

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

COAL REFERENCES INDEX  
FOR THE NAVAJO INDIAN RESERVATION  
ARIZONA, NEW MEXICO, AND UTAH

by

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This report is preliminary and  
has not been reviewed for conformity  
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## Introduction

The references which are listed in this document represent the readily available literature about coal resources on or adjacent to the Navajo Indian Reservation. They were selected during the developmental phase of the Navajo Resource Information System (NRIS). The system contains a set of computerized data bases addressing various resource categories. The system was developed by the U.S. Geological Survey in coordination with the Minerals Department, Navajo Nation. Funding support was provided by the Bureau of Indian Affairs.

Literature is the foundation of resource assessment and the absence of such a compilation for the Navajo Nation prompted the development of a reference data base entitled "nref," which consists of over 1300 records. The following reference list of approximately 70 references was selected from those citations which contain "coal" in a keyword list attached to each citation. References to general literature on this topic may also be present.

The main attempt was to list most of the literature published in the 1960's and 1970's for areas in, or adjacent to, the Navajo Reservation. References published prior to this were included only if readily available or if they seemed to represent areas or topics not covered in later publications. We hope most of the historical literature not given within this list will be found in the bibliographies of the papers cited.

The areas and topics of interest to the Navajo Nation are identical to a large amount of the historical geologic work conducted by others on the Navajo Reservation. The index which follows represents the first attempt at compiling this large body of work and we, therefore, regret

the omission of any important works which we might have missed. Readers of this document are encouraged to inform the Minerals Department, Navajo Nation of any omissions or errors. Copies of reports, reprints, etc., applicable to the Navajo Reservation would be appreciated as well. Please send to: Minerals Department, P.O. Box 146, Window Rock, AZ 86515.

#### Rules used in the Reference List

Each reference is composed of author, year, title, publishing agency, place of publication and collation, in that order, as follows:

Author--may be editor(s), compiler(s), or multiple authors. In the latter case, articles with more than three authors will be given with "et al." following the initial author's name. In most cases, first and middle names are abbreviated.

Year--the year of publication.

Title--may be of a book, an article in a guidebook, a compilation, or an article in a journal publication. Secondary titles which follow the publishing agency can be the name of a compilation of papers. Editors of compilations may be given as well. Organizational names are given before the secondary titles of memoirs, guidebooks, etc.

Publishing agency--may be a publishing house, a governmental agency (federal or state), or professional or technical journal. The type of publication (memoir, bulletin, guidebook), the editor, or field conference number will also be given when appropriate.

Collation--volume and number of a serial publication and inclusive pagination will be given. Total number of pages will be given, if available, for books. If the reference is to a selected part of a publication, this will be indicated by page intervals. If pages were not counted or publication is unpaginated, [unpaginated] will appear.

### Abbreviation Standards

International abbreviation standards prepared by the National Clearinghouse for Periodic Title Word Abbreviations Service, Ohio State University, have been used in most cases. This has reduced the length of most citations. However, to prevent possible misinterpretations, two lists of abbreviations are given. The first, located in appendix A, gives general abbreviations for one or two words. The second list, located in appendix B, gives abbreviations for organizations and the full title for which they stand.

### Acknowledgments

This compilation was completed with the assistance of the staff of the Minerals Department, Navajo Nation at Window Rock. Augustine Blackgoat, the staff geologist for coal, was particularly helpful.

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Appendix A

Abstract	Abstr.	Mineralogist	Mineral.
Academy	Acad.	Miscellaneous	Misc.
Administration	Ad.	Museum	Mus.
American	Am.	New Mexico	N.M.
Annual	Ann.	Number	No.
Appendix	Append.	Paper	Pap.
Arizona	Ariz.	Part	Pt.
Association	Assoc.	Paleontology	Paleontol.
Bulletin	Bull.	Petroleum	Pet.
Bureau	Bur.	Petrology	Petrol.
Doctoral	Ph.D.	Preliminary	Prelim.
Circular	Circ.	Professional	Prof.
Congress	Congr.	Publication	Pub.
Commission	Comm.	Report	Rep.
Department	Dep.	Radioactive	Radioact.
Dissertation	Dissert.	Research	Res.
Economic	Econ.	Mineralogy	Mineral.
Engineering	Eng.	Mining	Min.
Geological	Geol.	Resources	Resour.
Geologists	Geol.	Section	Sect.
Geophysical	Geophys.	Series	Ser.
Guidebook	Guideb.	Society	Soc.
History	Hist.	Studies	Stud.
Hydrology	Hydrol.	Special	Spec.
Intermountain	Intermtn.	Survey	Surv.
International	Int.	Symposium	Symp.
Investigations	Invest.	United States	U.S.
Journal	J.	University	Univ.
Meeting	Meet.	Geological Survey	Geol. Surv.
Memoir	Mem.	Vertebrate	Vertebr.
Mineral	Miner.	Washington	Wash.

Appendix B

The follow list\* gives abbreviations for organizations, journals, etc. which have been used in the bibliographic data base. Additional items which may follow the initial entry are given in parentheses.

