

3031 – ENERGY AND MINERAL RESOURCE ASSESSMENT

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.01 Purpose. This Manual Section sets standards for gathering and analyzing information on energy and mineral resources, hereafter referred to as mineral resources, for Bureau of Land Management (BLM) land-use decisions. Mineral resource assessment constitutes one part of the Geology, Energy, and Mineral (GEM) resources input into land-use decisions. Other parts include assessments of paleontology, ground water, unique geologic features, and geologic hazards. This Manual Section also sets standards for assessing, classifying, and reporting on the potential for the occurrence of mineral resources on lands managed by the BLM. Specific procedures, mineral appraisals, and evaluations requiring determinations or estimations of monetary value or market potential are beyond the scope of this Manual Section, although general guidance for data collection and analysis for these actions is given in .24.

.02 Objectives. The objectives of this document are to:

A. Prescribe to BLM managers and minerals specialists the minimum amount of information that shall be available in each BLM District or Resource Area Office, and set standards for when and how additional data shall be obtained.

B. Prescribe uniform procedures to ensure the timely availability of cost effective, pertinent geological resource data at appropriate levels of detail to address specific land management issues.

.03 Authority.

- A. National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321, et seq.).
- B. Mining and Minerals Policy Act of 1970 (30 U.S.C. 21a).
- C. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701, et seq.).
- D. National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. 1601).
- E. Wilderness Act, as amended (16 U.S.C. 1131, et seq.).
- F. Alaska National Interest Lands Conservation Act (16 U.S.C. 3101, et seq.).

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- G. Federal Regulations Implementing the National Environmental Policy Act of 1969 (40 CFR 1502).
- H. Mineral management responsibilities under the mining and mineral leasing laws delegated by the Secretary of the Interior to the Director of the Bureau of Land Management (135 DM 1.3 and 235 DM 1.1.).
- I. Commodity specific authorities in BLM Manual Series 3000.

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.04 Responsibility. The following responsibilities pertain to providing mineral resource assessments for most BLM actions and activities. For BLM actions and activities requiring monetary or marketing evaluations, refer to .24 for general guidance and to the specific Manuals for delegations of authority.

A. The Director and the Associate Director are responsible for minerals management issues in a variety of Bureau programs. These responsibilities, as they pertain to minerals, are exercised through the Deputy Director, energy and Mineral Resources.

B. The Deputy Director, Energy and Mineral Resources, is responsible for:

1. Developing policy guidance for the gathering, analysis, and integration of mineral resource data into BLM programs.
2. Providing assistance to other BLM offices in developing mineral assessment plans and programs.
3. Evaluating mineral assessment programs completed by or for BLM offices.
4. Providing the program and budget analyses necessary for the proper allocation of funds.
5. Maintaining this Manual Section.

C. The State Director is responsible for:

1. Assuring the technical adequacy of all mineral reports, including mineral assessment reports.
2. Coordinating mineral resources activities with State geological agencies and other Federal agencies conducting geological investigations within the State.
3. Notifying the Washington Office Deputy Director for Energy and Mineral Resources of requirements for interstate technical assistance.

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4. Preparing program and budget analyses for the Mineral Resource Assessment program, at the State level.

5. Coordinating inter-district mineral assessments.
6. Coordinating technical assistance skills within the State.
7. Identifying and reporting training needs.
8. Approving Mineral Assessment Reports.
9. Preparing State Office Manual Supplements to this Manual Section.

F. The District Manager, as delegated and as needed, will maintain minerals specialists on the District Staff to perform the following technical functions:

1. Coordinating mineral assessments among Resource Areas.
2. Assisting Resource Area minerals specialists in preparing assessments.
3. Providing technical reviews of mineral assessments prepared in Resource Areas.
4. Identifying and coordinating District-wide funding requirements and training needs.
5. Assuring adequate geologic references (maps, books, and other references are maintained in the District library.
6. Fulfilling the responsibilities of the Resource Area minerals specialist in the absence of that Resource Area minerals specialist.

G. The Resource Area Manager, as delegated and as needed, retain minerals specialists to perform the following technical functions:

1. Maintaining basic mineral resources data, as defined in .11.

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2. Identifying situations that require mineral assessments and the comprehensiveness of those assessments.
3. Preparing all or part of the Mineral Assessment Report.
4. Alerting other Area staff resource specialists of the implications of technical data presented in the mineral assessment report.
5. Preparing analysis of Resource Area funding requirements.

