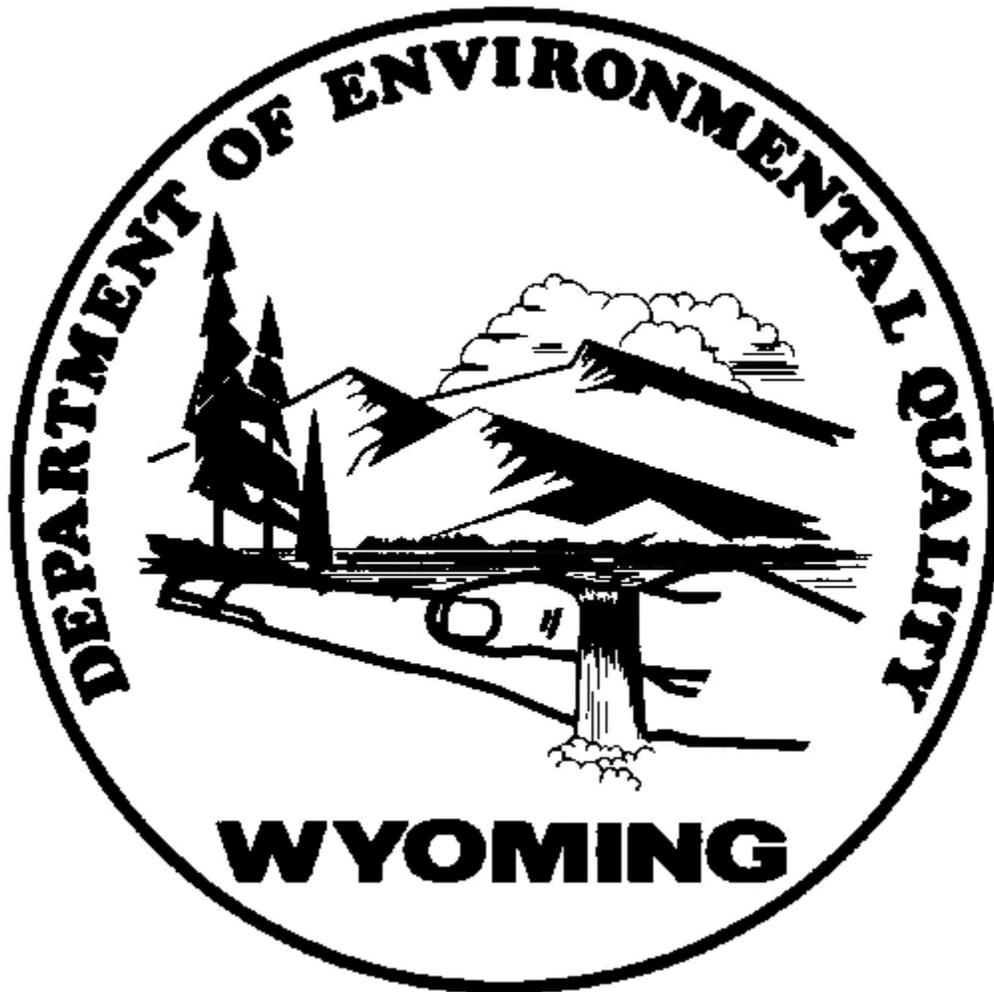


**DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND QUALITY DIVISION**



**HARD ROCK MINING PERMIT  
HANDBOOK**

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# HARD ROCK MINING HANDBOOK

## INTRODUCTION

This handbook is intended to assist applicants in the preparation of a comprehensive initial application containing all required information. The design of this handbook is basic to application requirements of an average large-scale surface mine. As such, more or less information may be required depending on the specific operation. Separate guidelines are available for small operators, bentonite miners, and in-situ operations. This handbook is subject to change.

Prior to resource inventory or development of a mining and reclamation plan an applicant should review the following documents which can be obtained from the Land Quality Division upon request or from the websites referenced below:

- Wyoming Statute Title (W.S. §) 35 (Wyoming Environmental Quality Act)  
<http://legisweb.state.wy.us/LSOWeb/wyStatutes.aspx>
  - Article 1, General
  - Article 4, Land Quality
  
- Land Quality Noncoal Rules and Regulations and revisions.  
<http://soswy.state.wy.us/Rules/>
  - Chapter 1, Definitions
  - Chapter 2, Permit Applications
  - Chapter 3, Environmental Protection Standards
  - Chapter 4, Underground Mining
  - Chapter 6, Self-Bonding Program
  
- Land Quality Guidelines:  
<http://deq.state.wy.us/lqd/guidelines.asp>
  - No. 1 - Soil and Overburden.
  - No. 2 - Premining and Post-mining Vegetation Inventory.
  - No. 3 - Radiological Survey.
  - No. 5 - Terrestrial Wildlife Resource Assessment.
  - No. 6 - Noncoal; Application for a "Permit to Mine" or an "Amendment"
  - No. 8 - Hydrology.
  - No. 10 - Guideline for Fencing.
  - No. 11 - Cultural and Paleontological Resources.
  - No. 12 - Reclamation Performance Bond Calculations.
  - No. 13 - Sediment Ponds.
  - No. 15 - Alternate Sediment Control Measures.
  - No. 17 - Permanent Postmine Impoundments

- State of Wyoming - BLM Memorandum of Understanding (1975) and its supplement (2003), regarding mining of federal minerals on federal land covered by 43 CFR 3600 regulations,  
<http://deq.state.wy.us/eqc/orders/Land%20Closed%20Cases/11-4803%20Lost%20Creek%20ISR,%20LLC/Exhibit%2026.pdf>
- Land Quality Division Noncoal Standard Operating Procedures
  - No. 2.1 – Interim Mine Stabilization for Noncoal Mines  
<http://deq.state.wy.us/lqd/Guidelns/ncsop21.pdf>
  - No. 1.4 – Procedures Pertaining to Public Notices, Proof of Notice and Sworn Statement of Mailing for all Types of Noncoal Permitting Actions  
<http://deq.state.wy.us/lqd/Guidelns/ncsop144.pdf>

## GENERAL INFORMATION

The application, once approved, will constitute the enforcement or contractual document which the Department of Environmental Quality (DEQ), Land Quality Division (LQD), will refer to during compliance inspections of the mining operation. The design of the Mine and Reclamation Plans must be based on site specific conditions. In situations where the efficacy of specific prescribed techniques may be questionable, alternative actions should be discussed under the appropriate sections of the application. In addition, such other information as the administrator deems necessary or as good faith compliance with the provisions of the Wyoming Environmental Quality Act may be required (W.S. § 35-11-406(a)(xv)). While not required, scheduling a pre-application consultation with the LQD is highly recommended.

## COMPLETENESS CRITERIA

This document contains an outline of the criteria that will be used in determining the “completeness” of a permit application by the LQD staff. Completeness is defined by the Wyoming Environmental Quality Act in W.S. § 35-11-103(e)(xxii) which states that a “Complete application under W.S. § 35-11-406(e) means the application contains all essential and necessary elements and is acceptable for further review for substance and compliance with the provisions of this chapter.” The “essential and necessary elements” are presented in Sections I through IV of this handbook, and Section V contains a listing of the regulatory citations from which these essential and necessary elements arise.

The essential and necessary elements presented in this document represent the information required by the statutes and regulations to obtain the Administrator’s decision for a complete Noncoal Hard Rock Mine permit application. Applications that are deemed complete will be thoroughly evaluated during the technical review process using all applicable LQD and Water Quality Division Rules and Regulations pertaining to hard rock permit applications. All portions of application permit that may be technically inadequate, inaccurate, or do not comply with all appropriate regulations are subject to review and comment under this technical review process.

