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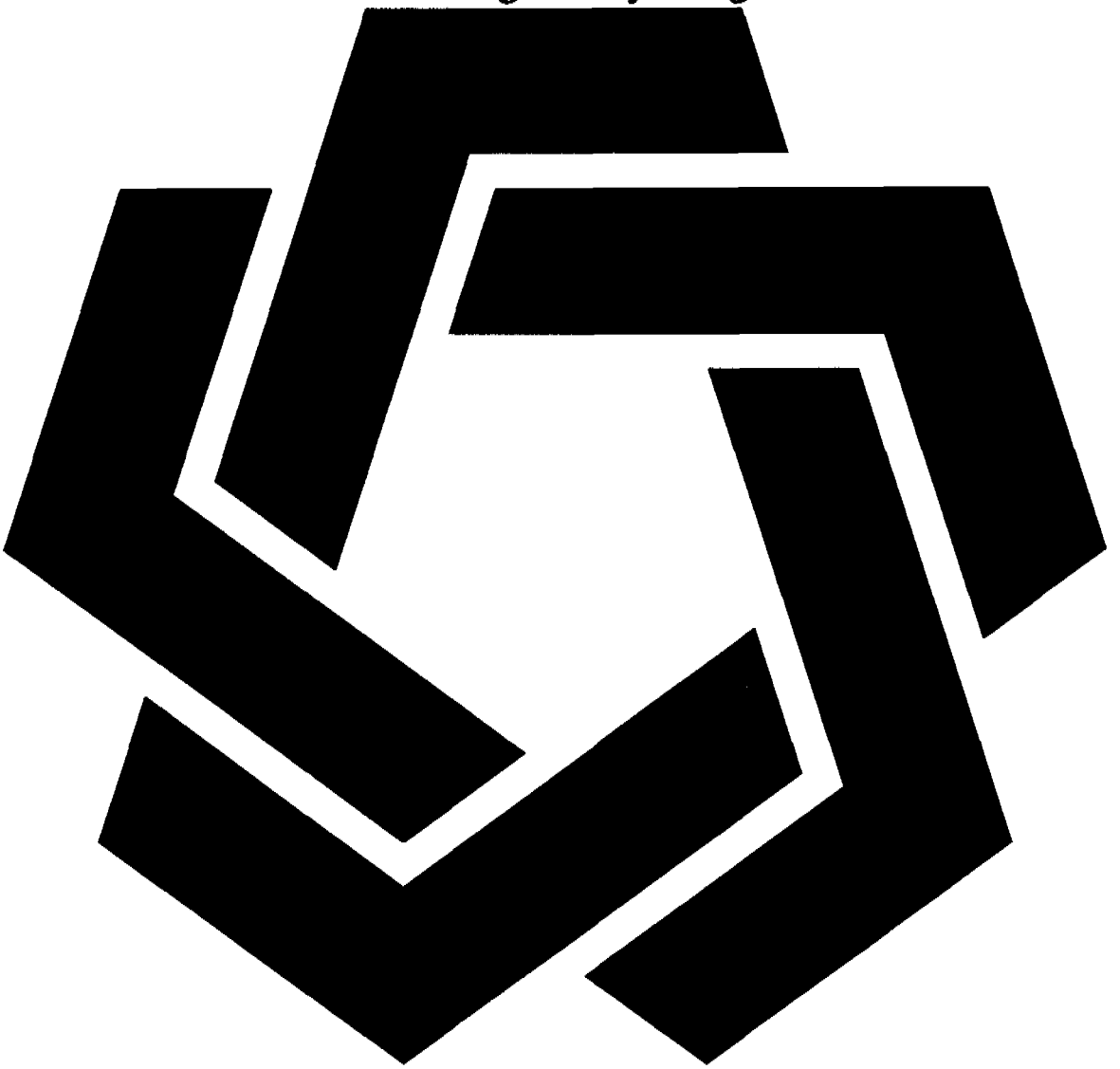
Permit Binder
Green

State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Technical Analysis and Findings

Wellington Prep Plant
ACT/007/012
December 20, 1996

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INTRODUCTION

This Technical Analysis (TA) summarizes NEICO's responses, submitted on October 23, 1996 to address the deficiencies identified in the Technical Analysis dated July 25, 1996. The Mining and Reclamation Plan still contains deficiencies related to the Notice of Violation N95-39-2-2. The Technical Analysis relative to this issue will be complete when the issue is adequately addressed through the NOV process. This document is a partial TA provided to inform the operator and will be used to update the July 25,1996 document.

SUMMARY OF OUTSTANDING DEFICIENCIES

R645-301-112.340. Submit information, in the text of the plan, which identify those entities that NEICO has owned or controlled as coal mining and reclamation operation, including Genwal Coal Company and Castle Valley Resources and, provide other pertinent information as required by this regulation. 5

R645-301-233. Provide a commitment in the text of the plan to perform the following: 1) during salvage provide on-site, real-time analysis of Area "A" soils, in 18 inch depth increments, including analysis of pH, EC and SAR, 2) proceed with soil salvage only after determining subsurface soil quality, 3) proceed with soil borrow Area "A" soils only after Area "B" soils have been exhausted, and 4) prior to salvage, sample Area "B" soils in the northern and periphery portions of this proposed topsoil borrow area (The Division requests that they be apprised of the sampling agenda and participate during the sampling). . . 25

R645-301-241. Area "E" should be replaced by Area "B" as explained in the new submittal of Section 2.41. 25

R645-301-341.250 The plan needs to contain a vegetative cover success standard for the topsoil borrow areas that might be used for grazing. 33

R645-301-342. Commit to reclaim the area to the premining land use and include a plan for practical wildlife habitat enhancement measures using the best technology currently available (following approval, the permittee can consider alternative land uses and how habitat enhancement measures can be incorporated into these land uses). 21

R645-301-420. Update the Approval Order issued by the Division of Air Quality to reflect the appropriate permittee. 10

R645-301-515.300. Provide an accurate description in the plan clearly reflecting the requirements of this regulation. 34

R645-301-521.130. Provide a map showing the current owners of surface lands within and contiguous to the permit area, that does not conflict with the text. 5

R645-301-526. Complete the requirements of NOV N95-39-2-2. 15

R645-301-527. Provide a detailed description of each road constructed used or maintained in the permit area. Demonstrate that each of the roads classified as "ancillary" meet the requirements of R645-301-527.130. At a minimum the operator must identify the present and future use of the road and state that the road

will be removed during reclamation. The permittee must change the R614 references to R645. 11

R645-301-542.300. Provide the Division with maps at scales of not larger than 1 in equal 100 feet for all areas that will be backfilled and regraded. Document how the safety factor on the final embankment of the reclaimed slurry impoundment/refuse pile was determined. 23

R645-301-740. Provide designs that meet the requirements of R645-301-740 and R645-301-742. *It is recommended that the permittee eliminate references to removal of the auxilliary pond from the plan and provide a commitment to remove the inlet/culvert between the dryer and road pond and re-establish the embankment at an elevation that exceeds the dryer pond emergency spillway elevation.* 17

R645-301-800. Provide bond adjustments for the relocation and regrading associated with the proposed changes in the location of the topsoil borrow area and other pertinent changes associated with this amendment. 37

ADMINISTRATIVE FINDINGS

IDENTIFICATION OF INTERESTS, VIOLATION INFORMATION, AND RIGHT OF ENTRY INFORMATION

Regulatory Reference: UCA R645-301-112; R645-301-113; R645-301-114

Analysis:

Identification of Interests

Section 1.00 of the Operation and Reclamation Plan (ORP) discusses much of the history of the Wellington Preparation Plant. It was originally established in 1958 by United States Steel and was sold to Kaiser Steel in 1986. The plant was purchased by Genwal Coal Company in 1989. Subsequent owners, permittee, and operators have included Castle Valley Resources Company, the Intermountain Power Agency, and Nevada Electric Investment Company (NEICO).

The plan identifies NEICO as the applicant and operator. NEICO is the permittee, and the resident agent is Patrick D. Collins. The entity responsible for paying the Abandoned Mine Land Reclamation Fee is NEICO. NEICO owns the land upon which operations will occur.

The directors and officers of NEICO are shown in Section 112.310. Nevada Power Company owns 100% of the stock of NEICO, and Nevada Power's officers and directors are presented in Section 112.312.

