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

Technical Analysis and Findings

Wellington Prep Plant
ACT/007/012
July 25, 1996

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INTRODUCTION

This Technical Analysis summarizes NEICO's responses to the deficiencies identified in the Technical Analysis dated February 14, 1996, Amendment 96-B "Results from Soil Sampling "Area E", and the existing Mining and Reclamation Plan. The Mining and Reclamation Plan still contains deficiencies related to the Notice of Violation N95-39-2-2 and Division Order (DO) No. DO-96A. The Technical Analysis relative to these issues will remain incomplete until the deficiencies are adequately addressed through the NOV and DO process.

SUMMARY OF OUTSTANDING DEFICIENCIES

R645-301-114.100, provide the identification of the specific lands to which the Operations agreement pertains. Specifically the agreements are missing the description of the permit area as presented in ACT/007/012 referred to as Exhibit "E" in the Joint Ownership and Operations Agreement. 6

R645-301-114.100, update or verify the legal/financial/ownership section clarifying IPA's involvement in the permit transfer. Specifically, clarify the right-of-entry by agreements between NEICO, IPA, Genwal, and CVR. 6

R645-301-120, clarify the current land use and proposed postmining land use for the topsoil borrow areas. 77

R645-301-121.200, provide a map that clearly and consistently show the appropriate boundaries for disturbed areas, permit areas and legends that clearly identify between the various symbols used on each map. 98

R645-301-121.200, provide maps that clearly and consistently show the appropriate boundaries for disturbed areas, permit areas and legends that clearly identify between the various symbols used on each map. 72

R645-301-121, provide current information for the current land use map and clarify the discrepancies between the vegetation map and the current land use map. 17

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). 78

R645-301-515.300, provide a description of procedures for temporary cessation of operations. 97

R645-301-521, provide a reclamation time table as required by Division Order 96A. . 10

R645-301-526, complete the requirements of NOV N95-39-2-2. 58

R645-301-527, provide a detailed description of each road constructed used or maintained in the permit area. (Without retaining the existing "as-built" description for the haul road the applicant has not supplied the required road surfacing information, additional information for the road access to the sluceway and dam from the railroad spur and the roads at the north west end of the permit area should be clarified. The plan does not discuss how other roads meet the requirements of ancillary roads. The road adjacent to the slurry operations is proposed to be retained as a permanent road. It is used frequently (required for weekly MSHA

inspection) and is used for more than a 6 month duration. Road surfacing should be adequate to provide access during the required inspection periods). 50

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. 82

R645-301-540, provide maps which accurately show final reclamation that meets the applicable requirements of the R645-301 regulations, include areas to be regraded, all disturbed areas, and all proposed retained structures including roads weirs and culverts. 98

R645-301-542.400, 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. 80

R645-301-542.600, provide a demonstration that the roaded area between the railroad and the haul road at the north west end of the Preparation Plant area is not a mining related activity or provide for grading and reclamation of this area. 77

R645-301-542.600, provide for complete reclamation of roads that are not to be retained for the postmining land use. The Haul Road and the road formerly used to gain access to the site needs to be fully reclaimed, including grading to approximate original contour. 77

R645-301-553, show final contours and grading for the topsoil borrow areas and describe how these areas will be blended with the existing area including the final elevational changes. 80

R645-301-740 and 760, provide site specific information including proposed elevations and cross sections for the inlet and surface drainage for water passing from where the existing auxiliary pond is located under the railroad spur to the Dryer Pond, remove the discussion referring to removal of the auxiliary pond or provide other methods to demonstrate that water will enter into the Dryer Pond and will not cause backwater in the inlet (where the current Auxiliary Pond spillway is located) before spilling out the primary and emergency spillways of the Dryer Pond. . . 71

R645-301-761, include a discussion in the plan pertaining to the road traveling from the railway to the sluceway and the weir structure used as a point of diversion in early mining activities and clarify the status of these structures in reclamation or their retention as a postmining land use. A memo or other verification supplied from the Division of Water Rights, or other authorized entity should be supplied for retention and acceptance for maintenance of the weir across the Price River. . . 87

R645-301-762.100, provide for restoration of the natural drainage patterns for the area. Provide a proposal so the drainages as designed are constructed and maintained as presented on E9-3342 to allow for completion of drainage requirements prior to release of Phase III bond. (The proposed grading configuration on F9-177, is proposed to be incorporated until bond release can be granted, and then the drainages would be graded to the configuration in E9-3342 according to section 7.60 of the plan. This precludes allowance for Phase I bond release under **R645-301-880.310**. Phase I bond can be released "after the operator completes the backfilling and regrading and **drainage control** of a bonded area..."). 88

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

In Section 1.00 of the Mining and Reclamation plan (MRP) the Castle Valley Resources Company (CVR) agreed with Intermountain Power Association (IPA) and Nevada Electric Investment Company (NEICO) to operate and maintain loadout properties including the Wellington Preparation Plant by the Joint Ownership and Operations Agreement and the Coal Sales and Loading Services. Both agreements were dated July 1, 1991 and executed July 11, 1991.