## MAPS AND AERIAL PHOTOGRAPHS

- Maps (Plates, Figures, Diagrams, etc.)
  - Title Block located in lower right hand corner with the following information as a minimum:
    - Applicant's name and address.
    - Title of map.
    - Permit number if applicable.
    - Date map was drawn (or date of photography, if based from aerial photo).
    - Each date map was revised.
    - Map sheet page number, exhibit number, etc.
    - Scale and contour interval.
    - North arrow.
  - Section, Township, and Range lines and numbers
    - Must have an accurate delineation of Section, Township, and Range lines and numbers.
  - Permit Boundary
    - The permit boundary must be clearly outlined and identified on all maps.
    - Any amendment areas should be clearly differentiated from the original permit boundary and other amendment boundaries
    - At a minimum, amendment boundaries must be clearly identified on the Appendix C Mine Operations Plan and Restoration/Reclamation maps.
    - All permit and amendment boundaries should agree with the written legal description in Appendix "C" of adjudication files.
  - Legend
    - Legend clearly describing information on map (all symbols and lines identified).
  - Map Location Key
    - If only a portion of permit or amendment area is shown, a map location key showing area with respect to total permit or amendment area should be on map.
  - Consecutive Map Sheets
    - If more than one map sheet is used for a specific subject, each sheet should be numbered consecutively, 1 of 4, 2 of 4, etc.

- Reference to Other Information
    - Reference on the map any enlarged view, cross sections, or more detailed information contained elsewhere
  - Contours
    - Contour intervals should normally not exceed ten (10) feet, but will depend on the nature of topography in the area.
    - Contour intervals must be the same for premining and postmining maps.
    - Distinct contour lines with contour elevations identified along the contour lines at a reasonable interval and frequency across the map.
  - Map Clutter
    - Map sheets should not include excessive information to the point of not being able to clearly recognize the features presented. If necessary, additional map sheets should be included to separate information in a rational manner and to accommodate a reasonable map size.
  - Map Scale
    - Appendix A, B, C and E maps can be submitted at a scale of 1"=2000'.
    - All other maps must be at a scale of 1"=1000' or greater (e.g., 1"=500'). To show greater detail, scales maybe increased by even multiples of the original scale. For example, for a 1"=1000' scale map, detailed maps should be at 1"=200', 1"=400 and 1"=500'.
    - Premine and postmine contour maps must be at the same scale and
    - Baseline vegetation and soils maps must be at the same scale.
- Aerial Photographs
- Date
    - Any aerial photographs should be current and show the date the photograph was taken.
  - Edge Distortions
    - Eliminate edge distortions on mosaics.
  - Additional Information
    - If used in place of a map, it should contain, at a minimum, all information required in items 1 -7 for maps (above).

WyLQD Guideline 4, W.S. § 35-11-406(b)(v)

# PERMIT APPLICATION FORMAT AND ORGANIZATION

## Introduction/Format

A single application (consisting of 2 copies, 3 copies if BLM surface or mineral) (note: for operations in District I, the number of copies are 1 and 2 respectively) for a permit to mine or a research and development testing license should be submitted to the Administrator of the Land Quality Division. Once the application is determined to be technically complete, an additional copy will be required for LQD to forward to the US EPA (Chapter 11, Section 2(c)). It should consist of five sections as described below. The administrator requires the format and order of all applications follow this guideline to promote consistency and efficiency of staff review.

The first section of the application is the adjudication file, containing the "Permit to Mine" and "License to Mine" forms, bonds, notification, receipts, consent forms, and Appendices A through C. Items in Section II, A through H of the adjudication file section should be submitted in a loose form and not be bound. This information will be placed in the File-1-Of. The File -1-Of is the first file folder that LQD maintains in their file cabinets for the permit. The remaining items of the adjudication section should be submitted as discussed in the next paragraph.

The second section of the application contains baseline supporting information. The third thru fifth sections are the aquifer exemption, mine or operations plan and the reclamation plan, respectively. Information for these sections should be submitted as follows:

In loose leaf 3 ring binders to allow easy substitution of pages for revisions or additions.

- The binders should be no larger than 4 inches thick.
- The text should be printed on 8.5 x 11 inch paper with standard margins and unique page numbers on all pages.
- The pages should also include the submittal or revision date. The paper should be about 20 pound weight or better.
- All figures and tables larger than 8.5 x 11 inch paper should be folded to fit into the application and should be physically attached to the appropriate location in the application or folded into a labeled map pocket.
- All figures and tables should be numbered and referenced in the text.
- In addition to the hard copy, the applicant shall submit water-quality and water-quantity data in an electronic format as described in Addendum 17

The applicant is strongly encouraged not to repeat information from different parts of the application with the exception of Appendix C. For example, Appendix D-5 will contain a thorough discussion of the geology and ore body. The mine operations plan requires a description of the ore body that is going to be mined. The applicant should not repeat the entire discussion in D-5 in the mine operations plan. A summary and reference to D-5 will suffice along

with any additional detail not included in D-5 that specifically addresses the ore body to be mined.

Each 3-ring binder should have its own table of contents for that volume. Volume 1 should contain a master table of contents that covers the entire application. Each binder or volume should be clearly labeled and include the sections of the application included in that volume. (i.e., Nuclear Power, Inc. Bright Lights Project, Big County, Wyoming, Volume 3, Appendix D-6 through Appendix D-11) This information should be placed on the front of the binder and on the spine.

The Land Quality Division will be the primary reviewing agency for WDEQ. The Water Quality Division will review specific portions of the application to reclassify the groundwater near the end of the LQD technical review. A single permit or license will be granted by the department upon the recommendation of the LQD administrator. The application should contain a section devoted to the information required to support the aquifer reclassification. Near the end of the technical review process, LQD will forward the section to WQD. WQD will review this information only to the extent to allow the classification of the groundwater. When the application is deemed technically adequate, the LQD informs the operator to initiate final public notice. This notice will also contain the necessary information for the aquifer exemption. When the LQD declares the application to be technically adequate, the WQD will forward this section/package to the U.S. EPA with a request for an aquifer exemption. The U.S. EPA will issue an interim decision within 45 days. If there are no objections to the LQD public notice process, the U.S. EPA interim decision becomes final. If there are objections, the U.S. EPA will await resolution of the objections before deciding if the interim decision requires modification. Additional information concerning the aquifer exemption can be found in Addendum 10.

## Organization

The following is a listing of the major headings for the application. It is not meant to be all inclusive but to give the applicant guidance of the content and the preferred order of the application. It is anticipated that appropriate subheadings will be added by the applicant to address all the items discussed in this guideline.

File-1-0f: The following adjudication materials shall be submitted in a loose format in the following order: (the applicant may wish to place a second copy of all but number 3 in the 3-ring binders with the rest of the application).

- Form 1 UIC
- Form 3
- Proof of Publication (to be filed later once notified by LQD to commence the public notice process)
- Bond Instrument (to be filed once dollar amount is set by LQD)

*WyLQD Guideline 4*

## I. ADJUDICATION

### A. FORM 1

#### a) *Form 1 Application for Permit to Mine*

- (1) *Application for Permit to Mine* must be completed in full, with the affiant's signature and corporate seal as witnessed by a Notary Public or the Secretary if a Corporation, and submitted in duplicate.
- (2) A minimum fee of one hundred dollars (\$100.00) plus ten dollars (\$10.00) for each acre in the requested permit, but the maximum fee for any single permit shall not exceed two thousand dollars (\$2,000.00). The fee for a permit amendment shall be two hundred dollars (\$200.00) plus ten dollars (\$10.00) for each acre not to exceed two thousand dollars (\$2,000.00)
- (3) Additional application requirements to be submitted as attachments are described in the sections below.