The plan is required to show each additional name and identifying number, including employer identification number, Federal or State permit number, and MSHA number with date of issuance, under which the person owns or controls, or previously owned or controlled, a coal mining and reclamation operation in the United States within five years preceding the application date. NEICO has owned or controlled coal mining and reclamation operations under at least two other names, Genwal Coal Company and Castle Valley Resources. These need to be identified with the other pertinent information required in the regulations.

NEICO is identified as the legal or equitable owner of areas to be affected by the surface operator and facilities. The land ownership map, in the current plan, still shows a joint operations area owned by NEICO and IPA and a larger area owned by Genwal Coal Company. This conflicts with information in the text of the latest submittal. Assuming the text is correct, the map needs to be updated.

Section 112.600 shows the names and addresses of surface lands owners with property contiguous to the permit area. Since no coal will be mined, the application does not show the owners of coal within the permit area. Holders of leasehold interest include MCI and the D&RGW-Southern Pacific Railroad.

Violation Information

Violation notices are listed from 1991 through 1993. An AVS check was completed on November 8, 1994 by the Division.

Right of Entry

NEICO obtained the right to enter and begin mining and reclamation activities through a series of agreements. By virtue of an agreement dated July 1, 1991, and executed July 11, 1991, the Intermountain Power Agency (IPA) and NEICO jointly owned portions of the Wellington Preparation Plant on the west side of the Price River. The remainder of the property was owned by NEICO. At this time, Castle Valley Resources operated the plant, but Genwal later operated it.

Findings:

The plan does not meet the minimum requirements of this section. The Permittee must provide the following, in accordance with the requirements of:

R645-301-112.340. Submit information, in the text of the plan, which identify those entities that NEICO has owned or controlled as coal mining and reclamation operation, including Genwal Coal Company and Castle Valley Resources and, provide other pertinent information as required by this regulation.

R645-301-521.130. Provide a map showing the current owners of surface lands within and contiguous to the permit area, that does not conflict with the text.

PERMIT TERM, INSURANCE, PROOF OF PUBLICATION, FACILITIES OR STRUCTURES USED IN COMMON, FILING FEE, NOTARIZED SIGNATURE

Regulatory Reference: UCA R645-301-116; R645-301-117; R645-301-118; R645-301-123

Analysis:

Insurance

Proof of insurance was provided with an affidavit from the Price Insurance Agency. On November 20, 1996, the Division received a new certificate of liability insurance from the Price Insurance Agency. The policy expires November 1, 1997, and the insureds are Earthco, Nevada Electric Investment Company, and Nevada Power.

Findings:

The plan meets the minimum requirements of this section.

ADMINISTRATIVE FINDINGS

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

PERMIT AREA

Regulatory Requirements: 30 CFR Sec. 783.12; R645-301-521.

Analysis:

The preparation plant is located in Sections 8, 9, 10, 15, 16 and 17, Township 15S, Range 11E SLBM. The Wellington Preparation Processing Plant began operations in 1958. Coal receiving preparation and shipping operations lasted through 1985. Slurry operations ceased in 1984 when the load out idled. In 1986 a sewage treatment plant was constructed near the northwest corner of the property. Following acquisition of the Wellington property by Genwal Coal Company and NEICO in 1989. The preparation plant was used to screen and load coal onto railcars. A new loading system was added in October 1989.

Presently NEICO is the sole owner and the plant is idled. Size, sequence and timing of reclamation was not discussed because, the Permittee intends to transfer the operations to another entity. The Permittee has provided a timetable outlining the Sequence and Timing of Reclamation activities.

Findings:

The plan meets the minimum requirements of this section.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.22; R645-301-411.

Analysis:

Current land uses are described as industrial, grazing, cropland and undeveloped lands on Exhibit E9-3343(1). The area is zoned by Carbon County as M&G-1, and the plan contains summaries of the activities that are permitted in this zone.

The Wellington Preparation Processing Plant has been in operation since 1958. Land uses prior to mining were described as industrial, grazing and undeveloped lands. The premining land use is determined to be those uses that were properly managed which the land previously supported prior to mining. The 1984 State Permit Decision Package determined the premining land uses to be "undeveloped lands" in the areas occupied by the coal cleaning plant, the railroad system and the refuse disposal area. The remaining areas were determined to be used for limited grazing. The

Permittee's description matches the premining land use description, identified in the State Decision Package.

The topsoil Borrow Area "A" is not presently disturbed by mining. Drawing 3343(1) illustrates the land use for area "A" as "Pasture Lands/Grazing (Rotation Optional)". The text explains that cultivation and specific land use practices in this area change from year to year, and flexibility is based primarily on the use and availability of irrigation water. When the fields are irrigated, crops like grass, alfalfa hay and corn are grown and the grass or alfalfa may be grazed.

Findings:

The land use information was determined adequate in the 1984 State Permit Decision Package. Land uses were determined to be undeveloped land in the areas occupied by the coal cleaning plant, the railroad system and the refuse disposal. The remaining areas were determined to be used for limited grazing. The proposed topsoil borrow areas will not be disturbed until sometime in the future.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Permit Area boundary Maps

The permit area boundary map is shown in Exhibit E9-3341, certified on 11/10/94 by Gregory J. Poole, a Registered Professional Engineer in the State of Utah. Other maps may not represent the permit area boundary identified in the issued permit. Areas previously leased within the permit area (Costal Corporation, and Utah Power and Light) were not retained from a previous version of Exhibit E9-3339.

OPERATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 784.2, 784.11, R645-301-523

Analysis:

EXISTING STRUCTURES

Regulatory Reference: 30 CFR Sec. 784.12; R645-301-526.

Analysis:

No structure exemptions have been granted by the Division. All structures must meet the applicable regulatory requirements. Although the refuse structures existed pre-law and do not currently meet the requirements of the performance standards, no exemption can be granted since exemptions do not apply to existing coal mine waste disposal facilities. See R645-100-431.

Findings:

No exemptions were granted by the Division for Existing Structures at this site. The permittee has not met the requirements of this section for the existing Preparation Plant Coarse Refuse Pile. In order to be in compliance the permittee must complete the requirements of NOV 95-39-2-2.

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR Sec. 784.17; R645-301-411.

Analysis:

No listings of Public Parks and Historic Places were noted in the permit area and no additional operation requirements were identified. See the discussion under " HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION" of this T.A.

Because there are no known cultural resources in the permit area, no protection measures are required. If any are found during the course of operations, a standard permit stipulation requires the permittee to notify the Division of State History.

Findings:

The plan was determined to meet these requirements in the State Decision Document on August 22, 1984. The approval is based on the Division of State History documents dated September 24, 1981 and January 19, 1984.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.26, 817.95; R645-301-244.

Analysis:

The Wellington Preparation Plant operates under an Approval Order from the Utah Division of Environmental Health, Bureau of Air Quality, issued December 29, 1989. The plan includes copies of an updated Approval Order issued October 28, 1992.

It is not clear whether this Approval Order includes the proposed removal of fines. If the permittee intends to remove fines from the slurry ponds, they should confirm that removal is allowed under the Approval Order. This section also contains a narrative on facilities and methods used to control air pollution.

Findings:

Information provided in the proposal does not meet all of the minimum regulatory requirements of this section. Prior to final approval, the applicant must provide the following in accordance with:

R645-301-420.	Update the Approval Order issued by the Division of Air Quality to reflect the appropriate permittee.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Road Systems

Primary roads are identified as 3,700 feet of haul road, from the property boundary to the load-out facility which joins a county spur road used to access borrow pits. The spur road then joins the Carbon County Ridge Road. "As-built" design information was incorporated through a December 21, 1989, submittal and was considered part of the permit. During construction a 30 foot base was bladed for the load-out haul road. The primary haul road is 24 feet wide and has a grade from 2.4 % to 2%. Side slopes are 4:1.

The Permittee indicates primary roads are surfaced with rock, crushed gravel and asphalt or other material, and are routinely maintained. Drainage ditches run parallel to the haul road on the uphill side. Non-acid non-toxic forming substances were used in the haul road construction.

In the plan, Ancillary Roads are stated to receive a top cover of coal cleaning waste when the road crosses coal waste material. This statement meets the regulatory requirements if; the road surfacing to be applied is non-acid and non-toxic forming; the road surfacing meets other applicable regulatory requirements; and, the road surfacing is appropriately handled during the reclamation phase. Ancillary Roads are stated to be inspected monthly and repaired as needed.

The permittee has identified the following ancillary roads: the plant access road; the refuse pile access road, the material storage yard access road; the Clearwater pond access road; the dike roads. The permittee has failed to include the slurry pipeline access road, and roads adjacent to the slurry impoundment. The permittee also identified the Sluiceway as a road that was used pre-SMACRA and was used to access the west side of the Price River but, was not used following county road construction. The date the "Farnham" county road on the west side of the Price River was constructed was not presented to lend credence to the claim that the Sluiceway road was used pre-SMACRA.

