety and health issues. Document indexers may also find it helpful. The thesaurus was designed to be structurally compatible with the document storage and retrieval systems now in use by the Department of Energy (DOE) so that absorption into DOE's system could be convenient and practical. The arrangement of the thesaurus, the code system that represents the terms used in the indexing and search processes, and instructions for its use are described. The hierarchies of index terms in the thesaurus are illustrated.



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P A R T A

I. INTRODUCTION

This report is submitted in partial fulfillment of Tasks 1.1.2a and 1.1.3 of the Department of Energy (DOE) project: Energy Standards Coordination and Development A-046. The work was done under Task Order number A-046 OES of Interagency Agreement number EA-77-01-6010 between the DOE Division of Operational and Environmental Safety (DOE/OES) and the National Bureau of Standards (NBS) Office of Engineering Standards (OES). Under this project, the NBS provides support to DOE in the planning, development and implementation of DOE Standards Management Support Systems to assist DOE's technical divisions in planning, coordinating and operating their individual standards-related program activities. The filing and retrieval of documents bearing on energy programs is such an activity.

The thesaurus in Part B of this report has a role similar to the familiar subject card index in a library. Its purpose is to guide a library user from a relatively unconstrained set of terms and concepts that apply to documents in the specialized field of the library to a much smaller set of terms and concepts that are actually used for indexing and retrieval purposes. Indexers use the smaller set called authority terms, or really the three-character codes for these terms, to describe the contents of documents in the library. The codes are convenient for computer filing, search and retrieval, but the same functions could be performed at the manual level with the authority terms themselves. The non-authority terms are called thesaurus terms. This group contains synonyms and other possibly more familiar terms that are treated as equivalents to authority terms for indexing purposes. The sole purpose of thesaurus terms is to help a user

move from his or her initial frame of reference to that used by the library. Of course, the user could save time by beginning with authority terms, either by accident or design.

This particular thesaurus is designed for a computer-based library that specializes in laws, regulations, standards and related documents bearing on environmental, safety and health (ES&H) concerns of the US coal industry. The design of the thesaurus and of the system of which it is a part is open-ended in the sense that terms may be added to accommodate new technologies and even other energy sources. Furthermore, one of the design principles was to achieve as much compatibility as practical with document storage and retrieval systems now in use by DOE so that absorption into DOE's system could be convenient and practical.

II. TECHNICAL DISCUSSION

This thesaurus is designed as an aid in document retrieval, although document indexers may also find it helpful. Details of the indexing process are described in "Coal Taxonomy Indexing Methodology - Final Report," Ideamatics, Inc., March 1981 (Reference 1).

1. A decision to include a document in the system is made if a review shows that its content is sufficiently germane to the purpose of the collection.

2. An accession number is assigned to the document. This number is unique to that document and serves as the file reference for information about the document. An accession number is never reused.

3. Indexing consists of assigning codes in seven categories (called facets) to the accession number. The facets are Source Type, Specific Source, Jurisdiction, Compliance Population, Functional Criteria, Coal, and Environmental, Safety and Health (ES&H). Only one term per facet is allowed for the first five facets, but more than one term is permitted, and encouraged, for the Coal and ES&H facets. The thesaurus in Part B covers Coal and ES&H terms that were considered useful in indexing a test sample of documents, and also includes a limited number of terms that are expected to be useful, but that were not needed in the test. Procedures for adding terms are described in Reference 1.

There are two levels of Coal and ES&H terms in the thesaurus. These are defined in Reference 1 as "authority" terms and "thesaurus" terms. Each authority term has its own three-character alphanumeric code that represents the collection of concepts covered by the term in the indexing and search

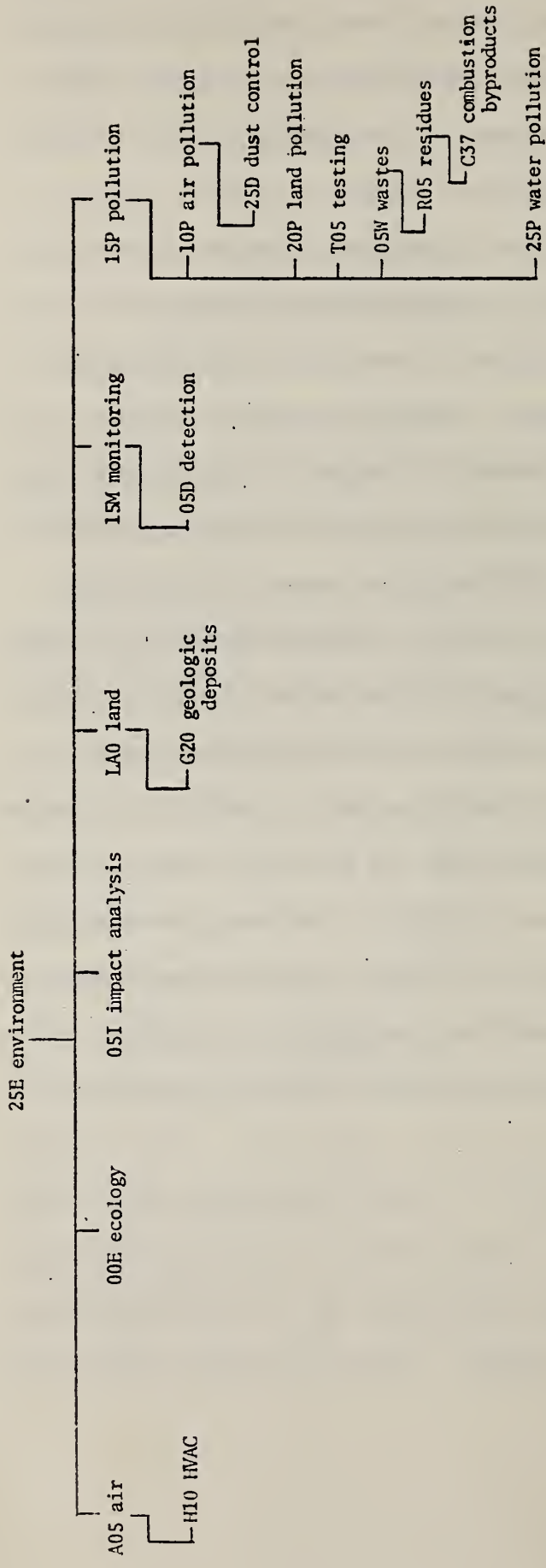
processes. Coal terms have a letter as the first character in their codes, and ES&H codes have a leading digit. For example, the first authority term in Part B is "10M abandoned mine." The code "10M" represents the term, or really the concept, "abandoned mines." Thus, 10M would be used in the indexing of a document that involved the concept of abandoned mines, whether or not those exact words appear in the document. The authority codes each contain at least one alphabetic and one numeric character; the middle character of the three may be either a letter or a number. Capital letter "0" is used in only one case, in the code for oxygen, for which the code is "capital 0, zero, zero." In all other cases "0" stands for zero.

Many authority term listings include UF and RT notations, each heading lists of one or more terms. UF stands for "Use For" and identifies a list of secondary, or "thesaurus" terms. Thesaurus terms are provided as a convenience to the searcher in order to convert a potentially large vocabulary of familiar terms into a comparatively compact set of authority terms used in indexing. Both authority and thesaurus terms may be added to the thesaurus as the need arises, and it is possible for a thesaurus term to be promoted to an authority term at some stage. There is a symmetry in the thesaurus in the sense that there is a USE (authority code and term) for each UF listing, and each UF list contains all the thesaurus terms assigned to the corresponding authority term. For example, the first thesaurus term in Part B is "abandoned shafts - USE 20P land pollution." This means that a document involving abandoned shafts would have 20P among its indexing codes. Therefore, if a user specified 20P as the sole search term, reference to this document (and many others) would be returned. However, if the document was a law that

applied only to West Virginia and the user simultaneously specified the code for Pennsylvania as the specific source, the reference for the West Virginia law would not be returned since the source specification was not met. The user could further refine the search by invoking the index for coal, which is C20, to concentrate on shafts of abandoned coal mines.

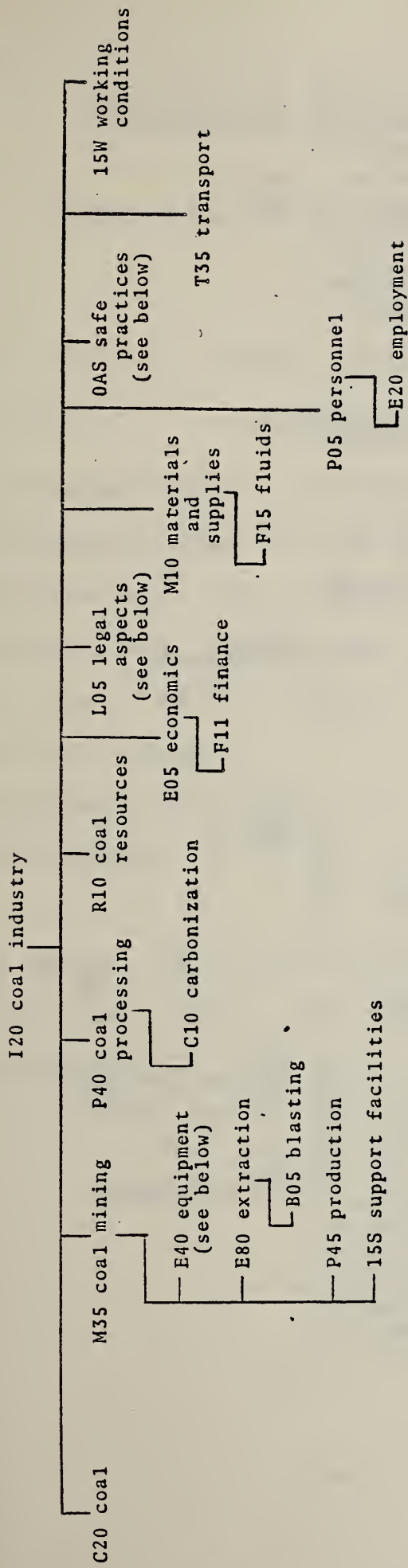
RT stands for Related Terms which are suggestions of other authority terms the searcher may wish to explore. Reciprocal RT references are provided. (If A is an RT for B, then B is an RT for A). In addition, the RT's are arranged in hierarchical patterns, one starting with "I20 coal industry" and the other with "25E environment." The main RT structures are given in Figure 1, omitting those authority terms at the finest level of detail in the structure. For example, "10M abandoned mines" is one of the narrower terms (NT's) under the broader term (BT) "20P land pollution," which is, in turn, a NT under "15P pollution," and "15P pollution" is an NT under "25E environment." Thus, "10M abandoned mines" could be discovered as a possible search term starting with any of the BT's: 25E, 15 or 20P. 10M would have been included in the tree if it had NT's of its own. BT's are noted in the thesaurus according to the structure in Figure 1. The trees provide one way, but far from the only way of relating the terms. The relationships in the trees have no significance beyond providing connected search paths. Several RT relationships between the two main trees in Figure 1 have been omitted for simplicity.