The Applicant/Operator is identified as Nevada Electric Investment Company (NEICO), and the Resident Agent is identified as Patrick D. Collins. The entity responsible for paying the Abandoned Mine Land Reclamation Fee is NEICO. Legal and equitable owners of the surface properties are identified as NEICO, IPA and Genwal.

The Directors and Officers of NEICO are presented under Section 112.310 and Nevada Power Company is presented as owning 100% of the stock of NEICO. Nevada Power Officers and Directors are presented in Section 112.312. Genwal Coal Company Incorporated was identified as NEICO's subsidiary at the time of the Operations Agreement. Genwal Coal Company owns 50% of the Crandall Canyon Mine, ACT/015/132, while IPA owns the Horse Canyon Mine, ACT 007/013, according to the plan.

Holders of leasehold interest include MCI and the D&RGW-Southern Pacific Railroad. No ownership of coal interests are identified for the Wellington site since this is a preparation plant.

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

A permit transfer approval was granted to NEICO on April 8, 1994 by the Division. The approval relies on the Loadout Warranty Deed from Genwal Coal Company to NEICO and the Joint Ownership and Operation Agreement, executed July 11, 1991. The Loadout Warranty Deed solely identifies the lands associated with the Preparation Plant area on the west side of the river described as the Joint Agreement Area. The Joint Ownership and Operations agreement with CVR and NEICO/IPA/ commits to manage and operate those lands on the west side of the railroad track and operate the Wellington permit. The Joint Operations & Ownership Agreement transferred from Genwal Coal references Exhibit "C" which was indicated to describe the Wellington Preparation Plant, actually describes the Joint Agreement Area. Other portions of the permit, such as the slurry ponds located on the west side of the river are associated with the issued permit. Exhibit "E" is stated to list the Wellington Permit, ACT/007/012, and the reclamation surety bond as Item 3.8. The operator has removed portions of the original documents that were previously presented in the plan including Exhibit "E".

The issued permit Exhibit "A" references Exhibit E9-3341 in the Appendix for both the permit area and the disturbed area. The permit area is adequately presented. However there is no identification/legend of the disturbed area on this drawing. In forfeiture the bond may be applied to any portion of the permit area as described in Exhibit "A".

The plan indicates that NEICO, as the new permit holder, will honor agreements entered into by CVR. NEICO's wholly owned subsidiary is Genwal Coal Company. NEICO has posted bond and assumed the acquisition of Operations and Management at the Wellington Preparation Plant for the Permit Area. Although Genwal is a wholly owned subsidiary of NEICO's, no clear agreement between NEICO, IPA, Genwal, and CVR exists. The transfer of the Operations occurred from Genwal to CVR during the Joint Operations Agreement while Genwal remained the Permittee. The agreement between the Permittee (Genwal) and NEICO/IPA and CVR is not clear. There is some question as to IPA's involvement in this agreement.

Findings:

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

R645-301-114.100, update or verify the legal/financial/ownership section clarifying IPA's involvement in the permit transfer. Specifically, clarify the right-of-entry by agreements between NEICO, IPA, Genwal, and CVR.

R645-301-114.100, provide the identification of the specific lands to which the Operations agreement pertains. Specifically the agreements are missing the description of the permit area as presented in ACT/007/012 referred to as Exhibit "E" in the Joint Ownership and Operations Agreement.

UNSUITABILITY CLAIMS

Regulatory Reference: UCA R645-301-115

Analysis:

No unsuitability claims were made for the described permit area.

Findings:

The plan meets the minimum requirements of this section.

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:

Permit Term

The NEICO permit became effective on April 18, 1994, as a result of a transfer and expired on December 10, 1994. A copy of the permit was signed by Richard L. Hinkley, Vice President, NEICO. A permit renewal was issued on December 10, 1994 for a five-year permit term.

Insurance

Proof of insurance was provided with an affidavit from the Price Insurance Agency.

Proof of Publication

Proof of Publication was presented for the notice published on January 4, 1994 in the Sun Advocate.

Facilities or Structures Used in Common

No facilities or structures are used commonly with any other issued permit. However, the Plant Refuse Pile is approved to accept waste from the Genwal Sedimentation Pond.

Notarized Signature

A notarized signature from Richard L. Hinkley, Vice President of NEICO, was provided, committing NEICO to comply with all laws of Utah and obligations associated with the permit on September 28, 1994. Likewise a notarized signature was provided by James Carter, Director of Oil Gas and Mining, dated October 4, 1994.

Findings:

The plan meets the minimum requirements of this section.

ENVIRONMENTAL RESOURCE INFORMATION

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

GENERAL

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The Wellington Preparation Plant facility started operating in 1958 prior to the enactment of SMCRA. Therefore, baseline water quality or soils and vegetative data from the previously disturbed areas does not exist. No vegetative baseline information could be gathered from the disturbed areas prior to mining disturbance however, the primary vegetative communities which existed prior to disturbance are believed to be shadscale-galleta, black sagebrush-galleta, and greasewood-alkali seepweed. Nearly pure stands of Indian ricegrass or mat saltbush are in the area, but they are fairly small isolated patches. Information on woody species density, vegetative cover by species, and production are presented in Tables 2-1, and in Section 4.11.