The operator states that all roads in the permit area are ancillary with the exception of the main haul road. In order for a road to be classified as ancillary no coal or spoil can be transported on it, it must be removed during reclamation and used infrequently or for less than six months. All of the ancillary roads have been used for more than six months, therefore in order to meet the requirements of R645-301-527.122 they must be used infrequency.

The term infrequently is not defined in the regulations but usually applied to roads that are used for access to remove water monitoring stations. Roads that access to test plot and areas that a regular inspected are usually classified as primary. Roads that will be used during reclamation must be classified as primary. Any road that is to be retained as part of the post-mining land use must be classified as primary R645-301-527.123.

Other Transportation Facilities

Additional transportation includes the railroad. A portion of the rail system is utilized by CVR to load rail cars, and is directly related to coal mining operations. Clarification of the portions belonging to the railroad right of way are marked on Exhibit E9-3342 (1 of 2, revised June, 1995). The rail is operated by the Denver and Rio Grande Western Railroad. No documentation of the railroad ownership was presented.

Findings:

The plan does not meet the minimum requirements of this section. The Permittee must provide the following :

R645-301-527. Provide a detailed description of each road constructed used or maintained in the permit area. Demonstrate that each of the roads classified as "ancillary" meet the requirements of R645-301-527.130. At a minimum the operator must identify the present and future use of the road and state that the road will

be removed during reclamation. The permittee must change the R614 references to R645.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Refuse Piles

Plant Refuse Pile Operational Phase

Refuse piles must meet the requirements for coal mine waste, and the requirements of 30 CFR Sections 77.214 and 77.215. The Permit contains an MSHA report for the plant refuse pile, dated April 23, 1976. The report is located in the Hydrology Appendix Volume II under the " As-built Specifications, Designs, Approval letter, and Other Information for Coal Refuse Piles and Impoundments". This inspection report indicates compaction of refuse was completed in 5' lifts with surface graded at 3% from the crest and 2:1 side slopes.

A construction history form indicates; the refuse pile was started in 1958; and slopes exceed 2:1 in an area where no impounded water can occur to cause failure. The over-steepened section is adjacent to the railroad spur right-of-way.

A stability analysis was conducted on the plant refuse pile in Appendix H and was certified by Douglas R. Hawkes, a Licensed Professional Engineer. The stability analysis assumes drainage will be provided on and around the refuse pile by sloping the top of the pile, therefore, no water would be allowed to build up in the refuse material. It also assumes a maximum refuse pile height of 50 feet. The engineer concluded, the refuse pile in its present condition, has a factor against failure through the foundation soils of greater than 1.5, and the safety factor against failure through the refuse pile of approximately 1.1. Refuse slopes of 1.4H:1V to 2H:1V have a safety factor against failure greater than 1. Failure through the refuse would be shallow failures of the exterior steep slopes and would not jeopardize the overall stability of the refuse pile.

Where refuse pile slopes are greater than 2:1, they must meet MSHA 77.215 (h) requiring approval for the steepened slopes. An approval letter for the plant refuse pile was not provided in the MRP. The approval must be incorporated into the MRP. If approval was not granted, according to R645-301-536.100, the disposal facility will be designed using current prudent engineering practices; be designed to be stable; and meet design criteria established by the Division.

The operational sediment control measures include: drainage to the Plant Sediment pond presented in the Hydrologic appendix, Watershed #5; and treated by ASCA #3 for the East, West, and South slopes. Ditch UD1A provides a diversion around the refuse pile which was previously determined adequate to transport the 100 year - 6 hour event this ditch will be retained for the reclamation phase.

Waste will be placed in a maximum of eight inch lifts and allowed to dry to within 2% of optimum soil moisture and compacted by rubber tired construction equipment to achieve a minimum of 90% Standard Proctor.

R645-301-514.200, requires the applicant to conduct regular inspections during placement and compaction of coal mining waste. By definition sediment pond waste is considered coal mining waste. The plan includes certified designs as required by R645-301-536.

Plant Refuse Pile Reclamation Phase

The proposed final configuration of the refuse pile does not include an underdrain. For the existing and proposed extent (1995/1996 submittals) an underdrain does not appear necessary. The refuse materials are coarse, no seeps or springs are present and site climate and drainage area of the pile does not warrant an underdrain.

The proposed final configuration of the Plant Refuse Pile is based on non-hazardous waste materials received from the clean-out of the sediment pond waste from the Genwal Mine. Designs have been provided for the final configuration of the refuse pile as shown on Drawing 536a and in cross sections on Drawing 536b. The proposed side slopes are 2H:1V to 7.5H:1V. The face of the pile slopes at 8% to the east while the top of the pile slopes at 0.5% to the south. The proposed final configuration will accommodate approximately 10,000 cubic yards of material. The refuse pile will be capped with four feet of soil cover to an elevation of 5,370 feet or 40 vertical feet from the toe to the top of the pile. The pile will be gouged to enhance revegetation and inhibit erosion (Section 5.36). No permanent impoundments are proposed on the refuse pile.

The Permittee has presented designs for controlled drainage from the refuse pile for the 100 year 6 hour event for final configuration of the pile. An earlier proposal was to demonstrate runoff from the pile does not require a designed drainage however, the basis for that design assumes gouging on the top of the refuse pile would be permanent and the vegetation would not be adequate to reduce run off from the surface when the basins are no longer effective. Currently the applicant has proposed a design for rivulets to carry the flow. These rivulets have a 0.1 foot width and 0.1 foot depth. Through the proposed methods it is clear the permittee does not believe a designed ditch transporting water off the face of the refuse pile is necessary. The Division is not accepting the presented design as an appropriate way to control drainage for runoff from a 100 year 6 hour event over a refuse pile. However, as a performance standard the design of drainage over this pile may or may not meet the intent of the regulatory requirements. Because the permittee, through their actions, believes so strongly that a designed ditch will not be necessary to meet the performance standards, the Division is accepting the refuse design without a ditch and will enforce regulatory requirements based on performance standards rather than the literal interpretation of the

law. The Division accepts the lack of a designed drainage from the face of the pile based solely on successful field performance according to the regulatory requirements for the following reasons:

1. The site is arid and the refuse in the pile is generally coarse with good infiltration (However this may change slightly for final reclamation through compaction). Therefore, if erosion occurs it is likely to be from the topsoil and is not likely to erode the refuse.

2. The Permittee feels that a ditch design transversing the sideslope is prone to failure and requires constant maintenance. The Division agrees.

3. The Permittee has proposed gouging the top which will minimize the erosion that might occur over the first 3 years prior to vegetative development.

4. If excessive erosion develops the Division can issue a notice of violation and the applicant at that time would have to re-design the refuse pile. Design options include grading the face and top of the refuse to drain to the north east through a ditch/swale system thus, providing drainage over the face of the refuse and reducing the drainage area and length of drainage to the side slopes. Surface runoff will usually concentrate in **less than 400 feet** (*Predicting Soil Erosion by Water a Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)*, USDA, ARS 1991, Draft). The redirection of the surface waters to the north reduces the flow down the side slopes to under 160 feet, minimizing the potential for concentrated flows where ditch designs are not practical and the length of slope is reduced.

The Permittee indicates in Section 5.14 that the Plant Refuse Pile is included in the quarterly inspections. For construction periods the Permittee committed to inspections when the foundation is extended beyond the existing pile and when final surface drainage is completed. Compaction tests will be provided to the Division. Inspections are also required during construction periods.

Ditch UD1A provides a diversion around the refuse pile which was previously determined adequate to transport the 100 year-6 hour event this ditch will be retained for the reclamation phase. The Permittee also proposed an additional ditch along the southwest toe of the pile that routes drainage to the Permanent Diversion Ditch. The purpose of the ditch at the south side of the Plant refuse pile is not clear and does not seem necessary since the topographic contours indicate the surface graded away from the slope toward this ditch. A ditch/swale is present at the north west corner of the pile. Designs are provided under the Hydrologic Appendix Watershed #5.

Findings:

The Permittee has adequately addressed the cover requirements regarding backfilling of noncoal materials disposed of on site. The Permittee has fulfilled the minimum regulatory requirements for cover by committing to cover the Plant Coarse Refuse Pile, the Slurry Pond Coarse Refuse Pile and the Slurry Pond Basin Area with four feet of nontoxic and noncombustible material. The Plant Refuse Pile side slope requirements are being handled under Notice of Violation N95-39-2-2, not abated as of this date.

