



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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February 18, 1994

Mr. Jay Marshall
Castle Valley Resources
P. O. Box 1282
Huntington, Utah 84528

Re: Inadequate Responses to Mid-Term Review, Castle Valley Resources Inc., Wellington Prep Plant, ACT/007/012, Folder #3, Carbon County, Utah

Dear Mr. Marshall:

The Division has completed a review of the information provided over the last few months in response to the Wellington Mid-Term Review. Our review indicates that a large number of the deficiencies identified during the Mid-Term review have now been adequately addressed. However, a large number of deficiencies still remain in the Wellington Plan. This is cause for great concern especially in light of the mutually agreed upon schedule for deficiency resolution which has now expired.

You should be made aware that the Wellington Permit expires on December 10, 1994. It is critical that any remaining deficiencies be corrected prior to the date the renewal is due.

Enclosed is a copy of the Division's review document which outlines the remaining deficiencies. Please review it carefully. Castle Valley Resources must adequately address the remaining deficiencies as quickly as possible. Failure to adequately respond may result in enforcement action. Please provide a response by May 2, 1994.

If you have any questions, please don't hesitate to call. We look forward to hearing from you.

Sincerely,

A handwritten signature in cursive script that reads "Daron R. Haddock".

Daron R. Haddock
Permit Supervisor

Enc.

cc: S. Falvey
J. Smith
W. Western
P. Baker
H. Sauer
Patrick Collins (Mt. Nebo)

MID-TERM REVIEW DEFICIENCIES RESPONSE

CASTLE VALLEY RESOURCES WELLINGTON PREPARATION PLANT ACT/007/012

February 11, 1994

GENERAL OVERVIEW

This document discusses issues that were identified in the Division's Mid-Term Review dated September 30, 1992. Responses were received from Castle Valley Resources on 2/12/92, 3/26/93, 6/25/93, 9/24/93 and 12/10/93 in accordance with a predetermined schedule.

Discussed in this document are items that have not been adequately addressed. Remaining deficiencies have been identified and are listed. All previously identified deficiencies which do not appear in this document are considered addressed.

R645-301-120 **Permit Application Format and Contents.**
Be clear and concise; and Current.

Previously Identified Deficiencies:

5. *Clearly state what operations are proposed for this 5 year term. Make all references to past, present, and future proposed operations clear and consistent throughout the plan.*
7. *The permit area should be correctly reflected on all maps.*

Response and Analysis: **General**

5. The response for this deficiency was not addressed within the memo. The Operator did not clarify present use of the existing facilities within the description of the facilities Section 5.26.
7. Map G9-35-10, as well as others incorrectly illustrates the permit area. **This deficiency was not addressed here.**

Newly Identified Deficiencies:

10. The Permittee has moved the label for the Bridge on Exhibit E9-3341(12/10/93). The bridge, the Operator is considered responsible for, is located at the north west portion of the site. Not, on the county road. The Permittee has adjusted the permit boundary in this area so that it no longer includes the bridge.
11. The Permittee does not provided labels that are clear and easy to locate on the presented Exhibit E9-3341(12/10/93). No north arrow is shown

and, the map is not certified. The label "X " described as the course refuse pile could not be located. However, both course refuse piles are shown under other labels on Exhibit E9-3341(12/10/93).

The Siaperas Ditch label "Y" on map E9-3341(6/25/93) could not be found. Other labels are present but, are in some cases difficult to locate. The labels are easier to read on revision 6/25/93 than revision 12/10/93.

12. The Permittee has not identified the location of the Septic Tank and Drain Fields.

Remaining Deficiencies:

5. The Permittee did not clearly identify the present use of existing structures. Specifically, present and past use should be described in the existing facilities description Section 5.26.
7. Illustrate the correct permit area on Map G9-35-10.

New Deficiencies:

10. The Permittee should justify why the label of the bridge and permit boundary have been moved or, retain the previously approved information on Exhibit E9-3341.
11. The Permittee must provide labels that are clear and easy to locate on Exhibit E9-3341(12/10/93). North arrows and map certification must be provided.
12. The Permittee must identify the location of the Septic Tank and Drain Fields on map E9-3341.

R645-301-233 Topsoil Substitutes and Supplements.

The Permittee has not adequately demonstrated that the proposed substitute topsoil material within the borrow area depicted on Map E9-3341 will meet the requirements of R645-301-233. Topsoil Substitutes and Supplements.

The Permittee has not provided adequate soil survey information for the portions of the proposed borrow area which will be disturbed {R645-301-222. Soil Survey, Division Guidelines for the Management of Topsoil and Overburden Page 2 A(1)}.

The Permittee has not adequately characterized the suitability or the volumetric availability of the borrow material. For example, the proposed Mining and Reclamation Plan describes the removal of approximately 211,800 cubic yards from the proposed borrow area (i.e. excavation depth = 1.6 feet X excavation area = 82.4

acres). Given the requirement of four feet of suitable cover over coal mine waste (R645-301-553.252), the slurry ponds alone would require approximately 871,200 cubic yards of material (i.e. cover depth = 4.0 feet X slurry ponds area = 135 acres). This would require the borrow area to be excavated to a depth of approximately 6.6 feet. In addition, the Permittee must consider the suitability of the material which is to remain within the proposed borrow area and act as the plant grow medium for final reclamation after topsoil excavation activities.

Remaining Deficiency:

1. The Permittee must adequately characterize the suitability and volumetric availability of the borrow material.

R645-301-240 Reclamation Plan

Deficiencies from Mid-Term Review:

1. *The MRP should state the total area requiring topsoil and the volume of topsoils and substitutes required to achieve the reclamation plan.*
2. *The MRP should also provide information on the depth of borrow disturbance, acreage of disturbance, quality of material obtained, as well as the ability of subsoils remaining to be reclaimed.*

Response and Analysis:

The plan says that the topsoil borrow area is shown on Drawings E9-3339 and E9-3341. Drawing E9-3339 shows several different borrow areas with a total area of about 203 acres. Drawing E9-3341 only shows one borrow area which has an area of about 82 acres. To clarify the status of the borrow areas shown on Drawing E9-3339, either this drawing or the text of the plan should explain that not all of the borrow areas on this map are proposed to be used but that the areas shown are those that have been investigated for suitability.

The response does not show the total area requiring borrowed topsoil, but the area can be calculated with the information given. Total topsoil volumes for each area are shown. The total amount of topsoil required from the borrow area for all areas is 211,800 cubic yards. According to my calculations, there would be about a 1000 cubic yard surplus obtained by stripping 1.6 feet from the 82.4 acre borrow area.

The response also states that the depth removed from the borrow area should not affect the revegetation potential of the remaining soil. There will be an adequate depth and quality remaining to successfully reestablish viable plant communities on these soils according to communications with the Soil Conservation Service.

The plan does not contain adequate information on the current and planned

postmining land uses of the borrow areas to determine if revegetation to a cropland postmining land use is feasible. Some of the area from which topsoil would be taken are croplands which might be irrigated. If these areas are irrigated, what will be the effects of lowering them 1.6 feet? Would excess irrigation water be able to drain from the fields? Even if the fields are not irrigated, will it still be possible to operate harvesting equipment and other machinery on them?