The fish species of interest in the Price River are channel catfish and speckled dace, a protected species. The Price River is ranked as having limited value to the fishery management program while the riparian area is ranked as having critical value to local wildlife populations. Numerous birds and mammals inhabit the general area of the plant. There are habitat areas of high, substantial, and limited value for several species, but the only critical habitats are farmland and the riparian area along the Price River. There are no listed endangered or threatened species known to occur within the permit area, but some endangered and threatened fish exist in the Colorado and Green Rivers.

The Wellington Preparation Plant is located in the Colorado Plateau Physiographic Province along the Price River southwest of Wellington, Utah. The permit area lies within the drainage basin of the Price River, tributary to the Green River and ultimately the Colorado River. The drainage area for the Price River upstream of the plant is approximately 950 square miles. The Wellington Preparation facilities are situated upon the Price River Flood Plain alluvial deposits developed over the Blue Gate Shale member of the Mancos Shale. The area soils were derived from Colluvial and Fluvial processes. Currently fluvial processes are evidenced by terracing and deposition along the Price River. This site has a mesic temperature regime and aridic and torric moisture regimes.

Groundwater resources in the permit area consists of the Ferron Sandstone and shallow alluvial waters. The Blue Gate Shale Member serves as a confining layer below the alluvial groundwater system. The Ferron Sandstone formation consists of very fine sandstone and siltstone and is approximately 400 to 450 feet below the surface in the Wellington area. It is considered to be hydrologically disconnected from the sandstone units which produce water from wells near the city of Emery. When reviewing well logs provided by the Department of Water Rights for wells near the permit area no wells were determined to be completed in the Ferron Sandstone No springs or seeps were identified in the permit area although one spring is known

to exist in the adjacent area. This spring issues from alluvium along the Price River two miles northeast of the facilities.

Findings:

The plan provides general information to describe the pre-mining environmental resources within the permit area and adjacent area.

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 is requested to provide sequence and timing of reclamation activities because the operations have ceased at the preparation plant.

Findings:

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

R645-301-521, provide a reclamation time table as required by Division Order 96A.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411.

Analysis:

There are no known cultural and historic resources or archeological sites in the immediate area. The plan states, "the application was found in compliance with the National Historic Preservation Act by the Utah Historic Preservation Office, December 6, 1982". It also indicates that there are no public parks or cemeteries within a hundred feet of the permit area and, that there are no lands in the permit area within a unit of National System of Trails or within the Wild and Scenic Rivers System or Study Areas.

The Division's permit documents confirm the Permittee's statement presented in the plan. An apparent completeness review was completed on December 6, 1982, which did not require an additional request for information. However, no document could be found from the Utah Historic Preservation Office for the referenced date. Existing Division document records from the Utah Historic Preservation Office did include a letter dated September 24, 1981, indicating the Division of State History was in agreement. The State History memo states, "...it is unlikely that there are any cultural sites in the area or any that would be affected by the development of the Wellington Preparation Plant." The January 19, 1984 memo states, "...the negative report submitted would appear to comply with any OSM regulations for cultural resource management."

Findings:

The plan was found to meet the requirements of this section 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.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.18; R645-301-724.

Analysis:

The plan provides climatological information in Section 7.24.4, reporting an average annual temperature of 49.4°F, an average warm season temperature of 63.9°F and, an average cold season temperature of 34.9°F. The average annual precipitation is presented as 9.59 inches. Other portions of the plan refer to the annual precipitation as averaging from 6 to 8 inches. The average direction and velocity of prevailing winds was not addressed in this section.

The Permittee has met the minimum requirements for climatologic resource data. Additional on-site precipitation data may be necessary during the reclamation phase to determine irrigation rates, and for assessing water quality data at the slurry cells if irrigation is proposed in the future.

Findings:

The Division finds the plan meets the minimum requirements for climatologic resource data at this time.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.19; R645-301-320.

Analysis:

There are three major plant communities assumed to have been affected by the Wellington Preparation Plant. The plant communities were evaluated in 1983 and are shown on Map F9-178 and F9-179. Communities on the rolling hills are predominantly shadscale/galleta with some black sage/galleta. Drainage and valley areas probably supported a greasewood/seepweed community. There are small areas of nearly pure stands of Indian ricegrass and mat saltbush. Revegetation reference areas are in shadscale/galleta and greasewood/seepweed vegetation types.

There is a small portion of the riparian community near the Price River that was disturbed through coal operations. Based on a field visit, it appears that less than one acre of riparian vegetation was disturbed. Therefore, the plan does not contain vegetation information or a separate revegetation success standard for this area. However, it does contain a revegetation plan to enhance the wildlife habitat value.