The Permittee must provide the following in accordance with:

R645-301-526. Complete the requirements of NOV N95-39-2-2.

OPERATIONAL HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Sedimentation Ponds

References to cross-sections provided for the Road Pond and Auxiliary Pond emergency spillways are found on Drawing 712d. Sediment clean out elevations and sediment storage volumes are on the stage capacity curves for the Auxiliary, Road and Dryer sediment ponds (see Sheets 2 through 4 of 4 in the Hydrologic Appendix Watershed #4).

Engineering practices generally require cross-sections for length and width and include critical sections such as minimum embankment height. This information was provided in earlier cross section diagrams which is easer for inspection purposes in the field. This information was also provided for the Dryer pond. The permittee has provided sediment storage and decant elevation on the pond stage capacity curves for other ponds.

The permittee currently has the Road, Auxiliary and Dryer sedimentation ponds in series. The current operations provides design for the Dryer pond to be used without the Road and Auxiliary ponds. **The permittee has not provided adequate designs to accept removal of the Road and Auxiliary ponds. The Division therefore assumes the axillary pond will remain until an acceptable amendment is filed at the Division.**

The design flow rates for the Road, Auxiliary, and Dryer Sediment pond spillways were derived based upon information supplied in the Hydrologic Appendix. Hydrologic calculations include: cover type (Sheet 2 of 7), Curve Numbers (Sheet 3 of 7), time of concentration (Sheets 6 & 7 of 7, 10-year 24-hour HEC-1 model printout with peak flows summarized on Sheet 13 of 13, and 25 year 6-hour HEC-1 model printout with peak flow summarized on Sheet 10 of 10).

The permittee has designed the Road Pond emergency spillway to spill out the south end of the Road Pond. The control point is set by the road elevation. The emergency spillway for the Auxiliary Pond occurs over the topographically low south portion of the pond. Although the permittee's spillway design is not conventional, it indicates the velocity across the site in a flood event is not expected to be of a significant nature to cause damage. Because the ponds are incised and the surrounding area is flat, impacts due to failure of the pond would be negligible. Cross sections across the slurry pipeline sediment pond are found on Sheet 712c. Emergency spillway locations presented for the Auxiliary Pond and Road Pond are found on Sheet 712d.

The Dryer Sediment pond is shown to contain the 10-year 24-hour precipitation event from Watershed #4 and pass the Peak 25-year 6-hour storm event through a drop inlet spillway structure when the pond is full. The sediment storage (below the decant level) was estimated to be .036 AF per year. The clean out sediment level at 5330.31 estimated volume is 0.84 AF or approximately 23 times the computed 3 year sediment volume (not 50 times as stated in the text). Thus, sediment volume is adequate.

The operator has confirmed that the primary and emergency spillway and the 24 inch inlet are at inadequate elevations and that the water will back out of the inlet (the auxiliary pond spillway) until the elevation of the inflow exceeds the capacity of flow in the dryer pond rather than exit through the designed spillways. Currently the principle spillway elevation for the Dryer pond is at 5336.91 according to Map 712D, while the emergency spillway is at 5337.91. The current principle spillway for the Auxiliary pond is at 5335.9 (with a riser) according to Map 712D, while the emergency spillway is at 5340.6 according to the spillway designs. The current principle and emergency spillway for the Road Pond is at 5336.5 and 5339.3 respectively as show on Map 712D. Because the dryer pond primary spillway is at 5336.91 feet water will back into both the Auxiliary and Road ponds prior to spilling through the Dryer Pond primary spillway.

Thus, the permittee's proposal to remove both ponds becomes a problem during the operational phase. Relative elevations are included on Maps 712E and 712D. It is determined that the pond inlets and outlets are not a prudent design and will pond water prior to discharging out of the primary and emergency spillways. Therefore the designs do not meet the requirements of R645-301-742.300 and R645-301-742.200. If the permittee removes the Auxiliary Pond the water will spill out of the inlet before spilling through the spillway at the current configuration. *Therefore, it is recommended the permittee eliminate references to removal of the auxiliary pond from the plan and provide a commitment to remove the inlet between the dryer and road pond and re-establish the embankment at an elevation that exceeds the emergency spillway elevation of the Dryer pond. This information would be incorporated into the text of the plan.*

The Dryer Pond decant is proposed to be a continuing discharge and was demonstrated to meet the effluent limits using the SEDCAD program. The Decant is located approximately 5.3 feet below the primary spillway at 5331.62 feet. The sediment clean out level is at 5330.31 feet or 1.31 feet below the decant. (It should be noted that with the decant level close to the sediment clean out any proposal to change that elevation would require an increase in the decant elevation). Normally the soils analysis and lab data is required to determine what soil sizes exist on site. In

this case the permittee has provided soil gradation without referencing where the values were obtained. Should a sample of the discharge from the decant indicate the operator is not meeting effluent limits the permittee would be considered in violation of the permit. The UPDES permit should reflect the operators proposed decant operations.

The north west emergency exit functions as an inlet until the water reaches a 95.1 foot (map) elevation. At this point it becomes an outlet. The use of an inlet as an outlet is not considered a normal design and was not in the original approved design for construction. Since this pond is newly constructed the permittee would better meet the objectives of the regulations with the intent of meeting the design requirements of **R645-301-745.225.2**, demonstrating a single discharging spillway is adequate by showing the pond can retain the larger of the 100 year - 6 hour and 10 year - 24 hour event. The lack of a more conventional design is not expected to increase significantly environmental safety at this site as it is currently in a non-operating mode. References to cross-sections provided for the Road Pond and Auxiliary Pond emergency spillways are found on Drawing 712d. Sediment clean out elevations and sediment storage volumes are on the stage capacity curves for the Auxiliary, Road and Dryer sediment ponds (see Sheets 2 through 4 of 4 in the Hydrologic Appendix Watershed #4).

Findings:

The plan does not fully meet the requirements of this section. The Permittee must provide the following in accordance with:

R645-301-740. Provide designs that meet the requirements of R645-301-740 and R645-301-742. *It is recommended that the permittee eliminate references to removal of the auxilliary pond from the plan and provide a commitment to remove the inlet/culvert between the dryer and road pond and re-establish the embankment at an elevation that exceeds the dryer pond emergency spillway elevation.*

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Affected Area Maps

Affected area maps are provided as identified under the Environmental Resource Information section of this TA.

Mining Facilities Maps

Mining facilities maps are provided as identified under the Environmental Resource Information section of this TA.

Mine Workings Maps

There are no mine workings in the permit area.

Monitoring and Sample Location Maps

Monitoring and sample location maps are provided.

Findings:

The plan meets the minimum requirements of this section.

RECLAMATION PLAN

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The premining land use description approved in the 1984 technical analysis describes those areas occupied by the coal cleaning plant, the rail road system and the refuse disposal area as "undeveloped lands", while remaining areas were described as used for limited grazing. The postmining land use was approved to return all disturbed areas to "undeveloped lands".

Although areas proposed to be disturbed for the topsoil borrow areas "A"were historically used as cropland. Map E9-3343, identified topsoil borrow area a as ""Pasture Lands/Grazing (Rotation Optional)" This area was not previously disturbed nor approved as a premining land use with the 1984 permit decision package.

The Permittee should note that should cropland be proposed to be a postmining land use, the requirements for bond release for farmland productivity must be equal to a reference area or other success standard approved by the Division. A success standard would need to be approved.

The postmining land use in the plant processing area is approved to be returned to "undeveloped lands". A discussion was included suggesting the Permittee may change the postmining land use to Industrial. If the Permittee proposes to change the postmining land use, it must be done in accordance with R645-301-412.130 and R645-301-414, including public notice as a significant revision to the plan

R645-301-414 requires the Permittee to demonstrate that the land will be returned to its premining land use capability as part of the original permit. The Permittee has proposed to do this in the current reclamation plan. No postmining land use changes are proposed or approved at this time.

Land Owner Comments

Portions of the railroad are proposed to be retained for reclamation. The Permittee has shown the portions for which the railroad will take responsibility for post-mining land use on Exhibit E9-3342 (1 of 2). The easement agreement with the Denver and Rio Grande Western Railroad stated to be attached to Appendix J was not found. An additional discussion of the right-of-way is provided in the transfer between Kaiser and Genwal Coal Company. This discussion however, did not include a description the right-of-way location.