Requirements discussed below to cover coal refuse with at least four feet of non-toxic, noncombustible material may increase the depth to which soil is borrowed or the extent of the required borrow area. If either of these is used as an option to cover the refuse, the suitability of the additional soil and the reclaimability of the areas from which it comes must be addressed.

Remaining Deficiencies:

1. The plan needs to clarify the status of the borrow areas shown on Drawing E9-3339. The text or the map needs to contain a qualifying statement about this map that shows which borrow area is proposed to be used.
2. The plan needs to give more detail on the effects of borrowing soil from the cropland areas. It needs to show that the postmining topography is compatible with a cropland postmining land use.

R645-301-242 Soil Redistribution

Deficiency from Mid-Term Review:

1. *Please provide an estimated depth of ripping of the redistributed or regraded surface to be reclaimed (Section 2.42). The depth estimated will provide a performance standard during final reclamation.*

Response and Analysis:

Compacted soils in the surface facilities area will be ripped to a depth of 12-inches before receiving topsoil. Soil ripping may be implemented in the slurry pond area if heavy equipment used for reclamation to distribute materials compacts the area. Commitments to rip other areas have been deleted from the plan.

Compaction is commonly a limiting factor in plant reestablishment on reclaimed sites. It becomes a problem in nearly any area where rubber-tired machinery operates. I anticipate that compaction mitigation will be needed on most or all of the reclaimed areas. Unless bulk density tests show that it is not needed, I recommend that CVR commit to rip all of the regraded areas both before and after soil distribution. Minimally, CVR needs to commit to conduct bulk density tests, such as with a

portable penetrometer, to determine if ripping is needed.

Remaining Deficiencies:

1. At a minimum, CVR needs to commit to conduct bulk density tests of regraded soil and spoil to determine where compaction mitigation, such as ripping, is needed. It is recommended that all areas be ripped prior to soil distribution and that soiled areas be ripped prior to seeding.

R645-301-341.210 Revegetation Species

Deficiencies from Mid-Term Review:

1. *The plan must show where the two seed mixes will be used.*
2. *Mat saltbush must be included in the shadscale-galleta community seed mix.*
3. *The Operator must commit to planting seed and nursery stock of adapted ecotypes or varieties where these materials are available.*
4. *The plan must contain a revegetation plan for riparian areas to restore critical wildlife habitat.*
5. *Plans for planting trees, shrubs, and hedges to provide wildlife habitat diversity as part of the crop management practices and industrial postmining land use must be detailed to include species and planting arrangements. It is recognized that it may not be possible to specify these plans at this time. Although the general concept of planting trees, shrubs, and hedges to provide wildlife habitat is approvable, the specific plans cannot be approved until they are received.*

Response and Analysis:

CVR has revised Map F9-178, 179 to show where the two seed mixes will be used. Although it is possible to tell where the mixes will be used on most of the area, the boundaries between the areas that will receive mix A and mix B are not clear in some locations. For example, part of the lower portion of the upper slurry pond will be planted with mix A and part with mix B, but there does not appear to be any kind of boundary on the map that delineates the use of the mixes. The boundary is also unclear near the railroad tracks between the surface facilities and Ridge Road. This

map should be revised to show more clearly where these mixes will be used. Also on this map, it is impossible to tell exactly where the Sarcobatus/Suaeda Reference Area is located. This is discussed below.

CVR has included mat saltbush in the shadscale/galleta community seed mix.

The Operator has committed to planting seed and nursery stock of adapted ecotypes or varieties where these materials are available.

The plan does not yet contain a revegetation plan for riparian areas, but it contains a commitment to sample the vegetation in an undisturbed riparian area and to develop a reclamation plan based on this sampling.

The plan does not include details of how greenbelts, trees, hedges, etc., would be planted. It states that the plans can only be formalized when it becomes known what type of industry will be possible in the area under the scenario of changing the postmining land use to industrial. The deficiency recognized that it might not be possible to provide greater detail on these plans until after the Division approved an alternative postmining land use. Until that happens, the plans to return the site to native vegetation need to remain.

Remaining Deficiency:

1. The plan needs to clearly show where the two seed mixes will be used. If Map F9-178, 179 is to be used for this purpose, it should be revised.

R645-301-341.230 Mulching Techniques

Deficiency from Mid-Term Review:

1. *Straw mulch must be applied at the rate of 1.5 to 2 tons per acre unless the Operator demonstrates that the use of less mulch is just as effective for erosion control and seedling establishment at this site.*

Response and Analysis:

Most of the area will be mulched with certified noxious weed free straw or hay at the rate of two tons per acre. The only area where the rate was not increased is the slurry pond basin area. This may be an oversight. The mulching rate should be increased to 1.5 to 2 tons per acre in the slurry pond area.

Remaining Deficiency:

1. The mulching rate should be increased to 1.5 to 2 tons per acre in the slurry pond area.

R645-301-341.250 Success Determination Measures

Deficiencies from Mid-Term Review:

1. *The plan must contain a monitoring schedule for determining success of final, including interim, revegetation.*
2. *The plan must propose standards for revegetation success. The Operator should work with the Division to coordinate field visit(s) to approve reference areas or range sites that might be used.*

Response and Analysis:

The proposal includes an acceptable schedule for monitoring revegetation success.

The proposal says that it is believed that U. S. Steel proposed reference areas in 1983. Sampling results from these areas were included in Section 3.11. Drawing F9-178, 179 has been revised to show the reference areas.

As stated above, it is impossible to tell from Drawing F9-178, 179 exactly where the *Sarcobatus/Suaeda* reference area is. Although it is probably located in the area where vegetation samples were taken near the railroad tracks, the map is not clear.

The 1984 Technical Analysis said that the *Sarcobatus/Suaeda* reference area was in poor range condition and that the Operator would manage it by fencing it to exclude grazing and improve the range condition. It also says that the range condition will be monitored in three to five years to determine the effectiveness of the management plan. I do not believe that there is any fenced area along the railroad tracks, and, because of the changes in ownership that have occurred since the TA was written, I do not believe that the commitment to monitor the reference area has been carried out.

Greasewood and seepweed (*Sarcobatus* and *Suaeda*) are not palatable plants, and their presence would lower the assessment of the range condition of a reference area. The greasewood/seepweed community is very common in this area. However, a reference area needs to be in at least fair condition as rated by the Soil Conservation Service. A site would need to have some desirable grasses and forbs rather than all shrubs. Unless the reference areas are in fair or better range condition, they cannot be approved for use as standards for revegetation success. CVR should recommit to have the reference areas checked by the SCS to see if they are in an acceptable condition. If they are not, options for improving the range conditions or changing the reference areas need to be evaluated.

The plan proposes that some of the area would be returned to cropland as the postmining land use. However, there is no cropland reference area or other standard

for success mentioned. R645-301-356.220 says, "For areas developed for use as cropland, crop production on the revegetated area will be at least equal to that of a reference area or such other success standards approved by the Division." The Division and CVR need to establish revegetation success standards for these areas. Rather than proposing a reference area, probably the simplest standard for success would be crop yield data for the past few years. This would be the equivalent of the baseline data method discussed in the guidelines.