*W.S. § 35-11-406, W.S. § 35-11-406(a)(xii), W.S. § 35-11-406(a)(ii-iii)*

### B. FORM 3

#### a) *Form 3 Application for License to Mine*

- (1) Application for License to Mine must be completed in full, with the affiant's signature and corporate seal as witnessed by a Notary Public or the Secretary if a Corporation, and submitted in duplicate.
- (2) Copy of mining permit
- (3) If the applicant is other than the permit holder, a copy of the instrument of permission from the permit holder granting to the applicant the rights thereto
- (4) Mine Location Map
- (5) A fee of twenty-five dollars (\$25.00)

*W.S. § 35-11-410(b), W.S. § 35-11-410(b)(ii), W.S. § 35-11-410(b)(vi)*

## C. RECLAMATION BOND

Before commencing any mining operations underneath a limited mining operations permit, the operator shall file a bond to insure reclamation in accordance with the purposes of this act in the amount of one thousand dollars (\$1,000.00) per acre of affected land. Within ninety (90) days after mining operations commence, the administrator may require the operator to post an additional bond of one hundred dollars (\$100.00) per acre of affected land if he determines that such amount is necessary to insure reclamation. The operator shall post the additional bond not later than thirty (30) days after receipt of such notification;

*W.S. § 35-11-401(e)(vii)*

The initial bond amount for a permit should equal to the estimated cost of reclaiming the affected land and restoring any groundwater disturbed by mining during the first year of operation under each permit as defined in W.S. § 35-11-103(f)(iii). The estimated cost shall be based on the operator's cost estimate submitted with the permit plus the administrator's estimate of the additional cost to the state of bringing in personnel and equipment should the operator fail or the site be abandoned. In no event shall the bond be less than ten thousand dollars (\$10,000.00), except for sand and gravel, pumice, scoria or jade mining or any mine, except surface coal mines, the affected land of which, excluding roads, is ten (10) acres or less, in which case the bond amount shall be set by the administrator with approval of the director to cover the cost of reclamation, and in no event less than two hundred dollars (\$200.00) per acre, for affected land;

*W.S. § 35-11-417(c)(i)*

In those instances in which the surface owner is not the owner of the mineral estate proposed to be mined by mining operations, a permit shall not be issued without the execution of a bond or undertaking to the state, whichever is applicable, for the use and benefit of the surface owner or owners of the land. This bond amount should be in an amount sufficient to secure the payment for any damages to the surface estate, to the crops and forage, or to the tangible improvements of the surface owner. This amount shall be determined by the administrator and shall be commensurate with the reasonable value of the surrounding land, and the effect of the overall operation of the landowner. This bond is in addition to the performance bond required for reclamation by this act. As damage is determined it shall be paid. Financial loss resulting from disruption of the surface owner's operation shall be considered as part of the damage. A bond for surface damage shall not be required when the agreement negotiated between the surface owner and the mineral owner or developer waives any requirement therefor. Payment of damages shall be paid annually unless otherwise agreed to by the surface owner and the operator.

W.S. § 35-11-416(a)

All bonds shall be signed by the operator as principal, by a good and sufficient corporate surety licensed to do business in the state, and be made payable to the state of Wyoming. At the discretion of the director, the record mineral owner of the land to be mined may also be required to join as principal.

W.S. § 35-11-417(b)

In lieu of a bond, the operator or its principal may deposit federally insured certificates of deposit payable to the Wyoming Department of Environmental Quality, or cash or government securities, or irrevocable letters of credit issued by a bank organized to do business in the United States, or all four.

W.S. § 35-11-418

Conditions for self-bonding are set forth in Chapter 6 of the Land Quality Division Noncoal Rules and Regulations. Initial application to self-bond shall be made at the time the operator makes written application to the Administrator for a license to mine. The application shall be on forms furnished by the Administrator.

WyLQD-NC Ch.6 Sec.2(a)

The following forms may be required:

- a) Form P Form NCSB 9/20/06, Initial Application to Self-Bond – If applicable
- b) Form 2OTH1 Reclamation Performance Bond – If applicable
- c) Form 2SF1 State/BLM Reclamation Performance Bond – If applicable
- d) Completed Noncoal Letter of Credit Format – If applicable

**Note:** *For minerals covered by the State of Wyoming – BLM Memorandum of Understanding and 43 CFR 3600 regulations where the surface and mineral ownership is “federal” (BLM) the applicant must provide two copies of the application. Bonds other than cash bonds must be made payable to the Wyoming Department of Environmental Quality and U.S. Secretary of the Interior. Corporate surety bonds must be executed on the Land Quality State – BLM bond form. Cash bonds (checks, etc.) must be payable to only the Department of Environmental Quality.*

The administrator shall promptly review the license application and if he finds the application in order and consistent with the terms of the permit and any other

provisions of this act, the administrator will determine the size of the bond to be posted for the purpose of insuring reclamation of the lands affected during the first year of operation and upon receipt of said bond will promptly issue the license.

*W.S. § 35-11-410(c)*

For additional instructions on filing reclamation performance bonds, please contact the LQD Bonding Specialist.

*W.S. § 35-11-401(e)(vii); W.S. § 35-11-410(c); W.S. § 35-11-416(a); W.S. § 35-11-417(c)(i); W.S. § 35-11-418; WyLQD-NC Ch.6 Sec.2(a)*

## D. CERTIFICATE OF PUBLIC LIABILITY INSURANCE

A certificate of public liability is required that demonstrates the applicant has a public liability policy in force for the surface mining and reclamation operations for which this permit is sought or evidence that the applicant has satisfied other state and federal self-insurance requirements.

*W.S. § 35-11-406(a)(xiii)*

## E. LANDOWNER CONSENT

If different from the owner of the mineral estate, an instrument of consent to the mining plan and reclamation plan from the surface landowner as well as approval by the resident or agricultural landowner is required. In this circumstance, an instrument of consent from the resident or agricultural landowner granting the applicant permission to enter and commence surface mining operation is also required. If the applicant proposes to affect any land which lies within 300 feet of an existing occupied dwelling, home, public building, school, church, community or institutional building, park or cemetery, then written consent of said landowners must be obtained and placed in the permit application. *W.S. § 35-11-406(m)(viii)* provides that the director may deny a mining permit application unless consent is obtained. Completion of Form 8 – Surface Owner Consent for all identified entities is required

*W.S. § 35-11-406(b)(xi-xii), W.S. 35-11-406(m)(viii)*

## F. APPENDIX A (FOR LANDS WITHIN THE PERMIT AREA)

- a) List of names, in alphabetical order, and last known addresses of:
  - (1) Owners of record of surface rights within permit area
  - (2) Owners of record of mineral rights within permit area
- b) Maps showing
  - (1) Ownership locations identified in a)(1) above
  - (2) Ownership locations identified in a)(2) above.

*W.S. § 35-11-406(a)(iv), W.S. § 35-11-406(a)(ix)(A)*

## G. APPENDIX B (FOR LANDS ADJACENT TO THE PERMIT AREA)

- a) List of names, in alphabetical order, and last known addresses of:
  - (1) Owners of record of surface rights immediately adjacent to the proposed permit area
  - (2) Any other persons within one-half mile having a valid legal estate of record
- b) Map showing
  - (1) Ownership locations identified in a)(1) above

*W.S. § 35-11-406(a)(v), W.S. § 35-11-406(a)(ix)(A)*

## H. APPENDIX C

- a) Identify lands in the proposed permit area utilizing one of the forms below and submit along with a certified surveyor statement:
  - (1) Form C-1 - Appendix C Location of Lands
  - (2) Form C-2 - Appendix C Bearing & Distance – If applicable

- b) In the same manner as a), identify lands within the proposed permit area, for which the applicant does not possess the right to mine, listing the number of acres for each legal subdivision
- c) Identify lands within the proposed permit area which intersect other permit areas. Attach a copy of the land use agreement with the other permittee as part of this application
- d) A United States Geological Survey topographic map, clearly outlining and identifying the lands within the proposed permit area.