The plan indicates the county maintains the Class I Road (Ridge Road) to the Wellington site and maintains the County Road (Farnham Road) on the east side of the Price River (Section 5.27). All other ancillary roads are maintained by the Operator. The permit area is within 100

feet of the Ridge Road and Reclamation activities will occur within 100 feet of the Farnham Road (the road on the east side of the Price River and west of the slurry cells). Carbon County has provided a memo to the State of Utah DOGM to indicate the county has no objections to mining and reclamation activities within 100 feet of the Farnham Road. This letter also discusses county maintenance. Another letter from the Department of Transportation to the Division states there is no objection to mining and reclamation activities occurring **more than** 100 feet from the Ridge road and indicates they provide maintenance for the Carbon County Special Service District and Carbon County. The only mining and reclamation activities that would occur within 100 feet of the Ridge Road would be on permitted roads. The Permittee does not need to gain permission to conduct operations within 100 feet of a public road where the only activity would be a permitted road. It is assumed the Department of Transportation has authority for this road through the agreement with the county. County roads are identified on the Permit Area Facilities Map E9-3341.

A discussion for the area north of the main road, previously used as a haul road to the site, and it's relationship to the post mining land use should be included in the MRP. Currently the roads between the railroad and the haul road at the north west end of the Preparation Plant area is proposed as a borrow area and will become a mining related activity no status as to previous use was presented. R645-301-542.600 says a road not to be retained for use under an approved postmining land use will be reclaimed immediately after it is no longer needed for mining and reclamation operations. The plan shows no postmining land use for the old haul road, so it needs to be fully reclaimed.

Man made structures proposed to be retained include the existing Price River Diversion Weir, three culverts associated with the Farnham county road and, four culverts associated with the Railroad right-of-way as shown on E9-3342. The Weir was not demonstrated to meet the Post Mining Land Use requirements at this time. Since this weir is associated with a water right future owner consideration or reclamation will be necessary.

The Permittee must notify landowners and adjacent land owners who may be affected by reclamation prior to implementation of the reclamation plan.

Findings:

The postmining land use description approved in the 1984 technical analysis describes those areas occupied by the coal cleaning plant, the rail road system and the refuse disposal area as "undeveloped lands", while remaining areas were described as used for limited grazing. Areas proposed to be disturbed for the topsoil borrow area "A" is shown to presently be used as "Pasture Lands/Grazing (Rotation Optional)".

The plan meets the requirements of this section except that the Weir and road issues must be clarified prior to approval for their retention as postmining land use features.

RECLAMATION PLAN FOR FISH AND WILDLIFE

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-342, -301-358.

Analysis:

The only critical wildlife habitat in the permit area is the riparian area along the Price River. The permittee has submitted revegetation plans for this area including restoration of riparian plant species.

Conceptual plans for enhancing wildlife habitat under alternative postmining land uses include:

- Crop management practices following reclamation may include breaking up large areas of monocultural crops with trees, hedges, and varied crops and pastures to provide habitat and diversity for wildlife.
- If an industrial area is developed, the Permittee could intersperse reclaimed land with greenbelts or grass, shrubs and trees.
- Native species are included in the final reclamation seed mixture.

The submittal dated April 30, 1996, says a new plan for reclamation and wildlife enhancement will be formulated. Appropriate agencies have been contacted and a meeting in the field has been planned by biologists representing both DWR and the operator in May 1996. New plans for wildlife enhancements will be submitted to DOGM on or before June 28, 1996. As far as the Division is aware, these new plans have not been submitted. The Permittee needs to develop and submit the plans discussed in the April submittal.

Findings:

The plan does not met the requirements of this section as there are no plans for specific wildlife enhancement measures required by **R645-301-342.**

The Permittee must provide the following, in accordance with the requirements of:

R645-301-342. Commit to reclaim the area to the premining land use and include a plan for practical wildlife habitat enhancement measures using the best technology currently available (following approval, the permittee can consider alternative land uses and how habitat enhancement measures can be incorporated into these land uses).

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

Reclamation backfill and grading information can be found in Section 5.40. No high walls exist at the site. Stability analysis of the Refuse Dikes were conducted in 1985 and assumes a crest width of 15 feet. These analysis indicate the Upper Refuse Dike on the lower pond side with 3H:1V slopes had a static factor of safety of 1.5 and seismic factor of safety of 1.2 with 0.1 gram of horizontal force applied. The Upper Refuse Dike on the upper pond side with 2H:1V slopes had a static factor of safety of 2.2. and seismic factor of safety of 1.6 with 0.1 gram of horizontal force applied. The North Dike on the Siaperas ditch side with 2H:1V side slopes has a static factor of safety of 1.8 and a and a seismic factor of safety of 1.3. Although it is expected the factor of safety will increase by reclamation activities, the applicant must provide a certified design that accounts for the factor of safety for the reclamation refuse impoundment at the base of the clear water pond and any other potential failure surfaces such as the upstream end of the site for the proposed reclamation configuration and show that the site meets requirements for a permanent coal mine waste disposal facility.

The permittee has committed to protect necessary monitoring wells by flagging and extending the wells as necessary to maintain them during the reclamation process.

The permittee has committed to grade the site to blend with the surroundings. The permittee has shown areas to be graded such as the Haul Road, the drainage/road system where the slurry pipeline is shown, the final contours for the topsoil borrow areas and other areas where grading is required to meet the approximate original contour and promote drainage. Where it is difficult to show the contours a commitment to grade to blend with the surrounding areas and illustration with direction arrows show the overall drainage grading plan as presented on Exhibit E9-3342 1 of 2 certified on October 23, 1996.

Exhibit E9-3342 1 of 2 has a scale of 1 inch equals 400 feet. The Division needs a smaller scale map to determine the adequacy of the backfilling and regrading plan. R645-301-542.300 state that the surface configuration maps and cross section must be at intervals determined by the Division. The Division has determined that the map needs to have a scale of no more than 1 inch equals 100 feet and that there should be cross sections every 100 feet.

The permittee states that all final embankments will have slope that are less than 2 horizontal to 1 vertical slopes. The static safety factor for those slopes is stated to be greater than 1.5. The permittee needs to document how the safety factors were determined.

Findings:

The permittee has not met the requirements of R645-542.300. The Permittee must provide the following, in accordance with the requirements of:

R645-301-542.300. Provide the Division with maps at scales of not larger than 1 inch equal 100 feet for all areas that will be backfilled and regraded. Document how the safety factor on the final embankment of the reclaimed slurry impoundment/refuse pile was determined.

RECLAMATION TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-232, -301-233, -301-234, -301-242, -301-243.

Analysis:

The Division's July 25, 1996, Technical Analysis (TA) for the Wellington Mine Reclamation Plan (MRP) contained the following deficiency: ***R645-301-533.252, supply the needed amount of borrow material to meet the minimum regulatory requirement of 4 feet of the best available, nontoxic and noncombustible material.*** In response to the above deficiency, Nevada Electric Investment Company (NEICO) has provided a Deficiency Response submittal which replaces a portion of the existing MRP's Section 2.41, pages 4-10, (6/30/95 & 10/13/95) with an amended Section 2.41, pages 4-8, (10/23/96). Section 2.41 discusses the proposed topsoil borrow areas. The submittal also replaces Drawing G9-3511, certified 6/95 of the existing MRP with an amended Drawing G9-3511, certified 10/96. Drawing G9-3511 illustrates the potential borrow areas.

Drawing E9-3511 show all potential topsoil borrow areas which include areas "A" through "G". These areas consist mainly of native soils and some mine-related and agriculturally disturbed soils. The native soils are limited by their physical and chemical makeup as substitute topsoil. Section 2.22 discusses proposed borrow areas and presents data from 7 sampling periods. Area "D" and "G" soils show a thin veneer of mixed alluvium overlying residuum from Mancos shale. These areas are currently not approved as soil borrow and/or substitute topsoil. The likelihood of reclamation success in these soils after disturbance is significantly reduced because of the Mancos physiography and residuum influence.

Topsoil Borrow Areas "A" and "E" were initially proposed in an earlier (6/30/96) submittal of Section 2.41. In the current Section 2.41 submittal, soil borrow area "B" has been substituted for soil borrow area "E" because area "E" lacks the soil quantity and quality necessary for the reclamation commitments at the Wellington site. Salvage depths in areas "A" and "B" will be at 2.0 and 5.6 feet, respectively.