- AIME--American Institute of Mining, Metallurgical, and Petroleum Engineers (Ann. Meet.--Annual Meeting; Trans.--Transactions)
- Agric. Exp. Stat. Res. Rep.--Agriculture Experimental Station Research Report
- Am. Assoc. Pet. Geol.--American Association of Petroleum Geologists (Ann. Meet.--Annual Meeting; Bull.--Bulletin; Mem.--Memoir; Repr. Ser.--Reprint Series; Rocky Mtn. Sect., Ann. Meet.--Rocky Mountain Section, Annual Meeting; Rocky Mtn. Sect., Guideb.--Rocky Mountain Section, Guidebook; Symp.--Symposium)
- Am. Geol.--American Geology
- Am. J. Sci.--American Journal of Science
- Am. Mineral.--American Mineralogist
- Am. Mus. Nat. Hist. Bull.--American Museum of Natural History Bulletin (New York)
- Ariz. Acad. Sci. J.--Arizona Academy of Science Journal
- Ariz.-Nev. Acad. Sci. J.--Arizona-Nevada Academy of Science Journal
- Ariz. Bur. Geol. Miner. Tech.--Arizona Bureau of Geology and Mineral Technology
- Ariz. Bur. Mines--Arizona Bureau of Mines (Bull.--Bulletin; Circ.--Circular)
- Ariz. Geol. Soc. Dig.--Arizona Geological Society Digest
- Ariz. Oil & Gas Conserv. Comm. --Arizona Oil and Gas Conservation Commission (Geol. Rep.--Geological Report; Spec. Pub.--Special Publication)
- Bendix Field Eng. Corp. (for DOE)--Bendix Field Engineering Corporation (for Department of Energy)
- Bot. Soc. Am. Guideb.--Botanical Society of America Guidebook
- Brigham Young Univ. Geol. Stud.--Brigham Young University Geology Studies
- Calif. Oil World--California Oil World
- Chem. Geol.--Chemical Geology
- Colo. Geol. Surv. Resour. Ser.--Colorado Geological Survey Resource Series
- Contrib. Mineral. Petrol.--Contributions to Mineralogy and Petrology
- Counc. Energy Resour. Tribes--Council of Energy Resources Tribes

\*note: This list is applicable for the full reference database.

Cushman Found. Foraminiferal Res. Contrib.--Cushman Foundation for  
     Foraminiferal Research Contribution  
 Dtsch. Gemmol. Ges. Zeit.--Deutsche Gemmologische Gesellschaft Zeitschrift  
 Diss. Abstr. Int.--Dissertations Abstract International  
 Earth Planet. Sci. Letter--Earth and Planetary Science Letters  
 Earth Sci. Bull.--Earth Science Bulletin (Wyoming Geological Association)  
 Econ. Geol.--Economic Geology  
 Elect. Power Res. Inst.-- Electric Power Research Institute  
 Eng. Mining J.--Engineering and Mining Journal  
 EOS (Am. Geophys. Union Trans.)--EOS (American Geophysical Union Transactions)  
 Four Corners Geol. Soc.--Four Corners Geological Society (Field Conf.--  
     Field Conference; Mem.--Memoir)  
 Geochim. Cosmochim. Acta--Gechimica et Cosmochimica Acta  
 Geol.--Geology (Geol. Soc. Am.)  
 Geol. Soc. Am.--Geological Society of America (Abstr.--Abstracts; Bull--  
     Bulletin; Mem.--Memoir; Spec. Pap.--Specal Paper;  
     Rocky Mt. Sect. Abstr.--Rocky Mountain Section Abstracts;  
     Rocky Mt. Sect. Ann. Meet.-- Rocky Moutain Section  
     Annual Meeting; Rocky Mt. Sect. Guideb.--Rocky Mountain  
     Section Guidebook)  
 Geol. Surv. Can. Pap.--Geological Survey of Canada Paper  
 Inst. Min. Met., London--Institution of Mining and Metallurgy, London  
 Intermt. Assoc. Pet. Geol.--Intermountain Association of Petroleum Geol-  
     ogists (Field Conf.--Field Conference; Guideb.--Guidebook;  
     Symp.--Symposium)  
 Int. Assoc. Hydrol. Pub.--International Association of Hydrologists  
     Publication  
 Int. Assoc. Pet. Geol. Symp.--International Association of Petroleum  
     Geologists Symposium  
 Int. J. Rock Mech. Min. Sci.--International Journal of Rock Mechanics and  
     Mining Sciences  
 IAEA--Internation Atomic Energy Agency  
 J. Geochem. Expl.--Journal of Geochemical Exploration  
 J. Geophys. Res.--Journal of Geophysical Research  
 J. Less Common Metals--Journal of Less Common Metals  
 J. Paleontol.--Journal of Paleontology  
 J. Sed. Pet.--Journal of Sedimentary Petrology

