



Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

February 11, 2008

Mr. Michael Thomas
Uranerz Energy Corporation
1701 East "E" Street
P.O. Box 50850
Casper, WY 82605-0850

**RE: Nichols Ranch In Situ Recovery Mining Permit Application,
TFN 4 2/284**

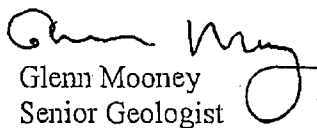
Dear Mr. Thomas:

Enclosed is a consolidated review memo containing comments from the Land Quality Division staff's review of the above application. As noted in the memo, these reviews found the application **Incomplete** as per W. S. § 35-11-406(e). This memo is chiefly concerned with the completeness review. A much more detailed technical review will follow, after the receipt of responses to these comments.

If you have any questions concerning any comment in this memo, please feel free to contact me or the author of the comment in question.

A digital copy of this memo can be emailed to you upon request to aid in your reply.

Sincerely,


Glenn Mooney
Senior Geologist

\gm

Enclosure

Cc: Cheyenne File w/enc.
NRC-MD w/enc.

Uranerz\ev\let.8gm

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AIR, LAND AND WATER DIVISIONS
(307) 673-9337 • FAX (307) 672-2213



Mark
2/11/08

MEMORANDUM

To: File, Uranerz Energy Corporation's Nichols Ranch ISL Project, TFN 4
2/284

From: Glenn Mooney, Senior Geologist *GM*

Date: February 11, 2008

Subject: First Consolidated Completeness and Technical Reviews

Introduction

On December 7, 2007, Uranerz Energy submitted an application under cover of Mike Thomas' letter of November 30, 2007, to conduct in situ recovery uranium mining. The proposed permit area covers 3,370.53 acres in Campbell and Johnson counties.

Reviews of this application were carried out by Larry Barbula, Deanna Hill, Glenn Mooney, Stacy Page, David Schellinger, Jon Sweet and Mark Taylor. Their initials follow each of their comments.

Reviews were carried out primarily for completeness as per W.S. § 35-11-406(e). Some technical review comments are also included.

Review

Completeness

Adjudication

1. Form 1UIC, Permit to Mine
Acceptable. (DH)
2. Form 3, License to Mine
Acceptable. (DH)
3. Fees, Permit and License to Mine
Acceptable. (DH)

*MJR
2/11/08*

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4. Appendix A, Surface and Mineral Owners Within Permit Area

Acceptable. (DH)

5. Appendix B, Adjacent Surface Owners

Acceptable. (DH)

6. Surface Owner Consent

a. Surface owner consent is required from the following:

- i. Jesse Dale Ruby Revocable Trust
- ii. Max L. Ruby Revocable Trust

The minerals underlying the surface owned by the above Trusts are owned by Ruby Minerals., L. P. at the same address as the surface owners. However, they appear to be three distinct legal entities and certification is needed that the Trusts and Ruby Minerals are one and the same. (GM)

b. Surface owner consent has been provided by Patricia Clark signing for T-Chair Land Company and a Form 8 lists 22 tracts in five sections. However, my review has found that there are a number of other tracts listed as owned by T-Chair for which consent is still needed. They are:

- i. Lot 4, Section 6, T.43N., R.75 W.
- ii. Lots 1 and 2, E $\frac{1}{2}$ NW $\frac{1}{4}$ Section 7., T.4N., R.75W.
- iii. Lots 14, 15, 16, 17, 18 and 19, Section 30, T.44N., R.75W.
- iv. Lots 8, 9, 16 and 17, Section 30, T.44N., R.75W. (GM)

7. Appendix E

No suitable Appendix E map was provided. An Appendix E map as required by W.S. § 35-11-406(a)(ix) must include the following:

A map based upon public records showing the boundaries of the land to be affected, its surrounding immediate drainage area, the location and names, where known, of all roads, railroads, public or private rights-of-way and easements, utility lines, lakes, streams, creeks, springs, and other surface water courses, oil wells, gas wells, water wells, and the probable limits of underground mines and surface mines, whether active or inactive, on or immediately adjacent to the land to be affected. The map shall also show:

(A) The names, last known addresses and boundary lines of the present surface landowners and occupants on the adjacent land to be affected; (This is fulfilled by the maps submitted for Appendices A and B and need not be duplicated.)

