Coal Taxonomy Thesaurus of Terms

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COAL TAXONOMY THESAURUS OF TERMS

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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.
ACKNOWLEDGEMENTS

The authors acknowledge with thanks the valuable assistance and cooperations of the staff of Ideamatics, Inc. with whom they worked on the Coal Taxonomy project. They also wish to thank Mr. Terrance N. Troy, leader of the SIS Group in the Office of Engineering Standards (OES) at the National Bureau of Standards, and Mr. Robert Poe, head of the Standards Group of the Department of Energy for their direction and encouragement.
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PART 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 "1OM abandoned mine." The code "1OM" represents the term, or really the concept, "abandoned mines." Thus, 1OM 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 "O" is used in only one case, in the code for oxygen, for which the code is "capital O, 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 "120 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, "1OM 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, "1OM abandoned mines" could be discovered as a possible search term starting with any of the BT's: 25E, 15 or 20P. 1OM 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 "120 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)

I20 coal industry

C20 coal
M35 coal mining
P40 coal processing
R10 coal resources
L05 legal aspects (see below)
OAS safe practices (see below)
15W working conditions

E40 equipment (see below)
C10 carbonization
E05 economics
M10 materials and supplies
T35 transport

F11 finance
F15 fluids
P05 personnel
E20 employment

B05 blasting
P45 production
15S support facilities

(E40 equipment)

OAM maintenance
40E safety and health equipment

(L05 legal aspects)

A20 approval
20C claims
C40 contracts
E25 enforcement
I26 insurance
R17 rights of entry

(OAS safe practices)

D00 disaster response technology
20D diseases
05H hazards
50E explosions
00F fires
00M industrial medicine
<table>
<thead>
<tr>
<th>Term</th>
<th>UF</th>
<th>RT's</th>
<th>BT</th>
</tr>
</thead>
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<td>mine abandonment</td>
<td>mine collapse</td>
<td>mine collapse</td>
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<td>abandoned shafts - USE 20P land pollution</td>
<td>abandoned shafts - USE 20P land pollution</td>
<td>abandoned shafts - USE 20P land pollution</td>
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<td>abandoned sites - USE 20P land pollution</td>
<td>abandoned sites - USE 20P land pollution</td>
<td>abandoned sites - USE 20P land pollution</td>
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<td>absenteeism - USE E20 employment</td>
<td>absenteeism - USE E20 employment</td>
<td>absenteeism - USE E20 employment</td>
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<td>acceptable concentrations - USE OAT threshold values</td>
<td>acceptable concentrations - USE OAT threshold values</td>
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<tr>
<td>accessories - USE E40 equipment</td>
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<td>accident prevention plans - USE OOP plans</td>
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<td>accident prevention plans - USE OOP plans</td>
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<td>accident reports - USE O5R reports and records</td>
<td>accident reports - USE O5R reports and records</td>
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<td>acid mine drainage - USE D05 drainage</td>
<td>acid mine drainage - USE D05 drainage</td>
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<td>acid rain - USE 10W water general</td>
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<td>aerial tramways - USE HAO haulage</td>
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<td>aerosol monitoring - USE 10P air pollution</td>
<td>aerosol monitoring - USE 10P air pollution</td>
<td>aerosol monitoring - USE 10P air pollution</td>
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<td>aesthetics</td>
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</table>
air circulation - USE VO5 ventilation

10 air curtains

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

air leakage - USE A15 air infiltration

air monitors - USE 40E safety and health equipment

OP air pollution

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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 LO5 legal aspects

application procedures - USE FO5 federal assistance programs

application for approval - USE A20 approval

A20 approval

<table>
<thead>
<tr>
<th>UF</th>
<th>RT's</th>
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<tr>
<td>application for</td>
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<td>approval</td>
<td>41E equipment</td>
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<td>certification</td>
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<td>H00 hearing</td>
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<tr>
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<td>BT LO5 legal aspects</td>
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<td>variances</td>
<td>R25 rulings</td>
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approval list - USE 05R reports and records

arctic clothing allowance - USE 15H human factors design

20A asbestos

<table>
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<th>UF</th>
<th>BT 25D dust control</th>
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25A ash

<table>
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<td>bottom ash</td>
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<td>de-ash</td>
<td>BT C37 combustion by-</td>
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<td>products</td>
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<td>R05 residues</td>
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</table>

archaeological 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 O0D death

availability - USE S65 coal supply

backfilling - USE M40 surface coal mining and O0R reclamation

baghouse filters - USE F10 filters

backhoes - USE E50 surface mining equipment
T30 barge transport

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
bituminous coal - USE C20 coal
bias - USE 500 sampling
black coal - USE C20 coal
black lung - USE 05P pneumoconiosis
black lung benefits - USE 05P pneumoconiosis