Figure 1. Authority Term Hierarchies* (Sheet 1 of 2)



* A structure consisting of two hierarchies of related terms (RT's) is provided to help a user find alternate authority terms for searching. One hierarchy (or tree) begins with "25E environment" and the other with "I20 coal industry". Each of the more than 200 authority terms belongs to one or the other of these trees. Figure 1 contains 58 terms, each of which has one or more RT's that expand on the particular term. A liberal number of RT's in the thesaurus were added to provide more direct connections within and between the trees.

Figure 1. Authority Term Hierarchies (Sheet 2 of 2)



(E40 equipment)

(L05 legal aspects)

(OAS safe practices)

05 air	<u>UF</u>	<u>RT's</u>
	air flow	A00 aeration
	air pressure	10P air pollution
	air supply	G10 compressed gases
	atmosphere	BT 25E environment
	breathing air	H10 HVAC
	breathing gas	
	earth atmosphere	
	respirable air	
	surface air	

air circulation - USE V05 ventilation

10 air curtains	<u>UF</u>	<u>RT's</u>
	canopies	BT H10 HVAC

air cleaning - USE 10P air pollution

air cleaning systems - USE 10P air pollution

air contaminants - USE 11E emissions

air conditioning - USE H10 HVAC

air filters - USE F10 filters

air flow - USE A05 air

air heaters - USE H10 HVAC

15 air infiltration	<u>UF</u>	<u>RT's</u>
	air leakage	BT H10 HVAC
	gas infiltration	

air leakage - USE A15 air infiltration

air monitors - USE 40E safety and health equipment

0P air pollution	<u>UF</u>	<u>RT's</u>
	aerosol monitoring	A01 aerosols
	air cleaning	A05 air
	air cleaning systems	00C carbon dioxide
	air pollution	05C carbon monoxide
	abatement	25D dust control
	air pollution control	G05 gaseous wastes
	air pollution	11E emissions
	monitors	BT 15P pollution
	air quality	V00 vapors
	air samplers	S60 sulfur
		OAN nitrous oxide

10P air pollution (cont.)

UF

RT's

atmospheric chemistry C37 combustion
clean air area byproducts
fallout
flue gas
fly ash
smog
smoke
soot
stack disposal
sulfur removal

air pollution abatement - USE 10A air pollution

air pollution control - USE 10P air pollution

air pollution monitors - USE 10P air pollution

air pressure - USE A05 air

air pump - USE H10 HVAC

air quality - USE 10P air pollution

air samplers - USE 10P air pollution

air supply - USE A05 air

alarm devices - USE 40E safety and health equipment

alarm systems - USE 40E safety and health equipment

alluvia - USE G20 geologic deposits

alluvial valley floors - USE G25 geologic structures

allocation - USE R15 resources

allowable concentrations - USE OAT allowable concentrations

alternating current - USE E10 alternating current

ANFO - USE E77 explosives

antifreeze - USE W10 working fluids

antitoxins - USE OOT toxins

anthracite coal - USE C20 coal

appeals - USE L05 legal aspects

application procedures - USE F05 federal assistance programs

application for approval - USE A20 approval

A20 approval

<u>UF</u>	<u>RT's</u>
application for	T5C certification
approval	41E equipment
conditional approval	certification
disapproval	H00 hearing
extensions of	BT L05 legal aspects
approval	05L licenses
reapproval	P04 permits
variances	R25 rulings

approval list - USE 05R reports and records

arctic clothing allowance - USE 15H human factors design

20A asbestos

<u>RT's</u>
BT 25D dust control

25A ash

<u>UF</u>	<u>RT's</u>
bottom ash	T0P air pollution
de-ash	BT C37 combustion by-
	products
	R05 residues

archeological sites - USE 005 protected sites

aquifers - USE 10W water

atmosphere - USE A05 air

atmospheric chemistry - USE 10P air pollution

atmospheric precipitations - USE W05 weather

auger mining - USE M40 surface mining coal

autopsies - USE 00D death

availability - USE S65 coal supply

backfilling - USE M40 surface coal mining and 00R reclamation

baghouse filters - USE F10 filters

backhoes - USE E50 surface mining equipment

belt conveyors - USE E55 underground mining equipment

bench testing - USE T05 testing

beneficiation - USE C30 coal preparation

benefit payments - USE 20I health insurance

benefits - USE 20I health insurance

bituminuous coal - USE C20 coal

bias - USE 500 sampling

black coal - USE C20 coal

black lung - USE 05P pneumoconiosis

black lung benefits - USE 05P pneumoconiosis

B05 blasting

UF

blasting cables
 blasting caps
 blasting devices
 boreholes
 cardox
 cartridges
 chemical explosions
 detonation waves
 detonating card
 detonations
 detonators
 effectiveness tests
 explosive fracturing
 explosive wrappers
 ignition
 non-explosive wrappers
 propagation
 rate of detonation
 shock waves
 shot firer
 tamping
 underground explosions
 wrappers
 wrapper-to-explosive
 ratio

RT's

E65 excavation
 50E explosions
 BT E80 extraction
 S52 stemming devices
 E77 explosives
 N00 nitrogen
 compounds

blasting cables - USE B05 blasting
 blasting caps - USE B05 blasting
 blasting devices - USE B05 blasting
 blueprints - USE P20 planning
 boghead coal - USE C20 coal
 boilers - USE B10 burners
 boreholes - USE B05 blasting
 boiler fuels - USE F25 solid and liquid fuels
 boring machines - USE E55 underground mining equipment
 brakes - USE E04 safety and health equipment
 brand names - USE OOL labeling
 breath - USE 15R respiration
 breathing air - USE A05 air
 breathing gas - USE A05 air
 brown coal - USE C20 coal
 bucket and wheel excavations - USE M40 surface coal mining
 bulk shipping - USE T35 transport
 Bureau of Mine districts - USE C35 coal producing districts
 burns - USE 101 injury prevention and response
 burner ignition - USE B10 burners

B10 burners

<u>UF</u>	<u>RT's</u>
boilers	BT E40 equipment
burner ignition	H05 heat
combustion	M15 materials
conversion	handling
(oil to gas to coal)	P30 power plants
de-ashing	
draft control systems	
ebullated bed	
flames	
flashback	

B10 burners cont.

UF

RT's

fluidized bed
fluidization
fuel-air ratio
fuel systems
furnaces
magnetohydrodynamic
(MHD) generators
MHD generators
oil burners
packed bed
stoichiometry
stokers

cables - USE 10E electrical systems

C00 caking

UF

RT's

agglomeration
compacting

BT P40 coal processing

calibration - USE E40 equipment

calorific values - USE H05 heat

cancer - USE 20D diseases

cannel coal - USE C20 coal

canopies - USE A10 air

capacitors - USE E35 electrical equipment

capacity - USE S36 specifications

C05 carbon compounds, mining
applications

UF

carborundum

RT's

BT M10 materials and
supplies

00C carbon dioxide

RT's

BT TOP air pollution

C10 carbonization

RT's

BT P40 coal processing
C36 coke

05C carbon monoxide

RT's

BT TOP air pollution

carborundum - USE C05 carbon compounds mining applications

cardox - USE B05 blasting

cardio-pulmonary respiratory training - USE 05T training

cartridges - USE B05 blasting

catalytic convertors - USE 35E pollution control equipment

cave-ins (controlled) - USE M45 underground coal mining

15C certification

UF
uncertified person BT RT's
A20 approval
41E equipment
certification
P04 permits
P05 personnel

certified personnel - USE P05 personnel

chemical explosions - USE B05 blasting

chemical explosives - USE E77 explosives

C15 chemical reactions

RT's
BT P40 coal processing
P50 pyrolysis

charges - USE E77 explosives

child labor - USE E20 employment

checking - USE 15M monitoring

chemical treatment - USE M17 materials processing

cinders - USE C37 combustion byproducts

circulation (air) - USE V05 ventilation

circuit breakers - USE E35 electrical equipment

circuit protection - USE E35 electrical equipment

20C claims

RT's
T5D disability
E11 eligibility
E25 enforcement
I26 insurance
L20 liability
BT L05 legal aspects
P05 personnel
20W workers
compensation

classification - USE 00L labeling

clean air area - USE 10P air pollution

clearance - USE 15H human factors design

clinkers - USE C37 combustion products

closure - USE OCS security

C20 coal

UF

anthracite coal
bituminous coal
black coal
boghead coal
brown coal
cannel coal
coal deposits
coal fines
coal seams
lignite
run-of-mine coal
sapropelic coal
sub-bituminous coal
torbanite