(B) The location, ownership, and uses of all buildings on, or on lands adjacent to, the land to be affected;

(C) An outline of all areas previously disturbed by underground mining or that will be affected by future underground mining as a guide to potential subsidence problems;

(D) Any political boundaries of special districts on or near the land to be affected;"

The maps submitted did not show any of the new roads, existing oil and gas wells, or proposed coal bed methane wells, powerlines and pipelines.

The maps provided did show the locations of the first year's operations, but omitted much of the above, along with depiction of townships and ranges. There is no need to show the locations of the orebodies or the plant building on these maps.

It is recognized that the proposed permit areas are currently undergoing intensive coal bed methane production development. Uranerz should commit to providing updated Appendix E maps at a future date just prior to going to public notice.

(GM)

8. Access Roads

To reach the proposed permit areas, considerable lengths of existing roads crossing private lands are proposed to be used. Signed access agreements with the owners of those lands are required that show Uranerz has permission to use those roads. (GM)

Appendix D-1, Land Use

9. Sections D-1 is complete. (SP)

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Appendix D-2, History

10. Appendix D-2 is complete. (GM)

Appendix D-3, Archeology

11. Information was submitted that shows that most of the proposed permit areas have had archeological surveys. However, Exhibit D3-1 shows that the W $\frac{1}{2}$ SW $\frac{1}{4}$ of Section 5, T. 43N., R. 75W., the Hank property, has not been surveyed. Please provide an archeological survey of those lands or explain why not. (GM)

Appendix D-5, Geology

12. The geology section is complete. (MT)

Appendix D-6, Hydrology

13. I find the surface water section complete, (LB)
14. The groundwater hydrology section is complete. (MT)

Appendix D-7, Soils

15. Appendix D-7 is complete.

Appendix D-8, Vegetation

16. Section D-8 is complete. (SP)

Appendix D-9, Wildlife

17. The Wyoming Game and Fish Department has been notified of the application (GM)

Appendix D-10, Wetlands

18. Appendix D-10 is complete. (GM)

Appendix D-11, Radiological Surveys

19. Appendix D-11 is complete for the purposes of the Land Quality Division. (GM)

Technical Review

General Comment

20. Please provide labels for all map pockets. (MT)

Adjudication

21. Please provide at the front of the Adjudication Volume (Volume 1) an 8.5"x11" map (similar to Figure D1-1) which shows the entire permit boundary (i.e., Nichols Ranch Unit and Hank Unit) including the proposed haul/access routes. (MT)
22. Appendix C, Legal Description of Permit Area
- a. Please resubmit pages C1 through C4 providing quarter quarter descriptions for all lot listings. (DH)
 - b. Please resubmit page C4 ensuring Section 31, T.44N., R.75W. and Section 5, T.43N, R.75W. are listed separately. (DH)
23. Surface Owner Consent
- a. Please submit all surface ownership in quarter quarter descriptions. (DH)
 - b. Please advise where the surface ownership is listed for Payne, Ruby and the federal government. (DH)
24. Reclamation Performance Bond

An acceptable bonding instrument must be submitted prior to permit approval.
(DH)

Appendix D-1, Land Use

25. Section D1.1.1, Land Resources, Page D1-1

A statement about the land uses in the proposed permit area over the past 20 years is required. Please state the past (last 20 years) and present land uses are Grazingland, and Fish and Wildlife Habitat, and Industrial. The list of livestock grazing, wildlife habitat, oil and gas development, and coal bed methane development should remain in this section as activities that support the land uses. (SP)

