

APPENDIX I

SOURCES OF GEOLOGICAL, HYDROLOGICAL, SOILS, AND RECLAMATION DATA

Abstracts of North American Geology, monthly, 1966-1971. U.S. Geological Survey, Washington, D.C.

Agronomy Abstracts. Abstracts of papers presented at annual meetings. American Society of Agronomy. Madison, Wisconsin.

Annual summaries and/or yearbooks are published by most state geological surveys or bureaus.

Beatty, W. B.

1962. Mineral resources data in the western states. Stanford Research Institute, Palo Alto, California.

Black, C. A. (ed.).

1965. Methods of soil analysis, part 2. American Society of Agronomy Monograph No. 9.

Chemical Abstracts, weekly. American Chemical Society, Columbus, Ohio. (Topics include minerals, mining, geology, and specific metals.)

Chronic, J. B.

1958. Bibliography of theses written for advanced degrees in geology and related sciences at universities and colleges in the United States and Canada through 1957. Pruett Press, Boulder, Colorado.

Chronic, J. B.

1964. Bibliography of theses in geology, 1958-1963. American Geological Institute, Washington, D.C.

Czapowskyj, M. W.

1976. Annotated bibliography on the ecology and reclamation of drastically disturbed areas. USDA For. Serv. Gen. Tech. Rep. NE-21. Northeast For. Exp. Stn. Upper Darby, Pa.

Dalsted, N. L., and F. L. Leistritz.

1973. A selected bibliography on surface coal mining and reclamation of particular interest to the Great Plains states. Agric. Econ, Misc. Rep. 16. North Dakota Agric. Exp. Stn.

Dissertation Abstracts International, monthly.

University Microfilms, Ann Arbor, Michigan.

Earth Sciences Research Catalog.

University of Tulsa, Tulsa, Oklahoma. For the entire United States; indexed by area.

Economic Geology.

Geology of ore deposits (abstracts of Russian Academy of Science articles) in several issues each year.

Frawley, M. L.

1971. Surface mined areas. Control and reclamation of environmental damage. A bibliography. USDI Office of Library Services, Bibliography Series 27.

Geoabstracts, bimonthly.

University of East Anglia, Norwich, England.

With a worldwide geographical and subject index in seven parts:

- A. Landforms and the quaternary
- B. Climatology and hydrology
- C. Economic geography (including minerals)
- D. Social and historical geography
- E. Sedimentology
- F. Regional and community planning
- G. Remote sensing and cartography.

Geocom Bulletin/Programs, monthly.

Geosystems (Lea Associates), London. Abstracts and information on mathematical geology, exploration techniques, and computer methods in geoscience.

Geological Field Trip Guidebooks for North America.

1968. American Geological Institute, Washington, D.C.

Geochemical Abstracts, quarterly.

The Pergamon Press, Oxford, England. Successor to Rock Mechanics Abstracts. Combined in 1974 with issues of the International Journal of Rock Mechanics and Mining Sciences.

Geoscience Abstracts, 1959-1966, and Geological Abstracts, 1953-1958, of the American Geological Institute, Washington, D.C.

Geoscience Documentation.

1969–present. List of geoscience serials. Geoscience Documentation, v. 1, No. 1, July 1969. (The list has been updated in each subsequent monthly issue.)

Geotitles Weekly.

Geosystems (Lea Associates), London. (Cumulative in Geotitles Repertorium [annual] and on Geoarchives tapes.)

Gifford, G. F., D. D. Dwyer, and B. E. Norton.

1972. A bibliography of literature pertinent to mining reclamation in arid and semiarid environments. Environment and Man Programs, Utah State University, Logan.

Given, I. A.

1973. Sources of information. In Cummins, A. B., and I. A. Given, (eds.) SME mining engineering handbook: New York, Am Inst. Mining Metallur. Petroleum Engineers, v. 2, sec. 35, p. 35-1–35-34. (Lists departments of mines, geologic surveys, societies, institutes, and their publications, by country and by U.S. state. Also lists major periodicals, directories, and yearbooks.)

Hoy, R.

1975. Sources of information. In Lefond, S. J. (ed.) Industrial minerals and rocks. 4th ed. Am. Inst. Mining, Metallur, Petroleum Engineers, New York, p. 1290-1305. (Lists industrial minerals publications and publishers.)

Journal of Soil and Water Conservation, bimonthly.

Soil Conservation Society of America, Ankeny, Ohio.

Kaplan, S. R.

1965. Guide to information sources in mining, minerals, and geosciences. New York, Interscience Publishers, 599 p. (Part I lists names, addresses, function, and publications of national, state, and private associations dealing with mining; U.S. and foreign bureaus of mines are included; Part II describes available literature in books and journals by country and subject.)