RT's

G00 coal derived gas
L40 coal derived liquids
B00 coal derived bituminous materials
BT I20 coal industry
H15 hydrocarbons
F20 gas fuels
S25 slurries
F25 solid and liquid fuels
C25 solvent-refined coal
F30 synthetic fuels

coal cleaning - USE C30 coal preparation

coal deposits - USE C20 coal

B00 coal-derived bituminous materials

UF

coal tar
creosote
feedstocks
naphtha
pitch
tar

RT's

BT C20 coal

G00 coal-derived gas

RT's

BT C20 coal

L40 coal-derived liquids

RT's

BT C20 coal
F25 solid and liquid fuels

D09 coal dust

RT's

BT 25D dust control
P00 particles

coal fines - USE C20 coal

coal-fired MHD generators - USE B10 burners

coal gas - USE M25 methane

G15 coal gasification

UF
conversion
cracking
enrichment

RT's
BT P40 coal processing
I10 in-situ
processing

I20 coal industry
(no BT's)

RT's
C20 coal
M05 coal markets
M35 coal mining
P40 coal processing
R10 coal resources
M10 materials and
supplies
P05 personnel
OAS safe practices
T35 transport
E05 economics
L05 legal aspects
I5W working
conditions

L30 coal liquefaction

UF
coal liquefaction
plants
conversion
cracking
enrichment
liquefaction

RT's
BT P40 coal processing

coal liquefaction plants - USE L30 coal liquefaction

coal-hauling vehicles - USE HA0 haulage

M05 coal markets

UF
domestic markets
foreign markets

RT's
BT I20 coal industry
R10 coal resources
U00 electric
utilities
E76 exports
I05 imports
I15 industrial plants
P30 power plants

M35 coal mining

RT's
BT I20 coal industry
E40 equipment
E80 extraction
M10 materials and
supplies
P45 production
15S support
facilities
M40 surface coal
mining
M45 underground coal
mining

P10 coal pipelines

UF
slurry pipelines

RT's
BT T35 transport

C30 coal preparation

UF
beneficiation
coal cleaning
coal preparation
plants
crushing
drying
elutriation
flotation
pulverizing
screening
sizing
tramp metal removal
washing

RT's
BT P40 coal processing
E60 preparation
equipment

coal preparation plants - USE C30 coal preparation

coal plows - USE E55 underground mining equipment

P40 coal processing

UF
desulfurization
devolatilization
forming
trace element
contamination

RT's
C00 caking
C10 carbonization
C15 chemical
reactions
G15 coal gasification
BT I20 coal industry
L30 coal liquefaction
C30 coal preparation
I10 in-situ
processing
P50 pyrolysis
S50 sintering
S35 solvent
extraction

C35 coal producing district UF RT's
 Bureau of Mines BT R10 coal resources
 districts

coal refuse - USE R05 residues

R00 coal reserves RT's
 BT C10 coal resources

R10 coal resources RT's
 BT I20 coal industry
 M05 coal market
 C35 coal producing
 districts
 R00 coal reserves
 S65 coal supply
 30C conservation
 E70 exploitation
 E75 exploration
 R15 resources

coal seams - USE C20 coal

S55 coal storage UF RT's
 stockpiles M21 materials
 stockpiling storage
 underground BT T35 transport
 storage

S65 coal supply UF RT's
 availability BT R10 coal resources

coal tar - USE B00 coal-derived bituminous materials

coal users - USE 115 industrial plants

coating - USE M17 material processing

C36 coke UF RT's
 coke ovens BT C10 carbonization
 coking C20 coal
 coking plants
 formed coke

coke ovens - USE C10 carbonization

coking - USE C10 carbonization

coking plants - USE C10 carbonization

combustion - USE B10 burners

C37 combustion byproducts	<u>UF</u>	<u>RT's</u>
	cinders	20P air pollution
	clinkers	25A ash
	dust	P30 power plants
	furnace residue	BT R05 residues
	slag	S20 sludges

combustion control - USE B10 burners

T00 combustion temperature control	<u>UF</u>	<u>RT's</u>
	temperature	BT P30 power plants
	gradients	
	temperature measurement	

combustion waves - USE B10 burners

combustors - USE B10 burners

combustibility - USE 15F flammability

comfort - USE 15H human factors design

E30 communications equipment	<u>UF</u>	<u>RT's</u>
	in-mine	BT E40 equipment
	communication	15S support
	pager	facilities
	radio	
	signaling devices	
	telephone devices	

25C communities	<u>UF</u>	<u>RT's</u>
	housing	BT OOE ecology
	schools	35P populations
	social services	

compacting - USE C00 caking

complaints - USE V06 violations

C38 compliance	<u>UF</u>	<u>RT's</u>
	compliance	BT E25 enforcement
	schedules	
	exceptions	
	exemptions	
	extensions	

compliance schedules - USE C38 compliance

compressed air - USE G10 compressed gases

compressed air gauges - USE G10 compressed gases

compressed air valves - USE G10 compressed gases

G10 compressed gases

<u>UF</u>	<u>RT's</u>
compressed air	BT A05 air
compressed air gauges	
compressed air valves	

concentrating tables - USE E60 preparation equipment

conditional approval - USE A20 approval

conditioning - USE M17 materials processing

28C conditions

<u>UF</u>	<u>RT's</u>
conditions at	BT C40 contracts
delivery	15W working
conditions of	conditions
manufacture	
conditions of operations	
conditions of purchase	
conditions of sale	
conditions of storage	
conditions of testing	
conditions of use	

conditions at delivery - USE 28C conditions

conditions of manufacture - USE 28C conditions

conditions of operation - USE 28C conditions

conditions of sale - USE 28C conditions

conditions of storage - USE 28C conditions

conditions of testing - USE 28C conditions

conditions of use - USE 28C conditions

conflict of interest - USE L05 legal aspects

confined spaces - USE 15W working conditions

30C conservation

<u>UF</u>	<u>RT's</u>
energy	BT R10 coal resources
conservation	R15 resources
resource conservation	

C39 construction

UF
floor opening
platforms
runways
scaffolding
stairways
surface buildings
timbers

RT's
M35 coal mining
P20 planning
BT P45 production

construction materials - USE M10 materials and supplies

consumables - USE M10 materials and supplies

contamination - USE 15P pollution

contouring - USE 00R reclamation

continuous miner - USE E55 underground mining equipment

C40 contracts

RT's
28C conditions
41E equipment
certification
L15 leasing
BT L05 legal aspects
S36 specifications

controlled atmosphere - USE A05 air

conversion (oil or gas to coal) - USE B10 burners

conveyors - USE M15 materials handling

cooling - USE H10 HVAC

cooling load - USE H10 HVAC

corrosion - USE E61 equipment degradation

core drilling - USE E75 exploration

C45 cost-benefit analysis

RT's
BT E05 economics

costs - USE F11 finance

CPR training - USE 05T training

creosote - USE B00 coal-derived bituminous materials

critical habitat - USE 00H habitat

crushing - USE C30 coal preparation
 crushers - USE E60 preparation equipment
 cultivation - USE 20P revegetation
 current - USE E10 electricity
 cutoff valves - USE 42E safety feature on equipment
 cyclones - USE E40 equipment
 cyclonic mechanical dust collectors - USE E40 equipment
 danger zone - USE 05H hazards
 dangerous condition - USE 05H hazards
 dating - USE 00L labeling
 de-ash - USE 25A ash
 de-ashing - USE B10 burners

00D death

UF
autopsies

RT's
BT D00 disaster response
technology

defects - USE OAF equipment failures
 description - USE S36 specification
 design - USE S36 specification
 desulfurization - USE P40 processing
 descaling - USE 35E pollution control equipment

05D detection

RT's
OAS safe practices
 15I inspections
 25I investigations
 BT 15M monitoring
 T05 testing

deterioration - USE E61 equipment degradation
 detonating cord - USE B05 blasting
 detonations - USE B05 blasting

detonation waves - USE B05 blasting

detonators - USE B05 blasting

10D diagnosis

RT's
BT 20D diseases
00M industrial
medicine

diesel engines - USE 05H hazards

15D disability

RT's
BT 20C claims
15D diseases
10I injuries

disallowal - USE 41E equipment certification

disapproval - USE A20 approval

D00 disaster response
technology

RT's
00D death
21D disinfection
12E emergencies
00M industrial
medicine
10R rescue operations
BT 0AS safe practices
05T training
15W working
conditions

disaster response plans - USE 00P plans

20D diseases

UF
cancer
emphysema
etiology
illness
occupational
disease
pathogenesis
pathogens
respiratory system
symptoms

RT's
30C claims
10D diagnosis
15D disability
55E exposure limits
00M industrial
medicine
10I injuries
05P pneumoconiosis
BT 0AS safe practices
0AT threshold values

21D disinfection

RT's
BT D00 disaster response
technology

disturbed lands - USE LA0 land
 direct current - USE E10 electricity
 domestic markets - USE M05 coal markets
 draft control systems - USE B10 burners
 draglines - USE E50 surface mining equipment