26. Land Use, Map D1-3

Map D1-3 – In addition to providing the proper land use designations provided under W. S. § 35-11-103(e)(i), as stated by Stacy Page, mapping of the current and past land uses are required. The current map D1-3 is not adequate for a land use map and should be replaced with one or more maps that show Industrial, Grazingland and Fish and Wildlife Habitat use on the proposed mine locations. (DS)

27. Appendix D-5, Geology

Please provide maps which illustrate general bedrock and surficial geology of lands within and an adjacent to the proposed permit area. I suggest a colorized map showing the Pumpkin Buttes Mining District (area 20-miles x 20-miles) with the Nichols Ranch Unit and Hank Unit. I suggest using available 1:100,000 USGS geologic maps as the basis for this information. (MT)

28. Appendix D-5, Geology

Please provide discussions of the stratigraphic unit in which will be used for disposal of brine. These discussions should include any water bearing units immediately above and below the "disposal" stratigraphic unit. Please note, recently EPA personnel have indicated that injection into the Lance Formation is no longer permitted. EPA encourages operators to look deeper to the Teapot, Parkman, Sussex or Shannon Formations as possible "disposal" stratigraphic units. (MT)

29. Appendix D-5, Geology

Please consider providing more detailed discussions as to the origin, geochemistry, and transport of the uranium ore deposits within the proposed permit area. (MT)

30. Appendix D5, Geology:

Please provide a diagrammatic cross-section of a multiple or stacked roll front which is bounded by overlying and underlying shales/mudstones. In addition, please provide a diagrammatic cross-section through a typical crescent-shaped roll front. This diagram(s) should illustrate such features as the unaltered sand zone, direction of convexity or groundwater flow path, proto-ore/ore zone (i.e. assay limits and upper and lower limbs), the "front", the bleached sand zone, and the altered sand (i.e., limonite and hematite zones). (MT)

31. Appendix D5, Geology

All hydrogeologic cross-sections should be scaled horizontally as well as vertically. (MT)

32. Geologic Cross-Sections, Exhibits D5-1 through D5-4

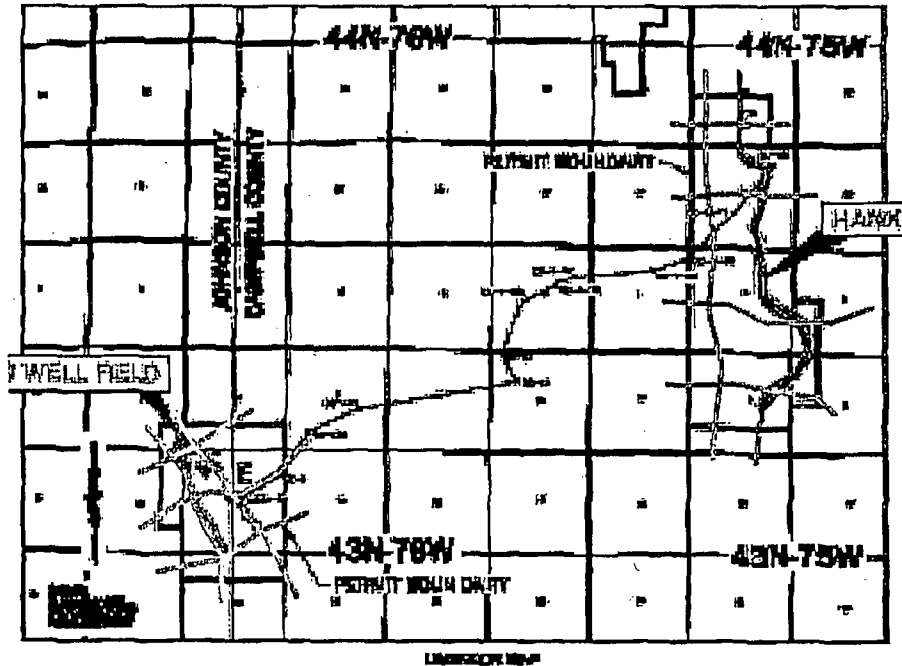
The geologic cross-sections must extend at least 500 feet beyond the edges of the ore zones, to cover the areas where the perimeter monitor wells would be installed. Exhibits D5-3 and D5-4 are clearly deficient in this area, not even covering the extents of the ore zones. (GM)