- Long, H. K.
1971. A bibliography of earth science bibliographies of the United States. American Geological Institute, Washington, D.C.
- Mineral Trade Notes, monthly.
U.S. Bureau of Mines, Washington, D.C. (Includes news of developments in foreign mining areas.)
- Schaller, F. W., and Paul Sutton (eds.).
1978. Reclamation of drastically disturbed lands. American Society of Agronomy, Madison, Wisc.
- Soil Science Journal, bimonthly.
Soil Science Society of America, Madison, Wisc.
- The Minerals Yearbook, annually.
U.S. Bureau of Mines, Washington, D.C. (Contains state and country summaries, with news of developments at major mines as well as commodity reviews.)
- U.S. Department of Agriculture.
1954. Diagnosis and improvement of saline and alkali soils. USDA Agric, Handb. 60. Washington, D.C.
- U.S. Department of Agriculture.
1975. Soil taxonomy. USDA Agric. Handb. 436. Soil Survey Staff, Washington, D.C.
- USDA Soil Conservation Service.
Kinds of data available. Soil Interpretive Data, SCS-Form 5; Soil Survey Investigations Reports; County Soil Investigations Reports; County Soil Survey Reports. (Availability of the above types of information can be determined through state SCS offices.)
- Ward, D. C.
1965. Bibliography of theses in geology. Geoscience Abstracts, v. 7, No. 12, pt. 1, p. 103-129.
- Ward, D. C.
1973. Bibliography of theses in geology, 1967-1970. Geol. Soc, America Spec. Paper 143. Boulder, Colo.
- Ward, D. C., and T. C. O'Callaghan.
1969. Bibliography of theses in geology, 1965-66. American Geological Institute. Washington, D.C.
- Ward, D. C. and M. W. Wheeler (eds.).
1972. Geologic reference sources. In Metuchen, NJ, (ed.) The Scarecrow Press, 453 p. (Covers general information by country and state.)
- Wood, D. N. (ed.).
1973. Use of earth science literature. Butterworth and Co. London, 459 p. (This could be called "everything you might possibly want to know about geologic information sources." Detailed information is included on methods of literature search, with lists of regional information by country and state.)

APPENDIX II

UNITED STATES — STATE GEOLOGICAL SURVEYS AND BUREAUS OF MINES FOR THE ROCKY MOUNTAIN REGION

Arizona Bureau of Mines
Univ. of Arizona
Tucson, Ariz. 85721

Colorado Geological Survey
1845 Sherman St.
Room 254
Denver, Colo. 80203

Idaho Bureau of Mines and Geology
Univ. of Idaho
Moscow, Idaho 83843

Montana Bureau of Mines and Geology
Montana College of Mineral Science and Technology
Butte, Mont. 59701

New Mexico Bureau of Mines and Mineral Resources
Socorro, N.M. 87801

North Dakota Geological Survey
Univ. Station
Grand Forks, N.D. 58202

South Dakota Geological Survey
Science Center
Univ. of South Dakota
Vermillion, S.D. 57069

Utah Geological and Mineral Survey
103 UGS Bldg.
Univ. of Utah
Salt Lake City, Utah 84112

Geological Survey of Wyoming
Box 3008, Univ. Station
Univ. of Wyoming
Laramie, Wyo. 82071

APPENDIX III

CODES FOR ABBREVIATIONS AND SYMBOLS USED IN CONSTRUCTION OF LITHOLOGIC LOG (FIGURE 5 IN TEXT)

BEDDING THICKNESS

H	-	Homogeneous (no lamination)
H - DM		Homogeneous, distinctly mottled
H - IM		Homogeneous, indistinctly mottled
L	-	Laminated - < 1 cm thick
F	-	Thin bedded - 1-10 cm thick
M	-	Medium bedded - 10-30 cm thick
T	-	Thick bedded - 30-100 cm thick
VT	-	Very thick bedded - > 100 cm thick
L/F	-	Thin bedded sets of cross-lamination, etc.

INDURATION

U	-	Unconsolidated
I	-	Indurated
IP	-	Indurated but plastic
IS	-	Indurated but shaly
IF	-	Indurated but friable
WI	-	Well indurated

SORTING

WS	-	Well sorted
MWS	-	Moderately well sorted
MS	-	Moderately sorted
PS	-	Poorly sorted

ROUNDNESS

A	-	Angular
S	-	Sub-rounded to sub-angular
R	-	Rounded

PERCENT LIMESTONE (SCALE OF 1-10)

< 1	Trace of effervescence
1	Slight effervescence
3	Moderate effervescence
5	Strong effervescence
10	Very strong effervescence
> 10	Limestone

SAMPLE TYPE

- T.S. - Thin section sample
- S - Size sample
- X - X-ray analysis sample
- G - Growth study sample

ROCK TYPE AND ACCESSORY SYMBOLS

(see chart A p. 104)

SEDIMENTARY STRUCTURE SYMBOLS

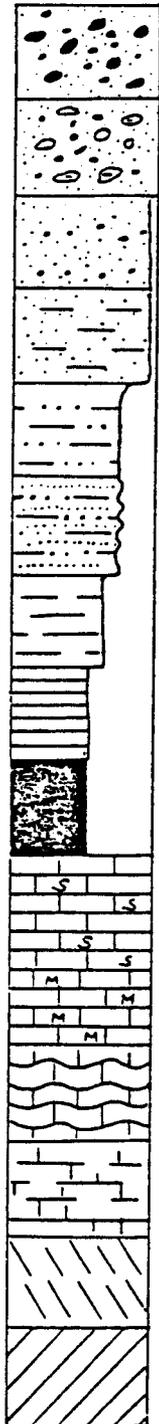
(see chart B p. 105)

DESCRIPTION

Color, size, sorting, rock type, Sedimentary Structure,
Example: red, fine-grained, well sorted, sandstone, with horizontal laminations.