If an industrial postmining land use is proposed sometime in the future, a different revegetation success standard will need to be proposed as well.

Remaining Deficiencies:

1. The Sarcobatus/Suaeda reference area needs to be shown more clearly on Drawing F9-178, 179.
2. CVR should recommit to have the Soil Conservation Service check the range condition of the reference areas. If either of them is in poor range condition, alternatives for improving the range condition or changing the reference area need to be considered.
3. The Operator needs to propose a standard for success for cropland.

R645-301-410 Land Use
R645-301-412 Land Use Reclamation Plan

Deficiencies from Mid-Term Review:

(from Priscilla Burton's review)

1. *Map E9-3343 should be revised to illustrate adjacent cropland and the MRP should describe this pre-mining land use within the MRP. ie, What crops are grown and at what production level and intensity of management?*
2. *The achievement of the cropland post-mining land use should be clearly described within the plan as to the post-mining cropland location and the proposed standards for reclamation success for this land use.*

(from Paul Baker's review)

1. *The plan must discuss which areas will be reclaimed to a cropland postmining land use, how the land use is to be achieved, and the necessary support activities that may be needed to realize this use.*

Response and Analysis:

The areas currently being used as cropland are shown on Drawing E9-3343.

Following reclamation, the farmers that are now using this land are expected to use the area as croplands.

The Division must assume that the croplands will not receive irrigation since the plan does not propose irrigation for any of the reclaimed areas. If irrigation is planned, it should be discussed in the revegetation plan.

As mentioned above, the plan needs to contain some indication of what crops would be planted. It also needs to discuss the current use of the land, such as what crops are being grown and at what level of management. For example, if the area is being used for alfalfa hay production, the plan should mention that alfalfa hay is being grown on this piece of land, it should discuss whether it is being irrigated, and it might discuss other management practices being used, such as weed control or fertilizer. This information is needed to evaluate the degree of management that would be used after mining.

Remaining Deficiencies:

1. The plan needs to contain some details on what crops would be planted on the area where cropland is the postmining land use.
2. The plan needs to discuss the current use of the cropland area. It should examine what crops are being grown and what management levels are being used.

R645-301-526
R645-301-526.100

Mine Facilities
Existing Structures

Applicant's Proposal:

Only a few modifications have been made to the existing buildings at the Wellington Preparation Plant. No modification or alteration of these facilities was required other than simple installation of a feed chute for transfer of the product into the system. It was proposed not to develop an engineering drawing for this slight alteration, but rather to construct on a field -fit basis.

In the future the Operator will remove the dryer building. Pertinent maps will be updated and a report to DOGM submitted when this is accomplished.

No mining and reclamation activities currently occur within 100 feet of a public road. Furthermore, none are expected in the future. DOGM will be notified in the event that this status changes.

Analysis:

The Applicant says that some building will be modified or removed. Before

modifying any buildings the Applicant must first submit detailed plans to the Division. The plans must include updated maps and construction schedules.

Removing the dryer buildings is part of the approved reclamation plan. Before demolishing and removing the building the Applicant must notify the Division of the time and sequence.

Remaining Deficiencies:

1. Before modifying any building the Permittee will update their Mining and Reclamation Plan. The updated MRP will include detailed plans, maps and drawings approved by the Division.
2. Before doing any reclamation work such as demolishing and removing the dryer building the Permittee will notify the Division to the time and sequence.

R645-301-542.1 Reclamation Time Table
March 25, 1993

Proposal:

The Operator submitted a new time table in response to Deficiency R645-301-542.

Analysis:

The Operator indicates the sedimentation controls will be removed West of the Price River, in year 3-5, when adequate vegetation is established. The Operator should include the remainder of the requirements as identified in R645-301-763.100.

The Operator should include the removal of monitoring wells within the reclamation time table. It is not clear if or when the Operator is proposing to fill in the siltation structures.

Newly Identified Deficiency:

1. In discussing the removal of siltation structures, all of the requirements of R645-301-736.100 must be included. The permittee must also include the removal of monitoring wells within the reclamation time table.

R645-301-553.250 Refuse Piles

Deficiencies from Mid-Term Review:

1. *The final slope angle for the Coarse Refuse Pile should be stated within*

the plan for performance standard evaluation during final reclamation.

2. *Castle Valley Resources must provide information to address the requirements for requesting less than four feet of cover over the spoil and refuse stored in the surface facilities area as per R645-301-553.252.*
3. *Information concerning the reclamation of the spoil pile located within the surface facilities area must be addressed in the MRP.:*

Operator's Response and Analysis:

The above deficiencies has been addressed in several new areas of the MRP. These areas are discussed in the new Section 5.53.

A revegetation plan was written and presented to DOGM in a previous submittal (12/1/91). This included a plan for the Coarse Refuse Pile. Subsequent to that submittal, DOGM required a revision of the bond estimate submitted for reclamation at Wellington (see Appendix J, May 1993). With few exceptions, one of the constraints of the bond estimates was that it needed to be based on an earlier, "previously approved" version of the reclamation and revegetation plan. This made the proposed 12/1/91 revegetation plan incompatible or inconsistent with the reclamation procedures that could be used to estimate the bond. The present submittal (dated 12/10/93) was written to make the revegetation techniques and cost estimates used for bond estimates of the reclamation plan consistent with the reclamation and revegetation plans described in other sections of the plan. (This included reclamation of the Coarse Refuse Pile and was approved by DOGM). Therefore Section 3.41 (12/10/93) replaced Section 3.41 (12/1/91).

It may be recommended, however, that some of the techniques written in the 12/1/91 revegetation plan be reconsidered by reevaluating the test plots on the property. This recommendation includes renovating the **Coarse Refuse Plot**. For more information about the test plots, refer to "Reclamation Test Plots." (Sec. 3.41 of the MRP.)

The new reclamation plan described above and approved by DOGM for the bond estimates commits to covering the lower slurry pond with 4 feet of cover and the upper pond area with 6 inches of topsoil. The coarse slurry will first be used as cover on the slurry pond, then the remainder covered with 6 inches of topsoil. The coarse slurry will first be used as cover on the slurry pond, then the remainder covered with 6 inches of topsoil. Refer to Appendix J (May 1993), Sec. 3.41 (12/10/93) and Sec. 2.22 (12/10/93) for details of the plan.

The bond estimates must be based on the approved reclamation plan. The reclamation plan must comply with all appropriate regulations. If the Operator is unable to prove that 6 inches of topsoil is adequate cover for the slurry ponds then

the reclamation plan and bond estimate must be modified.

In revised Section 5.53, page 2, the response says that the slopes at final reclamation will not exceed 2h:1v. It also says that future sampling will include the coarse refuse pile and will be done in conjunction with renovation of the coarse refuse test plot. This sampling will address appropriate requirements and reevaluate reclaimability of the coarse refuse pile.