Total living cover in the shadscale/galleta community was 35.00% of which 43.25%, 43.25%, and 13.65% was provided from shrubs, grasses and forbs, respectively. (The reason these figures do not add up to 100% is not known.) Shadscale, galleta, and desert plantain were the most common shrub, grass, and forb respectively. Shadscale made up about one-third of the total vegetative cover and galleta about one-fourth. Woody plant density was 3484 per acre. Total annual production was 239 pounds per acre. Range condition was rated by the Soil Conservation Service as fair.

Living cover in the greasewood/seepweed community was 76.67% and consisted entirely of shrubs. Woody plant density was 3964 per acre, and production was estimated to be 729 pounds per acre. Dominant plants were greasewood and Torrey seepweed. The Soil Conservation Service rated the range condition as poor.

Findings:

The plan provides adequate information to meet the requirements of this section.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21; R645-301-322.

Analysis:

Fish and wildlife information is found in Section 3.11. The Wellington Preparation Plant permit area is dominated by the shadscale and greasewood communities of the Upper Sonoran Life Zone. This life zone provides potential habitat for 246 vertebrate species of wildlife, including five fish, six amphibian, 15 reptile, 176 bird, and 44 mammal species. However, wildlife populations are generally considered low on the permit area. The plan includes a low-level study of wildlife within and adjacent to the permit area. This study was performed by Wildlife Resources.

The Price River is ranked as having limited value to the fishery management program. It supports one fish species of high interest, the channel catfish, and speckled dace a protected species. The riparian area is ranked as having critical value to local wildlife populations.

In 1983, surveys were made for threatened or endangered plant and animal species. No threatened or endangered species were observed. The permit area is within the ranges of several raptor species, but it does not contain suitable nesting habitat. Wintering bald eagle populations in the Price area have been increasing, but there are no known high-priority concentration areas or critical roost trees. Contrary to the information in the Wildlife Resources report, there are now at least three bald eagle aeries known for Utah.

Although the plan has little site-specific information, it is considered adequate to design the protection and enhancement plan required by R645-301-330.

Findings:

The wildlife information in the plan is adequate to design the protection and enhancement plan required by R645-301-330 and fulfills the requirements of R645-301-322.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-411, -301-233.

Analysis:

Soils information for the Wellington Preparation Plant are primarily derived from the SCS Carbon County Soil Survey. Other information was gathered from on site soil pedon description at Topsoil Borrow Area "A", sample sites NEICO 1 through 7, and are discussed further under the "Topsoil and Subsoil" heading in this TA. Area Soils are fine-silty, mixed (calcareous), mixed Typic Torrifluvents (Billings series); mesic Typic Torrifluvents (Ravola series); and fine-silty, mixed (calcareous), mesic Aquic Ustifluvents (Hunting series). Most soil at this site was

disturbed prior to the enactment of SMACRA. Typical pedon descriptions provided are not located within the current 392 acre disturbed area.

Map G9-3510 illustrates the following map units within the permit area: #35, Gerst-Badland-Stormitt Complex; #41, Green River-Juva Variant Map Complex; #55, Hunting Loam; #58 Juva Variant, fine sandy loam; #80, Persayo-Chipeta Complex; #93, Ravola-Slickspots complex; #94, Riverwash. The text defines the dominant soils as Gerst, Juva Variant, and Ravola loam. Site specific pedon information indicate the Carbon County soil service map in the vicinity of NEICO 1 should be changed to Map Unit #90 (Ravola silty clay loam, 1 to 3% slopes) and in the vicinity of NEICO 2, 3, and 4 be identified as Map unit #8 (Billings silty clay loam, 1 to 3% slopes).

#8 Billings Silty Clay Loam: Map unit #8 has a productivity potential of 300 to 700 lb/acre, is in a Desert Loam rangesite and supports a shadscale/galleta community. From 31 to a 60 inch depth or more the clay loam is strongly saline. Permeability is low. Runoff is medium and erosion hazard is moderate. The soil capability unit is IIIe, irrigated, and subclass VIIs non-irrigated.

#35 Gerst-Badland-Stormitt: This soil unit is 55% Gerst cobbly loam, 20% Badland, 15% Stormitt gravelly sandy clay loam, and 10% other soils. The map unit has a productivity potential of 300 to 600 lb/acre, in a Wyoming Big Sagebrush rangesite. Most current area vegetation is; black sagebrush, galleta, Indian rice grass, blue gramma, shadscale, yellow brush, and bottlebrush squirltail in the Gerst soils; and galleta, blue gramma, Wyoming big sagebrush, Salina wildrye, yellow brush, and shadscale in the Stormitt soil. Badlands are nearly barren. Permeability ranges from moderately slow, rapid to very rapid, and moderate; respectively for the Gerst, Badland and Stormitt soils. Runoff varies from medium, rapid to very rapid, and rapid, respectively for the Gerst, Badland and Stormitt soils. And Erosion is moderate, geologically active, and high for the Gerst, Badland and Stormitt soils, respectively.