D05 drainage UF RT's
acid mine drainage BT 25P water pollution
mine drainage

drainage basin - USE 10W water
 drawdown - USE 10W water
 drawings - USE S30 specification
 dressing - USE M17 materials processing
 drilling - USE E80 extraction
 drinking water - USE 10W water
 dryers - USE E60 preparation equipment
 drying - USE C30 coal preparation
 dust - USE C37 combustion byproducts
 dust collectors - USE E40 equipment
 dust control - USE D09 coal dust

25D dust control UF RT's
dust control foam A01 aerosols
dusty mine BT 10P air pollution
atmospheres 20A asbestos
 D09 coal dust
 P00 particles
 O5P pneumoconiosis
 D10 surface dust

dust control foam - USE D09 coal dust
 dust, mist and fume respirators - USE 40E safety and health equipment
 dust samplers - USE 40E safety and health equipment
 dynamite - USE E77 explosives

electric shock - USE 101 injury prevention and response

E35 electrical equipment

UF

batteries
battery boxes
cable reels
capacitors
circuit breakers
circuit protection
fuses
trailing cables
trolley feeder wires

RT's

BT E40 equipment
E10 electricity

10E electrical systems

UF

cables
dead-man control
switches
deenergizing
diodes
electrical tests
filaments
fuses
fuse boxes
grounding
insulation
power circuit
resistors
signal circuit
switches
wiring

RT's

E10 electricity
BT E40 equipment

electrical tests - USE 10E electrical systems

E10 electricity

UF

alternating current
current
direct current
electric discharges
electric faults
electric power
external arcs
polarity
voltage

RT's

E35 electrical
equipment
10E electrical
systems
U00 electrical
utilities
E40 equipment
L25 lighting systems
P30 power plants
P35 power
transmission
BT 15S support
facilities

electrostatic precipitators - USE 35E pollution control equipment

electrostatic precipitations - USE 35E pollution control equipment

E11 eligibility		<u>RT's</u> BT <u>20C</u> claims
elutriation - USE C30 coal preparation		
E15 embankments		<u>RT's</u> BT <u>05H</u> hazards
12E emergencies	<u>UF</u> emergency shelter	<u>RT's</u> BT <u>D00</u> disaster response technology
emergency - USE 10H health services		
emergency medical services - USE 10H health services		
emergency procedure instructions - USE 00L labeling		
emergency shelter - USE 12E emergencies		
eminent domain - USE S75 surface rights		
11E emissions	<u>UF</u> air contaminants	<u>RT's</u> <u>10P</u> air pollution BT <u>05H</u> hazards
emphysema - USE 20D diseases		
15E employee responsibilities		<u>RT's</u> BT <u>E20</u> employment
20E employer responsibilities		<u>RT's</u> BT <u>E20</u> employment
employee transfer - USE 01R personnel rehabilitation		
E20 employment	<u>UF</u> absenteeism child labor grievance procedures labor practices labor representation length of services retirement termination	<u>RT's</u> <u>15E</u> employee responsibilities <u>20E</u> employer responsibilities OAP human physical requirements <u>L05</u> legal aspects BT <u>P05</u> personnel <u>01R</u> personnel rehabilitation <u>20W</u> workers compensation

enclosed areas - USE 15W working conditions

enclosures - USE 42E safety features on equipment

05S endangered and threatened species

RT's
BT 00E ecology
10F fish and wildlife

energy absorption factor - USE S36 specifications

energy conservation - USE 30C conservation

energy resources - USE R15 resources

energy supply - USE 30C conservation

enforcement - USE C38 compliance

E25 enforcement

RT's
20C claims
C38 compliance
15I inspections
25I investigations
BT L05 legal aspects
PAO payments and fees
P01 penalties
05R reports and records
V06 violations

25E environment (no BT's)

UF
environmental effects
environmental engineering
environmental exposure pathway
environmental materials
environmental policy
environmental transport
RT's
05A aesthetics
A05 air
00E ecology
30E environmental impact statements
05I impact analysis
LA0 land
15M monitoring
15P pollution
OBS seasonal restrictions
10W water
W05 weather

environmental effects - USE 25E environment

environmental engineering - USE 25E environment

environmental exposure pathway - USE 25E environment

environmental impact - USE 001 impact

30E environmental impact
statement

RT's
25E environment
BT 05I impact analysis

environmental materials - USE 25E environment

environmental policy - USE 25E environment

environmental transport - USE 25E environment

E40 Equipment

<u>UF</u>		<u>RT's</u>
accessories		B10 burners
calibration	BT	M35 coal mining
cyclones		E30 communications equipment
cyclonic mechanical dust collectors		E10 electricity
dust collectors		E35 electrical equipment
indicators		10E electrical systems
instrumentation		H10 HVAC
jet drills		I24 installation of equipment
pressure regulators		E45 laboratory equipment
		OAM maintenance
		35E pollution control equipment
		E60 preparation equipment
		E50 surface mining equipment
		E55 underground mining equipment
		40E safety and health equipment

41E equipment certification

<u>UF</u>		<u>RT's</u>
disallowal	BT	A20 approval
equipment inspection		O5L licenses
modifications		P04 permits

E61 equipment degradation

<u>UF</u>		<u>RT's</u>
corrosion		OAF equipment failure
deterioration	BT	OAM maintenance
leakage		T15 thermal degradation

OAF equipment failure

UF
defects
misfires
test failure

RT's
E6T equipment
degradation
05H hazards
BT OAM maintenance

equipment inspection - USE 41E equipment certification

equipment location - USE 124 installation of equipment

equipment recall - USE OAR recall

45E erosion

RT's
BT 20P land pollution

escapeways - USE M45 underground coal mining

etiology - USE 20D diseases

evacuation plans - USE OOP plans

E65 excavation

RT's
B05 blasting
BT E80 extraction

exceptions - USE C38 compliance

exemptions - USE C38 compliance

exhalation - USE 15R respiration

exhaust gases of diesel vehicles - USE 05H hazards

expenses - USE F11 finance

experience - USE P05 personnel

E70 exploitation

RT's
BT C10 coal resources
E05 economics
E75 exploration
P45 production

E75 exploration

UF
aerial prospecting BT RT's
core drilling C10 coal resources
geological surveys C70 exploitation
prospecting P45 production
radiometric surveys
remote sensing
surveys

explosion proof - USE 50E explosions

50E explosions	<u>UF</u>		<u>RT's</u>
	explosive hazards		B05 blasting
	explosion proof	BT	05H hazards
	explosion-proof enclosure		M25 methane
	non-explosion proof		OBP permissibility

E77 explosives	<u>UF</u>		<u>RT's</u>
	ANFO (ammonium nitrate fuel oil mixture)	BT	B05 blasting
	charges		M10 materials and supplies
	chemical explosives		N00 nitrogen compounds
	dynamite		S52 stemming devices
	explosives storage		M21 materials storage
	gelatinous explosives		
	nitroglycerine		
	non-gelatinous explosives		
	plastique		
	propellant		
	TNT		

explosive proof - USE 50E explosions

explosive fracturing - USE A05 blasting

explosive hazards - USE 50E explosions

explosive wrapper - USE A05 blasting

E76 exports			<u>RT's</u>
		BT	M05 coal markets

55E exposure limits			<u>RT's</u>
		BT	20D diseases
			OAT threshold values

expression of results - USE 05R reports and records

extensions - USE C38 compliance

extensions of approval - USE A20 approval

E80 extraction	<u>UF</u>		<u>RT's</u>
	drilling		25D dust control
	mines		B05 blasting
	mining engineering		E65 excavation
			HA0 haulage (in-mine)
			M15 materials handling
			O0W waste management
		BT	M35 coal mining

extraction apparatuses - USE E45 laboratory equipment
 extraction columns - USE E45 laboratory equipment
 fabric filters - USE F10 filters
 face masks - USE 40P protective clothing
 fallout - USE 10P air pollution
 fallout deposits - USE 10P air pollution
 fauna - USE 35P populations

F05 federal assistance programs	<u>UF</u> application procedures funding grants research grants	<u>RT's</u> BT <u>F11</u> finance
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F00 federal test procedures		<u>RT's</u> BT <u>T05</u> testing
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feedstocks - USE B00 coal-derived bituminous materials
 feedwater - USE W00 water
 fees - USE F11 finance
 fee schedules - USE F11 finance
 fencing - USE 20P land pollution
 fertilization - USE 20R revegetation
 field testing - USE T05 testing

F10 filters	<u>UF</u> air filters baghouse filters fabric filters	<u>RT's</u> BT <u>15P</u> pollution 40P protective clothing
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F11 finance	<u>UF</u> costs expenses	<u>RT's</u> BT <u>E05</u> economics F05 federal assistance programs L45 loans PA0 payments and fees
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fire control foam - USE 00F fires

fire control projects - USE 00F fires
 firedamp - USE M25 methane
 fire detection - USE 00F fires
 fire extinguishers - USE 00F fires
 fire fighting - USE 00F fires
 fire fighting equipment - USE 00F fires
 fire hazards - USE 00F fires
 fire prevention - USE 00F fires
 fire resistance - USE 00F fires
 fire safety - USE 00F fires

00F fires

<u>UF</u>	<u>RT's</u>
fire control foam	15F flammability
fire control projects	BT 05H hazards
fire detection	V10 volatility
fire extinguisher	
fire fighting	
fire fighting equipment	
fire hazards	
fire prevention	
fire resistance	
fire safety	
spontaneous combustion	

05F first aid

<u>UF</u>	<u>RT's</u>
first-aid kit	BT 00M industrial
triage	medicine
	10I injuries

first aid training - USE 05T training

10F fish and wildlife

<u>UF</u>	<u>RT's</u>
wildlife	BT 00E ecology
	05S endangered and
	threatened species
	35P populations

flame arresting path - USE 15F flammability

flame detectors - USE 40E safety and health equipment

flame resistance - USE 15F flammability

flame safety lamps - USE 40E safety and health equipment

flames - USE B10 burners

15F flammability

UF

after burning
combustibility
flame-arresting path
flame resistance
inflammability
non-combustibility
non-flammability