33. Appendix D5, General

All geologic work (including all cross-sections and maps) must be certified by a Professional Geologist (ref: W.S. § 33-41-101 through 33-41-121). (MT)

34. Appendix D5, General

Please provide hydrogeologic cross-sections for the entire permit area. My suggestions for providing minimal density are shown as blue lines on the map insert below. (MT)



35. Appendix D5, General

Please provide lithologies on all drillholes/wells used to create the geologic cross-sections. (MT)

36. Appendix D5, General

Please illustrate any coal/carbonaceous shale units on geologic cross-sections. (MT)

37. Appendix D5, General

Please provide isopach maps (10-ft contour interval) of the underlying sand, underlying shale/mudstone, production zone sand, overlying shale/mudstone, and overlying sand. (MT)

38. Appendix D5, General

If possible, Uranerz should provide digital copies of all of the geophysical logs for all pilot holes associated with the observation and pump wells within the proposed permit area. (MT)

Appendix D-6, Hydrology

39. Table D6A.1-1, Surface Water Quality

All surface water analysis results presented were gathered in 1978 and 1979. Given the Coal Bed Methane development in the immediate area, potential for a changed surface water regime is high. Both flow volume and quality are typically affected by CBM. Uranerz must present documentation to verify that the surface water regime in this area remains similar to the 1978 setting.

If the surface water setting has changed from 1978 and 1979, data must be presented to characterize the surface water in the project area before construction and production are undertaken.

The applicant is urged to discuss the current surface water regime and a new sampling plan with the LQD prior to submitting responses. (LB)

40. Appendix D-6, Figure D6-1

Locate and label surface water sampling sites on this map. (LB)

41. Section D6.1.3, Surface Water Quality, Page D6-3

Please add a reference to Figure D6-1 as the map showing sampling sites. (LB)

42. Appendix D6, Section D6.2, Ground Water Hydrology

Please provide more in-depth discussions of the regional (i.e., southern Powder River Basin) groundwater flow and chemistry. At a minimum, these discussions should specifically include the Lewis Shale, Foxhills, Lance, Fort Union, and Wasatch Formations. In addition, please discuss current regional, current local and proposed operational groundwater uses. (MT)

43. Appendix D6, Hydrology, Site Hydrogeology

Baseline groundwater quality and quantity information must be provided for the entire proposed permit area. {ref: W.S. §35-11-428(a)(ii), Chapter 2, Section 2(a)(i)(H) and Chapter 11, Section 3(b)}. (MT)

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44. Appendix D6, Hydrology, Section D6.2.2.1, Aquifer Properties

Please provide specific details as to the pump test design, procedures and equipment. In addition, please provide copies of the actual well completion reports. (MT)

45. Appendix D6, Hydrology, Section D6.2.2.1, Aquifer Properties

Please provide documentation that mechanical integrity testing was conducted on all aquifer testing wells prior to conducting the pump tests. (MT)

46. Appendix D6, Section D-6.5, Exploration Drill Holes, Various Tables and Exhibits D6-7 and D6-8

Please revise the application to provide a list and map of **all** abandoned drill holes (including all historical holes drilled by other persons), giving location, depth, plugging procedures and date of drilled for each drill hole within the permit area and on adjacent lands to the extent such information is available in public records and from a reasonable inspection of the property. (MT)

47. Appendix D6, Potentiometric Surface




Please provide regional (i.e., southern Powder River Basin) maps which illustrate the historical (pre-CBM) and current (i.e. 2007) potentiometric surfaces for the 1, A, B, C, F, G and H sands. (MT)

48. Appendix D6, Potentiometric Surface

Please provide maps which illustrate the local pre-CBM potentiometric surfaces for the 1, A, B, C, F, G and H sands within and adjacent to the permit area. (MT)

49. Appendix D6, Baseline Groundwater

Please provide all information requested on the spreadsheets provided on our web page (http://deq.state.wy.us/lqd/Uranium_Data.htm).