The earlier Section 2.41 submittal contained a commitment from NEICO to conduct a soils survey of the soil borrow area "E" in April 1996. Results from the 1996 sampling of Area "E" (Section 2.22, 7 th

Sample Period) showed a deficit in supplying the best available, nontoxic suitable soil cover. Only 48.7%, or 31 acres, of the site contains salvageable soil to a 10 inch depth. Unsuitable slick spots within the area contain sodic and/or saline soils which preclude the greater majority of these soils from salvage. In addition, reclamation of the borrow site is severely impeded because disturbance of the marginal surface soils would expose additional sodic/saline subsurface soils as indicated by the data. Finally, subsurface soils at depths just below 10 inches and greater contain high AB-DTPA extractable selenium (>0.1 mg/Kg). The 1996 Area "E" samples include NEICO-8, -9, -10, -11 and -12.

Area "A" was sampled extensively in 1995 (Section 2.22, 6 th Sampling Period) to assess the potential of this area as borrow material. The NEICO-1 sample shows this soil as salvageable to 72 inches without any deleterious qualities except for a clay stratum located between 72 and 91 inches. Three additional samples were taken in area "A" and include NEICO-2, -3, and -4. Soils in these areas have much higher EC and SAR values with heavier clay textures. Saline and alkaline conditions exist in all cases at the 2-foot depth.

Salt affected soils within Borrow Area "A" may preclude these soils as borrow material. Surface soil salvage will expose salt affected subsoils which will negatively impact the borrow area reclamation and revegetation success. Since salt accumulations move within a soil profile and vary according to seasonal variability and moisture availability, special handling and mixing requirements need to be addressed to help assure reclamation success. These include:

- *Provide on-site, real-time analysis of Area "A" soils in 18 inch depth increments to help demarcate soil suitability during salvage. Analyses shall include pH, EC and SAR. Soil salvage will proceed only after determining subsurface soil quality.*
- *Soil borrow of Area "A" soils should only occur after Area "B" soils have been exhausted.*

The central portion of Area "B" soils are represented by NEICO-6 while the southern end of Area "B" may be represented by NEICO-5 soil samples (Section 2.22, 6 th Sampling Period). No limiting factors were encountered for the NEICO-6 sample location. For the NEICO-5 sample location, a calcic horizon exists between 16 and 32 inches, shale bedrock is encountered at 123 inches, and soil pH values are rated poor (8.5 to 9.0) below 16 inches. Based on NEICO-5 and -6 samples, this area could be salvaged to a 6.25 foot depth while leaving 18 inches of suitable material for revegetation of the borrow area. *Additional sampling of Area "B" soils should be performed to further examine the northern and periphery portions.*

Soil profile monitoring and analysis will be conducted immediately prior to salvaging soils from borrow areas "A" and "B" and will include EC, pH, and SAR. These testing procedures will help determine the location and amplitude of salt accumulations. Soil handling plans will be based on analyses results.

Section 2.41, General Requirements (R645-301-241), page 3, Coarse Refuse Pile, Slurry Ponds, and Coarse Slurry Pond subsections all reference Borrow Area "E" for imported soil during reclamation. Area "E" should be replaced by Area "B" as explained in the new submittal of Section 2.41.

Findings:

The plan does not meet the minimum requirements of this section. The Permittee must provide the following, in accordance with the requirements of:

R645-301-233. Provide a commitment in the text of the plan to perform the following: 1) during salvage provide on-site, real-time analysis of Area "A" soils, in 18 inch depth increments, including analysis of pH, EC and SAR, 2) proceed with soil salvage only after determining subsurface soil quality, 3) proceed with soil borrow Area "A" soils only after Area "B" soils have been exhausted, and 4) prior to salvage, sample Area "B" soils in the northern and periphery portions of this proposed topsoil borrow area (The Division requests that they be apprised of the sampling agenda and participate during the sampling).

R645-301-241. Area "E" should be replaced by Area "B" as explained in the new submittal of Section 2.41.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

The applicants final grading plan Map E9-3342 shows a portion of the railroad spur and the county road adjacent to refuse pile to be retained.

Findings:

Plan meets the minimum requirements of this section.

RECLAMATION HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Reclamation Drainage Diversions

Diversion	Design feature	Design Event	Function
Reach -1	Permanent	100 year - 6 hour	Collects flow from area north of the Plant refuse pile and diverts water around the pile.

UD-1A	Permanent	100 year-6 hour	Collects flow from Watershed #2 and #3 diverts water around preparation plant area. and diverts water around the Plant refuse pile.
Siaperas Ditch	Permanent Diversion	100 year-6 hour	Collects flow from Watershed #9 and diverts water around the Slurry Impoundments.
Permanent Diversion	Permanent	100 year-6 hour	Collects all undisturbed flow north of the Slurry Cells and diverts water into the Siaperas ditch.
D1, D2, D3,	Permanent	100 year-6 hour	Collects flow from reclaimed slurry basins and diverts therm to the Clear water Pond.
D-3, D-4, D-5, D-6	Permanent	100 year - 6 hour	Collects drainage from south side of haul road to CU-1 and crosses under the road.
County road culvert.	Permanent	100 year - 6 hour	Collects drainage from reclaimed slurry impoundments beneath road to the Price River.
Lower Slurry Diversion		100 year - 6 hour	Collects drainage from south east side of slurry impoundment diverts around the lower refuse basin.
Road side ditch and 2 culverts	County road	100 year 6 hour	Passes drainage along road away from coal mine waste under road to east side of drainage.

Watershed #1 is proposed to be regraded following use as a topsoil borrow area. To the best of the Divisions understanding through reviewing previous documents, this area (except changes related to the haul road and rail road spur including topsoil piles) has not been used in mining related activities to date but, will be used as a topsoil borrow area. According to the permittee and, early mining permit information, it was used by the county as a staging area and was leased to another entity at one point. The permittee should provide the information to clarify the previous historic land use of this region if this area is removed from the proposed mining reclamation activities.

The drainage surrounding the plant refuse pile is proposed for grading to blend with the surroundings. The drainage from this area will be graded such that water is not ponding at the toe of the slope and, so that, water drains to the culverts retained as part of the railroad utility.

The Proposed "Diversion Ditch" is indicated to be discharged to the clear water pond prior to grading the clear water pond embankment. Following completion of the upper, sections D-1, D-2, and D-3, and after approval for pond removal the ditch will be completed to the Price River.

Stream Buffer Zones

The only reclamation that will take place within the 100 foot buffer zone includes the removal of the slurry pipeline and the area adjacent to the pump-house along the Price River. No additional disturbed area beyond the existing disturbance is proposed to provide for reclamation of the site. Approval or notification to the regulatory agency is recommended, and will be necessary if the retention of the weir crossing the Price River can not be approved. Prior to approval for retention the

permittee must show that the owner of the right will assume liability for the structure. Sediment control measures will be employed to prevent additional contributions of sediment to surface waters.

Structure Removal

All structures are proposed for removal other than the three culverts proposed for retention associated with the Farnham road. Additionally the weir structure across the Price River near the pump-house is to be retained. This structure is shown on map G9-3507 as a permanent point of diversion. Clarification for use and need in retaining this structure should be included in the plan as well as a memo or verification of use supplied from water rights or other authorized entity prior to approval for retention of this structure.

Findings:

The permittee has met the requirements of this section, except that, prior to approving retention of the weir crossing the Price River, a demonstration that the post mining land use requirements are met, as well as, a memo from an authorized entity, associated with the water right, to accept maintenance of the structure must be included in the plan.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Because the preparation plant is currently inactive, the Permittee is required to evaluate the status of the disturbed areas that will no longer be necessary for future operations through Division Order 96 A. The applicant has presented a schedule for contemporaneous reclamation

Findings:

The reclamation plan meets the minimum requirement of this section.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation Methods

According to the revegetation timetable in Section 3.41, six weeks of topsoiling, fertilization, and applying additional amendments would be followed by seeding in the fall. Fall is the normal time to seed in this area. Late fall is normally recommended, but some operators have had success with earlier seedings where some species can establish before snow falls.

There are six general areas at the Wellington Preparation Plant, and different methods will be used in these areas. The areas are the pump-house along the Price River to the base of the clear water pond, the surface facilities, the coarse slurry, the coal storage and processing area, the coarse refuse pile, and the slurry ponds. As outlined below, different methods will be used for these areas.

Chemical and organic matter soil treatments, fertilizer, topsoiling, and requirements to cover potential acid- and toxic-forming materials are not discussed in this section of the technical analysis. Surface preparation methods are discussed; those that may be used are ripping, gouging, and trenching.

The Permittee commits to rip soils in the surface facilities area to a depth of one foot. Other areas will be ripped where needed.