*W.S. § 35-11-406(a)(vi)(A-D), W.S. § 35-11-406(a)(ix)(C), W.S. § 35-11-406(a)(viii)*

## I. APPENDIX E (APPENDIX D, DESCRIPTION OF THE LAND IS DETAILED IN SECTION II)

A map or maps based upon public records showing the boundaries of the land to be affected and:

- a) Surrounding immediate drainage area
- b) Location and names, where known, of all roads, railroads, public or private rights-of-way and easements, utility lines, buildings, lakes, streams, creeks, springs, and other surface water courses, oil wells, gas wells, and water wells
- c) Outline of the probable limits of all areas previously disturbed or to be disturbed by underground or surface mining, whether active or inactive, on or immediately adjacent to the proposed permit area.
- d) Names, last known addresses and boundary lines of the present surface landowners and occupants on the adjacent land to be affected
- e) The location, ownership, and uses of all buildings on, or on lands adjacent to, the land to be affected
- f) Any political boundaries of special districts on or near the land to be affected
- g) Electronic permit boundary file

*W.S. § 35-11-406(a)(ix)*

## J. PROOF OF FILING

File a copy of this application for public inspection at the office of the administrator and in the offices of the county clerks of the counties in which the proposed permit area is located. Those parts of the application which contain confidential trade secrets whose disclosure would be harmful to the applicant are exempt from these filings. The County Clerk will provide an affidavit of filing, which must be attached to this section of the application.

*W.S. § 35-11-406(d)*

## K. PROOF OF NOTICE

After the application is determined complete, publish a notice of the filing of the application once each week for two (2) consecutive weeks in a newspaper of general circulation in the locality of the proposed mining site. The newspaper will provide an affidavit of publication, which must be attached to this section of the application.

*W.S. § 35-11-406(g)*

## L. PROOF OF PUBLICATION

Land Quality Division will provide publication notice format. The administrator will provide written notification to the applicant when the application is suitable for publication. Publication should meet the following criteria:

- a) Notice of the application to be published in a newspaper of general circulation in the locality of the proposed mining site once a week for four (4) consecutive weeks commencing within fifteen (15) days after being notified by the administrator.
- b) The notice shall identify:
  - (1) The applicant
  - (2) Location of the operation
  - (3) Proposed dates of commencement and completion of the operation
  - (4) Proposed future use of the affected land
  - (5) Location at which information about the application may be obtained
  - (6) Location and final date for filing objections to the application

- c) Attach proof of notice to final application

*W.S. § 35-11-406(j)*

## M. PROOF OF NOTIFICATION

- a) Applicant shall also mail a copy of the notice within five (5) days after first publication to:

- (1) Surface owners of record of the land within the permit area
- (2) Surface owners of record of immediately adjacent lands
- (3) Surface owners within ½ mile of the proposed mining site

- b) Applicant shall also mail a copy of the Mine Plan map within five (5) days after first publication to:

- (1) The Wyoming Oil and Gas Conservation Commission

- c) Attach a sworn statement of mailing to the final application. Such proof consists of a notarized "Affidavit of Notice," the format for which is included with the Second (Final) Public Notice Format.

*W.S. § 35-11-406(j)*

## N. WRITTEN VERIFICATION OF CITY OR COUNTY (APPROPRIATE ZONING OR PLANNING DEPARTMENT)

If the mining operation will affect new lands, provide written approval for the proposed operation from the appropriate local zoning or planning department. .

## O. LISTING OF OTHER PERMITS OR CONSTRUCTION APPROVALS

Provide a listing of activities to be conducted by the applicant which require permits or construction approvals and the status of those permits or construction approvals under the following programs:

- a) Hazardous Waste Management program under RCRA including underground storage tanks and hazardous waste identification number (HW ID); (Wyoming DEQ Solid and Hazardous Waste Division (307) 777-7752) (EPA Region VIII, Denver, Colorado (800) 227-8917)

- b) WYPDES program under the Clean Water Act (CWA) to include point source discharge, storm water discharge (construction surface disturbances and industrial facility), temporary discharges (aquifer testing); (Wyoming DEQ Water Quality Division (307) 777-7781)
- c) Spill Prevention, Control, and Countermeasures Plans for threshold storage of petroleum products; (SPCC - EPA Region VIII, Denver Colorado (800) 227-8917)
- d) Air Quality for stationary internal combustion engines, fugitive dust; Prevention of Significant Deterioration (PSD) program under the Clean Air Act (CAA); and Nonattainment program under the CAA; National Emission Standards for Hazardous Pollutants preconstruction approval under the CAA; (Wyoming DEQ Air Quality Division (307) 777-7391)
- e) Dredge and fill permits under Section 404 of the CWA; (US Army Corp of Engineers, Omaha District, Wyoming Regulatory Office, Cheyenne, Wyoming (307) 772-2300)
- f) Radioactive Materials, U.S. Nuclear Regulatory Commission Source Material License; (NRC Regional Office, Arlington, Texas (817) 860-8100)
- g) Wyoming Dam Safety Program for dams or storage reservoirs above threshold, beneficial use of surface waters of the State, Registration of wells and groundwater rights not associated with stock or domestic water and well registration; (State Engineers Office, Cheyenne, Wyoming (307) 777-6150).
- h) Other relevant environmental permits (such as County – Septic Drainfields).

## II. APPENDIX D - DESCRIPTION OF THE LAND

### A. APPENDIX D-1 - LAND USE

- a) Identify the major past uses of the proposed permit area and adjacent lands
- b) Identify the major present uses of the proposed permit area and adjacent lands
- c) Rank the previous uses of affected land according to overall economic or social value of the land use to the landowner, community, or area in which these lands are found (may consult with Land Quality Advisory Board regarding ranking)
- d) Provide an aerial photo (hardcopy and electronic copy) of the proposed permit area and adjacent lands.

*WyLQD-NC Ch.2 Sec.2(a)(i)(A)*

### B. APPENDIX D-2 - BRIEF HISTORY OF THE AREA

This section should briefly describe the history of the permit area in context of the regional historic setting. This section may utilize and/or refer to useful elements of the cultural resource inventory for the permit area.

### C. APPENDIX D-3 - ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES (SEE GUIDELINE 11, GUIDELINE FOR REPORTING CULTURAL AND PALEONTOLOGICAL RESOURCES WITHIN MINE PERMIT AREAS)

- a) Describe any significant artifacts, fossils, or other articles of cultural, historical, archaeological or paleontological value on the lands to be affected within the permit area.
- b) If professional evaluation of the proposed permit area is recommended by the Administrator, submit the findings of a qualified archaeologist or qualified paleontologist.
- c) Submit results of consultation with Wyoming State Historical Preservation Office

*WyLQD-NC Ch.2 Sec.2(a)(i)(J)*

## D. APPENDIX D-4 - CLIMATOLOGY

This section should address the climatic characteristics of the general permit area. Below are the minimum reporting requirements. If the proposed mine plan includes surface diversion or impoundment structures, a more detailed analysis is required to ensure integrity compliance during specified interval precipitation events. See *WyLQD-NC Ch.3* for additional details.