Uranium Field Water Quality Data		Last Revised 9/14/07
Uranium Groundwater Level Data		Last Revised 9/14/07
Uranium Lab Water Quality Data		Last Revised 9/14/07

for all wells including the historical wells. LQD requires a digital and a hardcopy of this information. (MT)

50. Appendix D6, Table D6-2, Basic Well Data: These tables contain incomplete well information. Please provide all information requested on the well details spreadsheet provided on our web page (http://deq.state.wy.us/lqd/Uranium_Data.htm)

Uranium Well Details		Last Revised 9/14/07
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for all wells including the historical wells. LQD requires a digital and a hardcopy of this information. (MT)

Appendix D-7, Soils

51. Section D7.3.2, Soil Mapping Unit Interpretation, Page D7-4

Page D7-4 indicates that soil mapping units are specific to the project area. The mapping unit descriptions in D7-A indicate they are based on NRCS mapping units. Please further discuss the provided mapping units, and clarify components of the mapping units that are specific to the project. (JS)

52. Section D7.1.0, Introduction, Page D7-1

Page D7-1, first paragraph, indicates that the soils inventory is based on an Order 3 survey. Please clarify this statement because several statements later in the baseline indicate an Order 2 survey was conducted. (JS)

53. Section D7.3.3, Analytical Results, Page D7-9

Page D7-9 and the soils map indicate that sampling occurred in an expanded area than the proposed plant site. The map indicates that most of the sampling occurred considerably outside of the proposed plant site, especially for the Hank unit. Please elaborate on the applicability of this sampling. (JS)

54. Exhibit D7-1, Nichols Ranch Unit- Soils, Exhibit D7-2, Hank Unit, Soils

Exhibits D7-1 and D7-2 have very limited legends and their references to text for further information utilizes the terminology "soil type definitions" that does not exist in the text. Somehow this lack of clarity must be remedied. One suggestion is that the legend be revised to reference "soil series descriptions" or "soil mapping unit descriptions" beginning on the respective page of the permit. A better option is to expand the legend to include the mapping unit identification. (JS)

Appendix D-8, Vegetation

55. Table D8-1, Vegetation/Habitat Types..., Page D8-7

The sum of the column "No. of Acres for Vegetation/Habitat Type" is 3,365.8 acres. The proposed total permit acreage is 3370.53 acres; a 4.73 acre discrepancy from Table D8-1. Please make the necessary correction to Table D8-1 or to the proposed permit acreage to eliminate this discrepancy. (DS)

56. Section D8.4.0, Results, Page D8-8, 3rd paragraph

Please revise the text to show that Addendum D8B provides the plant species list, not Addendum D-B. (DS)

57. Addendum D8D, Correspondence with the U.S. Fish and Wildlife Service..., Pages D8D-11 through D8D-30

These pages should be removed from Appendix D-8 as they are related to wildlife and wildlife habitat assessment, not baseline vegetation sampling. Please move these pages to Appendix D-9. (DS)

58. Section D8.4.2.1, Sagebrush Shrubland Community, Page D8-22

Please correct the text to show 1.0% subshrubs, and 33.33% shrubs. (DS)

Mine Plan

59. Mine Plan, Pages MP-7 and MP-65

This text references a groundwater model, however no model was provided. Please provide in detail the proposed operation's groundwater flow simulation used to assess the monitoring well ring spacing. (MT)

60. Mine Plan, Section 3.1, Wellfield Design

Please provide very detailed well completion procedures. These procedures at a minimum should specific address the following:

- a) Type of drilling rig and specifications
- b) Drilling mud composition (trade names, additives, loss of circulation material, etc.) and weight
- c) Hole geophysical logging procedure