The Division has not been able to locate any analyses of coarse refuse from the coarse refuse pile, but the coal storage and processing area is located over coarse refuse material according to the plan. The precise location of the refuse in relation to the samples taken in 1989 is not known. Results from sample sites 4-9 were examined. With the exception of sites 4 and 6, nearly all of the analyses showed unacceptable SAR levels. These samples were not analyzed for some potentially toxic elements, such as boron, selenium, molybdenum, and arsenic, and it is not known if these samples are representative of the material in the coarse refuse pile.

Considering the nature of the material in the storage and processing area, the Division must consider all of the coarse refuse as potentially toxic and within the requirement to cover it with at least four feet of non-toxic, noncombustible material. Although the reasons for the lack of revegetation success on the coarse refuse pile test plot are not known, the lack of success may have been caused, at least in part, by the chemical nature of the coarse refuse. To allow less than four feet of non-toxic, noncombustible cover over this refuse, the Division would need to receive evidence that previous samples were not representative of the coarse refuse. Any toxic materials previously identified would need to be covered with at least four feet of non-toxic, noncombustible cover.

The proposed plan says that the spoil pile near the road pond is mislabeled and that it is actually subsoil from excavation of the pond. The sign on the pile will be changed to show that it is subsoil. The pile will be reclaimed by placing it back into the pond followed by reclamation.

Remaining Deficiencies:

1. CVR must commit to cover the coarse refuse with at least four feet of non-toxic, noncombustible material at final reclamation. Depending on sampling results, it may be possible to reduce this requirement, but the regulatory requirement is that refuse be covered with four feet of non-toxic, noncombustible material unless chemical and physical tests show and CVR can demonstrate that soil stabilization and revegetation requirements can be met without the four feet of cover.
2. The Operator must prove that only six inches of topsoil is adequate cover for the slurry ponds or cover those areas with 4 feet of material. If 4 feet of material is required to cover the slurry ponds, then the Permittee

must modify the reclamation plan and bond estimate.

R645-301-553.260 Coal Processing Waste

Original Deficiency:

Castle Valley Resources should provide information to address the requirements for requesting less than four feet of cover over the fine and coarse slurry as per R645-301-553.252.

Operator's Response:

This was included in R645-301-350 above.

Analysis:

The reclamation plan and bond amount must comply with each other and all state and federal coal mining rules. The Operator is required to place four feet of cover over the refuse piles unless he can prove that a lesser amount will meet the performance standards. (See discussion under R645-301-553.250.)

Remaining Deficiency:

1. The Permittee must prove that performance standards can be met with less than four feet of cover or he must amend the MRP to include four feet of cover in the slurry ponds.

R645-301-553.260 Coal Processing Waste

Deficiency from Mid-Term Review:

1. *Castle Valley Resources should provide information to address the requirements for requesting less than four feet of cover over the fine and coarse slurry as per R645-301-553.252.*

Response and Analysis:

The response says that the new reclamation plan described above and approved by DOGM for the bond estimates commits to covering the lower slurry pond with four feet of cover and the upper pond with six inches of topsoil. The coarse slurry will first be used as cover on the slurry pond, then the remainder covered with six inches of topsoil.

Division guidelines show that the maximum allowable boron level in soil and overburden is 5 parts per million and the maximum allowable selenium concentration is 0.1 ppm. Anything over these levels is unacceptable and is considered toxic. The

samples of fine slurry taken in 1990 were from the upper slurry pond. The analyses of these samples showed levels up to over twice the allowable boron level and over five times the upper limit for selenium. High selenium levels were found throughout both profiles, but high boron levels tended to be in the upper four feet of fine slurry. I am aware of only one sample ever being taken in the lower pond. This is sample 9WD shown on pages 42, 43 and 44 of the July 15, 1990, submittal. Analysis of this sample did not include boron or selenium, but the sodium adsorption ratio (SAR) was well above Division guidelines at 59.5.

On page 58 of Section 2.22, the response says that samples were collected in 1990 associated with the (then) proposed fines removal project and that no significant toxicity problems were evident. It says that selenium levels did seem high. The statement that no significant toxicity problems were evident, as discussed above, is not correct. In Section 7.31, Page 6, the response says that no acid or toxic forming materials have been identified in the permit area and that the fine refuse sample results in Table 7.28.6 indicate that the materials found within the pond are not acid or toxic producing. The information in Table 7.28.6 is not complete; it only contains information on sulfur content and acid/base potential. It does not show that there are no toxic materials on the property.

Unless future sampling shows that these three samples are not representative of the fine slurry material, the fine slurry must be considered toxic. Therefore, according to the regulatory requirements, the slurry ponds must be covered with at least four feet of non-toxic, noncombustible material. For unknown reasons, the proposed addition to the plan only contains a commitment to cover the *lower* pond with 42-inches of coarse slurry plus six inches of topsoil for four feet total. The upper pond would only be covered with six inches of topsoil. The *upper* pond is where high boron and selenium levels were found.

Although the coarse slurry has been used in test plots to cover the fine slurry, apparently with beneficial results, this material has not been shown to be non-toxic or noncombustible. I know of only one sample of this material. It had reasonable to low SAR and electrical conductivity (EC) levels, but it was not tested for boron, selenium, or other potentially toxic elements. One sample is not enough to adequately characterize 600,000 cubic yards of material. The coarse slurry is the material which CVR proposes to place on the lower slurry pond. To show that it is suitable for this purpose, samples need to be analyzed for boron, hot water-extractable selenium, and other potentially toxic elements that might be present. It should also be tested for combustibility. Otherwise, the coarse slurry should also be considered within the requirements to cover waste with at least four feet of non-toxic, noncombustible cover.

If the coarse slurry can be shown to be non-toxic and noncombustible, CVR should consider using some of the material on the upper slurry pond to fulfill part of the requirement for covering the fine slurry four feet deep. The plan indicates that

428,200 cubic yards would be needed for the lower pond and that a total of about 600,000 cubic yards is available. The coarse slurry refuse available after covering the lower pond with 42 inches would cover a 60 acre area about 21 inches deep. If all of the coarse slurry is used to cover the fine slurry, it might not be necessary to use borrowed topsoil on the temporary pond refuse pile, so more soil could be used over the fine and coarse slurry without disturbing a larger area.

Remaining Deficiencies:

1. The plan needs to show compliance with R645-301-553.252 for the coarse and fine slurry.

R645-301-600 Geology.
R645-301-621 Geology within the proposed permit and adjacent areas.

Deficiency:

1. *The Permittee should clarify, and perhaps simplify, the descriptions of the nature, thickness and distribution of alluvium. The information is partially conveyed on cross sections on E9-3428, but an isopach map would be very helpful.*

Response:

The Geologic Map, Drawing C9-1213-R, shows the outcrop of the Mancos Shale and Quaternary and Recent alluviums and gravels. All drill holes in the area encountered dark shale at a depth of 31 to 57 feet beneath the surface.

Drilling done May 7, 1990 found alluvium ranging in thickness from 31 to 57 feet with 18 to 43 feet of brown clayey silt on top, 10 to 15 feet of sandy gravel beneath, and a dark blue gray shale at the bottom.