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<td>50E</td>
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<td>blasting devices</td>
<td>BT E80</td>
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<td>cartridges</td>
<td>NOO</td>
<td>nitrogen</td>
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<tr>
<td>wrappers</td>
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<tr>
<td>wrapper-to-explosive ratio</td>
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</table>
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 O0L 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

<table>
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<td>boilers</td>
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</tr>
<tr>
<td>burner</td>
<td>H05 heat</td>
</tr>
<tr>
<td>ignition</td>
<td>M15 materials</td>
</tr>
<tr>
<td>combustion</td>
<td>handling</td>
</tr>
<tr>
<td>conversion</td>
<td>(oil to gas to coal)</td>
</tr>
<tr>
<td>de-ashing</td>
<td>P30 power plants</td>
</tr>
<tr>
<td>draft</td>
<td>systems</td>
</tr>
<tr>
<td>control</td>
<td>ebulliated bed</td>
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<td>systems</td>
<td>flames</td>
</tr>
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<td></td>
<td>flashback</td>
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B10 burners cont.

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

cables - USE 10E electrical systems

COO caking

UF 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

BT M10 materials and supplies

OOC carbon dioxide

RT's

BT TOP air pollution

C10 carbonization

RT's

BT P40 coal processing C36 coke

O5C 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

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<td>unknown</td>
<td>certificated person BT</td>
<td>approval A20</td>
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certified personnel - USE P05 personnel
chemical explosions - USE B05 blasting
chemical explosives - USE E77 explosives

<table>
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<th>C15 chemical reactions</th>
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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

<table>
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<td>L05 legal aspects</td>
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-15-
classification - USE OOL labeling

clean air area - USE 1OP air pollution

clearance - USE 15H human factors design

clinkers - USE C37 combustion products

closure - USE OCS security

C20 coal

<table>
<thead>
<tr>
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<th>RT's</th>
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<tr>
<td>anthracite coal</td>
<td>GOO coal derived gas</td>
</tr>
<tr>
<td>bituminous coal</td>
<td>L40 coal derived liquids</td>
</tr>
<tr>
<td>black coal</td>
<td>BOO coal derived bituminous</td>
</tr>
<tr>
<td>boghead coal</td>
<td>materials</td>
</tr>
<tr>
<td>brown coal</td>
<td></td>
</tr>
<tr>
<td>cannel coal</td>
<td></td>
</tr>
<tr>
<td>coal deposits</td>
<td>BT I20 coal industry</td>
</tr>
<tr>
<td>coal fines</td>
<td>H15 hydrocarbons</td>
</tr>
<tr>
<td>coal seams</td>
<td>F20 gas fuels</td>
</tr>
<tr>
<td>lignite</td>
<td>S25 slurries</td>
</tr>
<tr>
<td>run-of-mine coal</td>
<td>F25 solid and liquid fuels</td>
</tr>
<tr>
<td>sapropelic coal</td>
<td>C25 solvent-refined coal</td>
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<td>sub-bituminous coal</td>
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<td>torbanite</td>
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coal cleaning - USE C30 coal preparation

coal deposits - USE C20 coal

B00 coal-derived bituminous materials

<table>
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<tr>
<td>coal tar</td>
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<td>creosote</td>
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G00 coal-derived gas

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L40 coal-derived liquids

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D09 coal dust

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<td>BT 25D dust control P00 particles</td>
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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
- T15W working conditions

L30 coal liquefaction

UF
- coal liquefaction conversion
- cracking
- enrichment
- liquefaction

RT's
- BT P40 coal processing

coal liquefaction plants - USE L30 coal liquefaction

coal-hauling vehicles - USE HAO haulage

M05 coal markets
- UF domestic markets
- foreign markets

RT's
- I20 coal industry
- R10 coal resources
- U00 electric utilities
- E76 exports
- I05 imports
- I15 industrial plants
- P30 power plants
M35 coal mining

P10 coal pipelines

C30 coal preparation

coal preparation plants - USE C30 coal preparation
coal plows - USE E55 underground mining equipment