Gouging has been the most effective treatment in the slurry pond/coarse slurry test plots. The slurry pond/coarse slurry test plot monitoring data cited in the plan, indicate perennial vegetation cover in gouges to be 18.38%, while perennial vegetative cover was 5.54% in non-gouged areas. Considering this and the difficulty the permittee has had establishing vegetation in any of the test plots, gouging is considered necessary to revegetate the area. The plan contains commitments to gouge every area.

Three seed mixes are presented in the plan. Mixture A is intended for areas believed to have had a shadscale/galleta community. It contains 16 species all but one of which are native to the general area. Mixture B includes 15 species, and these are all native to the area. Mixture B is intended for planting in areas believed to have supported a greasewood/seepweed community. Mixture C is for revegetation of the riparian community and includes a plan to establish willows from seed. The places where the seed mixes will be used are shown on Map F9-178, 179.

In Section 3.42, the plan discusses wildlife habitat enhancement along the Price River. Tamarisk along some sections of the river will be cut and the stumps treated with an herbicide to prevent resprouting. Willow cuttings and about 50 cottonwoods would be planted along the river

and the entire area would be seeded. The application says a source for cuttings is available a few miles away.

Seed will be applied by drill seeding in most areas except broadcast seed will be used in some inaccessible or steeper areas. In addition, the lighter, fluffy seeds that need to be on the surface or that cannot be drill seeded will be broadcast. Drill seeding sometimes decreases surface roughness, but surface roughness was successfully maintained in the test plots although they were drill seeded.

The Permittee plans to mulch with two tons per acre of certified noxious weed free straw or alfalfa hay. Mulch will be crimped or otherwise tacked to the ground. Straw and hay have been shown to provide better erosion control and surface protection for seedling establishment than many other mulches. The rate specified in the plan has been shown in different studies to be optimal in several situations.

Irrigation was used in the slurry pond/coarse refuse test plots and was one of the successful treatments. The plan says there is some doubt as to when and how often the plots were irrigated, but there was a significant positive correlation for irrigated compared to non-irrigated slurry pond test plots. All commitments to irrigate have been removed from the plan. Irrigation may be needed to establish vegetation on this site, but it should be possible to revegetate it with the water harvesting technique proposed by the Permittee.

Half of the coarse refuse pile plots were irrigated, but irrigation does not appear to have benefitted vegetation establishment in these plots. Very few perennial plants have established on the coarse refuse test plots.

The original surface facilities test plots were removed in 1990. Half of these plots were irrigated. The plots were sampled in 1990 before they were removed, but the data cannot be found. Lynn Kunzler, Division biologist, recalls that the irrigated surface facilities plots had much more perennial vegetation than the unirrigated plots. He believes the amount of perennial vegetation was as great as in the reference area. The new surface facility test plots, discussed below, have had limited success with no irrigation.

Judging from available information on effects of irrigation, it may be needed for establishing vegetation on the entire site. Precipitation is variable and undependable, and irrigation appeared to have positive effects on most test plots. The Division can approve the plan without irrigation over the site. Success of vegetative establishment will determine whether irrigation may be required in the future.

Success Standards

Revegetation reference areas are shown on Map F9-178, 179. The plan contains a commitment to establish vegetation in accordance with the performance standards in R645-301-356.

Section 3.41 contains a final revegetation sampling schedule that will provide the data needed for determining whether the site meets revegetation requirements.

In 1995, a representative of the Natural Resources Conservation Service examined the reference areas. Productivity was estimated at 500 and 750 pounds per acre for the shadscale/grass and greasewood areas, respectively. They were rated as being in good and high fair condition and therefore acceptable as revegetation success standards.

Section 3.41 contains a final revegetation sampling schedule that will provide the data needed for determining whether the site meets revegetation requirements. However, the plan does not contain erosion control success standards This is discussed under the section "STABILIZATION OF SURFACE AREAS."

Primary crops that have been grown in the topsoil borrow area are alfalfa and corn. Average production in 1991 and 1992 is estimated at 7384 pounds per acre for alfalfa and 6826 pounds per acre for corn. Production on the reclaimed area will be considered equal to this baseline information success standard when it is equal to or greater than 90 percent of the success standard with 90% statistical confidence. The production standard for alfalfa can be used whether the site is being used for hay or as a pasture. However, land being used for pasture or grazing must meet the revegetation success standards for both production and cover, and the plan does not contain any information about what cover standard would be used if the site was being used for grazing instead of crop production.

It appears that less than one acre of riparian habitat was disturbed; therefore, there is no requirement to have a separate reference area. The Division suggested and the Permittee proposed using the greasewood reference area to judge revegetation success. Species composition in this reference area is not what would be expected in the riparian area, but total cover should be similar in both areas.

Since the approved postmining land use is undeveloped land with some grazing, the regulations do not require a woody plant density success standard. However, the permittee intends to plant willows and cottonwoods along some sections of the river to enhance wildlife habitat. The area will also be seeded with other species adapted to the area.

Section 3.41 includes methods for measuring cover, shrub density, frequency, production, and diversity. Cover will be measured by ocular methods using meter square quadrats. Shrub density will be measured with the point quarter method. Production will be estimated by clipping, drying and weighing current annual growth. These methods would be used to compare revegetated

areas with reclaimed areas as discussed in the plan, the regulations, and the "Vegetation Information Guidelines" Appendix A.

The plan also includes methods for judging diversity and seasonality. The first is a comparison using relative cover and grouping certain species together, generally by lifeform. The combined relative importance of a set number of species in a lifeform would not exceed 75% and a maximum dominance of 40% is set for each individual species. The method was published by Sandra Emrich in a symposium sponsored by the Office of Surface Mining. It should also allow for statistical comparisons between the reclaimed and reference areas. Although a direct comparison to the reference areas can and should be made, the Permittee should not be required to have the same proportions of species in the reclaimed areas as in the reference areas. This makes it difficult to establish an actual standard aside from the maximums set in the plan.

In addition to the maximums included in the plan, the Permittee should meet the following standards. First, the category of desirable plant species in the reclaimed area with the greatest dominance should not have greater dominance than the category in the reference area with the highest dominance with a 90% statistical confidence. Second, every category of desirable species represented in the reference area needs to be represented in the reclaimed area. These standards will provide for a representative amalgamation of the life forms present in the reference area.

The Permittee intends to use three other methods to judge diversity and seasonality. These include the MacArthur and Wilson index and two methods of calculating the number of species in each plot. It does not appear the MacArthur and Wilson method allows for a statistical comparison. Also, the Permittee has not proposed a method of comparing the reclaimed and reference areas. If the reclaimed area has a higher value, meaning the frequency of occurrence is less evenly distributed, in the reclaimed compared to the reference area, it will be difficult to judge whether the site meets the success standard (based on this one measurement). However, if the value for the index is similar or lower than for the appropriate reference area, the reclaimed area can be assumed to have a more evenly distributed frequency of occurrence.

The two other methods to be used to judge diversity and seasonality are straightforward. In the first, the average number of species in each quadrat is obtained by summing the frequency of all species in an area and dividing by 100. This method does not allow for a statistical comparison and does not differentiate between desirable and undesirable species although undesirable species could be entirely excluded from the comparisons. A possible standard would be to simply have a higher average number of species per quadrat in the reclaimed area than in the reference area. If the Permittee was not able to meet this standard but did meet other diversity standards in the plan, the Division would probably still be able to consider the vegetation to have met the diversity success standard.

The final method is a comparison of the total number of species encountered in the quadrats in each area. This method does allow for a statistical comparison. The Permittee should be able to have at least 90% as many species in the reclaimed area as in the reference area with 90% confidence. Again, if the Permittee is not able to meet this standard but does meet most of the

other diversity and seasonality standards, the Division should probably still make a determination that the vegetation was diverse and comprised of species with the same seasonal characteristics as the reference area.

Numerous problems associated with soil and refuse will be encountered when reclaiming this site. Much of the refuse and some of the native soils have high salt and Boron levels which may inhibit water uptake or be toxic to plants. One of the success standards is that vegetation must be effective for the postmining land use. Selenium levels in some coal waste materials are higher than in Division guidelines. The Permittee now plans to cover the waste materials with 4 feet of non-toxic materials which should aid in reducing availability of selenium to plant growth. If plant selenium levels are toxic to livestock, the vegetation would not be considered effective for the postmining land use. These issues are discussed in the review of the soils and coal waste.