Cross sections using data collected in 1990 are on Drawing E9-3428. Lithologic logs of the drill holes are on pages 5 through 8. An isopach of the alluvium is on Drawing 621a.

A new Section 6.21 page 1 and Drawing 621a have been submitted for insertion into the MRP.

Analysis:

The new text greatly simplifies the description of the alluvium and relies on the maps and cross sections to convey much of the information. Information in the new text perhaps helps clarify why the previous description of the alluvium was confusing. Drilling has been done during at least two different periods: 1957 pre-construction drilling and 1990 water monitoring well installation and highway alignment test

borings. Different thicknesses and lithologic sequences were revealed by each set of bore holes and appear to have been described separately in the old text.

The Geologic Map, Drawing C9-1213-R, shows the outcrop of the Mancos Shale and Quaternary and Recent alluvium and gravel. This is a USGS reconnaissance map and was probably done mainly from aerial photographs. Cross sections on Drawing E9-3428 (drawings 1 through 4) provide vertical detail and indicate that there is loam or weathered shale on the surface where Mancos Shale has been mapped (Drawing E9-3428, drawing #1, bore holes 12 and V); however, the cross sections generally disregard the Mancos outcrops they encounter.

The thickest alluvium on Drawing 621a is 55 feet near GW-8, which agrees with information on the cross sections, 57 feet at GW-8 (E9-3428, drawing #4). Drawing 621a shows a thick tongue of alluvium extending south-southwest from GW-3 towards the Price River, across the hills mapped as Mancos Shale on C9-1213-R. This tongue is apparently an artifact of the contouring method and ignores the Mancos outcrops in a manner similar to the cross sections. The thickness values at the control points are not marked on the map and it is not clear if the map is based on all alluvium thickness data from all bore holes or just on the 1990 bore hole data.

Lithologic logs of GW-3, GW-7, GW-8, GW-11, and GW-14 and CN-1 are on pages 1 through 4 of Section 6.22, not pages 5 through 8 of Section 6.21. Logs from the 1957 bore holes are not available to Genwal (page 1, Section 6.22) and are not included in the MRP, contrary to what is stated.

Remaining Deficiencies:

1. Lithologic logs of GW-3, GW-7, GW-8, GW-11, and GW-14 and CN-1 only are in the MRP, on pages 1 through 4 of Section 6.22 rather than on pages 5 through 8 of Section 6.21.
2. Alluvium thickness, including zero thickness at the Mancos-alluvium contacts, is not marked at control points on the isopach map, Drawing 3621a.

R645-301-700 Hydrology.
R645-301-712 Certification: Cross-sections, Plans, Maps
Response 3/26/93

Previously Identified Deficiency:

1. *Provide certification on all applicable maps plans and drawings.*

Analysis:

1. All cross-sections plans and maps submitted in this section requiring

certification included E9-3460 - Lower Refuse Dike, E9-3443 - Vegetation Study, E9-3343- Current land use, E9-3342(1) - Restoration Map, E9-3341- Facilities and Disturbed Area, D5-0163- Pipeline Sediment Pond, F9-177 (2 of 2) and (1 of 2) - Hydrologic evaluation map. Other Applicable maps and designs required to be certified are not included in this revision. Maps E9-3341 and F9-178179 submitted December 10, 1993 were not certified.

Remaining Deficiency:

1. Maps E9-3341 and F9-178, 179 submitted December 10, 1993 were not certified.

R645-301-713 Inspection. Impoundments will be inspected as described under R645-301-514.300.

March 26, 1993

Previously Identified Deficiency:

1. *If the Operator addresses the inspection requirements, a discussion of all applicable inspection requirements should be included to provide a clear and accurate document.*

Response:

1. Attached 5.14 (3/26/93) replaces 5.14 in the MRP. "Most inspections are done quarterly, kept on site and submitted to the Division annually." is removed from the Operator's comments

Analysis:

1. The Operator should be aware that all impoundments require quarterly inspections as well as the weekly requirements meeting MSHA size criteria. Page 1 Section 15.13, page 1,(6/25/93) and page 2 indicate the Ponds and impoundments will be inspected quarterly. The Operator is required to inspect all MSHA impoundments weekly. It may behoove the Operator to identify the requirements of each of their impoundments, refuse piles and ponds.

Remaining Deficiency:

1. Correct Section 15.13, page 1 and 2, which indicate that ponds and impoundments will be inspected quarterly. All applicable inspection requirements should be included in the sections where inspection requirements are referenced to provide a clear and accurate document.

R645-301-724 **Baseline Information.**
March 26, 1993

Previously Identified Deficiency:

1. *The Applicant should remove or clarify duplicate water rights points, and the status of rights for water users within the cumulative impact areas.*

Proposal:

1. Two points shown with the same water right number define either multiple diversion points or, the beginning and end of a reach where water may be diverted. Water rights described, in the legend of Drawing NO. G9-3507, as being unapproved are going through the approval process.

Remaining Deficiency:

1. The Permittee must make the information on the legend of G9-3507 reflect the clarification provided in the cover letter.

R645-301-724.100 **Ground Water Baseline Information**
R645-301-724.200 **Surface Water Baseline Information**
March 26, 1993

Previously Identified Deficiency:

1. *The Permittee should provide clear and concise information to allow correlation of water rights, especially water well locations, from Tables 7.24-1 and 7.24-4 to locations shown on Drawing G9-3507.*

Analysis:

1. Table 7.24-1 and 7.24-4 list water rights. The information presented for 91-4396 appears to have an incorrect section number identified as S13 and should be S14. Because of other water diversion information on Drawing G9-3507, Water User Claim Numbers from Tables 7.24-4 are difficult to locate on Drawing G9-3507 and information cannot be readily correlated between the two sources.

Water rights for areas should be easily correlated within a range of potential impact. If an accidental spill or other water quality or quantity impact was detected the Water user may need to be notified. This information should be easily determined through this plan. Points of

diversions could be easily obtained from the Department of Water Rights.

Remaining Deficiency:

1. The Permittee should provide clear and concise information to allow correlation of water rights, from Tables 7.24-1 and to locations shown on Drawing G9-3507 for those areas which could be within a range of potential impact.

R645-301-728 Probable Hydrologic Consequences (PHC) Determination.
March 26, 1993 / December 10, 1993

Previously Identified Deficiencies:

2. *Discuss how the present operations prevent hydrocarbons from entering the ground water. Provide sizing of containment berms for storage tanks areas.*
3. *Include mapping, using adequate scale, for all potential contamination sources including truck wash down areas, steam cleaning area where degreaser are used, oil changing area, and the oil and antifreeze storage area adjacent to the office, any other potential storage areas with contamination sources.*
6. *Expand the discussion of trends of water quality to operations as a result of dilution of water infiltration at the slurry ponds. Include discussion of potential post mining conditions related to water availability and climatic changes. Specify what parameters are expected to respond to those conditions.*
7. *Discuss potential impacts of high Sodium/SAR, Boron, Selenium etc. from the slurry cells on water quality.*

Response:

The Operator states that the response to R645-301-728 was provided in March 1993 submittal. The Operator only provided a response summary for parts 728-200 discussions. However, the presented information was reviewed for these deficiencies.