P40 coal processing

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C35 coal producing district

coal refuse - USE R05 residues

R00 coal reserves

R10 coal resources

coal seams - USE C20 coal

S55 coal storage

S65 coal supply

coal tar - USE B00 coal-derived bituminous materials

coal users - USE 115 industrial plants

coating - USE M17 material processing

C36 coke

coke ovens - USE C10 carbonization

coking - USE C10 carbonization

coking plants - USE C10 carbonization

combustion - USE B10 burners
C37 combustion byproducts

UF
- cinders
- clinkers
- dust
- furnace residue
- slag

RT's
- 20P air pollution
- 25A ash
- P30 power plants
- BT R05 residues
- S20 sludges

combustion control - USE B10 burners

T00 combustion temperature control

UF
- temperature
- gradients
- temperature measurement

RT's
- BT P30 power plants

combustion waves - USE B10 burners

combustors - USE B10 burners

combustibility - USE 15F flammability

comfort - USE 15H human factors design

E30 communications equipment

UF
- in-mine communication
- pager
- radio
- signaling devices
- telephone devices

RT's
- BT E40 equipment
- 15S support facilities

25C communities

UF
- housing
- schools
- social services

RT's
- BT OOE ecology
- 35P populations

compacting - USE COO caking

complaints - USE VO6 violations

C38 compliance

UF
- compliance schedules
- exceptions
- exemptions
- extensions

RT's
- BT E25 enforcement

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

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concentrating tables - USE E60 preparation equipment

conditional approval - USE A20 approval

conditioning - USE M17 materials processing

28C conditions

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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

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construction materials - USE M10 materials and supplies
consumables - USE M10 materials and supplies
contamination - USE 15P pollution
contouring - USE OOR reclamation
continuous miner - USE E55 underground mining equipment

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

costs - USE F11 finance
CPR training - USE O5T training
creosote - USE B00 coal-derived bituminous materials
critical habitat - USE OOH 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 OOL labeling

de-ash - USE 25A ash

de-ashing - USE B10 burners

OOD 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

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detonation waves - USE B05 blasting
detonators - USE B05 blasting
diesel engines - USE O5H hazards

disallowal - USE 41E equipment certification
disapproval - USE A20 approval

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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 - acid mine drainage
- RT's - 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 - dust control foam
- 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

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**electric shock - USE 101 injury prevention and response**

**electrical tests - USE 10E electrical systems**

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**electrostatic precipitators - USE 35E pollution control equipment**

**electrostatic precipitations - USE 35E pollution control equipment**
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elution - USE C30 coal preparation

E15 embankments

12E emergencies
elutriation - USE C30 coal preparation

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emergency medical services - USE 10H health services
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emergency shelter - USE 12E emergencies
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emissions - USE 10H health services
emissions - USE 00L labeling
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emissions - USE S75 surface rights

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15E employee responsibilities - USE 20D diseases

20E employer responsibilities

20E employer responsibilities - USE 01R personnel rehabilitation

employee transfer - USE 01R personnel rehabilitation

E20 employment

E20 employment - USE 20D diseases

E20 employment - USE 01R personnel rehabilitation
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RT's
20C claims
C38 compliance
15I inspections
25I investigations

BT LAO legal aspects
PAO payments and fees
P01 penalties
0SR reports and records
V06 violations

25E environment (no BT's)

UF
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environmental engineering
environmental exposure pathway
environmental materials
environmental policy
environmental transport

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A05 air
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30E environmental impact statements
05I impact analysis
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30E environmental impact statement

environmental materials - USE 25E environment

environmental policy - USE 25E environment

environmental transport - USE 25E environment

E40 Equipment

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41E equipment certification

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E61 equipment degradation

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explosive hazards - USE 50E explosions
explosive wrapper - USE A05 blasting

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55E exposure limits

expression of results - USE O5R reports and records
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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

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feedwater - USE W00 water
fees - USE F11 finance
fee schedules - USE F11 finance
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fertilization - USE 20R revegetation
field testing - USE T05 testing

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| RT's | BT 15P pollution 40P protective clothing |
| RT's | BT E05 economics F05 federal assistance programs L45 loans PAO payments and fees |

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

OOF fires

fire control foam - UF RT's 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

first-aid kit - UF RT's BT OOM industrial medicine
triage

first aid training - USE 05T training

10F fish and wildlife

wildlife - UF RT's BT 00E ecology

flame arresting path - USE 15F flammability
flame detectors - USE 40E safety and health equipment
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fuel feeding systems - USE B10 burners
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G05 gaseous wastes

F20 gas fuels

UF gas generators
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RT's BT TOP air pollution