#41 Green River-Juva Variant Complex: This unit is 45% Green River silt loam, 30% Juva Variant fine sandy loam, and 25% other soils. Map unit #41 has a productivity potential of 1,000 to 2000 lb/acre, for the Green River Soil, in a Wet Salt Streambank rangesite. The current vegetation is mainly tamarisk, willows, saltgrass, sedges, and cottonwood. Green River soil is very deep and moderately well drained. Permeability is moderate. Runoff is slow and water erosion hazard is slight. The seasonal water table fluctuates from 24 o 36 inches and is subject to flooding. See #58 Juva Variant for further description of this soil unit .

#55 Hunting Loam: Map unit #55 has very deep, somewhat poorly drained soil. Vegetation is mainly salt grass and redtop. Mottles are at a depth of 20 to 40 inches and the soil may have small areas that are strongly saline and alkali. Permeability is moderate. Runoff is slow and water erosion hazard is slight. Good control of irrigation is needed to lower the water table and reduce the salinity. Moderately saline areas are suitable only for grass and legume pasture. The capability unit is IIIw-2, irrigated.

#58 Juva Variant fine sandy loam: Map unit #41 has a productivity potential of 500 to 1000 lb/acre, in an Alkali Flat range site with very seep well drained soil. Present vegetation are

greasewood, shadscale, galleta, big sagebrush and prickly pear. Permeability is moderately rapid, runoff is slow and water erosion hazard is slight. Capability subclass is VIIe, non-irrigated.

#80 Persayo-Chipeta Complex: Map unit #80 has a productivity potential of 100 to 300 lb/acre in the Desert Loamy Clay, and Shallow Clay range sites. This unit is 50% Persayo loam, 35% Chipeta silty clay loam and 10% other soils. The Persayo soil is shallow and well drained with galleta and shadscale vegetation. The depth to weathered shale is from 10 to 20 inches and has gypsum crystals. Permeability is moderately slow. Runoff is medium, and hazard of water erosion is moderate. Sheet erosion is active and shallow gullies are cut into weathered shale. Chipeta soil is shallow and well drained with vegetation in most areas being mat saltbrush, Nuttal saltbrush and shadscale. Permeability is slow. Runoff is rapid, and water erosion is high with active rill and gully erosion. The soil capability subclass is VIIe, non-irrigated.

#90 Ravola - silty clay loam: Map unit #90 has a productivity potential of 300 to 700 lb/acre, in a Desert Loam range site with deep well drained soil. Galleta, shadscale and greasewood vegetation are present where soils are not cultivated. Permeability is moderate. Runoff is medium, and water erosion hazard is moderate. This soil is not practical to revegetate in large areas. With irrigation these areas are suited to rotations of alfalfa hay, small grain and corn. Crop residue should be incorporated and fertilizer applied. The soil capability unit is IIe-2 irrigated, and subclass VIIe non-irrigated.

#93 Ravola-Slickspots complex: Map unit #80 has a productivity potential of 500 to 1000 lb/acre, Alkali Flat range site. The Ravola soil is deep well drained and strongly alkaline below 20 inches. Permeability is moderate. Runoff is medium and water erosion hazard is moderate. Runoff from adjacent areas may form gullies. The slick spots are barren or nearly barren and have a strong alkaline, nearly impervious surface layer of loam about 4 inches thick. It is not practical to revegetate large areas of the Ravola soil because of low precipitation and high alkali content. The slick spots are irregularly shaped and intermingled. The soil capability unit is subclass VIIIe non-irrigated.

#94 Riverwash: Consists of stream beds including meanders and other channels. Riverwash is used for wildlife habitat capability subclass VIIIw.

All soil types are rated poor to very poor habitat element potential by the Soil Conservation Service except unit #41 which has the potential for wetland, shallow water area habitat and unit #55, Hunting Loam, has a fair potential for all habitat except coniferous.

Productivity information is also summarized from work conducted in the summer of 1983 in Section 3.11, Tables 1 through 14.

Findings:

The plan provides a description of the permit area soils. Since the soils were disturbed prior to the enactment of the requirements of SMCRA, pre-disturbance descriptions were not available. The plan has generally described soils in the surrounding permit area.

LAND-USE RESOURCE INFORMATION

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

Analysis:

Current Uses

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.

Uses Prior to Mining

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" and area "E" are not presently disturbed. The applicant describes the current land uses for these areas as; Croplands in area "A" and Pasture Lands for area "E". However, the Croplands in area "A" have not been used for the last few years and the vegetation map shows this area as a pasture land/grazing reference. The applicant should clarify the current land use for Topsoil Borrow Area "A".

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

R645-301-121, provide current information for the current land use map and clarify the discrepancies between the vegetation map and the current land use map.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR Sec. 785.19; R645-302-320.

Analysis:

A reconnaissance study including the Wellington Permit area was provided by the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement. The study shows areas designated as potential Alluvial Valley Floors. Map units included in the boundary show surface irrigated sites, sub-irrigated sites, and potentially irrigable sites surrounding the disturbed areas. These three map units meet the water availability criteria and geomorphic criteria of Alluvial Valley Floors and are designated potential AVF'S (further site specific studies may clarify delineation of actual AVF's).