- a) Document the total estimated annual precipitation near the permit area, either:
  - (1) Estimated from nearest official weather reporting station or
  - (2) If nearest official weather reporting station is greater than 50 miles away, on site precipitation measurement may be required
- b) Document the average wind direction and velocity near the permit, either:
  - (1) Estimated from the nearest official weather station or
  - (2) If nearest official weather reporting station is greater than 50 miles away, on site measurement may be required

*W.S. § 35-11-406(a)(vii); WyLQD-NC Ch.2 Sec.2(a)(i)(C-D)*

## E. APPENDIX D-5 - TOPOGRAPHY, GEOLOGY, AND OVERBURDEN ASSESSMENT (SEE GUIDELINE NO. 1, SOILS AND OVERBURDEN)

This section should provide a comprehensive description of the physical composition and properties of all involved strata, from surface to the total depth of development, consisting of:

- a) Comprehensive description of overburden, to include:
  - (1) Thickness
  - (2) Geologic nature
  - (3) Examination of properties that may influence the mining or reclamation activities
- b) Comprehensive description of topsoil (if any), to include:
  - (1) Thickness and nature of soil

- (2) Soil survey if required by the Administrator
- (3) Soil analysis if required by the Administrator
- c) Comprehensive description of soil (if any), to include:
  - (1) Thickness, nature and distributions
  - (2) Soil analysis if required by the Administrator
- d) Comprehensive description of mineral seams and alteration zones including all toxic acid forming or radioactive material within and near the mine that constitute a threat of pollution to surface or ground water, to include:
  - (1) Depth, thickness, orientation and type of rock
  - (2) Map
  - (3) Geologic cross-section
- e) Provide the following information related to drillholes within the proposed permit area:
  - (1) Comprehensive list of all known drillholes in the proposed permit area
  - (2) Drillhole location map
  - (3) For all drillholes used to construct the hydrogeologic cross-sections provide:
    - i. Electronic copies of drillers' logs
    - ii. Electronic copies of geophysical logs
- f) Premining slope condition map
- g) Analytical results from any required sampling
- h) Discussion of regional and local seismology

- i) Professional Geologist or Professional Engineer certification of interpretations

*W.S. § 35-11-406(a)(vii); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(I); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(IV); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(IV)*

## F. APPENDIX D-6 - HYDROLOGY (SEE GUIDELINE NO. 8, HYDROLOGY)

The following hydrologic information should be included in the application.

- a) Regarding surface water in and adjacent to the proposed permit area,
  - (1) List and describe name and location of rivers, creeks, lakes, reservoirs, springs, and marshes in addition to any other identifiable surface water features
  - (2) Classify streams as ephemeral, intermittent, or perennial
  - (3) Describe the immediate drainage area which includes the permit area
  - (4) Classify surface water use as domestic, municipal, industrial, agricultural or wildlife
  - (5) Present a surface water baseline monitoring plan
  - (6) Discuss the results of the baseline surface water quality monitoring , including sediment loading
  - (7) Complete surface water runoff estimates
  - (8) Calculate the pre-mining water budget
- b) Regarding groundwater down to and including the strata immediately below the lowest mineral seam to be mined, provide the following information:
  - (1) List by name and owner all wells on the proposed permit area and adjacent lands including wells filed with the State Engineers Office within 3 miles of the proposed permit area
  - (2) Display the wells listed in (1) on a map.
  - (3) Design and implement a plan for determining baseline groundwater quality and quantity

- (4) Present a discussion of the results of the groundwater monitoring and drilling programs, including depth, quantity, and quality of groundwater
- (5) Produce potentiometric maps for each aquifer likely to be affected by mining operations,
- (6) Provide a comprehensive description of the properties and characteristics of the potentially affected aquifers

c) Water rights

- (1) List by name and owner all known adjudicated and permitted water rights on the proposed permit area and adjacent lands
- (2) Provide a map depicting location of all identified water rights
- (3) Conduct a water level survey of identified wells if required by the Administrator

d) Professional Geologist or Professional Engineer certification of interpretations

*W.S. § 35-11-406(a)(vii); W.S. § 35-11-406(a)(ix); WYLQD-NC Ch.2 Sec.2(a)(i)(G)(I-II); WYLQD-NC Ch.2 Sec.2(a)(i)(H); WYLQD-NC Ch.2 Sec.2(a)(i)(I)(I); WYLQD-NC Ch.2 Sec.2(b)(iii)(D)*

## G. APPENDIX D-7 - SOIL ASSESSMENT (SEE GUIDELINE 1, SOILS)

Provide soils assessment information as outlined in guideline 1 for soils.

- a) Comprehensive description of topsoil – If any
- b) Soil map
- c) Soil survey – If required by the Administrator
- d) Soil analysis – If required by the Administrator
- e) Comprehensive description of subsoil
- f) Subsoil analysis – If required by the Administrator

*W.S. § 35-11-406(a)(vii); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(II); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(III); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(III); W.S. § 35-11-406(a)(vii); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(III); WYLQD-NC Ch.2 Sec.2(a)(i)(F)(III)*

## H. APPENDIX D-8 - VEGETATION INVENTORY (SEE GUIDELINE 2, VEGETATION)

A survey of vegetative cover and species diversity on the proposed affected land determined by scientifically acceptable sampling procedures, as described in Guideline 2, Vegetation.

- a) Predominating species
  - (1) Grasses, forbs, trees and shrubs
    - i. Common names
    - ii. Scientific names
    - iii. Estimated abundance within the proposed permit area
    - iv. Estimated range of heights and diameters of trees
  - (2) Noxious weeds listed by the local weed and pest control district, if any, and provide
    - i. Common names
    - ii. Scientific names
    - iii. Estimated abundance
  - (3) Identify State or Federally listed endangered or threatened plant species known to exist within the permit area or in adjacent areas, if any, and provide
    - i. Description of species location
    - ii. Evaluation of potential habitats within or adjacent to the permit area
- b) Vegetation Map
- c) Vegetation Area Acreage Table
- d) Raw Data

*W.S. § 35-11-406(a)(vii);WyLQD-NC Ch.2 Sec.2(a)(i)(B)*

## I. APPENDIX D-9 – WILDLIFE (SEE GUIDELINE 5, WILDLIFE)

The following information should be included:

- a) Identify indigenous vertebrate wildlife species (including aquatic species) by both scientific and common names, noting the presence of wildlife on or adjacent to the proposed permit area which are listed on the Threatened or Endangered Species List.

- b) Actual and potential fauna distribution map
- c) Results of consultation with Wyoming Game and Fish Department
- d) Results of consultation with United States Fish and Wildlife Service

*W.S. § 35-11-406(a)(vii), WyLQD-NC Ch.2 Sec.2(a)(i)(E)(I); WyLQD-NC Ch.2 Sec.1(f)*

## J. APPENDIX D-10 – WETLANDS

Regional and permit area wetlands inventory in consultation with US Army Corps of Engineers. Appendix D-10 must contain copies of wetland delineation, descriptions, of proposed disturbances, and mitigation information.

The following information should be included:

- a) Provide a copy of National Wetlands Inventory (NWI) map, with permit area and mining areas delineated.
- b) If potential wetlands do not exist in permit area, no further information is required.
- c) If potential wetlands exist in the permit area, identify each wetland type and provide a brief description of each wetland type. No further information is required if the wetland is not within the areas to be disturbed by mining or mining-related activity.

If potential wetlands exist within areas to be disturbed by mining or mining-related activity, contact with the United States Army Corps Of Engineers (USACE) is required (copies of correspondence must be included with Appendix D-10). A more detailed ground investigation and field delineation of wetlands may be required. A mitigation plan for replacement of wetlands should be included in the reclamation plan if wetlands mitigation is required by USACE.

## K. APPENDIX D-11 - PREMINING RADIOLOGICAL ASSESSMENT

- a) Natural radioactive background.
  - (1) Description of methods.
  - (2) Background results for lands to be affected.

- b) Overburden radiochemistry. Discussions of sampling methodology and presentation of analytical results should be included in Appendix "D-5" and cross referenced here.
- c) Summary of results.