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

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G20 geological structures
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G25 geological structures
UF
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LAO land
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ground disposal - USE 20P land pollution

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grounding - USE 10E electrical systems

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protected habitat
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G20 geological structures
BT
OOE ecology

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haulage - USE M40 surface coal mining

HAO haulage
UF
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RT's
M15 materials
handling
T35 transport

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### OSH hazards

- danger zone
- dangerous condition
- diesel engines
- exhaust gases of diesel engines
- hazardous atmosphere
- incendiary materials
- poisonous gases
- rubbish
- sparks
- zone of danger

### UF

- OBP permissibility
- E15 embankments
- I1E emissions
- OAF equipment failure
- 50E explosions
- OOF fires
- 30I irritants
- OON noise levels
- 00T toxins
- 15P pollution
- 0OA accidents
- 15W working conditions

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- USE 05H hazards
- head clearance - USE 15H human factors design
- health impact - USE 00I impact

### 20I Health insurance

- UF
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  - benefit payments
  - survivors
- RT's
  - BT I26 insurance
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### Health plans

- USE OOP plans

### 10H Health services

- UF
  - emergency medical services
  - physical examination
  - preventive medicine
- RT's
  - BT O0M industrial medicine

### H00 Hearings

- UF
  - notice
- RT's
  - BT A20 approval
  - L05 legal aspects

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- UF
  - calorific values
  - heat exchangers
  - heat transfer
  - heat transfer fluids
  - heating
  - heat load
  - kilns
  - operating temperature
  - radiators
  - surface temperature
  - waste heat
- RT's
  - T10 thermal conductivity
  - T15 thermal degradation
  - T20 thermal fatigue
  - T25 thermodynamic properties
  - OAM maintenance
  - P30 power plants
  - S50 steam
  - 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

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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

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RT's human physical requirements

BT 15W working conditions

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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

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illumination - USE L25 lighting systems

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environmental impact
health impact
medical impact
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BT 051 impact analysis

051 impact analysis

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

impact ripping machines - USE E55 underground mining equipment

I00 impact shock

UF
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impact tests

RT's
BT 051 testing

impact strength - USE I00 impact shock

impact tests - USE I00 impact shock
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impounding reservoirs - USE 25P water pollution

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inclined screen jigs - USE E60 preparation of equipment

indicators - USE E40 equipment

industrial accidents - USE 00A accidents

OOM industrial medicine

UF medical centers

RT's

TOD diagnosis

DOO disaster response technology

05F first aid

10H health services

45P public health

BT OAS safe practices

20D diseases

101 injuries

115 industrial plants

UF coal users

RT's

BT M05 coal markets

industrial wastes - USE 05W wastes

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inhalation - USE 15R respiration

injunction - USE 00A legal aspects

101 injuries

UF burns

electric shock

wounds

RT's

15D disability

20D diseases

05F first aid

BT OOM industrial medicine

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in-mine gas - USE M25 methane

in-situ combustion - USE I10 in-situ processing

in-situ gasification - USE I10 in-situ processing
| I10 in-situ processing | UF in-situ combustion BT P40 coal processing  
in-situ gasification G15 coal gasification  
L30 coal liquefaction |
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| 15I inspections    | RT's BT 050 detection E25 enforcement  
18I inspectors  
25I investigations |

**inspector experience** - USE 18I inspectors

**inspector qualifications** - USE 18I inspectors

| 18I inspectors  | UF inspector experience  
RT's  
15I inspections  
 BT P05 personnel qualification |

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safe locations |

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**instrumentation** - USE E40 equipment

**instrument-controlled machines** - USE E55 underground mining equipment

**insulation** - USE 10E electrical systems

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BT L05 legal aspects  
L20 liability  
L25 liability insurance  
20W workers' compensation |

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**interlocks** - USE 40E safety and health equipment

**intrinsic safety** - USE 42E safety features on equipment

**inventories** - USE M10 materials support
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   05D detection
   BT E25 enforcement
   15I inspections

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301 irritants
   RT's
   BT 05H hazards
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kilns - USE H05 heat

00L labeling
   UF
   brand names
   certification number
   classification
   dating
   emergency procedure
   instructions
   lot numbers
   markings
   MHSA approval label
   operating instructions
   operating rules
   symbols
   warning labels

   RT's
   BT safety and health
   equipment
   42E safety features
   on equipment
   15W working
   conditions

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labor representation - USE E20 employment

E45 laboratory equipment
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   extraction
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   RT's
   E40 equipment
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lamps - USE E55 underground mining equipment
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land entries - USE S75 surface rights