.05 References.

A. General.

1. BLM Manual 1273 – Security.
2. BLM Manual 1114 – Volunteers.
3. BLM Manual 1279 – Library Management.

B. Planning.

1. BLM Manual 1616 – Prescribed Resource Management Planning Actions.
2. BLM Manual 1734 – Inventory and Monitoring Coordination.

C. Minerals.

1. BLM Manual 3000 – Minerals management.
2. BLM Manual 3060 – Mineral Reports – Preparation and Review.
3. BLM Manual 3061 – Mineral Reports for Land and Realty Actions.

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4. BLM Manual 3400 – Coal Management.
5. BLM Manual Handbook H-3600-1 Mineral Material Disposal.
6. BLM Manual 3890 Series – Mineral Investigations.

.06 Policy. Multiple use management of public lands requires an understanding of the potential occurrence and distribution of mineral resources, so that minerals management requirements may be identified and integrated with other resource management programs.

A. Minerals Policy. The Department's policy on minerals management is given in the National Materials and Minerals Program Plan and Report to Congress, submitted by the President to the Congress in April 1982. The Bureau presented its Mineral Resources Policy in December 1982 and revised this policy in 1984. The Bureau's policy states, in part, that, "Land use plans will reflect geological, energy and mineral values on public lands through more effective geology and energy and mineral resource data assessment." It is also Bureau policy to keep public lands open to mineral exploration and development, unless closure or restriction is mandated by Congress or justified in the national interest. BLM minerals policy is stated in Manual Section 3000.06.

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B. Assessment Policy. Sound land management decisions require knowledge of the resources affected by those decisions. The Bureau shall maintain a mineral assessment program to ensure the availability and consideration of mineral resources data in all public land management activities that may be affected by mineral resource exploration and development, or that may lead to limitations on the availability or use of the public lands for the exploration and development of mineral resources. Mineral resource assessments will be based on the maximum extent possible on evaluation of existing data. Deficiencies in existing data needed to address or resolve land management issues will be identified, and the required information gathered, using timely cost-effective methods. The Bureau's assessment efforts will, to the maximum extent practical be coordinated with the research and investigation programs of other Federal and State mineral agencies in order to ensure the timely availability of geologic information to the Bureau and to avoid duplication of effort.

.07 File Maintenance. See .12 for instructions on file maintenance.

.08 Coordination.

A. Bureau Programs. BLM mineral resource assessments shall be coordinated with BLM programs that require mineral resource data to effectively meet their respective statutory and regulatory mandates. Such programs include land-use planning, withdrawal, withdrawal review, wilderness study, land disposal (sale, exchange, etc.), and other BLM energy and mineral programs. The nature and degree of study given to mineral resource data shall depend on the data needed to make an informed land management decision (see .2).

B. Other Agency Programs.

1. The BLM mineral resource assessment program shall use and build on information and programs from non-Bureau sources.

2. Data gathered and analyses made for mineral resource assessments shall be available to Federal, State, and local government agencies and to the public whenever the release of such information does not compromise the protection accorded proprietary/confidential data. Treatment of proprietary and confidential data is described in Manual 1273 – Security.

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.1 Required Reference Material. Each Bureau Office with operational responsibilities for managing mineral resources must maintain a basic level of geological and mineral resource data (see .11 and .12 below). The office with operational responsibilities is usually the Resource Area Office. For the purposes of this Manual Section, the District Office is considered to have operational responsibilities in Districts where energy and mineral matters are referred to District personnel, or where Resource Area minerals specialists are absent.

.11 Reference Library. Each field office with operational responsibilities shall develop and maintain a reference library, in consultation with the BLM library in Denver, and in accordance with Manual Section 1279. This library shall include historical and current information. The reference library shall contain materials specific to the area managed, and broader references, as described below.

A. Bibliography. A bibliography of books, maps, and articles on the geologic, energy, and mineral resources of the area shall be developed. This bibliography should be compiled with the advice of the BLM Denver Service Center Library.

B. Geologic Maps. These will include but are not restricted to a regional or reconnaissance map at a scale of 1:250,000, unless otherwise specified by State Office Manual Supplements, and other larger scale, more detailed geologic maps and cross sections.

C. Thematic Maps and Overlays. Maps or overlays showing mineral occurrences (ranging from prospects to mines), oil/gas/geothermal fields, wells, leasable mineral land classifications, mining claims, material sites, and BLM surface-mineral management status are required in each library. Other thematic maps presenting geophysical data, isopachs, geochemical data, and geologic structure should be included when available.