The regulatory section R645-302-323 states that R645-302-323.100 does not apply to those lands which were identified in a reclamation plan approved by the state program prior to August 3, 1977, for any coal mining and reclamation operation that, produced coal in commercial quantities and was located within or adjacent to alluvial valley floors, or obtained specific permit approval by the Division to conduct coal mining and reclamation operations within an Alluvial Valley Floor. The Findings Document issued August 22, 1984 indicates coal processing plants not located at, or near, the minesite or within the permit area for a mine are not required to investigate the presence of Alluvial Valley Floors (UMC 785.19, UMC 827, UMC 786.19(1)). The Wellington Preparation Plant was in operation prior to August 3, 1977 and is therefore considered to have Valid Existing Rights. The approved plan included disturbances for topsoil borrow areas. These areas were not previously disturbed and the MRP did not specifically demonstrate that all the regulatory requirements were met. However, the August 22, 1984 technical analysis indicates topsoil borrow was necessary for reclamation. With the June 30, 1995 submittal topsoil borrow areas are located in the designated potential AVF's. Area "A" was expanded; and identification of a new area, area"E" was included.

Alluvial Valley Floor information is provided in the permit. Section 2.0 addresses the requirements of R645-302-320; soils distribution is shown on Figure G9-35109. The general map unit of soils encompassing the Wellington Plant site is the Ravola-Billings-Hunting unit. Section 6.24 states the area contains an alluvial aquifer underlain by shale, while riparian and agricultural vegetation is presented in Figure E9-3443 and described in Section 3.11. Additional information can be located in 2.22 which further describes the soils at the topsoil borrow site "A". Samples obtained in April of 1995 indicate free water was encountered at various depths in the agricultural fields area. The soil profile information is reported in Appendix B. The soil from Area "A" will be applied 30 inches deep over the slurry ponds.

The topsoil borrow area "A" is described by soil profiles NEICO-1 through NEICO-4 (1995 samples) and Borrow-1 (1994 samples). Map elevations were estimated for these sites to be 5339.8, 5338.8, 5338.5, and 5337 feet respectively. The soil area of NEICO-1 is moderately well drained. Free water was encountered at a 91 inch depth, at this soil sample site, and has a fluctuating water table probably to 72 inches according to the Permittee's interpretation. Slight mottling did occur at 26 to 52 inches and again at 72-91 inches. The mottling occurrences at the

26 to 52 inches could be related to wet/dry climatic cycles, but are more likely related to the following: irrigation practices; Price River water elevation upstream; and spring subsurface water contributions.

The Permittee believes that the upper watertable elevation was reached at 91 inches on May 26, 1995 (or 5332.2 foot elevation), since the measurement was obtained in spring and it had been a wet winter. It should be noted, that in the preceding years the region undergoing a drought period, potentially providing a soil moisture deficit. Existing data support the Permittee's estimate for high water table elevations in the easterly half of the topsoil borrow area; high monthly mean flows in this area of the Price River generally occur in May; and quarterly water depth measurements in the nearby well, GW-14, had a high water level of 5332.6 feet in September of 1992, approximately 7 feet (84 inches) from the surface. The water table at this well fluctuates to approximately a 13 foot depth. The watertable fluctuation in this area is most likely influenced by Price River flows feeding the alluvium from the northwest corner of the permit area. This area does not appear to be fed from the adjacent river reach east of the loadout area.

NEICO 2 is similar to NEICO 1 but is deep and well drained. Soil water content was found to be moist at 50 inches with a free water surface at 118 inches or approximately 9.8 feet from the surface or a 5329.2 foot elevation. NEICO 3 is identified as being medium to well drained with slight moisture at 47 inches and very moist at 73 inches. Standing water was at 140 inches (11.6 feet or approximate elevation of 5326.9). NEICO 4 is identified as being well drained with slight moisture at 66 inches and very moist at 114 inches with the water table greater than 9.5 feet from the surface or less than 5327.5 feet.

NEICO 4 and NEICO 2 are likely to be located in an area where the alluvium depth is the greatest, assuming the pattern from Drawing 612a does not change greatly over the extrapolated distance. Likewise, NEICO 3 is closest to the river and alluvial deposits are shallower. The piezometric water elevation is greater at the north east end of the site and is greatest at Well 8, toward the south end of the preparation plant area. Therefore, groundwater flow through Borrow Area "A" is most likely recharged from the Price River north of the site with an easterly groundwater discharge to the river exiting near the south east edge.

Topsoil borrow area "E was described in the 1994 survey. Area "E" has been mapped as a Ravola - Slick spots Complex. The site is in a flat lying agricultural field on an alluvial fan north of the slurry cells. Data from groundwater well GW - 1, in this area, was measured quarterly and fluctuates between 7.1 feet (March, 1987) and 15.7 feet (March, 1991) from the surface elevation.