J. Soil Water Conserv.--Journal of Soil and Water Conservation  
 Min. Congr. J.--Mining Congress Journal  
 Min. Mag.--Mining Magazine  
 Min. J.--Mining Journal (London)  
 Mus. North. Ariz. Bull.--Museum of Northern Arizona Bulletin  
 Mt. Geol.--(The) Mountain Geologist  
 Nev. Bur. Mines Geol. Rep.--Nevada Bureau of Mines and Geology Report  
 N.M. Acad. Sci. Bull.--New Mexico Academy of Science Bulletin  
 N.M. Bur. Mines Miner. Resour.--New Mexico Bureau of Mines and  
     Mineral Resources (Ann. Rep.--Annual Report; Bull.--  
     Bulletin; Circ.--Circular; Mem.--Memoir; Open-File Rep.--  
     Open-File Report; Prog. Rep.--Progress Report)  
 N.M. Geol.--New Mexico Geology  
 N.M. Geol. Soc.--New Mexico Geological Society (Guideb.--Guidebook;  
     Spec. Pub.--Special Publication)  
 N.M. State Eng. Tech. Rep.--New Mexico State Engineer Technical Report  
 N.M. Univ. Pub. Geol.-- University of New Mexico Publication on Geology  
 N.M. Univ. Bus. Circ.-- University of New Mexico Business Circular  
 N.M. Water Resour. Res. Inst. Rep.--New Mexico Water Resources Research  
     Institute Report  
 Off. Arid Lands Stud., Univ. Ariz.--Office of Arid Lands Study, University  
     of Arizona  
 Oil Gas J.--Oil and Gas Journal  
 Pan-Am. Geol.--Pan-American Geologist  
 Pet. Eng. Int.--Petroleum Engineer International  
 Rocky Mt. Assoc. Geol. Guideb. --Rocky Mountain Association of Geologists  
     Guidebook (Denver)  
 Sask. Geol. Soc. Spec. Pub.--Saskatchewan Geological Society Special  
     Publication  
 Sci.--Science  
 Seismol. Soc. Am. Bull.--Seismology Society of America Bulletin  
 Soc. Econ. Paleontol. Mineral., --Society of Economic Paleontologists  
     and Mineralogists (Rocky Mtn. Sect.--Rocky Mountain  
     Section; Spec. Publ.-- Special Publication)  
 Soc. Pet. Eng.--Society of Petroleum Engineers  
 Soc. Verteb. Paleon. Field Conf.--Society of Vertebrate Paleontology Field  
     Conference

- South. Calif. Paleontol. Soc. Bull.--Southern California Paleontological Society Bulletin
- Tex. Bur. Econ. Geol.--Texas Bureau of Economic Geology
- Utah Geol.--Utah Geology
- Utah Geol. Mineral. Surv.--Utah Geological and Mineralogical Survey  
(Bull.--Bulletin; Rep. Invest.--Report of Investigation;  
Spec. Stud.--Special Study; Circ--Circular; Guideb.--  
Guidebook)
- Utah Geol. Soc.--Utah Geological Society (Guideb.--Guidebook)
- Utah Univ. Press--University of Utah Press
- U.N. Int. Conf. Peaceful Uses At. Energy--United Nations International Conference on the Peaceful Uses of Atomic Energy
- USAEC--United State Atomic Energy Commission (Guideb.--Guidebook; GJO--Grand Junction Office; RMO--Report; RME-Report)
- U.S. Bur. Indian Aff.--United States Bureau of Indian Affairs
- U.S. Bur. Mines--United States Bureau of Mines (Inf. Circ.--Information Circular; Tech. Prog. Rep.--Technical Progress Report)
- U.S. Bur. Reclam.--United States Bureau of Reclamation
- U.S. ERDA GJO--United States Energy Research and Development Agency, Grand Junction Office (Final Rep.--Final Report)
- U.S. Environ. Prot. Agency Res. Rep. Ser.--United States Environmental Protection Agency Research Reporting Series
- U.S. Dep. Agric. Soil Conserv. Serv.--United State Department of Agriculture Soil Conservation Service.
- U.S. Dep. Inter., Off. Surf. Min. Reclam. Enforcement--United States Department of Interior, Office of Surface Mining Reclamation Enforcement
- U.S. Geol. Surv.--United States Geological Survey (Ann. Rep.--Annual Report; Bull.--Bulletin; Circ.--Circular; Coal Invest. Map--Coal Investigations Map; Geol. Quad. Map--Geologic Quadrangle Map; Geophys. Inv. Map--Geophysical Investigation Map; Miner. Inv. Field Stud. Map--Mineral Investigations Field Studies Map; Misc. Geol. Inv. Map--Miscellaneous Geologic Investigations Map; Open-File Rep.--Open-File Report; Prof. Pap.--Professional Paper; TEI Rep.--Trace Element Investigation Report; TEM--Trace Element Memorandum; Water-Supply Pap.--Water-Supply Paper)
- U.S. NASA Spec. Pub.--United State National Air and Space Administration Special Publication
- Wash. Acad. Sci. J.--Washington Academy of Science Journal
- West. Oil Rep.--Western Oil Reporter
- Wyo. Univ. Contr. Geol.--University of Wyoming Contributions to Geology
- Wyo. Geol. Assoc. Guideb.--Wyoming Geological Association Guidebook