RT's

BT 00F fires
V10 volatility

flashback - USE B10 burners

flotation - USE C30 coal preparation

floods - USE 10W water

floor openings - USE C39 construction

flora - USE 35P populations

flue gas - USE 10P air pollution

fluidized bed - USE B10 burners

fluidized bed combustion - USE B10 burners

fluidized bed reactors - USE B10 burners

fluidization - USE B10 burners

F15 fluids

RT's

L35 liquids
BT M10 materials and
supplies
W10 working fluids

fly ash - USE 25A ash

food chain - USE 00E ecology

formed coke - USE C10 carbonization

forming - USE P40 processing

fossil fuel power plants - USE P30 power plants

fossil fuels - USE F25 solid and liquid fuels
 fuel feeding systems - USE B10 burners
 fuel gas - USE F25 solid and liquid fuels
 fuel-air ratio - USE B10 burners
 fuel systems - USE B10 burners
 fuel slurries - USE F25 solid and liquid fuels
 fume hoods - USE E45 laboratory equipment
 fumes - USE V00 vapors
 funding - USE F05 federal assistance programs
 funds - USE F11 finance
 furnace residue - USE C37 combustion byproducts
 furnaces - USE B10 burners
 fuses - USE E35 electrical equipment
 galvanizing - USE M17 materials processing
 gaseous waste - USE O5W wastes

G05 gaseous wastes

RT's
 BT TOP air pollution

F20 gas fuels

UF
 gas generators
 gas yields
 methane
 natural gas

RT's
 BT C20 coal
 H15 hydrocarbons
 F25 solid and liquid
 fuels

gas generators - USE F20 gas fuels
 gas infiltration - USE A15 air infiltration
 gas masks - USE 40E safety and health equipment
 gas yields - USE F20 gas fuels
 gassy mines - USE M25 methane
 gating - USE OCS security

gelatinous explosives - USE E77 explosives

G20 geologic deposits	<u>UF</u> alluvia sediments	<u>RT's</u> G20 geological structures BT LAO land S30 soils
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G25 geological structures	<u>UF</u> alluvial valley floors strata	<u>RT's</u> G20 geological deposits BT LAO land R20 rocks
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geological surveys - USE E75 exploration

government employees - USE P05 personnel

grading - USE 00R reclamation

grants - USE F05 federal assistance programs

grazing - USE 20R revegetation

ground cover - USE 00E ecology

ground disposal - USE 20P land pollution

ground water - USE 10W water

grounding - USE 10E electrical systems

guards - USE 42E safety features on equipment

00H habitat	<u>UF</u> critical habitat protected habitat	<u>RT's</u> BT 00E ecology
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hail - USE W05 weather

handling - USE HAO haulage, in mine

haulage - USE M40 surface coal mining

HAO haulage	<u>UF</u> aerial tramways coal-hauling vehicle handling	<u>RT's</u> M15 materials handling BT T35 transport
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05H hazards

<u>UF</u>		<u>RT's</u>
danger zone		<u>OBP</u> permissibility
dangerous condition		E15 embankments
diesel engines		11E emissions
exhaust gases of diesel engines		OAF equipment failure
hazardous atmosphere		50E explosions
incendiary materials		00F fires
poisonous gases		30I irritants
rubbish	BT	00N noise levels
sparks		OAS safe practices
zone of danger		00T toxins
		15P pollution
		00A accidents
		15W working conditions

hazardous atmosphere - USE 05H hazards

head clearance - USE 15H human factors design

health impact - USE 00I impact

20I health insurance

<u>UF</u>		<u>RT's</u>
benefits	BT	I26 insurance
benefit payments		I25 liability
survivors		insurance

health plans - USE 00P plans

10H health services

<u>UF</u>		<u>RT's</u>
emergency medical services	BT	<u>00M</u> industrial medicine
physical examination		
preventive medicine		

H00 hearings

<u>UF</u>		<u>RT's</u>
notice	BT	A20 approval
		L05 legal aspects

H05 heat

<u>UF</u>		<u>RT's</u>
calorific values		T10 thermal
heat exchangers		conductivity
heat transfer		T15 thermal
heat transfer fluids		degradation
heating		T20 thermal fatigue
heat load		T25 thermodynamic
kilns		properties
operating temperature		OAM maintenance
radiators	BT	P30 power plants
surface temperature		S50 steam
waste heat		25P water pollution
		B10 burners

heat exchangers - USE H05 heat

heat load - USE H05 heat

heat transfer - USE H05 heat

heat transfer - USE H05 heat

heat treatment - USE M17 materials handling

heating - USE H05 heat

heating, ventilating, and air conditioning. See HVAC.

height - USE OAP human physical requirements

helmets - USE 40P protective clothing

high wall reduction - USE OOR reclamation

hoisting - USE M15 materials handling

hopper cars - USE T40 rail transport

hoppers - USE M15 materials handling

hot work - USE 15W working conditions

housing - USE 25C communities

human - USE 35P populations

15H human factors design

UF

arctic clothing
allowance
comfort
clearance
ease of use
head clearance
legibility
operating space
envelope
placement
seat index point
visibility
weight of apparatus

RT's

OAP human physical
requirements
BT 15W working
conditions

OAF human physical
requirements

UF

height
visual acuity

RT's

BT E20 employment
15H human factors
design

H10 HVAC (heating,
ventilation and air
conditioning

UF
air conditioning
air heaters

RT's
A10 air curtains
A15 air infiltration
BT E40 equipment
000 oxygen
15R respiration
V05 ventilation
A05 air

hydraulic fluids - USE W10 working fluids

hydraulic mining - USE M45 underground coal mining

H15 hydrocarbons

RT's
BT C20 coal

hydrology - USE 10W water

F25 solid and liquid
fuels

identification - USE 00L labeling

ignition - USE B05 blasting

illness - USE 20D diseases

illumination - USE L25 lighting systems

00I impact

UF
economic impact
environmental impact
health impact
medical impact
social impact

RT's
BT 05I impact analysis

05I impact analysis

RT's
BT 25E environment
30E environmental
impact statement
00I impact
15P pollution

impact ripping machines - USE E55 underground mining equipment

I00 impact shock

UF
impact strength
impact tests

RT's
BT T05 testing

impact strength - USE I00 impact shock

impact tests - USE I00 impact shock

I05 imports

RT's
BT M05 coal markets

impregnation - USE M17 materials processing

impounding reservoirs - USE 25P water pollution

incendiary materials - USE 05H hazards

inclined screen jigs - USE E60 preparation of equipment

indicators - USE E40 equipment

industrial accidents - USE 00A accidents

00M industrial medicine

UF
medical centers

RT's
10D diagnosis
D00 disaster response
technology
05F first aid
10H health services
45P public health
BT 0AS safe practices
20D diseases
10I injuries

I15 industrial plants

UF
coal users

RT's
BT M05 coal markets

industrial wastes - USE 05W wastes

inflammability - USE 15F flammability

inhalation - USE 15R respiration

injunction - USE L05 legal aspects

10I injuries

UF
burns
electric shock
wounds

RT's
15D disability
20D diseases
05F first aid
BT 00M industrial
medicine

in-mine communications - USE E30 communications equipment

in-mine gas - USE M25 methane

in-situ combustion - USE I10 in-situ processing

in-situ gasification - USE I10 in-situ processing

25I investigations

RT's
05D detection
BT E25 enforcement
15I inspections

irrigation - USE 10W water

30I irritants

RT's
BT 05H hazards
00T toxins

jet drills - USE E40 equipment

kilns - USE H05 heat

00L labeling

<u>UF</u>	<u>RT's</u>
brand names	BT safety and health
certification number	equipment
classification	42E safety features
dating	on equipment
emergency procedure	15W working
instructions	conditions
lot numbers	
markings	
MHSA approval label	
operating instructions	
operating rules	
symbols	
warning labels	

labor practices - USE E20 employment

labor representation - USE E20 employment

E45 laboratory equipment

<u>UF</u>	<u>RT's</u>
extraction columns	E40 equipment
extraction	T05 testing
apparatuses	BT 15S support
fume loads	facilities
mist extractors	
samplers	

lamps - USE E55 underground mining equipment

LAO land

UF
disturbed lands
land acquisition
orphaned lands

RT's
E00 earthquakes
BT 25E environment
G20 geological
deposits
G25 geological
structures
20P land pollution
L00 land use
L05 legal aspects
S15 mine siting
S10 power plant
siting
R20 rocks
S30 soils

land acquisition - USE LAO land

land entries - USE S75 surface rights

20P land pollution

UF
abandoned shafts
abandoned sites
fencing
ground disposal
land pollution
abatement
landscaping
landslides
mineral wastes
slope stability
spoil banks
tipple
weathering