Total dissolved solids for surface waters at the upstream and downstream sites varied between 540 mg/l and 3280 mg/l from 1985 through 1994 (extreme values were not considered in this range as they occur infrequently). The average values over a period from 1985 to 1990 are 2,098.7 mg/l for SW-1 and 2643.2 mg/l for SW-2 (high values are included in this average). The average value is in a range where water can be used for tolerant plants on permeable soils with careful management practices (information presented in "The Alluvial Valley Floor Identification and Study Guidelines", U. S. Department of the Interior, OSM August, 1983).

Another method of classification includes the conductivity and SAR. Conductivity for SW-1 and SW-2 are approximately 2200 mho's/cm and lie at the edge of the range for high and very high salinity hazard. Since SAR information was not provided this analysis was not completed and compared to the method discussed previously.

Subirrigation, in terms of AVF, occurs if water is available long enough to have a recognizable effect on the species type and productivity, and allows the root penetration to the capillary fringe above the water table. Water availability should outweigh the evapotranspiration rates to maintain productivity of the plant during some part of the growing season. Commonly the majority of crop roots are found in the top 4.6 feet although, alfalfa roots have been noted at much deeper depths. Roots from the site existing during the soil sampling (cropped with alfalfa) were noted having many roots through 12 inch depth and few fine roots to the 52 inch depth at NEICO 1; root presence was noted as many to 12 inches and few fine roots to 29 inches at NEICO 2 with soil moisture at 50 inches; root presence was noted as common to 24 inches and few fine roots to 47 inches at NEICO 3 with slight soil moisture at 47 inches; root presence was noted as common to 14 inches with few fine roots to 42 inches at NEICO 4 with slight soil moisture at 66 inches;

Information presented by the applicant indicates the productivity on the borrow area in 6500 lbs/acre for alfalfa and 5500 lbs/acre for corn. Corn cannot be produced in this area without significant irrigation. No information on the importance of sub-irrigation on crop yield is presented: it is suspected that the sodic nature of the water may be a disadvantage to sub-irrigation influences on vegetation.

In Section 2.21 "Prime Farmland Investigation", Mr. Francis T. Holt's letter states, "The area is too saline and without irrigation water the moisture requirement for prime farm land cannot be met". Mr. Holt's letter indicates the groundwater has high salinity with little sub-irrigation potential. The Permittee states that data from 1985 to present in Table 7.24.3 shows a strong sodium sulfate type water at the load-out area.

Based on the presented information the following findings can be made:

- Unconsolidated stream laid deposits holding streams are present in the permit area;

- There is sufficient water to support agricultural activities as evidenced by historic flood irrigation to fields between the DRG&W Railroad and the Price River and to the area north of the slurry cells.

- Capability of the areas to be irrigated is present based on available stream flow from the Price River and available water rights, now used by the mine, which could be transferred to the areas for farming should industrial use be terminated. Because the sites are alkaline and have high salt content a type of flood irrigation or leaching process would be necessary to farm this area.

- Subirrigation probably does not exist to increase yields beyond what would be expected without available sub-irrigation. However, flood irrigation may be necessary to decrease salt accumulation in the alluvial valleys where the water table is high.

The proposed mining and reclamation activities in topsoil area "A" is not considered significant to an existing farm and is of negligible size. Removal of the 52 inches in borrow area "A" will decrease the depth to the water table and may increase concentration of salts in the area. Feasibility of reclamation for this site should be sufficiently demonstrated.

The August 22, 1984 permit states that coal processing plants not located at or near the mine site or within the permit area for a mine are not required to investigate the presence of AVF's (UMC 785.19, UMC 827). However, the current regulations R645-302-320 applies to any person who conducts or intends to conduct coal mining and reclamation operations on areas, or adjacent to areas, designated as Alluvial Valley Floors. Coal mining and reclamation operations include preparation plants. Although the Division did not make a finding on Alluvial Valley Floors when the permit was issued the permit approval included existing disturbances for areas within or adjacent to Alluvial Valleys.

The preceding finding stated; "Therefore, the Division finds that additional Alluvial Valley Floor delineation and determinations would be necessary according to R645-302-320 if, the Permittee proposes additional disturbances beyond those contained in the plan approved based on valid existing rights."

Findings:

The Division hereby finds that the additional proposed disturbed areas are located in an AVF for Topsoil Borrow Areas "A" and area "E". The Permittee has committed to provide additional information demonstrating the feasibility of reclaiming the areas proposed to be disturbed within the alluvial valley floor. (See, TOPSOIL AND SUBSOIL, Findings: R645-301.233.100, Topsoil Substitutes and Supplements.) If the site may affect the waters of the AVF a complete application for operations Affecting Designated Alluvial Valley Floors as discussed under R645-302-322 will be supplied.

PRIME FARMLAND

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-270.

Analysis:

Although the MRP (Section 2.2) states that one land use in the area is irrigated crops, the 1982 SCS letter cites saline soils and lack of irrigation water as the basis for a non-prime farmland determination. The Division should note that Farmland of Statewide Importance and Prime Farmland have been designated immediately adjacent to the northern portion of the permit boundary (Utah Agricultural Experiment Station Research Report No. 76, "Important Farmlands of Parts of Carbon, Emery, Grand, and Sevier Counties").