Field Trials

The Permittee had planned to use results from other test plots to develop a plan to rework the coarse refuse pile test plots in 1994. Instead, the plan now contains a commitment to cover the coarse refuse pile with four feet of soil from the borrow area. It says additional test plots on the coarse refuse pile are not necessary because of this commitment.

The Plant Coarse Refuse Pile has been nearly inactive since 1985. Division Order 96A requires the Permittee to evaluate the Wellington Preparation Plant facilities and submit a reclamation schedule for those areas that are no longer useful. It was expected that field trials could be conducted on portions of the refuse pile that were permanently reclaimed. The permittee responded that negotiations to sell the property are ongoing and that it would not be prudent for the current permittee to commit to a timetable. Field trials for the areas to be contemporaneously reclaimed will be coordinated with reclamation of the Plant Coarse Refuse Pile.

The surface facility plots were measured quantitatively in 1992 and were measured again in 1994. The 1994 data consists of plant density in each treatment plot (number of plants per acre). The data does not distinguish between desirable and undesirable species or give cover values. In 1992, these plots had about 2% cover from desirable species.

Although the most recent surface facilities plots have had limited success, this is probably due to climatic conditions rather than problems with the plan or its implementation. The previous plots apparently had better success, even in non-irrigated plots. Because favorable precipitation seasons are unpredictable and based on past successes and failures, it may be necessary for the permittee to seed more than once in order to establish vegetation on this site. However, it should be possible to establish vegetation meeting the requirements of R645-301-356 using the methods proposed in the plan.

The slurry pond/coarse slurry test plots have had some success and have provided useful information about certain reclamation practices. These are discussed under "Revegetation Methods."

The November 10, 1994, submittal compares data from the slurry pond/coarse slurry test plots to new data from the shadscale/galleta reference area. However, only grasses and shrubs were used in most of the comparisons. The reasoning is that most of the broadleaf forbs in the test plots were annual weeds. They would probably not have utility for the postmining land use. However, about 17% of the total vegetative cover in the reference area is from native broadleaf forbs not considered weeds.

In these comparisons, one slurry pond treatment combination ("N") had more cover than the reference area, and three others were within about five percentage points. A statistical comparison is not possible since the raw data was not submitted, but all four of these plots would probably be within 90% of the reference area standard (excluding broadleaf forbs) with 90% statistical confidence. The "N" treatment combination plots were not significantly different from the reference area standard even when broadleaf forbs were included in the reference area cover data (level of confidence not given).

To test whether the results from the "N" plots are anomalous, comparisons were made using all plots with the individual treatments in "N" to other plots. "N" plots were irrigated, had no coarse slurry over the fine slurry, had six inches of topsoil, and had no organic amendment. The organic amendment had no effect, but all other treatments used in "N" plots positively affected other plots. Therefore, it appears the results from the "N" plots are not anomalous.

Data from the slurry pond test plots and personal observations of the old surface facilities plots by a Division biologist suggest irrigation is a beneficial treatment for vegetation success. Therefore, it could be necessary to irrigate the area to meet revegetation standards.

The Permittee has been requested to submit a reclamation schedule under Division Order 96A. The status of the Plant refuse pile needs to be evaluated. If this area is contemporaneously reclaimed the applicant should provide test trials.

Findings:

The plan does not meet the minimum requirements of this section. The Permittee must provide the following, in accordance with the requirements of:

R645-301-341.250 The plan needs to contain a vegetative cover success standard for the topsoil borrow areas that might be used for grazing.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Revegetation success is discussed in Section 3.41. The Permittee has not provided a measure to determine successful reclamation per **R645-301-353.140.** In order to measure the success of

reclamation efforts, a standard should be supplied which will enable a determination as to whether or not the soil surface has been stabilized. However, because the operator has not done this, the Division will determine appropriate standards and methods at the time of reclamation. The Permittee will need to supply necessary information for the Division to make the determination that erosion is controlled.

Findings:

The Division finds this section of the plan to meet the minimum regulatory requirements. However, because the Permittee has not proposed a method for determining whether erosion has been controlled, the Division will choose methods for measuring erosion control and standards for success at the time of reclamation. The Permittee will provide the data needed.

CESSATION OF OPERATIONS

Regulatory Reference: 30 CFR Sec. 817.131, 817.132; R645-301-515, -301-541.

Analysis:

A discussion on temporary cessation of operations was presented under Section 5.15 and includes the following:

- The area has been properly secured as a result of the current status of activities.
- The operator effectively supports and maintains all surface access openings to the area and has secured surface facilities where operations are expected to be resumed under an approved permit.

The permittee has committed to notify the Division if temporary cessation of operations occur for a period of 30 days or longer and, stated the notice will include a statement of the procedures to be taken when undergoing temporary cessation. However, the permittee has not accurately described the notification procedures **specifically** identified under the requirements of R645-301-515.320.

Findings:

The plan does not meet the requirements of this section. The permittee must provide the following in accordance with the requirements of:

R645-301-515.300. Provide an accurate description in the plan clearly reflecting the requirements of this regulation.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected Area Boundary Maps

The disturbed area presented on the revised reclamation Map E9-3342 shows the proposed topsoil borrow areas and the proposed extent of the reclaimed surface area. The haul road, auxiliary roads, and drainages adjacent to the slurry sedimentation pond are included as regraded affected areas except for areas in question under R645-301-527.

Bonded Area Maps

The existing disturbed area is presented on Drawing E9-3333. The revised reclamation Map E9-3342 shows the potentially disturbed topsoil borrow area and other areas associated with reclamation grading. Section 5.12 of the plan states the area of the land for which a performance bond is posted is the disturbed area as shown on Dwg. E9-3333. The Bonded area should include all areas proposed to be disturbed under the reclamation plan. Other drawings may incorrectly identify the permit boundary and disturbed areas.

Reclamation Backfilling and Grading Maps

Map E9-3342 shows the proposed extent of the graded areas and includes contour information or direction of slope drainage for grading areas where topographic relief is generally flat and difficult to portray by contour lines. The haul road, auxiliary roads, and drainages adjacent to the slurry sedimentation pond are included with the exception of areas in question under R645-301-527 of this T.A.

Reclamation Facilities Maps

The Reclamation map E9-3342 shows retention of the existing diversion weir, county road culvert located between D4 and D6; four existing culverts are shown that are indicated to be associated with the railroad right-of-way.

Final Surface Configuration Maps

Map E9-3342 shows the proposed final configuration.

Reclamation Monitoring and Sampling Location Maps

See monitoring and sampling under the operations section of this T.A.

Reclamation Surface and Subsurface Manmade Features Map

No buildings are proposed for retention. The man made structures proposed to be retained include the existing Price River Diversion Weir, three culverts associated with the Farnham county road and, four culverts associated with the Railroad right-of-way as shown on E9-3342. The Weir was not demonstrated to meet the Post Mining Land Use requirements at this time.

Reclamation Treatment Map

The applicant has presented revegetation mix to be used for disturbed area reclamation on Map F9-178,179. No other reclamation treatment maps are known to exist.

Findings:

The information in the plan is adequate to meets the minimum regulatory requirements of this section except for areas in question under R645-301-527 and that retention of the weir crossing the Price River is not approved until the requirements of the R645 regulations for permanent structures and postmining land are met.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

The permittee has submitted an amendment to adjust the bond calculations in Appendix J on August 18, 1995 (revised August 17, 1985). On August 21, 1995 the Division determined that the bond amount, for the Wellington Preparation Plant, should be $6,036,000, escalated through December 1999.

The bond was based on the Operator's reclamation plan and cost estimate. It was assumed that reclamation would occur, under the worst case scenario, as defined by the OSM reclamation handbook.

Site conditions that were taken into consideration when determining the difficulty of reclaiming the area include:

- toxic soils that must be covered with a minimum of four feet of material;
- establishing vegetation under arid conditions;
- haul distance to disposal facilities.

Based on the information provided, the Division has determined that the site can be reclaimed at the end of the current permit for $6,036,000.00. Additional information presented based on a January 29, 1996, a Cessation Order allowed the Division to make a determination that the current bond is adequate to cover costs of removing asbestos material found at the site. Refer to the memo from Wayne Western to Joe Helfrich on April 2, 1996.

The latest proposal for the topsoil borrow area changes haul distance and regrading of topsoil to the waste rock site and may affect the bond.

Findings:

The permittee has not met all the requirements of this section. The Permittee must provide the following in accordance with the requirements of:

R645-301-800. Provide bond adjustments for the relocation and regrading associated with the proposed changes in the location of the topsoil borrow area and other pertinent changes associated with this amendment.