- d) Casing (include type, manufacture name, manufactures specification, I.D., O.H, wall thickness, burst pressure, collapse pressure)
- e) Cement slurry (composition, mix water quality and slurry weight and yield)
- f) Cements thickening time @ 70-degrees at 8 hrs, 12 hrs, 24hrs, 48hrs, 72hrs
- g) Casing cementing hardware (centralizers, float shoe, wiper plug)
- h) Hole conditioning practice prior to cementing in the casing
- i) Cement slurry mix procedures and equipment.
- j) Procedure used to displace cement from casing to annulus.
- k) Time waiting for cement to cure before re-entering casing
- l) Casing/well under-reaming (equipment, tools, procedure)
- m) Screens (include type, manufacture name, manufactures specifications, I.D., O.H, slot opening, burst pressure, collapse pressure)
- n) Gravel packing procedure (sand specifications)
- o) Packer assemblies (include type, manufacture name, manufactures specifications). (MT)

61. Mine Plan, Figure 3-1, Typical Injection/Recovery Well Construction Diagram and Figure 3-2, Typical Monitor Well Construction Diagram

I found several discrepancies between the proposed permit text and the well completion diagrams. (MT)

62. Mine Plan, Section 3.6, Mechanical Integrity Testing

Please provide very detailed MIT procedures similar to the specificity requested in Comment No. 60, above. (MT)

63. Section 3.11, Access Roads, Page MP-30

Page MP-30 notes that no stream crossing will occur on the new short access roads to the facilities areas; therefore no culvert sizing is required for these projects.

Secondary access roads are described as all weather roads with aggregate surfaces for access to well fields and header houses. Figures 3-15 and 3-16 show a potential to cross drainages. Well field road discussion also leaves open the possibility to cross drainages. Text on Page RP-18 also discusses culvert use.

As per WDEQ/LQD Noncoal Rules and Regulations, Ch.3, Sec.2(i), Drainage control structures are required as road construction progresses with culverts being installed at prominent drainage ways. Please add a permit commitment to submit

culvert designs to the LQD for approval prior to installation. LQD Guideline 8 criteria should be used for these designs. (LB)

64. Surface Water Monitoring

WDEQ/LQD Noncoal Rules and Regulations, Ch. 2, Sec. 2(b)(iii)(D) states that surface water monitoring during operations may be required. Final assessment of this requirement will be made by the LQD based on the applicant's response in Appendix D-6 to the request for information on the current surface water regime and current surface water monitoring. A plan to monitor surface water during operations may be required in the Mine Plan. (LB)

65. Section 3.11, Access Roads, Page MP-30

Please revise the mine plan to directly include the topsoil handling practices requested by the surface owner TA Ranch. The signed letter requesting the handling plans is not the best approach to permitting the various practices. (JS)

66. Section 3.12, Construction Considerations and Topsoil Handling, Page MP-31, Use of Vegetation in Temporary Stabilization

Please revise the temporary seed mix vegetation to include slender wheatgrass in this section and double the seeding rate to 14 lbs PLS as requested in Stacy Page's comments, Reclamation Plan, Item 2. (DS)

67. Section 3.12, Construction Considerations and Topsoil Handling

Topsoil salvage will be required from construction staging areas and drilling staging areas. Please add these areas to the discussion of topsoil salvage. (GM)

68. Section 3.12, Construction Considerations and Topsoil Handling, Page MP-31

My review of the baseline information suggests that the soil handling plans for the operation could be presented much more simply. It seems that an overall commitment to salvage to six inches of "topsoil" and an appropriate depth of "subsoil", depending on the actual construction practice involved, would provide for adequate salvage of resources. A commitment of this nature would protect the topsoil resource and would not require reference to the baseline materials to evaluate what is the better material. Six inches of topsoil may result in the salvage of a minor amount of subsoil along with the topsoil, but it is an easy and verifiable commitment. I also believe it mimics the surface owner's request, more or less, that the better materials be separately handled. (JS)