D. Tabular Data. Tabular information required in each library includes mineral occurrence data from USGS and USBOM computerized data bases, petroleum data from private organizations, such as the Petroleum Information Corporation, and lists of mining claims and mineral leases. Current lists of USBOM and USGS commodity specialists and a list of State geological agency personnel should also be included. Printouts of computerized data need not be maintained however, such information should be readily accessible to the extent that individual office data retrieval capabilities will allow.

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E. Publications. Each library shall contain pertinent and current reports by the USBOM (e.g., Mineral Commodity Summaries, Minerals Yearbook, Mineral Facts and Problems), by the USGS (e.g., United States Mineral Resources, are-specific reports) and by the State geological agency (e.g., reports on specific commodities or areas). Each library should also include guidebooks, reports, and symposia proceedings by both local and national professional societies. Pertinent trade journals and general texts on petroleum geology, economic geology, etc., and a modern geological dictionary should also be included.

F. Unpublished Data. Each library should include the following unpublished data: pertinent theses, property evaluations (consultants' reports), unpublished maps, data, and reports obtained from Federal, State, and local agencies.

.12 File Organization. Each office with operational responsibilities shall develop and maintain both a geology, Energy, and Minerals Reference File and a General File as parts of the library. Depending on office capability, material from the GEM File and the General File shall be able to be retrieved or referenced using a Geographic Information System (GIS). The purposes of these files are to provide: (1) readily available GEM resources information, and (2) accessible storage and retrieval of unpublished data and references. These files may be part of existing township and range or mineral history files.

A. Geology, Energy, and Minerals Reference file. A geology, Energy, and Minerals Reference File is established in the library for each Resource Area or part of a Resource Area. Resource Areas may be subdivided when necessary due to size, geologic complexity, political boundaries (e.g., State or county boundaries), or to facilitate the retrieval of data. Subdividing areas may require that duplicate data be filed in separate files. The benefit or greater accessibility through subdividing, versus the possible duplication of filed data, must be weighed in each office. These offices are responsible for organizing files by Resource Area or by smaller units, according to need. Each GEM reference File shall contain:

1. An index, by township and range, of all mineral assessments and mineral reports.
2. A bibliography, as described in .11A.
3. Tabular data, as described in .11D.

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4. Copies of responses to BLM Form 3030-2, Energy and Mineral Resources Evaluation Form (Illustration 1).
5. Copies of nominations of Areas of Critical Mineral Potential (ACMP's).
6. Pertinent news clippings.
7. Notations referring to publications that have not yet been obtained or analyzed for inclusion in the library.
8. Any other information that would be useful in analyzing geological or mineral resources that is not included in the library in any other form.

B. General File. A General File is established for inclusion of GEM reference data of national and regional extent that are pertinent to the Resource Area or District.

C. Confidential Information. Storage, use, and release of information that is gathered or used for mineral resource assessments must follow the procedures set forth in Manual 1273 – Security. Certain minerals information may be protected from public release, under section 5f of the Materials and Minerals Policy, Research and Development Act of 1980. All minerals data for Indian lands are confidential.

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.2 Procedural Standards for Mineral Assessments. Different BLM decisions - - for example, a wilderness suitability recommendation or a land exchange - - require different mineral resource information. Mineral resource information covers a spectrum of detail, from site-specific to regional and from commodity-specific to multi-commodity or multi-resource. The minimum quality and quantity of mineral resource data, hereafter called the level of detail, must match the needs of the decision maker to make an informed decision. This Manual provides separate standard for BLM actions requiring low, intermediate, and high levels of detail. Levels of detail begin with data available in the library (see .1) and progress through other existing data to acquisition of new data by Field examination, sampling, or mapping. Most BLM actions or decisions will require at least an evaluation of data available in the reference library (see .11). The level of detail required, with its concomitant standards, depends on the effect a decision will have on mineral exploration or development.

.21 Actions Requiring No Mineral Resource Assessment. Individual mineral assessments are not usually required for lease assignment, approval of unit agreements, application for permit to drill (APD), actions concerning surface disturbance on mining claims, and other, similar, leasing and administrative actions. However, a mineral assessment may be required as part of the National Environmental Policy Act (NEPA) process prior to those actions. Environmental assessments for actions that would not affect mineral exploration or development should include a brief discussion to indicate the at mineral resources were considered during the analysis.