RT's
T0M abandoned mines
45E erosion
LAO land
BT 15P pollution
00S protected sites
00R reclamation
20R revegetation

land pollution abatement - USE 20P land pollution

L00 land use

RT's
BT LAO land

landscaping - USE 20P land pollution

landslides - USE 20P land pollution

lawsuits - USE L05 legal aspects

L10 leaching

RT's
BT 25P water pollution

leakage - USE E61 equipment degradation

leaks - USE RAO repairs

leases - USE L15 leasing

L15 leasing

UF
Leases

RT's
BT C40 contracts

L05 legal aspects

UF
appeals
conflict of interest
injunctions
lawsuits
witnesses

RT's
A20 approval
20C claims
BT I20 coal industry
C40 contracts
E20 employment
E25 enforcement
H00 hearings
I26 insurance
LA0 land
R17 rights of entry

legibility - USE 15H human factors design

length of service - USE E20 employment

letters - USE 05R reports and records

L20 liability

RT's
BT I26 insurance

I25 liability insurance

RT's
BT I26 insurance
20I health insurance

05L licenses

RT's
BT A20 approval
41E equipment
certification
P04 permits

life support systems - USE 40E safety and health equipment

L25 lighting systems

UF
candlepower
illumination

RT's
BT E10 electricity
15W working
conditions

lightning - USE W05 weather

lightning rods - USE 40E safety and health equipment

lignite - USE C20 coal

limiters - USE 42E safety features on equipment

limits - USE S36 specifications

limits of error - USE S36 specifications

liquefaction - USE L30 coal liquefaction

liquid fuels - USE F25 solid and liquid fuels

liquid wastes - USE O5W wastes

L35 liquids

RT's
BT F15 fluids

livestock - USE 35P populations

load - USE S36 specifications

L45 loans

RT's
BT F11 finance

locked storage - USE OCS security

locking - USE OCS security

locking devices - USE 42E safety features on equipment

locks - USE OCS security

locomotives - USE T40 rail transport

longwall - USE M45 underground coal mining

longwall conveyors - USE E55 underground mining equipment

lot numbers - USE OOL labeling

lubrication - USE OAM maintenance

magazines - USE M21 materials storage

magnets hydrodynamic (MHD) generators - USE B10 burners

magnets - USE E60 preparation equipment

OAM maintenance

UF
Lubrication

RT's
BT E40 equipment
E61 equipment
degradation
OAF equipment failure
M00 maintenance
procedures
OAR recall
RAO repairs
H05 heat

maintenance interval - USE M00 maintenance procedures

M00 maintenance procedures

UF
maintenance
interval
preventive
scheduled maintenance
time in service

RT's
BT OAM maintenance
M17 materials
processing

manlifts - USE E55 underground mining equipment

manpower - USE P05 personnel

man testing - USE T05 testing

markings - USE 00L labeling

M10 materials and supplies

UF
construction
materials
consumables
delivery
inventories
materials for
components
parts
stores
supplies

RT's
C05 carbon compounds
(mining
applications)
M35 coal mining
BT I20 coal industry
C39 construction
E77 explosives
F15 fluids
M15 materials
handling
M17 materials
processing
M20 materials
recovery
M21 materials storage
P15 pipes

materials for components - USE M10 materials and supplies

M15 materials handling	<u>UF</u> conveyors hoisting hoppers packaging rough handling shipment of materials	<u>RT's</u> HAO haulage M10 materials and supplies BT T35 transport
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M17 materials processing	<u>UF</u> chemical treatment coating conditioning dressing galvanizing heat treatment impregnation pressure treatment rust proofing steaming vulcanization waterproofing	<u>RT's</u> M00 maintenance procedures BT M10 materials and supplies
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materials recall - USE OAR recall

M20 materials recovery	<u>UF</u> recycling	<u>RT's</u> BT M10 materials and supplies
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M21 materials storage	<u>UF</u> magazines shelf life	<u>RT's</u> S55 coal storage E77 explosives BT M10 materials and supplies OCS security 15W working conditions
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materials testing - USE T05 testing

maximums - USE S36 specifications

medical centers - USE OOM industrial medicine

medical impact - USE 00I impact

methane - USE F20 gas fuels

M25 methane	<u>UF</u> coal gas firedamp gassy mines in-mine gas	<u>RT's</u> BT 50E explosions
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methane detectors - USE 40E safety and health equipment

MHD generators - USE B10 burners

MHSA approval label - USE 00L labeling

mills - USE E60 preparation equipment

mine abandonment - USE 10M abandoned mines

mine collapse - USE 00A accidents

mine drainage - USE D05 drainage

mine maps - USE 05R reports and records

mine-month generating plants - USE P30 power plants

05M mine permit areas

RT's
BT R17 rights of entry

mineral fuels - USE F25 solid and liquid fuels

mineral resources - USE R15 resources

M30 mineral rights

RT's
BT R17 rights of entry

mineral wastes - USE 20P land pollution

mine rehabilitation - USE 00R reclamation

mine rescue - USE 10R rescue operations

mine roadways - USE M40 surface coal mining

S15 mine siting

RT's
BT LA0 land

miners - USE P05 personnel

mines - USE E80 extraction

minimums - USE S36 specifications

mining engineering - USE E80 extraction

misfires - USE OAF equipment failure

mist extractors - USE E45 laboratory equipment

modifications - USE 41E equipment certifications

15M monitoring

UF
checking

RT's
05D detection
BT 25E environment
Q00 quality control
S00 sampling
T05 testing

mountaintop removal - USE M40 surface coal mining

mounting - USE I24 installation certifications

naphtha - USE B00 coal-derived bituminous materials

natural gas - USE F20 gas fuels

N00 nitrogen compounds

RT's
BT B05 blasting
E77 explosives

nitroglycerine - USE E77 explosives

OAN nitrous oxide

RT's
BT TOP air pollution

noise exposure - USE O0N noise levels

O0N noise levels

UF
noise exposure
noise pollution
noise-sensitive areas

RT's
BT 05H hazards
15P pollution

noise pollution - USE O0N noise levels

noise-sensitive areas - USE O0N noise levels

non-combustibility - USE 15F flammability

non-explosion proof - USE 50E explosions

non-explosive wrapper - USE B05 blasting

non-flammability - USE 15F flammability

non-gelatinous explosives - USE E77 explosives

notice - USE H00 hearings

notification - USE 05R reports and records
 occupational disease - USE 20D diseases
 oil burners - USE B10 burners
 operating instructions - USE 00L labeling
 operating rules - USE 00L labeling
 operating space envelope - USE 15H human factors design
 operating temperature - USE H05 heat
 operational procedures - USE OAS safe practices
 operators - USE P05 personnel
 operator protection - USE 42E safety features on equipment
 operator qualification - USE 05T training
 operator training - USE 05T training
 organic sulfur - USE S50 sulfur
 organic wastes - USE 05W wastes
 orphaned lands - USE LA0 land
 overburden - USE M40 surface coal mining

000 oxygen

RT's
 BT H10 HVAC

packaging - USE M15 materials handling
 packed bed - USE B10 burners
 pager - USE E30 communications equipment
 paleontology - USE 00S protected sites
 particle size - USE P00 particles
 particle suspension - USE P00 particles

P00 particles

UF
 particle size
 particle
 suspension
 particulate matter

RT's
 D09 coal dust
 BT 25D dust control

particulate matter - USE P00 particles

parts - USE M10 materials and supplies

pathogenesis - USE 20D diseases

pathogens - USE 20D diseases

pathology - USE 20D diseases

payback period - USE E05 economics

PA0 payments and fees

RT's
E25 enforcement
BT F11 finance
P04 permits
05L licenses

PO1 penalties

UF
sanctions

RT's
BT E25 enforcement
V06 violations

performance criteria - USE S36 specifications

OBP permissibility

UF
permissible
equipment
permissible materials
permissible personal
gear
permissible supplies

RT's
50E explosions
BT 40E safety and health
equipment

permissible equipment - USE OBP permissibility

permissible materials - USE OBP permissibility

permissible personal gear - USE OBP permissibility

permissible supplies - USE OBP permissibility

P04 permits

UF
posting
revocation

RT's
BT A20 approval
05L licenses
41E equipment
certification
15C certification

P05 personnel

<u>UF</u>	certified personnel	<u>RT's</u>	15C certification
	experience		20C claims
	government	BT	I20 coal industry
	employees		E20 employment
	manpower		18I inspectors
	miners		05T training
	operators		15W working
	professional		conditions
	personnel		
	qualifications		
	qualified operators		
	test subjects		
	uncertified personnel		

personnel examination - USE T05 testing

P1R personnel rehabilitation

<u>UF</u>	employee transfer	BT	<u>RT's</u>	E20 employment
	vocational			
	rehabilitation			

physical examination - USE 10H health services

P15 pipes

		BT	<u>RT's</u>	M10 materials and
				supplies

pipeline corridor - USE S75 surface rights

pitch - USE B00 coal-derived bituminous materials

placement - USE 15H human factors design

P20 planning

<u>UF</u>	blueprints		<u>RT's</u>	C39 construction
	production plans			00P plans
	schedules	BT	P45	production