2. Clarifications have been made to Section 7.28. pg 15. The gasoline and diesel fuel storage tanks will be modified as follows: tanks will be moved and any contaminated soil currently found will be removed and properly disposed of, rectangular concrete bases will be constructed with 1.0 ft sides.
3. Map E9-3341 provides the facilities mapping showing the oil storage

area, fuel storage building, and the non-coal waste storage area. The Operator has also failed to include the septic tank with drain fields.

6. The Acid Toxic impacts are discussed for the site in section 7.28.3.1. The Operator reviewed Analysis of leachate from Tables 7.28.5 and 7.28-6. According to Section 7.28 page 19, "...little water quality impact should occur as a result of acidity either during operations or reclamation. In short it appears that water quality impacts should be less than those currently experienced."
7. The Operator reviewed Analysis of leachate from Tables 7.28.5 and 7.28-6.

Analysis:

2. Provide sizing of containment berms for storage tanks areas. The Operator's proposed pad area should demonstrate that it is able to contain the volume of the largest container within the pad area. The Operator should also have a locking drain or method available to drain the structure should it become filled with water or oil.
3. Map E9-3341 provides the facilities map showing an oil storage area, fuel storage building, and the non-coal waste storage area. It does not identify all potential contamination sources including truck wash down areas, oil changing area, or the steam cleaning area where de-greaser are used. There is some question as to whether the mapping scale provided is appropriate as a defined storage area can not be determined.
6. The Acid Toxic impacts are discussed for the site in section 7.28.3.1. The Operator reviewed Analysis of leachate from Tables 7.28.5 and 7.28-6. The Fine Refuse sample is analyzed for Total Sulfur Acid-Base potential but, does not address toxic parameters or SAR. The lab reports and methodology should be provided in an appendix or referenced if already provided. The Operator's summary paragraph indicates little water quality impact should occur as a result of acidity but, ignores other potential impacts.

A discussion in section 7.28 indicates concentration of many parameters was reduced during the period of operations prior to 1985 as a result of ground water infiltration and dilution. Current operations and post reclamation operations will not provide the dilution factor indicated to be present prior to 1985. The Operator has not provided reasoning supporting the concluding statement that water quality impacts should be less than those currently experienced. A discussion of potential post mining conditions related to water availability and climatic changes should be included. Specify what parameters are expected to respond

to the changing climatic conditions.

7. The Operator's analyses does discuss the high SAR in the Plant Refuse Pile as well as basic pH. However, the Operator does not address the occurrence of Boron, Selenium and other metals which may occur under basic pH and high SAR conditions. The Operator states that the dilution factor 1:52 for low flow years and 1:962 for high flow years could result in an increase between 8 and 150 mg/l a 0.4 to 7.5 % increase for TDS levels and other water quality parameters would be similar.

Remaining Deficiencies:

2. The Permittee must provide sizing of containment structures for storage tanks areas. The Permittee's proposed pad area should demonstrate that it is able to contain the volume of the largest container within the pad area. The Permittee should also have a locking drain or method available to drain the structure should it become filled with water or oil.
3. The Permittee must identify all potential contamination sources including truck wash down areas, steam cleaning area where de-greaser are used and oil changing area. There is some question as to whether the mapping scale provided is appropriate as a defined storage area can not be determined.
6. The Permittee must a) Expand the discussion of trends of water quality to operations as a result of dilution of water infiltration at the slurry ponds. b) Provide reasoning supporting the concluding statement that water quality impacts should be less than those currently experienced. c) Include a discussion of potential post mining conditions related to water availability and climatic changes. d) Specify what parameters are expected to respond to those conditions.
7. The permittee must discuss potential impacts of high Boron, Selenium etc. from the slurry cells on water quality.

R645-301-731 General Requirements.
March 26, 1993

Previously Identified Deficiencies:

1. *Include quarterly monitoring for all surface water sites. Commit to sample collection during storm precipitation events for ephemeral drainages and include copies of the UPDES DMR in quarterly reports.*
5. *Include the track hopper in the water monitoring plan. Sample for a*

complete extended parameter list including hydrocarbon sampling to aid in assessing necessary quarterly parameters for the monitoring plan. Discuss results.

Analysis:

1. The Operator states that it is anticipated that these stations will not be monitored during local precipitation events for the following sight specific reasons. The Operator does not follow this statement with site specific reasons, nor is it indicated what stations are referred to. Further clarification of this issue can be found in section 7.28 page 5. The Operator should reference this section in Section 7.31.2 pp.3-6. The information on surface water monitoring indicates the Operator will monitor 1 surface site quarterly and (7)semi-annually. on 7.31 page 5. The Operator's commitment to monitor quarterly conflicts with this statement.

Remaining Deficiencies:

1. The Permittee must remove conflicting statements and clarify statements regarding surface water monitoring in this submittal. For instance: the Operator states that it is anticipated that these stations will not be monitored during local precipitation events for the following site specific reasons: this statement is not followed with site specific reasons nor, is it indicated what stations are referred to; the information on surface water monitoring on 7.31 page 5. conflicts with the Operator's commitment to monitor quarterly.
5. The Permittee must include the track hopper in the water monitoring plan and sample for a complete extended parameter list including hydrocarbon sampling to aid in assessing necessary quarterly parameters for the monitoring plan and discuss results. Or, provide a valid discussion of why the water source is not monitored based on a one time full baseline analysis to be placed within the text of the PHC.

R645-301-731.200 Water Monitoring

Previously Identified Deficiency:

1. *If the Permittee is actually following an operational sampling program similar to that outlined in DOGM's Guidelines for Establishment of Surface and Ground Water Monitoring Programs for Coal Mining and Reclamation Operations (1986) rather than measuring for the entire extended or "baseline" list of parameters on pages 6-7 of Section*

731.200, then the Permittee should submit for DOGM's approval an amended Section 7.31 that clarifies and updates the water monitoring program. The Permittee should make note that the Guidelines recommend measurement of all parameters on the extended list during the year preceding repermitting.

Analysis:

1. The Operator is missing the following parameters from the current list recommended by the Division lead, pH, and Specific Conductance as a groundwater laboratory parameter, and pH, and Specific Conductance as a surface water parameter. On Page 7.31 the Operator commits to monitoring baseline parameters prior to the renewal period.

New Issues

2. The Operator indicates that the water monitoring will continue through bond release. However, the Operator has not indicated how the monitoring wells will be protected during regrading. The Operator has not provided a monitoring plan for the reclamation period demonstrating regulatory requirements for surface water are met. The Operator should provide an additional monitoring point at the inlet of the impoundments during the reclamation period. The Operator might want to consider the addition of perforated PVC pipe for specific monitoring of water within the slurry cells.

Remaining Deficiencies:

1. The Permittee should include or, justify the exclusion of, the following parameters; Lead, pH, and Specific Conductance as a groundwater laboratory parameter; and pH, and Specific Conductance as a surface water parameter.
2. The Permittee should provide a reclamation monitoring plan designed to achieve the objectives for bond release which will adequately demonstrate whether pollution of surface and subsurface water will be protected.