.22 Actions Requiring Low Level of Detail. An assessment at a low level of detail combines inventory Levels 1 and 2, as described in section .12B3 of Manual 1734 – Inventory and Monitoring Coordination.

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A. Examples. BLM actions requiring a low level of detail include:

1. Conducting inventories prior to land-use plans. Resource inventories should be as complete as is practical prior to the issuance of a planning Notice of Intent. At a minimum, a mineral assessment at a low level of detail shall be completed prior to commencement of the formal planning process. If minerals issues or conflicts are anticipated, an intermediate or high mineral assessment may be completed, as appropriate, prior to the initiation of a plan. These inventories can be augmented as the plan develops.

2. Processing most rights-of-way applications.

B. Procedural Standards for Low Level of Detail. Completing an assessment at a low level of detail involves:

1. Reviewing and analyzing material in the reference library.

2. Preparing a mineral assessment report, as described in .5, Preparation of Mineral Assessment Reports. The report format is shown in Illustration 2, Mineral Assessment Report Outline.

.23 Actions Requiring Intermediate Level of Detail. BLM decisions or planning proposals that would result in special restrictions being placed on mineral activities require an intermediate level of information on mineral resources. Assessments at an intermediate level of detail correspond to Level 2 and Level 3 Inventories as described in section .12B of Manual 1734 – Inventory and Monitoring Coordination.

A. Examples. BLM actions that require an intermediate level of detail include actions which restrict mineral exploration and development or which withdraw lands from mineral leasing.

1. Restrictions to mineral exploration and development include access restrictions, designations of “no leasing” areas, seasonal restrictions, de facto withdrawals, etc. these actions are invoked administratively and can, therefore, be revoked administratively.

2. Formal withdrawal of lands from the locatable, leasable, or salable mineral laws usually requires gathering additional data to permit the decision maker to fully evaluate the effects of precluding mineral exploration and development.

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B. Procedural Standards for Intermediate Level of Detail. Completing an assessment at an intermediate level of detail involves:

1. Defining the objective of the mineral resource assessment (e.g., withdrawal, off-road vehicle restriction, etc.).
2. Reviewing material in the reference library to determine what additional data are needed and to provide a preliminary analysis of resource complexity.
3. Selecting pertinent data from the reference library for use in the assessment.
4. Contracting claimants and/or lessees, as well as Federal, State, and local agencies for additional data.
5. Collecting data from additional sources acquiring pertinent references listed in the bibliography.
6. Determining sites, if any, that require Field verification.
7. Collecting additional Field data, as identified in item 5, when necessary. Note that additional data, as specified in items 4 and 5, should be gathered when existing data are of questionable accuracy (e.g., a geologic map that does not accurately show rock units or current interpretations of geology), are ambiguous (e.g., a mineral prospect shown in two reference but in different locations), are out-of-date (e.g., reserve/resource estimates made years before mineral extraction), or are sketchy or nonexistent.
8. Integrating the exiting data from item 3 with new data from item 6.
9. Analyzing the integrated data so as to respond to the information needs of the BLM decision maker (manager).
10. Determining the mineral resources potential based on the preceding analysis.
11. Preparing a mineral assessment report according to .5, Preparation of Mineral Assessment Reports.

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.24 Actions Requiring High Level of Detail. Certain BLM actions require very detailed site-specific information. These actions often call for quantitative data such as resource/reserve values, assays, and marketing evaluations. Mineral patent exams, mineral conveyance requests, and the classification and evaluation of mineral lands for competitive leasing are examples of such actions. Specific procedural guidance for assessing mineral values and preparing mineral reports for these site-specific actions is given in Bureau Manual Sections and Handbooks that govern the specific commodity or program area. Mineral reports prepared for this class of Bureau actions should generally follow the guidance and format found in Manual Section 3060.

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.3 Determining Mineral Resource Potential. The potential for mineral resources is a prediction of the likelihood of the occurrence of these resources. The occurrences of a mineral resource does not necessarily imply that the mineral can be economically exploited or is likely to be developed; mineral occurrence potential includes both exploitable and potentially exploitable occurrences. The potential for the occurrence of a mineral resource also does not imply that the equality and quantity of the resource are known. Further discussion of potential for development and economic potential are presented in Appendix 1.