For guidance on conducting this survey, please refer to the Nuclear Regulatory Commission guidance documents Regulatory Guide 4.14, Revision 1, Radiological Effluent and Environmental Monitoring at Uranium Mills Revision 1, NUREG-5849, Manual for Conducting Radiological Surveys in Support of License Termination, and NUREG-1575, Multiagency Radiation Survey and Site Investigation Manual.

*WyLQD Guideline 3*

### III. MINE PLAN

This section covers information related to proposed mining methods and schedules, tailings piles construction and maintenance, heap leach facilities construction and maintenance, topsoil salvage and protection, wildlife monitoring and protection, and surface and groundwater monitoring.

#### A. GENERAL DESCRIPTION OF MINING OPERATION

- a) A description of the mining operation proposed to be conducted during the life of the mine, including
  - (1) Type of mine
  - (2) Method of mining
  - (3) Acreage to be affected annually
  - (4) Overburden removal
  - (5) Overburden transportation
  - (6) Mineral removal
  - (7) Mineral transportation
  - (8) Anticipated annual production by tonnage
  - (9) Anticipated total production by tonnage
  - (10) Major equipment to be used for all aspects of the operations

*WyLQD-NC Ch.2 Sec.2(b)(i)(A); WyLQD-NC Ch.2 Sec.2(a)(i)(F)(IV)*

#### B. MINING METHOD AND SCHEDULE

- a) Comprehensive life of mine facility design map or maps which show the estimated orderly progression of mining on all proposed affected lands as well as other specific features delineated in W.S. § 35-11-406(b)(v)
- b) Auger location map – If applicable
- c) Discussion of delineation and developmental drilling within the permit area.

- d) Topsoil and Subsoil Handling Plan including removal, storage, protection, and replacement; and a plan for handling and disposal of all toxic, acid-forming, or otherwise hazardous materials
  - (1) Description, to include capacity, a location map and, where appropriate, typical topographic profiles of the:
    - i. Facility area
    - ii. Mine mineral stockpiles
    - iii. Spoil piles
    - iv. Topsoil stockpiles
    - v. Subsoil stockpiles
- e) Spoil handling and stockpiling plan
- f) Plans for segregation of spoil and waste rock from contact with surface water if the spoil or waste rock is potentially toxic or acid forming.
- g) Description of all roads (except exempted roads), other transportation facilities, shipping areas and rights-of-way to be built or utilized during the operation
  - (1) Classify all roads as either a haul road, access road, or light-use road
  - (2) Transportation maps and cross-sections – If appropriate
  - (3) If the operator does not possess mineral rights or the right to mine for the area described in this section, include a separate subsection in Appendix C with the surface owner and legal land description for any lands within the permit area which fit this criteria
- h) Plan to mine reserves if anticipated
- i) Blasting Plan
- j) Onsite ore processing procedures and designs
- k) Process facilities monitoring plan
- l) Spill protection and remediation plan

*WyLQD-NC Ch.2 Sec.2(b)(iii)(A); WyLQD-NC Ch.2 Sec.2(b)(iii)(G); WyLQD-NC Ch.3 Sec.2(k)(ii)(A)(II)*

## C. MINING HYDROLOGY (SEE GUIDELINE NO. 8)

- a) Water budget (anticipated during mining and anticipated post mining)

- b) For any historic workings that may have interaction with ground/surface water, provide:
  - (1) Map of identified workings
  - (2) Characterization of the potential interactions
  - (3) Mitigation plans.
- c) Surface drainage plans
  - (1) Description of the proposed surface water diversion systems.
  - (2) Surface drainage plan maps, including any ponds or impoundments.
  - (3) Surface drainage plan cross-sections
- d) Groundwater discharge characterization
  - (1) Estimated quality of discharge water
  - (2) Estimated discharge schedule and quantity of groundwater discharge
  - (3) Include reference to methods, calculations and values used to arrive at estimates
- e) Plans for use and storage of waters extracted during mining
- f) Surface water monitoring plan – If required by the Administrator
  - (1) Description of monitoring sites
  - (2) Detail of monitoring site construction
  - (3) Maintenance plan
  - (4) Removal plan – if necessary
- g) Groundwater monitoring plan – If required by the Administrator
  - (1) Description of monitoring well locations
  - (2) Details of monitoring well construction

- (3) Maintenance plan
- (4) Abandonment plan – if necessary
- h) Predicted water quality during mining (focusing on acid rock drainage)
- i) Predicted water quality post mining (predictions using appropriate geochemical and flow modeling should be included)
- j) Potential Impacts
  - (1) Describe potential impacts to water resources from mining activities
  - (2) Describe measures to mitigate said impacts
  - (3) Describe and provide designs for all planned ponds and impoundments
  - (4) Attach copies of Wyoming State Engineers Office permits
- k) Water management plan
- l) Treatment and processing system design(s)
- m) If water supply mitigation is required, provide the plan here

*WyLQD-NC Ch.2 Sec.2(b)(iii)(D); WyLQD-NC Ch.3 Sec.2(e-f); WyLQD-NC Ch.3 Sec.2(h)(i)  
WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(V)*

## D. REFUSE DISPOSAL

- a) Industrial solid wastes
  - (1) Management plan for industrial solid wastes generated by the operation
  - (2) Disposal plan for industrial solid wastes generated by the operation

*WyLQD-NC Ch.2 Sec.2(b)(iii)(I)*

## E. PUBLIC NUISANCE AND SAFETY

- a) Describe the procedures proposed to avoid constituting a public nuisance, endangering the public safety, human or animal life, property, wildlife and plant life in or adjacent to the permit area including a program of fencing all

stockpiles, roadways, pits and refuse or waste areas to protect the surface owner 's ongoing operations.

- b) Dust management plan
- c) When affecting lands within 300 feet of an existing occupied dwelling, home, public building, church, community or institutional building, park or cemetery, see Section I D.
- d) LQD recommends including hours and seasons of operations, routes of haulage, access routes, and estimated truck and vehicle traffic per route.

*W.S. § 35-11-406(b)(xiii)*

## F. MILL AND TAILINGS DISPOSAL SYSTEM

Provide the following mill construction plans and details:

- a) Best available technology assurance plan for design, construction, operation, monitoring, maintenance and reclamation of any tailings impoundments, tailings disposal areas, heap leaching facilities or spent ore disposal areas
- b) Geologic cross section of tailings disposal site
- c) Wyoming State Engineer approved construction specifications of tailings disposal system
- d) Wyoming State Engineer's Office impoundment permit – If applicable
- e) Geologic cross section(s) of heap leach site construction
- f) Monitoring plan map

*WyLQD-NC Ch.2 Sec.2(b)(iii)(F); WyLQD-NC Ch.3 Sec.2(h)(i); WyLQD-NC Ch.3 Sec.2(h)(i)*

## G. COMPLIANCE DOCUMENTATION

- a) Summary of all monitoring and reporting commitments:
- b) Signs and Markers

## IV. RECLAMATION PLAN

Post-mine land uses, revegetation practices, tailings reclamation, heap leach facilities reclamation, pit wall stabilization, post-mine impoundment designs (See Guideline 17), surface and groundwater restoration methods employing best practicable technology, reclamation success criteria and monitoring of reclamation success.