R645-301-731.300 Acid- and Toxic-forming Materials.

1. *The Permittee should identify dates, sampling locations, laboratories, and methods of analysis. Reference can be made to original data if they are in the Appendices, but enough information should be included within this section to confirm the applicability of the summaries, averages, etc. to the requirements of the MRP.*

2. *Include information on toxic materials in the fine refuse materials. Discuss how the Operator will avoid drainage of toxics into surface water and groundwater.*

Analysis:

1. The Operator has not updated section 7.31.3 to include the pertinent information from the available data in Appendix B as part of the PHC summary. Those results indicate a toxic amount of Boron and Selenium may be present which does not support the conclusion stating that no acid- or toxic-forming materials have been identified. The presented information is not adequate to describe the nature of the materials. Further analyses are needed to characterize the materials.
2. The acid-and/or-toxic forming and alkalinity producing potential of the slurry and refuse material has not been adequately identified (R645-301-731.300 et. seq.). The Permittee has not provided baseline resource information with regards to the ground-water resource within and adjacent to the slurry ponds or provided measures to be taken to protect the hydrologic balance (R645-301-731.100 et.seq.).

At a minimum the Permittee must characterize the acid-and/or-toxic forming and alkalinity producing potential of the slurry, coarse slurry and coarse refuse material by collecting and analyzing refuse samples (Division Guidelines for the Management of Topsoil and Overburden, Table 6) throughout its total depth. Sample site locations shall be on a one acre grid for all areas which are contaminated with coal slurry and/or refuse. If data collected during the refuse sampling program identifies areas of acid- and/or -toxic forming or alkalinity producing material, then additional drilling may be required to identify the lateral extent of toxic material.

Section 2.24 states coarse slurry will be placed in some areas to be reclaimed. These areas must be identified to provide information should the potential of toxic and acid forming materials be presented. The Operator states indications of high boron, selenium, salinity and other detrimental conditions possibly exist in the fines page 2 of Appendix B, this information should be included in the PHC.

The Operator references Appendix E. Pages E-2 (date is not legible), E-7 dated 6/19/85, and E-3 dated 11/2/83. One sample is provided for acid-toxic forming materials which does not account for variability. The analysis do not indicate where the samples were collected or what methodology is used.

The Operator dug between 5 test pits in the coarse refuse pile to

complete a toxicity test some time prior to the November 24, 1992 inspection (see: inspection report and notes). The piles were approximately 15' deep. My notes discuss visual observation including banding of Iron and salt precipitates .

Some time prior to a November 13, 1991 inspection the Operator obtained several samples to characterize the slurry cells. In my conversations with employees I understood that approximately 21 samples were obtained in the slurry cells for characterization. I was informed that water was present at 8 ft depth from the surface to 20 ft where the fines were mostly saturated. No discussion or inclusion of the test results from either sampling plans have been submitted to date.

Remaining Deficiencies:

1. The Permittee must include the sampling information in Appendix B within the context of the PHC. High levels of boron and selenium are shown to be present in some samples. The Permittee must provide an adequate demonstration and characterization that the materials in the coarse and fine coal refuse impoundments is not acid and toxic forming.
2. The Permittee must characterize the acid and/or toxic-forming and alkalinity producing potential of the slurry, coarse slurry and coarse refuse material, and discuss how the Operator will avoid drainage of toxics into surface water and groundwater.

R645-301-731.710 **A map showing the locations of water supply intakes**
March 26, 1993

Previous Identified Deficiency:

1. Provide a map that clearly labels and identifies all water supply intakes including the Track Hopper.

Analysis:

1. The Operator indicates the track hopper is shown on Drawing E9-3341 along with other supply intakes and facilities. It should be noted that these areas are not identified on the drawing as water supply intakes. The first sentence of 731.700 has been changed to read "The water supply intake from the Price River to the River Pump house is shown on Drawing E9-3430". The track hopper is not shown on this map.

Remaining Deficiencies:

1. The Permittee must provide a map that clearly labels and identifies all

water supply intakes including the Track Hopper.

R645-301-731.750 Cross-Sections

Previous Identified Deficiency:

1. *For impoundments without current cross-sections matching the existing conditions at the site the Operator will provide new cross-sections using current information and estimate the sediment retained in the ponds from earlier pond design information.*

Response:

1. The response to this deficiency could not be located.

Analysis:

- a. Sheet (map) 712A shows the minimum elevation on the lower refuse basin dike at an elevation of 53 ft. (Changes pertaining to this map could not be located).
- b. A certification was not included for the new hydrology designs submitted in response to the deficiencies.
- c. Drawing C9-1285 states no cross-section is available. The Operator must provide a cross-section for this pond.
- d. Drawing E9-3453, is out dated because it does not match current elevations indicated on Sheet 712e.
- e. Drawing E9-3460 only provides a cross-section of the lower refuse pond dike and does not provide cross-sections of the clear water pond.
- f. No typical cross-section is provided in the identified maps for the refuse dike between the upper and lower basin.

Remaining Deficiencies:

1. For impoundments without current cross-sections matching the existing conditions at the site the Permittee will provide new cross-sections using current information and correcting the following:
 - a. Sheet (map) 712A shows the minimum elevation on the lower refuse basin dike at an elevation of 53 ft. This does not correspond to newly presented information.
 - b. A certification was not included for the new hydrology designs submitted in response to the deficiencies.
Drawing C9-1285 states no cross-section is available. The Operator must provide a cross-section for this pond.
 - d. Drawing E9-3453, is out dated because it does not provide current information as indicated on Sheet 712e.
 - e. Drawing E9-3460 only provides a cross-section of the lower refuse pond dike and does not provide cross-sections of the clear

- f. water pond.
No typical cross-section is provided in the identified maps for the refuse dike between the upper and lower basin.

R645-301-742 Sediment Control Measures.
March 27, 1993

Original Deficiency:

2. *Address the known problems with sediment control measures along the Siaperas ditch in ASCA #7. Provide a new alternative measure for sediment control at ASCA #7.*

Analysis:

2. The Operator indicates the silt fence is currently functioning. The past years of inspection noted problems of piping under the silt fence along the Siaperas drainage ditch at ASCA #7. The Operator must provide for another alternate sediment control measure at this area as the present silt fences are known to be unsuccessful at this location during some rain events.

Remaining Deficiency:

2. The Permittee must provide alternative measures for sediment control at ASCA #7.

R645-301-742.300 Diversions.
June 25, 1993

Previously Identified Deficiencies:

1. *Provide the erosion control design according to the required design event, and provide protection according to that design.*
3. *Provide a discussion in the text of the MRP for Ditches located at the Slurry Pipeline Sediment Pond.*

Analysis:

1. Attached Section 7.42 pages 6, 7 and 8 and computations for watershed #10 are provided for Volume II. The grouted grade control structure proposed for stabilization of the head cut is not considered the most prudent design. The reason for the head cut is probably due to decreasing the base elevation of the stream through re-routing. It may be more prudent and long lasting to provide a series of pools created by

check dams upstream of the head cut rather than the proposed approach as, grouted riprap does not last as permanent structures.