CHART A

ROCK TYPE SYMBOLS



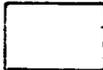
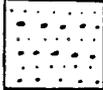
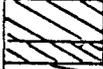
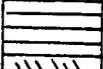
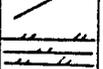
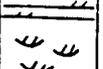
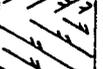
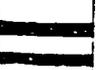
- conglomerate
- intraclastic conglomerate
- sandstone (with granule layers)
- clayey sandstone
- siltstone
- sandstone and siltstone
- mudstone
- claystone
- coal or peat
- limestone (sparry)
- micritic limestone
- algal limestone
- marlstone (clayey limestone)
- gypsum
- lost core

ACCESSORY SYMBOLS

- ⊥ calcareous (> 3%)
- Ⓜ marcasite nodules
- Ⓟ pyrite nodule
- Ⓡ oxydized pyrite nodule
- ☉ plant fragments and carbonaceous matter
- pelletoids
- Ⓛ limonitic nodules
- \\\\ gypsum
- organic partings
- ⊖ clay gall intraclasts
- nodules
- ∨ glauconite
- Ⓞ megafossils
- ~ mica
- ▲ chert
- R oxydized colors (reddish)
- ▭ bentonite
- + feldspar
- clayey
- ⓕ iron oxide nodules
- Mn manganese

CHART B

SEDIMENTARY STRUCTURE SYMBOLS

	"structureless" sand		alternating sand and mud
	interbedded sand and granule layers (horizontal bedding)		flaser bedding
	large scale cross-bedding (tabular)		wavey bedding
	low angle cross-bedding		lenticular bedding
	parallel bedding		weak
	trough cross-bedding		moderate — Bioturbation
	scours (with channel lag)		strong
	scour and fill		rooting
	downcutting surface		microfaults
	ripple-tabular x-lamination		contorted (slumped) beds
	ripple-trough cross-lamination		growth faults
	ripples in - drift		bimodal current directions
	ripples on crossbeds		loadcasting
	wavey bedding		mudcracks
	coarsely interlayered sand and mud		forset beds

APPENDIX IV

MANUFACTURERS AND DISTRIBUTORS

Listing of manufacturers and distributors who have been referred to in this report.

Acker Drill Company
P. O. Box 830
Scranton, Penn. 18501

Boyle Bros.
P. O. Box 25068
1624 Pioneer Road
Salt Lake City, Utah 84125

Christensen Mining Products Division
Christensen Diamond Products Company
1937 South 300 West
Salt Lake City, Utah 84115

Joy Manufacturing Company
Montgomery Industrial Center
Montgomeryville, Penn. 18936

Longyear Company
925 Delaware Street, S.E.
Minneapolis, Minn. 55414

Mobile Drilling Company, Inc.
3807 Madison Avenue
Indianapolis, Ind. 46227

Odgers Drilling, Inc.
Ice Lake Road
Iron River, Mich. 49935

Penndrill Manufacturing Division
Pennsylvania Drilling Company
P.O. Box 8562
Pittsburgh, Penn. 15220

Pitcher Drilling Company
75 Allemany Street
Daly City, Calif. 94014

Reed Tool Company
105 Allen Street
P. O. Box 3641
San Angelo, Texas 76901

Reese Sales Company
P. O. Box 645
2301 Gibson Street
Bakersfield, Calif. 93302

Soiltest, Inc.
2205 Lee Street
Evanston, Ill. 60202

Sprague and Henwood, Inc.
221 West Olive Street
Scranton, Penn. 18501

Triefus Industries (W.A.) Co.
Sidney, Australia

★ U. S. GOVERNMENT PRINTING OFFICE: 1979-O-677-121/91

Barrett, James, Paul C. Deutsch, Frank G. Ethridge, William T. Franklin, Robert D. Heil, David B. McWhorter, Alv D. Youngberg

1979. Procedures recommended for overburden and hydrologic studies of surface mines. USDA For. Serv. Gen. Tech. Rep. INT-71, 106p. Intermt. For. and Range Exp. Stn., Ogden, UT 84401.

Presents information on gathering and analyzing data regarding overburden and hydrologic studies of surface mines.

KEY WORDS: Hydrology, soils, overburden, core drilling, surface mining.

THE SEAM PROGRAM

The Surface Environment and Mining Program, known as SEAM, was established by the Forest Service to research, develop, and apply new technology to help maintain a quality environment while helping meet the Nation's mineral requirements. SEAM is a partnership of researchers, land managers, mining industries, universities, and political jurisdictions at all levels.

Although the SEAM Program was assigned to the Intermountain Station, some of its research projects were administered by the Rocky Mountain and Pacific Southwest Research Stations.