.31 Mineral Occurrence Models. Mineral resources occur when and where certain geologic conditions are present. In this context, “geologic conditions” refers to geologic indicators (lithological, structural, stratigraphic, geochemical, geophysical, etc.) which, taken separately, do not necessarily confirm the presence of a mineral resources. When preparing a mineral resource assessment, the BLM minerals specialist should review existing models to determine which ones may apply to the area being assessed. If only some of the conditions or indicators are present, professional judgment must be used to determine whether the model is appropriate and the resource likely to be present. Different geologic factors in different combinations define a variety of energy and mineral occurrence models. For example, one type of gold deposit may be indicated if the model factors of Tertiary silicic volcanic rocks, hydrothermal alteration, silicification, and traces of mercury are present. Another example is that one type of oil and gas deposit may be present if factors of a thick sedimentary sequence, Cretaceous sandstone, and a trapping mechanism are present.

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.32 Favorable Geologic Environment. When known geologic conditions in an area fit a model, they define a “favorable geologic environment.” The lateral extent of an environment may be shown on a map as a favorable area. A favorable area may include many thousands of acres or only a few acres, although most Bureau actions seldom involve areas smaller than 10 acres. The term “favorable” is a measure of the likelihood of an area or a geologic environment of containing a given mineral resource based on known geologic factors.

.33 Determining Favorable Geologic Environments. The most important factor in integrating geologic data is the judgment of the knowledgeable minerals specialist who assesses these data. Geologic data are analyzed and interpreted to identify favorable environments. Factors used by the minerals specialist to determine favorable environments for energy or mineral potential include:

- A. Favorable rocks (litho-stratigraphic suitability).
- B. Favorable geologic structure (faults, folds, and other structural features).
- C. Evidence of rock alteration (maturation, hydrothermal alteration).
- D. Geochemical evidence (anomalies).
- E. Geophysical evidence (anomalies).
- F. Evidence from mineral occurrences.
- G. Evidence from other sources (depth to basement, mineralogy, etc.).

.34 Potential/Certainty. Potential for the occurrence of a mineral resource should be expressed on assessment maps and reports by the symbols O, L, M, and H, as defined in Illustration 3, Mineral Potential Classification System. The classification of potential must be supported by a classification of certainty. Certainty is a measure of the minerals specialist’s confidence in the data that were assessed. Letters A through D indicate increasing certainty.

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.35 Describing Mineral Potential. The assessment of an area's mineral occurrence potential shall be presented both in a narrative and symbolically on a map, as part of the assessment report. Potential for the occurrence of mineral resources shall be described by subdividing the area being assessed into smaller areas according to potential and certainty. That is, an area will be subdivided when the potential or certainty is not the same throughout the area. Each subarea shall be shown on a map and described separately in the assessment report. The narrative shall present the rationale for selecting particular values for potential and certainty.

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.4 Responsibility for Assessment Preparation. Mineral assessments and assessment reports should, whenever possible, be prepared by the local Bureau minerals specialist (Resource Area or District). This individual is responsible for explaining the mineral resources and their significance to the manager. The minerals specialist must be cognizant of the mineral resources to be managed. The Resource Area or District minerals specialist shall integrate the findings of the assessment report into the program for which the report was prepared.

.41 Bureau and Non-Bureau Preparers. If the Resource Area or District minerals specialist cannot prepare the mineral assessment report due to workload or lack of expertise, or if no mineral specialist is available. These options are listed in order of decreasing suitability for methods of completing the assessment, with the procurement methods appropriate to each option. Use of non-Bureau personnel may relieve the Bureau minerals specialist from the gathering and analyzing minerals assessment data, but it does not relieve the minerals specialist from the responsibility of providing the manager with an assessment of mineral resources that the specialist can justify. The minerals specialist shall monitor the work of non-Bureau personnel and shall ensure that the integrity of proprietary data is not compromised.

A. BLM Minerals Specialists. A BLM minerals specialist from another office within the State is the preferred person to prepare mineral assessments and assessment reports whenever a Resource Area or District minerals specialist is unavailable. A BLM minerals specialist from the Denver Service Center or from another State may also prepare mineral assessments when the local minerals specialist is unavailable. Minerals specialists with expertise pertinent to the assessment may help prepare assessments or provide technical assistance. See .6 for budgeting and procurement instructions.