### A. POSTMINING LAND USES

- a) Identify the present use(s) of the land to be affected
- b) Identify the proposed use of the land to be affected after reclamation.
- c) Provide a postmining land use map – If applicable

*W.S. § 35-11-406(b)(i); WyLQD-NC Ch.2 Sec.2(b)(iii); WyLQD-NC Ch. Sec.2(a)*

### B. CONTOURING PLAN FOR AFFECTED LANDS

Compose a plan for backfilling, grading, and contouring of all affected land. The plan must include the following:

- a) Postmining surface contour map
- b) Proposed post reclamation contour map showing the final surface configuration of the affected lands. This map should demonstrate that the slopes of the reclaimed land surface do not exceed the approximate premining slopes
- c) Terrace or bench design diagrams – If applicable, these diagrams shall include dimension and design of the terraces, check dams, any erosion prevention techniques and slopes of the terraces and their interval
- d) Detail procedures for assuring the stability of the reclaimed land

*W.S. § 35-11-406(b)(ii), WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(I); WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(I) ; W.S. § 35-11-406(a)(vii); WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(II) ; WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(V)*

### C. SURFACE PREPARATION FOR TOPSOIL OR SUBSOIL REPLACEMENT

- a) Replacement plan
  - (1) Explain procedure for replacing soils during reclamation

- (2) Identify the thickness of the soil to be replaced
  - (3) Explain what procedures will be followed to protect the replaced soil until vegetation is adequately established.
- b) Plan for treatment and disposal of potential hazardous materials
  - c) Location map of plan features identifying:
    - (1) Capacity of each stockpile shown and described
  - d) Topographic profiles of plan features
  - e) Map of final completed reclamation of acid rock drainage material storage

*W.S. § 35-11-406(a)(viii), WYLQD-NC Ch.2 Sec.2(b)(iii)(A); W.S. § 35-11-406(a)(ix), WYLQD-NC Ch.2 Sec.2(b)(iii)(A); WYLQD-NC Ch.2 Sec.2(b)(iii)(A); WYLQD-NC Ch.2 Sec.2(b)(iii)(A)*

#### D. REVEGETATION PRACTICES (SEE GUIDELINE NO. 2)

- a) Revegetation plan should include:
  - (1) Species of vegetation
  - (2) Other surface treatments
  - (3) Methodology
  - (4) Schedule to include
    - i. Seeding times
    - ii. Seeding rates
  - (5) Erosion control techniques
- b) Results of consultation with and incorporation of guidance from Wyoming Department of Agriculture and other state and federal agencies, as required.
- c) Revegetation plan map

*W.S. § 35-11-406(b)(iii), WYLQD-NC Ch.2 Sec.2(b)(iii)(C); WYLQD-NC Ch.2 Sec.2(b)(iii)(C)*

## E. FINAL HYDROLOGIC RESTORATION

- a) Provide a stream channel reclamation plan demonstrating effective control of erosion, siltation, and pollution of affected stream channels and stream banks by the mining operations;
- b) Show a final drainage system map for the reclaimed land surface demonstrating that no pollution is allowed to drain untreated into surface or subsurface water in accordance with state or federal water quality standards, whichever are higher, as may be required in the approved reclamation plan
- c) Plan for the reclamation of open pit mines, solution ponds and other structures/area used during mining
- d) Provide an aquifer reconstruction and restoration plan
- e) Postmining monitoring map – If applicable
- f) Final anticipated piezometric surface(s) and post mining water quality – If applicable
- g) Wetlands mitigation map – If applicable
- h) If permanent impoundments are proposed, provide
  - (1) Landowner consent of the proposed permanent impoundment
  - (2) Description of the proposed use of proposed impoundment post reclamation
  - (3) Report on the source, quantity and quality of the water available for impoundment and a statement regarding its suitability for recreational, irrigation, livestock or wildlife watering
  - (4) Map showing slope conditions around the impoundment and anticipated high and low postmining water levels
  - (5) Geologic cross section showing slope conditions around the impoundment and anticipated high and low postmining water levels
  - (6) Description of design and control techniques that will be implemented to comply with water quality and quantity requirements

- i) Results of consultation with Wyoming Game and Fish Department and other state and federal agencies, as required.

*W.S. § 35-11-406(b)(xv); WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(III); WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(I); WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(III); WyLQD-NC Ch.3 Sec.2(f)(ii)*

## F. SPECIAL RECLAMATION STANDARDS

Provide discussion of any special reclamation standards required.

## G. DECOMMISSIONING, STABILIZATION, AND RECLAMATION OF MILL SITE AND TAILINGS DISPOSAL SYSTEM

- a) Provide the plan for restoration of topsoil and vegetation at site
- b) Describe how the best technology currently available will be used to ensure long term stability, prevent contamination of surface or groundwater and facilitate the approved postmining land uses.
- c) If typical restoration procedures are not feasible for the proposed site, justify and provide an alternate proposal

*WyLQD-NC Ch. 2, Section 2(b)(iii)(F), Chapter 3, Section 2(h)*

## H. SITE PROTECTION MANAGEMENT PLAN

Present discussion and plan for the protection of the site during and after site reclamation.

## I. RECLAMATION SCHEDULE - ANNUAL PROGRESS OF RECLAMATION IN ACCORDANCE WITH MINE SEQUENCE MAP

- a) Concurrent reclamation timeline – Please provide a schedule for each major step in the reclamation which coordinates the reclamation plan with the mining plan in such a manner so as to facilitate reclamation at the earliest possible time consistent with Chapter 3, Section 2(k) and the orderly development of the mining property.
- b) Reclamation sequence map showing the estimated orderly progression of mining and reclamation on all proposed affected lands
- c) Method of disposal of buildings and structures erected during the operation

- d) Liquid waste treatment and disposal plan
- e) Written request of landowner (or other entity) to leave road unreclaimed – If applicable
- f) Written consent of landowner to leave buildings or facilities intact – If applicable

*W.S. § 35-11-406(b)(xix); W.S. § 35-11-406(b)(v); W.S. § 35-11-406(b)(iv); WYLQD-NC Ch.2 Sec.2(b)(i-iii); WYLQD-NC Ch.3 Sec.2(i)(vii); WYLQD-NC Ch.3 Sec.2(j)(ii)*

## **J. RECLAMATION COSTS (SEE GUIDELINE 12)**

Detailed itemized cost estimate for completion of site reclamation in accordance with the reclamation plan computed according to established engineering methods

*W.S. § 35-11-406(b)(vi)*

## **K. RESULTS OF CONSULTATION WITH THE LOCAL CONSERVATION DISTRICT – IF PURSUED**

Detail the results of consultation with the local conservation district with regards to reclamation.

*WYLQD-NC Ch. 2, Sec. 1(e)*

## V. REFERENCE GUIDELINE

### ADJUDICATION

#### A. FORM 1

W.S. § 35-11-406  
 W.S. § 35-11-406(a)(xii)  
 W.S. § 35-11-406(a)(ii-iii)

#### B. FORM 3

W.S. § 35-11-410(B)  
 W.S. § 35-11-410(B)(II)  
 W.S. § 35-11-410(B)(VI)

#### C. RECLAMATION BOND

W.S. § 35-11-401(E)(VII)  
 W.S. § 35-11-417(C)(I)  
 W.S. § 35-11-416(A)  
 W.S. § 35-11-417(B)  
 W.S. § 35-11-418  
 WYLQD-NC CH.6 SEC.2(A)  
 W.S. § 35-11-410(C)  
 W.S. § 35-11-401(E)(VII)  
 W.S. § 35-11-410(C)  
 W.S. § 35-11-416(A)  
 W.S. § 35-11-417(C)(I)  
 W.S. § 35-11-418  
 WYLQD-NC CH.6 SEC.2(A)

#### D. CERTIFICATE OF PUBLIC LIABILITY INSURANCE

W.S. § 35-11-406(a)(xiii)

#### E. LANDOWNER CONSENT

W.S. § 35-11-406(b)(xi-xii), W.S. 35-11-406(m)(viii)

#### F. APPENDIX A (FOR LANDS WITHIN THE PERMIT AREA).

W.S. § 35-11-406(a)(iv)  
 W.S. § 35-11-406(a)(ix)(A)

G. APPENDIX B (FOR LANDS ADJACENT TO THE PERMIT AREA)

W.S. § 35-11-406(a)(v)  
W.S. § 35-11-406(a)(ix)(A)