Attached Section 7.42 pages 6, 7 and 8 and computations for watershed #10 are provided for Volume II. The computations attached provide an analysis of the Hydrologic Soil Group. According to the SCS Soil Survey of the Carbon Area the soil hydrologic group used is in error for reach area A and B. Reach A is comprised of soil # 58 in the hydrologic group B. Reach B is comprised of Soil #35 is a Gerst Badland Complex which is predominately hydrologic group D and is composed of Stormett soil of Hydrologic type B. However the unit is described to be composed of only 15 % of the Stormett map unit. The Operator does not appear to have used the correct hydrologic group for these soil units.

3. The Operator has not provided stable designs for the Pipeline Slurry Sediment Pond. Observations on site visits have been noted indicating some areas of the ditch with a lower grade fill with upstream sediments decreasing capacity. The Operator has not provided for stable designs in this area. The Operator sites a velocity of 5 fps to be erosive however in this soil the erosive velocity may be closer to 3 according to Barfield and Waner and Haan).

Remaining Deficiencies:

1. The Permittee must use a diversion design appropriate for long term stability. The use of grouted riprap is not considered durable for a permanent structure.
3. The Permittee must provide for stable designs of drainages in the area of the Pipeline Slurry Sediment Pond.

R645-301-744 Discharge Structures.

Original Deficiency:

1. *Provide emergency spillway designs including cross-sections of the emergency spillway, discharge to a water conveyance and erosion control measures or demonstrate the requirements of R645-301-742.225 can be met.*

Analysis:

1. The Operator discusses and includes designs for the primary spillways. However, the Operator did not include the designs and design values used to arrive at the peak flow. The designed emergency spillway will spill out the south end of the Road Pond. The control point is set by the

road elevation. The emergency spillway is assumed to occur over the south part of the Auxiliary Pond. Although the Operator's proposed analysis is not a conventional design, it indicates the velocity across the site in a flood event is not expected to be of a significant nature to cause damage due to the design of the pond. The Operator should provide a reference location for the cross section provided for the Road Pond and Auxiliary Pond emergency spillways. The Operator should include cleanout and sediment volumes on the Pond Stage Capacity Curves.

Remaining Deficiency:

1. The Permittee should provide a reference location for the cross section provided for the Road Pond and Auxiliary Pond emergency spillways. The Permittee should include cleanout and sediment volumes on the Pond Stage Capacity Curves and include the designs and design values used to arrive at the peak flow.

R645-301-746.200 Refuse Piles.
December 10, 1993

Original Deficiencies:

3. *Provide drainage of run off from the refuse pile and drainage surrounding the refuse pile. Detailed drainage ditch designs must be based on the runoff calculation for a 100-year 6-hour event per R645-301-746-212.*
4. *Provide construction and engineering details. Address ponding and grading on the surface of the refuse pile.*
6. *Provide a commitment to include a discussion of dates waste materials are received and volumes received to be included in the inspection report. Address R645-301-528 for handling the waste approved to be received from Genwal.*

Analysis:

3. The information discussed in the context of the response discussion is located on Section 7.46, page 1. Information regarding drainage from the face of the pile and directly above the temporary course refuse basin pile was not found in the text of the MRP document.
4. The information added in the appendix provides useful information. The grading of the pile is included in text on Section 7.46, page 1 for the plant refuse pile. Information regarding surface grading and ponding on the temporary course refuse basin was not found in the text of the MRP document.

6. The Operator commits to provide dates waste materials and volume of materials received in the inspection reports. Reference to Section R645-301-528 does not include text committing to provide the dates, for waste materials received, in the inspection reports.

Remaining Deficiencies:

3. The permittee must provide information and designs regarding drainage from the face of the pile and directly above the temporary course refuse basin pile for incorporation into the text of the MRP document.
4. The permittee must provide information regarding surface grading design and prevention of ponding on the temporary course refuse basin pile for insertion to the MRP document.
6. The permittee must include text committing to provide dates waste materials are received within the inspection reports.

R645-301-746.311 Coal Mine Waste impounding structure

Original Deficiencies:

1. *Provide design information that addresses R645-301-746.311 for the fine slurry cells.*
2. *If the Operator is intending to retain the road and heat dryer pond, as permanent structures, address R645-301-733.220 and other applicable regulations or, provide clarification of pond removal in the text of the MRP.*

Analysis:

1. Section 746.311 states no impounding structures will be maintained after final reclamation. R645-301-746.311 specifically states "Such structures may not be retained permanently as part of the approved postmining land use." The Operator should correct the typo found in this description. The Operator proposes that the dikes will be left in place permanently. The final reclamation map legend states it shows the 5' contour elevations but they are not shown. No indication of surface drainage across the lower refuse pond is evident thus allowing potential of ponding in the lower impoundments. In order to meet this regulation requirement the Operator must have a free draining structure. The Operator does not provide for a free draining (non-impounding) structure for this proposal.
2. The Operator indicates the Road pond and Auxiliary pond will be graded

to final contours while, the Dryer pond will be maintained until vegetation is established in Section 5.40. The removal of the Plant sediment pond should be in the reclamation time table.

Remaining Deficiencies:

1. The Permittee should correct the typo that no impounding structures should be **maintained** after final reclamation. The Permittee must provide for a non-impounding free draining structure.
2. The permittee must include the reclamation of the Plant sediment pond within the reclamation time table.

R645-301-760 Reclamation.
Response December 10, 1993

Original Deficiencies:

2. *The Operator must further address the R645-301-760 with complete drainage plans and sediment treatment for the site and all phased reclamation including final grading.*
3. *Provide a map of adequate scale to determine the details of grading and reclamation drainage.*
4. *Remove the reference limiting rill and gully repair to anything greater than 9".*

Analysis:

2. No drainage plan is provided. It is not clear how the water will reach the clear water pond during interim or how drainage will reach the price river at final reclamation. The Operator has not provided information on the sediment control measures and final contouring of the proposed borrow areas. No disturbed area boundary is located on the proposed reclamation map. No Sediment control measures are provided for areas to be reclaimed which do not report to sediment ponds.

The Operator provides a plan for grading of the sediment pond dike on exhibit E9-3342. However, this design sends drainage toward the railroad. This design does not provide for the protection of downstream structures. It is unclear where the drainage is coming from or what the design flow is. The Auxiliary pond will be filled and blended with surrounding areas.

3. The Operator does not provide adequate contour information across the

refuse basin to determine slope or drainage.

4. The Operator's revegetation plan does not include a criteria for demonstrating that adequate erosion control is met in regard to bond release. The Operator should incorporate this type of criteria into the plan.

Remaining Deficiencies:

2. The Permittee must provide a Reclamation drainage plan at the slurry impoundments. The permittee must provide a drainage plan for the area draining to the sediment pond on exhibit E9-3342. The Permittee must provide information on the sediment control measures and final contouring of the proposed borrow areas and include the disturbed area boundary on the proposed reclamation map.
3. The Permittee must provide adequate contour information across the refuse basin which is adequate to determine slope and drainage.

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