B. U.S. Geological Survey and the U.S. Bureau of Mines. The U.S. Geological Survey and/or the U.S. Bureau of Mines may prepare mineral assessments and mineral assessment reports for the BLM whenever a Resource Area or District minerals specialist is unavailable to complete the task, and when the USGS and/or the USBOM can complete the work within the Bureau's time and funding constraints. Work by the USGS and/or the USBOM for the Bureau shall be procured via an interagency cooperative agreement or a memorandum of understanding.

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C. State Mineral Resource Agency. The respective State mineral resource agency may prepare mineral assessments and assessment reports for the Bureau. Work done by State agencies will usually be procured via competitive contract.

D. State and Private Universities. These institutions are often an excellent source of knowledgeable minerals specialists who, through their research and academic programs, have generally developed a good minerals data base for the local area or region. Some schools work very closely with State mineral agencies to develop resource inventories and to assist in mineral assessments.

E. Volunteers. Volunteers may be used to collect and compile data for mineral assessments and to prepare mineral assessment reports. Caution must be exercised to avoid conflicts of interest and to maintain quality control. Use of volunteers is described in Manual 1114 – Volunteers.

F. Private Consultants. Private consultants or consulting firms may be used to prepare mineral assessments and assessment reports if Federal sources are unavailable. The services of a private consultant or consulting firm must be procured through a competitive contract.

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.5 Preparation of Mineral Assessment Reports. Bureau actions which require the preparation of a mineral potential report may be either case – specific as for example land withdrawal, State indemnity selection, or may be more general as for resource management planning.

A. With the exception of Mineral Reports for Planning Documents RMP and or EIS), all actions listed in paragraph .11 Manual Section 3060 are case specific and shall use the report format outlined under paragraph .23 of that Manual Section.

B. Energy and Mineral assessment reports prepared for RMP/EIS shall follow the report outline presented in Illustration 1 of Manual Section 3031.

C. Regardless of the format required (A or B above), all reports shall use Form 3060-1 Mineral Report cover sheet. All mineral reports are subject to the technical review procedures outlined in Manual Section 3060. Under most circumstances, a mineral report shall be prepared by the mineral specialist who conducted the mineral assessment.

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.6 Programming and Budgeting. The identification of assessment needs, with programming for their accomplishment, follows normal Bureau budgeting and Annual Work Plan (AWP) procedures. The information needed for planning, allocating, and monitoring mineral assessment funding includes: identification of areas to be studied; reason for assessment; schedules for accomplishment; workmonths required; and procurement and equipment costs. Several aspects of the assessment program that require special attention are discussed below.

.61 Cost Coding. Assessments, as described in this Manual, may occur at several Bureau Office levels and may address either a single resource or multiple mineral resources. As a general rule, mineral assessments and assessment reports should be cost coded to the benefitting support of other programs be determined as early as possible so that this work can be identified in the budget justification documents for the benefitting programs. Parts of the mineral assessment program should be funded as follows.

A. Reference Library. All costs associated with preparing and maintaining the reference library should be divided equally among the minerals subactivities for which the State has a cost-target. Spreading costs of the library among minerals subactivities is encouraged, because this library is intended to be a source of information about all GEM resources in the District or Resource Area. However, in a District or Area where this policy would clearly produce spurious and significantly misleading cost accountability - - for example, Subactivity 4112 costs in wholly hard rock areas - - costs should be charged to the office's primary mineral resource subactivities.

B. Mineral Assessments and Assessment Reports. All costs associated with mineral assessments and assessment reports dealing with more than one mineral resource should be funded in direct proportion to the information needed on each mineral resource and the benefits to each minerals and non-minerals subactivity, such as Subactivity 4220 (Withdrawals) or Subactivity 4351 (Wildlife Habitat Management), should be funded by the benefitting subactivity. When a minerals subactivity is the benefitting subactivity, assessment reports prepared for a single commodity should be charged to that subactivity.

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.62 Documentation for Budgets/AWP. Budgeting and AWP submissions shall follow the guidelines that accompany these funding and activity requests. Although funding requests will require different data in different formats, submitting the data given in items A-H provides a useful, comprehensive report on the justification for a library or an assessment. Whenever possible and appropriate, the rationale for this work should be tied to Management by Objective schedules, national priorities, management policies, or resource planning objectives. To request funding for reference libraries and mineral assessments, submit the following in each subactivity for which funding is requested:

- A. Type of need, that is, library or assessment.
- B. Resource Area where need occurs.
- C. Total funding request.
- D. Total funding separated into each minerals and non-minerals subactivity.
- E. Unites (in acres) to be assessed.
- F. Type of work anticipated, such as acquisition of computerized bibliography, literature search, geophysical/geochemical survey, etc.
- G. Probable source, for example, in-house, cooperative agreement, contract, etc.
- H. Rationale in the form of a narrative description of the need for the assessment or major library acquisition.