69. Section 3.12, Construction Considerations and Topsoil Handling, Page MP-31

The mine and reclamation plans appear to ignore several categories of disturbance requiring the salvage of topsoil and possibly subsoil materials. LQD Guideline No. 4, Attachment 3 lists several disturbance types that are not addressed in the application. This guidance is the result of protracted dialog between the ISR Industry and the LQD and should be the basis for handling plans. Please revise the text of the application to include soil salvage plans commensurate with the guideline. The categories of disturbances not currently addressed in the application are secondary access roads, header house locations, long and short term storage facilities, which include construction camps and storage areas. Please directly speak to each of these disturbances in the application. (JS)

70. Figure 3-13, Nichols Ranch Unit Flow Diagram

This figure depicts merely an outline of the plant building and the outline of some tanks within. It shows no equipment, piping or flow routes.

Please submit a detailed layout of the plant building showing pumps, tanks, columns, sumps and storage areas. Details on the floors and foundations are also needed, especially for bonding purposes. (GM)

71. Figure 3-14, Hank Unit Flow Diagram

This figure depicts merely an outline of the plant building and the outline of some tanks within. It shows no equipment, piping or flow routes.

Please submit a detailed layout of the plant building showing pumps, tanks, columns, sumps and storage areas. Details on the floors and foundations are also needed, especially for bonding purposes. (GM)

72. Header Houses

A design of a typical header house is required. The design must show layout, dimensions and foundation details. (GM)

73. Figure 1-3, Nichols Ranch Contour Map

The purpose of this map is unknown. All of the items depicted are shown elsewhere, often at a better scale. (GM)

74. Figure 1-3, Hank Unit Contour Map

The purpose of this map is unknown. Some features depicted on it, power lines, telephone lines, should have been depicted on the Appendix E map required above. (GM)

75. Figure 1-7, Nichols Ranch Unit, Proposed Monitor Well Locations

This map is too small a scale at 1"=2000' to depict any objects in a meaningful way. Please resubmit at a scale of not less than 1"=400'. (GM)

76. Figure 1-8, Hank Unit, Proposed Monitor Well Locations

This map is too small a scale at 1"=2000' to depict any objects in a meaningful way. Please resubmit at a scale of not less than 1"=400'. (GM)

77. Roads

The layouts of the wellfields require the location of monitor wells at some distances up on the slopes of North Middle Butte. Designs of roads that will allow all-weather access to these monitor wells are required. (GM)

78. Section 3.18.2, Annual Reporting, Page MP-85

Please move all of the discussion on this page that relates to excursion control and reporting to a section specific to excursions. An overview of excursion occurrences and control will still be expected in each Annual Report, however. (GM)

79. Spills

A section must be added to the Operations Plan to address the handling of the inevitable spills. This section should include:

- a. A discussion of maintenance, spill prevention and spill reporting.
- b. A management plan for handling of contaminated materials
- c. installation of flow alarms that would give early notice of leaks
- d. a program of daily inspection of all operating wellfields and header houses
- e. A commitment to provide in each year's Annual Report a map of areas affected by spills each report year, along with depiction of areas affected by previous years' spills (GM)

80. Class I Disposal Well(s)

A summary of the Class I waste disposal well(s) to be permitted through the Water Quality Division will be required for insertion into the Mine Plan as an appendix when the details are available.

Please commit to supplying this information. (GM)

81. Surge Capacity

Please demonstrate how routine and exceptional (excursion control) operations can continue when the deep disposal wells are taken down for the required routine and periodical testing. There appears to be no surge capacity in the system such as a pond or very large tank if the disposal wells are out of service for any reason. Figure 3-6 shows a surge tank in the plant building for this purpose but its size is not shown. Even a very large, 15,000 gallon tank, filled at the rate of 42 gpm, the acceptance rate for the deep disposal well shown on Figure 3-6, would suffice for less than six hours. (GM)

82. Waste Water

How will waste water within the plant generated by spills and routine cleaning be handled and stored? Please discuss. (GM)

Reclamation Plan

83. Section 3.2.2, Wellfield Access Roads, Page RP-15, Last Paragraph

Well field roads should have topsoil stripped prior to addition of scoria and gravel, and should also have topsoil replace prior to ripping and seeding. Please make the appropriate changes to reflect topsoil replacement. (DS)