00P plans

<u>UF</u>	accident prevention		<u>RT's</u>	P20 planning
	plans	BT	OAS	safe practices
	disaster response plans			
	evacuation plans			
	health plans			

planting - USE 20R revegetation

plastique - USE E77 explosives

platforms - USE C39 construction

plats - USE 05R reports and records

P30 power plants	<u>UF</u> fossil fuel power plants mine-mouth generating plants	<u>RT's</u> B10 burners C37 combustion byproducts T00 combustion temperature control BT M05 coal markets E10 electricity S40 stacks S10 power plant siting P35 power transmission H05 heat U00 electric utilities
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S10 power plant siting		<u>RT's</u> BT LA0 land P30 power plants
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P35 power transmission		<u>RT's</u> BT E10 electricity P30 power plants
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E60 preparation equipment	<u>UF</u> concentrating tables crushers dryers inclined screen jigs magnets mills pulverizers	<u>RT's</u> C30 coal preparation BT E40 equipment
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pressure flushing - USE M45 underground coal mining

pressure regulators - USE E40 equipment

pressure testing - USE T05 testing

pressure treatment - USE M17 materials processing

prevention of significant deterioration - USE 15P pollution

preventive maintenance - USE M00 maintenance procedures

preventive medicine - USE 10H health services

private utilities - USE U00 electrical utilities

P45 production

UF
production
statistics

RT's
BT M35 coal mining
E80 extraction
E70 exploitation
E75 exploration
C39 construction
P20 planning

production plans - USE P20 planning

production statistics - USE P45 production

professional personnel - USE P05 personnel

proof load - USE T05 testing

propagation - USE B05 blasting

propellant - USE E77 explosives

property seizure - USE S75 surface rights

prospecting - USE E75 exploration

protected habitat - USE 00H habitat

00S protected sites

UF
archeological
sites
paleontology

RT's
BT 20P land pollution

protections - USE 42E safety features on equipment

40P protective clothing

UF
face masks
helmets

RT's
F10 filters
BT 40E safety and health
equipment

45P public health

RT's
BT 00M industrial
medicine

public utilities - USE U00 electrical utilities

pulverizers - USE E60 preparation equipment

pulverizing - USE C30 coal preparation

purification - USE 15P pollution

pyritic sulfur - USE S60 sulfur

00R reclamation	<u>UF</u> backfilling contouring grading highwall reduction mine rehabilitation subsidence control topsoiling	<u>RT's</u> BT <u>20P</u> land pollution 20R revegetation
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record retention - USE 05R reports and records

record review - USE 05R reports and records

recycling - USE M20 materials recovery

reflectors - USE 40E safety and health equipment

registration - USE 05R reports and records

remote sensing - USE E75 exploration

RA0 repairs	<u>UF</u> Teaks	<u>RT's</u> BT <u>OAM</u> maintenance
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reporting of results - USE 05R reports and records

05R reports and records	<u>UF</u> accident reports MHA approval list expression of results letters mine maps notification plats record retention record review registration reporting of results	<u>RT's</u> BT <u>E25</u> enforcement OAS safe practices
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10R rescue operations	<u>UF</u> mine rescue	<u>RT's</u> BT <u>D00</u> disaster response technology
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R00 research		<u>RT's</u> BT <u>T05</u> testing
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research grants - USE F05 federal assistance programs

R05 residues	<u>UF</u> coal refuse	<u>RT's</u> <u>25A</u> ash C37 combustion byproducts BT <u>05W</u> wastes
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resistors - USE 10E electrical systems
 resource assessment - USE R15 resources
 resource conservation - USE 30C conservation
 resource depletion - USE R15 resources
 resource development - USE R15 resources
 resource potential - USE R15 resources
 resource recovery facilities - USE R15 resources

R15 resources	<u>UF</u>	<u>RT's</u>
	allocation	BT <u>R10</u> coal resources
	energy resources	30C conservation
	mineral resources	
	resource assessment	
	resource depletion	
	resource development	
	resource potential	
	resource recovery	
	facilities	
	water resources	

respirable air - USE A05 air

15R respiration	<u>UF</u>	<u>RT's</u>
	breath	BT <u>H10</u> HVAC
	exhalation	
	inhalation	
	respiratory systems	

respirator components - USE 40E safety and health equipment
 respirators - USE 40E safety and health equipment
 respiratory devices - USE 40E safety and health equipment
 respiratory system diseases - USE 20D diseases
 respiratory systems - USE 15R respiration
 retirement - USE E20 employment

20R revegetation

UF
cultivation
grazing
fertilization
planting
seeding
sodding
soil preparation
species introduction

RT's
BT 20P land pollution
00R reclamation

revocation - USE P04 permits

right of way - USE S75 surface rights

R17 rights of entry

RT's
BT L05 legal aspects
05M mine permit areas
M30 mineral rights
S75 surface rights
W01 water rights

risk assessment - USE E05 economics

roads - USE T50 truck transport

rock bursts - USE R20 rocks

rock drills - USE R20 rocks

rock dusting - USE M45 underground coal mining

rock mechanics - USE R20 rocks

R20 rocks

UF
rock bursts
rock drills
rock mechanics
sedimentary rocks

RT's
G25 geological
structures
BT LA0 land

rolling stock - USE T40 rail transportation

roll-over bars - USE 42E safety features on equipment

roll-over protective structures (ROPS) - USE 42E safety features on equipment

roof bolting - USE M45 underground coal mining

roof control - USE M45 underground coal mining

rough handling - USE M15 materials handling

rubbish - USE 05H hazards

R25 rulings

RT's
BT A20 approval

runoff - USE 10W water

run-of-mine coal - USE C20 coal

runways - USE C39 construction

rust proofing - USE M17 materials processing

safeguards - USE 42E safety features on equipment

safe location of workers - USE OAS safe practices

safe locations - USE I24 installation of equipment

safe operations - USE OAS safe practices

OAS safe practices

<u>UF</u>	<u>RT's</u>
operational	BT I20 coal industry
procedures	05D detection
safe location of	D00 disaster response
workers	technology
safe operations	20D diseases
signaling safe	05H hazards
conditions	00M industrial
technical procedures	medicine
	00P plans
	05R reports and
	records
	42E safety features
	on equipment
	15W working
	conditions

safe work place - USE 15W working conditions

40E safety and health
equipment

<u>UF</u>	<u>RT's</u>
air monitors	BT E40 equipment
alarm devices	00L labeling
alarm systems	0BP permissibility
brakes	40P protective
circuit-interrupting	clothing
devices	15W working
dust, mist and fume	conditions
respirators	42E safety features
dust collectors	on equipment
dust samplers	

40E safety and health
equipment continued

indicators
flame detectors
flame safety lamps
gas masks
interlocks
life support systems
lightning rods
methane detectors
reflectors
respirator components
respirators
respiratory devices
safety flashlight
safety lamps
smoke detectors
supplied air respirators
tactile indicators
timer
visible gauges
warning devices

42E safety features on
equipment

<u>UF</u>	<u>RT's</u>
cut-off valves	OOL labeling
enclosures	BT 40E safety and health equipment
falling-object protective structures (FOPS)	OAS safe practices
guards	
intrinsic safety	
limiters	
locking devices	
operator protection	
protections	
roll-over bars	
roll-over protective structures (ROPS)	
safeguards	

safety flashlight - USE 40E safety and health equipment

safety lamps - USE 40E safety and health equipment

sample preparation - USE S00 sampling

samplers - USE E45 laboratory equipment

samplers - USE S00 sampling

samples - USE S00 sampling

S00 sampling	<u>UF</u> bias sample preparation samples	<u>RT's</u> BT 15M monitoring T05 testing
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sanctions - USE P01 penalties

sand - USE S30 soils

sapropelic coal - USE C20 coal

scaffolding - USE C39 construction

scheduled maintenance - USE M00 maintenance procedures

schedules - USE P20 planning

schools - USE 25C communities

screening - USE C30 coal preparation

scrubbers - USE 35E pollution control equipment

scrubbing - USE 35E pollution control equipment

OBS seasonal restrictions

RT's
BT 25E environment

seat index point - USE 15H human factors design

OCS security

UF
closure
gating
locked storage
locking
locks

RT's
M21 materials storage
BT 15W working
conditions

sedimentary rocks - USE R20 rocks

sedimentation - USE S30 soils

sediments - USE G20 geologic deposits

seeding - USE 20R revegetation

seepage - USE M45 underground coal mining

seismic events - USE E00 earthquakes

shaft excavations - USE M45 underground coal mining

shelf life - USE M21 materials storage
shelter holes - USE M45 underground coal mining
shields - USE E55 underground mining equipment

T45 ship transport

RT's
BT T35 transport

shipment of materials - USE M15 materials handling
shock waves - USE B05 blasting
shortwall - USE M45 underground coal mining
shot firer - USE B05 blasting
signal circuit - USE 10E electrical systems
signalling devices - USE E30 communications equipment
signaling safe conditions - USE OAS safe practices

S05 sintering

RT's
BT P40 coal processing

size - USE S36 specifications
sizing - USE C20 coal preparation
slag - USE C37 combustion byproducts
slope stability - USE 20P land pollution

S20 sludges

RT's
BT C37 combustion
byproducts

S25 slurries

RT's
BT C20 coal
T35 transport

slurry pipelines - USE P10 coal pipelines
small business - USE E05 economics
smog - USE 10P air pollution
smoke detectors - USE 40E safety and health equipment
smoke - USE 10P air pollution

snow - USE W05 weather

social impact - USE 00I impact

social services - USE 25C communities

sodding - USE 20R revegetation

soil preparation - USE 20R revegetation

S30 soils

UF
sand
sedimentation

RT's
BT G20 geological
deposits
LA0 land

F25 solid and liquid fuels

UF
boiler fuels
fossil fuels
fuel gas
fuel slurries
interchangeability
liquid fuels
mineral fuels
suspension

RT's
BT C20 coal
F20 gas fuels
H15 hydrocarbons
F30 synthetic fuels

S35 solvent extraction

UF
SRC I
SRC II
SRC III

RT's
BT P40 coal processing
C25 solvent-refined
coal

C25 solvent-refined coal

RT's
BT C20 coal
S35 solvent
extraction

soot - USE 10P air pollution

space envelope - USE S36 specifications

sparks - USE 05H hazards

species introduction - USE 20R revegetation

S36 specifications

UF
capacity
description
design
drawings
energy absorption
factor
limits
limits of error