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Glossary of Terms

Mineral assessment: the determination of mineral potential, including the process for making that determination. Assessment usually does not include calculations of value or quantity, although these data may be part of an assessment where they are already known.

Mineral resource: a concentration of naturally occurring solid, liquid, or gaseous materials in or on the Earth's crust in such form that economic extraction of a mineral resource is currently or potentially feasible (after USGS Circular 831, p.1).

Mineral specialist: a professional who has, as a minimum, a B.S. or B.A. degree in the field of geology, geological engineering, mining engineering, or petroleum engineering; by virtue of education, training, and professional experience, one who is considered qualified to evaluate Federal land or interest in land to determine its mineral potential.

Reserve: that portion of a mineral resource from which a mineral commodity can be economically and legally extracted at the time of determination (after USGS Circular 831, p.2).

State geological agency: the agency of a State government that collects, analyzes, and distributes information about the geology or mineral resources of that State; may be a State Geological Survey, Bureau of Mines, Department of Energy and Mineral Resources, etc.

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Form 3030-2 (June 1983)	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	FORM APPROVED OMB NO. 1004-0129
ENERGY AND MINERAL RESOURCES EVALUATION		
1a. State		b. County
c. District	d. Resource Area	e. Planning Unit
f. Wilderness Study Area Name		Number
2. RESOURCES <i>(Check appropriate box)</i>		
NONFUELS		FUELS
<input type="checkbox"/> Asbestos <input type="checkbox"/> Barite <input type="checkbox"/> Bentonite <input type="checkbox"/> Boron <input type="checkbox"/> Chromium <input type="checkbox"/> Cinders <input type="checkbox"/> Clays <input type="checkbox"/> Cobalt <input type="checkbox"/> Copper	<input type="checkbox"/> Diatomite <input type="checkbox"/> Gemstones <input type="checkbox"/> Gold <input type="checkbox"/> Graphite <input type="checkbox"/> Gypsum <input type="checkbox"/> Iron <input type="checkbox"/> Lead <input type="checkbox"/> Limestone <input type="checkbox"/> Magnesium	<input type="checkbox"/> Manganese <input type="checkbox"/> Mercury <input type="checkbox"/> Mica <input type="checkbox"/> Molybdenum <input type="checkbox"/> Nickel <input type="checkbox"/> Perlite <input type="checkbox"/> Phosphate <input type="checkbox"/> Platinum Group <input type="checkbox"/> Potash
<input type="checkbox"/> Pumice <input type="checkbox"/> Salt <input type="checkbox"/> Sand and Gravel <input type="checkbox"/> Silver <input type="checkbox"/> Strontium <input type="checkbox"/> Talc <input type="checkbox"/> Tantalum <input type="checkbox"/> Thorium <input type="checkbox"/> Tin	<input type="checkbox"/> Titanium <input type="checkbox"/> Tungsten <input type="checkbox"/> Vanadium <input type="checkbox"/> Wollastonite <input type="checkbox"/> Zeolite <input type="checkbox"/> Zinc <input type="checkbox"/> Other <i>(specify)</i>	<input type="checkbox"/> Coal <input type="checkbox"/> Gas <input type="checkbox"/> Geothermal <input type="checkbox"/> Oil <input type="checkbox"/> Oil Shale <input type="checkbox"/> Tar Sands <input type="checkbox"/> Uranium <input type="checkbox"/> Other <i>(specify)</i>
3. Geologic Characteristics		
4. Energy/Mineral potential evaluation and basis for interpretation		
<input type="checkbox"/> If more information is available please check this box		
5. References		
6. Completed by <i>(individual's name)</i>	Address <i>(include zip code)</i>	Telephone No. <i>(include area code)</i>
7. For more information contact <i>(name)</i>	Address <i>(include zip code)</i>	Telephone No. <i>(include area code)</i>
<i>(Instructions on reverse)</i>		

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Mineral Assessment Report Outline