20P land pollution

land pollution abatement - USE 20P land pollution

L00 land use

landscaping - USE 20P land pollution

landslides - USE 20P land pollution

lawsuits - USE L05 legal aspects

L10 leaching

leakage - USE E61 equipment degradation
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pressure flushing - USE M45 underground coal mining
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R20 rocks

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safe work place - USE 15W working conditions

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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

- cut-off valves
- enclosures
- falling-object protective structures (FOPS)
- guards
- intrinsic safety limiters
- locking devices
- operator protection protections
- roll-over bars
- roll-over protective structures (ROPS)
- safeguards

RT's
OOL labeling
BT 40E safety and health equipment
OAS safe practices

safety flashlight - USE 40E safety and health equipment
safety lamps - USE 40E safety and health equipment
sample preparation - USE SOO sampling
samplers - USE E45 laboratory equipment
samplers - USE SOO sampling
samples - USE SOO sampling
SOO sampling  UF  RT's
Bias  BT  T5M monitoring
sample preparation  T05 testing
samples

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
seat index point - USE 15H human factors design

OCS security  UF  RT's
Closure  M21 materials storage
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locking
locks

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sedimentation - USE S30 soils
sediments - USE G20 geologic deposits
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T45 ship transport

RT's

BT T35 transport

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shock waves - USE B05 blasting
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shot firer - USE B05 blasting
signal circuit - USE 10E electrical systems
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signaling safe conditions - USE OAS safe practices

S05 sintering

RT's

BT P40 coal processing

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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

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smoke detectors - USE 40E safety and health equipment
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S30 soils
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F25 solid and liquid fuels
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UF gas fuels
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UF interchangeability
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S35 solvent extraction
UF SRC I
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UF SRC III

C25 solvent-refined coal

soot - USE 10P air pollution
space envelope - USE S36 specifications
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S36 specifications
UF capacity
UF description
UF design
UF drawings
UF energy absorption
UF factor
UF limits
UF limits of error

RT's G20 geological deposits
LA0 land
RT's C20 coal
F20 gas fuels
H15 hydrocarbons
F30 synthetic fuels
RT's P40 coal processing
C25 solvent-refined coal
RT's C20 coal
S35 solvent extraction
RT's C40 contracts
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minimums
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rated load
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spoil banks - USE 20P land pollution
spontaneous combustion - USE OOF fires
SRC I - USE S35 solvent extraction
SRC II - USE S35 solvent extraction
SRC III - USE S35 solvent extraction
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S40 stacks

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S45 static loads

stationary pollutant sources - USE 15P pollution

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steep slope operations - USE M40 surface coal mining
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S52 stemming devices

stemming device wrappers

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stockpiling - USE S55 coal storage

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stokers - USE B10 burners

stores - USE M10 materials and supplies

storms - USE W05 weather

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subsidence control - USE OOR reclamation

sulfate sulfur - USE S60 sulfur

S60 sulfur

organic sulfur pyritic sulfur sulfate sulfur sulfur compounds sulfur content sulphur

sulfur content - USE S60 sulfur

sulfur compounds - USE S60 sulfur

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sulphur - USE S60 sulfur

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S70 supply and demand

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mine roadways
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steep slope operations
surface mining

D10 surface dust

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E30 communications equipment
E10 electricity
E45 laboratory equipment
35E pollution control equipment

RT's
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E50 surface mining equipment
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RT's
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S75 surface rights
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T05 testing

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T15 thermal degradation

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T20 thermal fatigue
T25 thermodynamic properties

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OAT threshold values
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tunnels – USE M45 underground coal mining
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underground disposal - USE OOW waste management

underground explosions - USE 805 blasting

underground mining - USE M45 underground coal mining

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underground storage - USE S55 coal storage

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variances - USE A20 approval

vegetative cover - USE 35P populations

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ventilation barriers - USE VO5 ventilation
ventilation systems - USE VO5 ventilation
ventilation vents - USE VO5 ventilation

VO6 violations

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washout - USE 15P pollution
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OOW waste management

underground disposal - USE 05W extraction
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RT's
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15F flammability
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waste product utilization - USE OOW waste management
waste storage - USE OOW waste management
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05W wastes

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10W water

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water demand - USE 1OW water

25P water pollution

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RT's BT R17 rights of entry

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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
Coal Taxonomy Thesaurus of Terms

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.

12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

- coal; environment; health; index; safety; taxonomy; technology; thesaurus; terms

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