RT's
BT C40 contracts

S36 specifications continued load
 maximums
 minimums
 performance criteria
 rated capacity
 rated load
 size
 space envelope
 tolerances
 weight
 workmanship

spoil banks - USE 20P land pollution

spontaneous combustion - USE 00F fires

SRC I - USE S35 solvent extraction

SRC II - USE S35 solvent extraction

SRC III - USE S35 solvent extraction

stack disposal - USE 10P air pollution

S40 stacks

RT's
BT P30 power plants

stairways - USE C39 construction

S45 static loads

RT's
BT T05 testing

stationary pollutant sources - USE 15P pollution

S50 steam

UF
steam generation BT RT's
steam generators H05 heat
steam lines

steam generation - USE S50 steam

steam generators - USE S50 steam

steam lines - USE S50 steam

steaming - USE M17 materials processing

steep slope operations - USE M40 surface coal mining

stemming - USE S52 stemming devices

stemming device wrappers - USE S52 stemming devices

S52 stemming devices

UF
stemming
stemming device
wrappers

RT's
BT B05 blasting
E77 explosives

stockpiles - USE S55 coal storage

stockpiling - USE S55 coal storage

stoichiometry - USE B10 burners

stokers - USE B10 burners

stores - USE M10 materials and supplies

storms - USE W05 weather

strata - USE G25 geological structures

sub-bituminous coal - USE C20 coal

subsidence - USE M45 underground coal mining

subsidence control - USE OOR reclamation

sulfate sulfur - USE S60 sulfur

S60 sulfur

UF
organic sulfur
pyritic sulfur
sulfate sulfur
sulfur compounds
sulfur content
sulphur

RT's
BT TOP air pollution

sulfur content - USE S60 sulfur

sulfur compounds - USE S60 sulfur

sulfur removal - USE TOP air pollution

sulphur - USE S60 sulfur

supplied air respirators - USE 40E safety and health equipment

supplies - USE M10 materials and supplies

S70 supply and demand

RT's
BT E05 economics

15S support facilities

RT's
BT M35 coal mining
E30 communications
equipment
E10 electricity
E45 laboratory
equipment
35E pollution control
equipment

support pillars - USE M45 underground coal mining

supports - USE M45 underground coal mining

surface air - USE A05 air

surface buildings - USE C39 construction

M40 surface coal mining

UF
area mining
auger mining
bucket and wheel
excavations
contour mining
mine roadways
mountaintop removal
overburden
steep slope operations
surface mining

RT's
BT M35 coal mining
E50 surface mining
equipment

D10 surface dust

RT's
BT 25D dust control

surface mining - USE M40 surface coal mining

E50 surface mining
equipment

UF
backhoes
draglines

RT's
BT E40 equipment
M40 surface coal
mining

S75 surface rights

UF
eminent domain
land entries
pipeline corridor
property seizure
right of way

RT's
BT R17 rights of entry

surface temperature - USE H05 heat

surface water - USE 10W water

surveys - USE E75 exploration
 survivors - USE 20I health insurance
 suspensions - USE F25 solid and liquid fuels
 switches - USE 10E electrical systems
 symbols - USE 00L labeling
 symptoms - USE 20D diseases

F30 synthetic fuels

RT's
 BT C20 coal
 F25 solid and liquid
 fuels

tactile indicators - USE 40E safety and health equipment
 tamping - USE B05 blasting
 tar - USE B00 coal-derived bituminous materials
 technical procedures - USE OAS safe practices
 telephone devices - USE E30 communications equipment
 temperature gradients - USE T00 combustion temperature control
 temperature measurement - USE T00 combustion temperature control
 termination - USE E20 employment
 test failure - USE OAF equipment failure
 test instruments - USE T05 testing
 test subjects - USE P05 personnel

T05 testing

<u>UF</u>	<u>RT's</u>
bench testing	05D detection
field testing	F00 federal test
man testing	procedures
materials testing	E45 laboratory
personnel examination	equipment
pressure testing	15M monitoring
proof load	BT 15P pollution
test instruments	Q00 quality control
	RBO research
test instruments	S00 sampling
	I00 impact shock
	S45 static loads

T10 thermal conductivity

RT's
BT H05 heat

T15 thermal degradation

RT's
E6T equipment
degradation
BT H05 heat

thermal effects - USE 25P water pollution

T20 thermal fatigue

RT's
BT H05 heat

T25 thermodynamic properties

RT's
BT H05 heat

threshold limit values - USE OAT threshold values

OAT threshold values

UF
acceptable
concentrations
allowable
concentrations
threshold limit value

RT's
BT 20D diseases
55E exposure limits

timbers - USE C39 construction

timers - USE 40E safety and health equipment

time in service - USE M00 maintenance procedures

tipple - USE 20P land pollution

TNT - USE E77 explosives

tolerances - USE S36 specifications

topsoiling - USE OOR reclamation

torbanite - USE C20 coal

toxic atmospheres - USE 00T toxins

toxic materials - USE 00T toxins

00T toxins

UF
antitoxins
toxic atmospheres
toxic materials

RT's
BT 05H hazards
30I irritants

trailing cables - USE E35 electrical equipment

05T training	<u>UF</u>	<u>RT's</u>
	cardio-pulmonary	BT D00 disaster response
	resuscitation	technology
	training	P05 personnel
	CPR training	
	education	
	first aid training	
	operator qualification	
	operator training	
	training aids and	
	simulators	

training aids and simulators - USE 05T training

tramp metal removal - USE C30 coal preparation

T35 transport	<u>UF</u>	<u>RT's</u>
	bulk shipping	T30 barge transport
		BT I20 coal industry
		P10 coal pipelines
		S55 coal storage
		HA0 haulage
		M15 materials
		handling
		T40 rail transport
		T45 ship transport
		S25 slurries
		T50 truck transport

trace element contamination - USE P40 coal processing

tremors - USE E00 earthquakes

triage - USE 05F first aid

trolley feeder wires - USE E35 electrical equipment

T50 truck transport	<u>UF</u>	<u>RT's</u>
	roads	BT T35 transport

tunneling - USE M45 underground coal mining

tunnels - USE M45 underground coal mining

uncertified personnel - USE P05 personnel

M45 underground coal mining

UF

RT's

controlled
cave-ins
escapeways
hydraulic mining
longwall
pressure flushing
rock dusting
roof bolting
roof control
seepage
shaft excavations
shelter holes
shortwall
subsidence
support pillars
supports
tunneling
tunnels
underground mining

BT M35 coal mining
E55 underground
mining equipment

underground disposal - USE 00W waste management

underground explosions - USE B05 blasting

underground mining - USE M45 underground coal mining

E55 underground mining
equipment

UF

RT's

advance conditions
sensors
belt conveyors
boring machines
coal plows
continuous miners
impact ripping
machines
instrument-controlled
vehicles
lamps
longwall conveyors
manlifts
shields

BT E40 equipment
M45 underground coal
mining

underground storage - USE S55 coal storage

V00 vapors

UF

RT's

fumes

BT TOP air pollution

variances - USE A20 approval

vegetative cover - USE 35P populations

waste processing - USE 00W waste management

waste processing plants - USE 00W waste management

waste product utilization - USE 00W waste management

waste storage - USE 00W waste management

waste transportation - USE 00W waste management

waste water - USE 10W water

05W wastes

UF

gaseous wastes
industrial wastes
liquid wastes
organic wastes

RT's

BT 15P pollution
R05 residues
00W waste management

10W water

UF

acid rain
aquifers
drainage basin
drawdown
drinking water
feedwater
floods
groundwater
hydrology
irrigations
recharge
runoff
surface waters
waste water
water demand
water quality
water removal
water rights
watersheds
water treatment
water treatment plants

RT's

BT 25E environment
25P water pollution

water demand - USE 10W water

25P water pollution

UF

impounding reservoirs
thermal effects
water pollution
abatement
water pollution
control
water pollution
monitors

RT's

D05 drainage
05E effluents
H05 heat
L10 leaching
BT 15P pollution
10W water

water pollution abatement - USE 25P water pollution
water pollution control - USE 25P water pollution
water pollution monitors - USE 25P water pollution
waterproofing - USE M17 materials processing
water quality - USE 10W water
water removal - USE 10W water
water resources - USE R15 resources
water rights - USE 10W water

W01 water rights

RT's
BT R17 rights of entry

water treatment - USE 10W water
water treatment plants - USE 10W water
watersheds - USE 10W water

W05 weather

UF
atmospheric
precipitations
hail
lightning
rain
snow
storms
wind

RT's
BT 25E environment

weathering - USE 20P land pollution
weight - USE S36 specifications
weight of apparatus - USE 15H human factors design
wildlife - USE 10F fish and wildlife
wind - USE W05 weather
wiring - USE 10E electrical systems
witnesses - USE L05 legal aspects

15W working conditions

UF
confined spaces
enclosed areas
hot work

RT's
BT I20 coal industry
D00 disaster response
technology
15H human factors
design
00L labeling
L25 lighting systems
M21 materials storage
P05 personnel
OAS safe practices
40E safety and health
equipment
OCS security

20W workers compensation

RT's
20C claims
E20 employment
BT I26 insurance

W10 working fluids

UF
antifreeze
hydraulic fluids

RT's
BT F15 fluids

workmanship - USE S36 specifications

wounds - USE 10I injuries

wrapper-to-explosive ratio - USE B05 blasting

wrappers - USE B05 blasting

zone of danger - USE 05H hazards

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11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here) This report contains a thesaurus to help public and private users find and retrieve information on regulations and standards which apply both to coal technologies and coal-related environmental, safety and health issues. Document indexers may also find it helpful. The thesaurus was designed to be structurally compatible with the document storage and retrieval systems now in use by the Department of Energy (DOE) so that absorption into DOE's system could be convenient and practical. The arrangement of the thesaurus, the code system that represents the terms used in the indexing and search processes, and instructions for its use are described. The hierarchies of index terms in the thesaurus are illustrated.			
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