Executive Summary for Managers

- I. Introduction
- II. Description of Geology
 - A. Physiography
 - B. Rock Units (lithology and stratigraphy)
 - C. Structural Geology and Tectonics
 - D. Geophysics/Geochemistry¹
 - E. Historical Geology¹
- III. Description of Energy and Mineral Resources
 - A. Known Mineral Deposits (including oil and gas fields)
 - B. Known Prospects, Mineral Occurrences, and Mineralized Areas
 - C. Mining Claims, Leases, and Material Sites
 - D. Types of Mineral Deposit (in area)
 - E. Mineral Economics (including a brief section on strategic and critical minerals in area)
- IV. Potential for the Occurrence of Mineral Resources
 - A. Coal
 - B. Oil and Gas
 - C. Geothermal
 - D. Sodium and Potassium
 - E. Metallic Minerals
 - F. Uranium and Thorium
 - G. Nonmetallic Minerals/Industrial Minerals
 - H. Common Variety Minerals
 - I. Other (if any)
- V. Recommendations
 - A. Regarding the Action that Initiated the Assessment
 - B. For Additional Work
- VI. References and Selected Bibliography

¹ This section should be used when geochemical and/or geophysical data are available, either from existing literature or from a new survey undertaken for this assessment. The section should be appropriately title (i.e., Geochemistry and Geophysics, or Geochemical Survey, etc.). If there is no Geochemistry section, Historical Geology becomes section D.

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Mineral Potential Classification System*

I. Level of Potential

- O. The geologic environment, the inferred geologic processes, and the lack of mineral occurrences do not indicate potential for accumulation of mineral resources.
- L. The geologic environment and the inferred geologic processes indicate low potential for accumulation of mineral resources.
- M. The geologic environment, the inferred geologic processes, and the reported mineral occurrences or valid geochemical/geophysical anomaly indicate moderate potential for accumulation of mineral resources.
- H. The geologic environment, the inferred geologic processes, the reported mineral occurrences and/or valid geochemical/geophysical anomaly, and the known mines or deposits indicate high potential for accumulation of mineral resources. The “known mines and deposits” do not have to be within the area that is being classified, but have to be within the same type of geologic environment.
- ND. Mineral(s) potential not determined due to lack of useful data. This notation does not require a level-of-certainty qualifier.

II. Level of Certainty

- A. The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.
- B. The available data provide indirect evidence to support or refute the possible existence of mineral resources.
- C. The available data provide direct evidence but are quantitatively minimal to support or refute the possible existence of mineral resources.
- D. The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

For the determination of No Potential use O/D. this class shall be seldom used, and when used it should be for a specific commodity only. For example, if the available data show that the surface and subsurface types of rock in the respective area is batholithic (igneous intrusive), one can conclude, with reasonable certainty, that the area does not have potential for coal.

*As used in this classification, potential refers to potential for the presence (occurrence) of a concentration of one or more energy and/or mineral resources. It does not refer to or imply potential for development and/or extraction of the mineral resource(s). It does not imply that the potential concentration is or may be economic, that is, could be extracted profitably.

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Consideration of the Potential for Development and the Economic Potential

Whenever known, the quality, quantity, current, and projected development potential or economic potential should be part of the mineral resource assessment. Although this is not necessary or required for most BLM actions, it is often useful to the decision maker. Assessments of economic potential should not be attempted for actions requiring low levels of detail, or when data are scant.

Development potential means whether or not an occurrence or potential occurrence is likely to be explored or developed within a specified timespan under specified geologic and non-geologic assumptions and conditions. Economic potential means whether or not an occurrence or potential occurrence is exploitable under current or foreseeable economic conditions. The time period applicable to the economic or development potential assessment should be specified in the assessment report (e.g., the occurrence is likely to be exploited within the next 25 years). Conditions that could change the economic potential, such as access, world energy prices, or changing technology, shall be an important part of every economic potential assessment. Determining the economic or development potential of either an actual or an undiscovered mineral occurrence is a matter of professional judgment based on an analysis of geologic and non-geologic factors. The rationale for the judgment shall be part of the Mineral Assessment Report, when the economic potential is assessed. The rationale may include data on the current marketing conditions for the mineral commodity, technological factors affecting exploitability, distance from roads, anticipated capital costs, etc. In other words, if the economic or development potential is assessed, the rationale for the conclusions regarding that potential must be thoroughly documented.

Calculating the quality and quantity of an occurrence, where the quality and quantity are not known from existing data, is only done for actions requiring a high level of detail. These calculations involve methods appropriate to the type of action and are described in the pertinent Bureau Manual (e.g., appraisal, validity, etc.).