84. Section 3.3, Topsoil Handling and Replacement, Page RP-16.

Please reference Section 3.6 for the temporary seed mix in this section and place the seed mix in a table before or after the permanent seed mix in Section 3.6. Please double the seeding rate to 14 lbs PLS because the purpose of the temporary seed mix is to make sure that you get a good cover of desirable plant species established for erosion and weed control. I recommend that you add slender wheatgrass to the western and thickspike wheatgrass for the temporary seed mix because it is a quick establisher. (SP)

85. Section 3.3, Topsoil Handling and Replacement, Page RP-16, Second Paragraph

Please revise the temporary seed mix vegetation to include slender wheatgrass in this section and double the seeding rate to 14 lbs PLS as requested in Stacy Page's comments, Reclamation Plan, Item 2. (DS)

86. Section 3.3 Topsoil Handling and Replacement, Page RP-16

Please add the sentence that the topsoil stockpiles will be seeded no later than the first fall or spring seeding season after stockpiling. (SP)

87. Section 3.5, Erosion Control Practices, Page RP-17

It is essential for cheatgrass and other noxious weed control that all disturbed areas and not just reclaimed areas, be seeded in the first seeding season after disturbance. It would also be helpful to seed immediately after completion or if the project is interrupted and will not be completed for more than a month. Please add to the last sentence of the first paragraph that "Seeding of reclaimed areas with the permanent seed mix will take place during the first appropriate growing season, spring or fall, after completion of a project. Disturbed areas that will not be reclaimed immediately and temporary structures such as berms will be seeded with a cover crop or Temporary Seed Mix during the first appropriate growing season, spring or fall, following disturbance." (SP)

88. Section 3.5, Erosion Control Practices

Virtually all of this section discusses project construction and/or operational issues. This section should be moved to the Mine Plan.

The portion of the discussion about reseeding could easily be moved to Section 3.6. Please revise. (LB)

89. Section 3.5, Erosion Control Practices, Page RP-17

On Page RP-17 in the second paragraph a statement is made that "In the event that surface runoff flows are impeded by facilities, culverts and diversion ditches will be implemented to control runoff and excessive erosion." The next paragraph discusses construction of energy dissipaters.

WDEQ/LQD Noncoal Rules and Regulations, Ch.2, Sec.2(b)(iii)(D) requires prior permitting of diversion systems. Please add a permit commitment to submit

designs for hydrologic control structures for approval by the LQD prior to installation. (LB)

90. Section 3.5, Erosion Control Practices, Page RP-17

The first paragraph references a cover crop. Please reference Section 3.6 and add a list and seeding rate for cover crops in Section 3.6. (SP)

91. Section 3.5, Erosion Control Practices, Page RP-18, Third Paragraph

Please reference the comment under the Reclamation Plan, Item 4 of Stacy Page's comments and state that a cover crop or temporary seed mix will be used if permanent seeding will be delayed for more than one month. Use language similar to that proposed by Stacy Page: "Seeding of reclaimed areas with the permanent seed mix will take place during the first appropriate growing season, spring or fall, after completion of a project. Disturbed areas that will not be reclaimed immediately and temporary structures such as berms will be seeded with a cover crop or Temporary Seed Mix during the first appropriate growing season, spring or fall, following disturbance." (DS)

92. Section 3.6, Vegetation Reclamation Practices, Page RP-20

Please add text to indicate that grazing will be excluded following reclamation seeding for a minimum of two (2) years to allow improved establishment of vegetation cover with minimized grazing pressure. (DS)

93. Section 3.6, Vegetation Reclamation Practices, Page RP-20.

The second paragraph should contain a commitment that a sampling plan for measuring revegetation success will be submitted and approved by LQD prior to sampling. (SP)

Conclusions

Review of the application found that it is **Incomplete** as per W.S. § 35-11-406(e). A number of technical comments are also included.

/gm