H. APPENDIX C

W.S. § 35-11-406(a)(vi)(A-D)  
W.S. § 35-11-406(a)(ix)(C)  
W.S. § 35-11-406(a)(viii)

I. APPENDIX E (APPENDIX D, DESCRIPTION OF THE LAND IS DETAILED IN SECTION II)

W.S. § 35-11-406(a)(ix)

J. PROOF OF FILING

W.S. § 35-11-406(d)

K. PROOF OF NOTICE

W.S. § 35-11-406(g)

L. PROOF OF PUBLICATION

W.S. § 35-11-406(j)

M. PROOF OF NOTIFICATION

W.S. § 35-11-406(j)

N. WRITTEN VERIFICATION OF CITY OR COUNTY (APPROPRIATE ZONING OR PLANNING DEPARTMENT)

WyLQD Guideline 4

O. LISTING OF OTHER PERMITS OR CONSTRUCTION APPROVALS

- Wyoming DEQ Solid and Hazardous Waste Division (307) 777-7752)
- EPA Region VIII, Denver, Colorado (800) 227-8917
- Wyoming DEQ Water Quality Division (307) 777-7781
- EPA Region VIII, Denver Colorado (800) 227-8917
- Wyoming DEQ Air Quality Division (307) 777-7391

- US Army Corp of Engineers, Omaha District, Wyoming Regulatory Office, Cheyenne, Wyoming (307) 772-2300
- Radioactive Materials, U.S. Nuclear Regulatory Commission Source Material License; (NRC Regional Office, Arlington, Texas (817) 860-8100
- State Engineers Office, Cheyenne, Wyoming (307) 777-6150)

## APPENDIX D - DESCRIPTION OF THE LAND

### A. APPENDIX D-1 - LAND USE

WyLQD-NC Ch.2 Sec.2(a)(i)(A)

### B. APPENDIX D-3 - ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES (SEE GUIDELINE 11, GUIDELINE FOR REPORTING CULTURAL AND PALEONTOLOGICAL RESOURCES WITHIN MINE PERMIT AREAS)

WyLQD-NC Ch.2 Sec.2(a)(i)(J)

### C. APPENDIX D-4 - CLIMATOLOGY

W.S. § 35-11-406(a)(vii)  
WyLQD-NC Ch.2 Sec.2(a)(i)(C-D)

### D. APPENDIX D-5 - TOPOGRAPHY, GEOLOGY, AND OVERBURDEN ASSESSMENT (SEE GUIDELINE NO. 1, SOILS AND OVERBURDEN)

W.S. § 35-11-406(a)(vii)  
WyLQD-NC Ch.2 Sec.2(a)(i)(F)(I)  
WyLQD-NC Ch.2 Sec.2(a)(i)(F)(IV)

### E. APPENDIX D-6 - HYDROLOGY (SEE GUIDELINE NO. 8, HYDROLOGY)

W.S. § 35-11-406(a)(vii)  
W.S. § 35-11-406(a)(ix)  
WyLQD-NC Ch.2 Sec.2(a)(i)(G)(I-II)  
WyLQD-NC Ch.2 Sec.2(a)(i)(H)  
WyLQD-NC Ch.2 Sec.2(a)(i)(I)(I)  
WyLQD-NC Ch.2 Sec.2(b)(iii)(D)

## F. APPENDIX D-7 - SOIL ASSESSMENT (SEE GUIDELINE 1, SOILS)

W.S. § 35-11-406(a)(vii)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(II)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(II)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(II)  
 W.S. § 35-11-406(a)(vii)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(III)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(III)

## G. APPENDIX D-8 - VEGETATION INVENTORY (SEE GUIDELINE 2, VEGETATION)

W.S. § 35-11-406(a)(vii)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(B)

## H. APPENDIX D-9 – WILDLIFE (SEE GUIDELINE 5, WILDLIFE)

W.S. § 35-11-406(a)(vii)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(E)(I); WyLQD-NC Ch.2 Sec.1(f)

## I. APPENDIX D-10 – WETLANDS

## J. APPENDIX D-11 - PREMINING RADIOLOGICAL ASSESSMENT

WyLQD Guideline 3

## MINE PLAN

## A. GENERAL DESCRIPTION OF MINING OPERATION

WyLQD-NC Ch.2 Sec.2(b)(i)(A)  
 WyLQD-NC Ch.2 Sec.2(a)(i)(F)(IV)

## B. MINING METHOD AND SCHEDULE

WyLQD-NC Ch.2 Sec.2(b)(iii)(A)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(G)  
 WyLQD-NC Ch.3 Sec.2(k)(ii)(A)(II)

## C. MINING HYDROLOGY (SEE GUIDELINE NO. 8)

WyLQD-NC Ch.2 Sec.2(b)(iii)(D)  
 WyLQD-NC Ch.3 Sec.2(e-f)  
 WyLQD-NC Ch.3 Sec.2(h)(i)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(V)

## D. REFUSE DISPOSAL

WyLQD-NC Ch.2 Sec.2(b)(iii)(I)

## E. PUBLIC NUISANCE AND SAFETY

W.S. § 35-11-406(b)(xiii)

## F. MILL AND TAILINGS DISPOSAL SYSTEM

WyLQD-NC Ch.2 Sec.2(b)(iii)(F)  
 WyLQD-NC Ch.3 Sec.2(h)(i); WyLQD-NC Ch.3 Sec.2(h)(i)

## G. COMPLIANCE DOCUMENTATION

## RECLAMATION PLAN

## A. POSTMINING LAND USES

W.S. § 35-11-406(b)(i); WyLQD-NC Ch.2 Sec.2(b)(iii); WyLQD-NC Ch. Sec.2(a)

## B. CONTOURING PLAN FOR AFFECTED LANDS

W.S. § 35-11-406(b)(ii)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(I)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(I)  
 W.S. § 35-11-406(a)(vii)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(II)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(V)

## C. SURFACE PREPARATION FOR TOPSOIL OR SUBSOIL REPLACEMENT

W.S. § 35-11-406(a)(viii)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(A)  
 W.S. § 35-11-406(a)(ix)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(A)

WyLQD-NC Ch.2 Sec.2(b)(iii)(A)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(A)

D. REVEGETATION PRACTICES (SEE GUIDELINE NO. 2)

W.S. § 35-11-406(b)(iii)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(C)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(C)

E. FINAL HYDROLOGIC RESTORATION

W.S. § 35-11-406(b)(xv)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(B)(III)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(I)  
 WyLQD-NC Ch.2 Sec.2(b)(iii)(E)(III)  
 WyLQD-NC Ch.3 Sec.2(f)(ii)

F. SPECIAL RECLAMATION STANDARDS

G. DECOMMISSIONING, STABILIZATION, AND RECLAMATION OF MILL SITE AND TAILINGS DISPOSAL SYSTEM

WyLQD-NC Ch. 2, Section 2(b)(iii)(F), Chapter 3, Section 2(h)

H. SITE PROTECTION MANAGEMENT PLAN

I. RECLAMATION SCHEDULE - ANNUAL PROGRESS OF RECLAMATION IN ACCORDANCE WITH MINE SEQUENCE MAP

W.S. § 35-11-406(b)(xix)  
 W.S. § 35-11-406(b)(v)  
 W.S. § 35-11-406(b)(iv)  
 WyLQD-NC Ch.2 Sec.2(b)(i-iii)  
 WyLQD-NC Ch.3 Sec.2(i)(vii)  
 WyLQD-NC Ch.3 Sec.2(j)(ii)

J. RECLAMATION COSTS (SEE GUIDELINE 12)

W.S. § 35-11-406(b)(vi)

K. RESULTS OF CONSULTATION WITH THE LOCAL CONSERVATION DISTRICT – IF PURSUED

WyLQD-NC Ch. 2, Sec.1(e)