Findings:

The Division has determined no Prime Farmlands are present in the permit area (Findings Document of August 22, 1984). The basis for the Non Prime Farmland determination was the 1982 Soil Conservation Service Determination memo. This determination should be contained in the permit appendix, "Supporting Documentation".

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

Analysis:

The geologic map, Drawing C9-1213-R, shows the outcrop of the Mancos Shale, alluvium and gravel. Quaternary alluvial deposits directly overlie the Bluegate Shale member and consist of consolidated to unconsolidated clay, silt, sand and gravels. The Bluegate shale is the most prevalent member exposed in the vicinity of the plant area.

Alluvial deposits provide subsurface water for agricultural and industrial use along the Price River. Data presented in Utah Hydrologic Data Report No. 32 (C. T. Sumsion, 1979) as well as others, show the water table to be within 15 feet of the surface near the Coal Preparation Plant. Bluegate Shale permeabilities ranged from 13 feet per year to 3,700 feet per year. This range of permeabilities is considered low to moderate and may be high because the drill holes extended only 10 feet into the shale, and probably measured the more weathered surface of the shale.

The Ferron Sandstone member underlies the Bluegate shale and also appears as a continuous unit throughout the plant area. It outcrops about 1.5 miles east of the plant facilities and dips 18 degrees to the north west. Information from the Ferron Sandstone is obtained from old oil exploration well logs: no information is provided by locally drilled wells. The Ferron Sandstone is estimated to be at an approximate elevation of 4905 feet above sea level in the load out area. The Ferron Sandstone in the vicinity of Wellington is represented by very fine sandstone and sandy siltstone hydrologically disconnected from the units that make up the Ferron Sandstone near Emery (selected information from the August 22, 1984 CHIA).

Alluvium thicknesses for the Wellington minesite are presented on Map 612a. Alluvium at the Preparation Plant ranges from a few feet to 55 feet in the area of GW-8. The deepest known depth to alluvium at the slurry cells is 40 feet. Information used to map alluvium for the area under the coarse and fine slurry refuse were obtained from data contained in the engineering stability analysis Appendices E, C, and the As-Built designs for the refuse ponds dated January 25, 1993. However, many of the drill holes did not reach the Blue Gate Shale formation and exact depths are not known.

Currently the Permittee does not mine coal at the preparation plant. Therefore, characteristics of the coal to be mined and the strata above and below is not required for this purpose. However, information is required for protection of the hydrologic balance. The

Permittee has presented a general configuration of the piezometric surface on Map E9-3451. The alluvium under the slurry cells provides a greater flow velocity and thus the dominate flow direction is to the south in this area. Alluvial flow from the vicinity of the slurry cells is less likely to flow toward the west. The Mancos is a tight formation and would yield little water unless piping, cracking or an inter-bedded alluvial formation allows water to flow through the shale.

Premining Condition

According to the 1983 PHC Appendix, the alluvial system premining condition was assumed to reflect the surface topography, with ground water flow from topographically high areas toward the Price River. The 1983 PHC also suggests that during slurry operations the ponds serve as points of high ground water potential while the North Siaperas ditch creates a low water potential (according to Figure 14 at 5367'). The Siaperas ditch potentially receives subsurface flow from the adjacent slurry area and from irrigated fields to the north.

Geologic and engineering information on the dikes is included in the Rollins Brown and Gunnel Engineering Report Appendix C completed in 1978 and Appendix E completed at an unknown later date.

Findings:

The Geologic information presented was determined adequate for the purposes of determining stability of the slurry impoundments and describing the regional geology of the area. The Permittee has used available information which gives an indication of alluvial depths under the slurry cell and the disturbed area of the preparation plant. Should it be determined necessary to understand the Probable Hydrologic Consequences of mining operations and reclamation, site specific information for the depth to alluvium may be necessary.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-720.

Analysis:

Sampling and Analysis

The Permittee has committed to sample according to the current edition of "Standard Methods for the Examination of Water and Wastewater". The Permittee has had problems collecting representative data. Many of these problems resulted from collection methods. The Permittee has included a section on sampling methodology in Section 7.31, Appendix 7.31-1, however, the statements are general and noncommittal. As part of the effort in screening the data the applicant has removed data with anion/cation balance less than 10% margin of error. Although this may be appropriate for some analyses complete disregard of the values may not be prudent in all cases. Review of all data collected for the samples outside of the error margin

may allow for reasonable use of most of the data with the exception of a few parameters. At any case all sample results must be submitted to the Division.

Baseline Information

This site was in operation prior to the enactment of the 1977 mining law. Much of the information collected is operational because mining already occurred at this site. The Permittee has provided a summary of surface and groundwater rights information in Tables 7.24-3 and 7.24-4. The main purpose of obtaining the water rights is to be able to contact water users in case of a water impact or emergency of a harmful nature. Therefore, the permanent and approved sources within the potential impact area (downstream surface water uses as well as the local wells) are of more importance than those a significant distance away.

Water diversion information on Drawing G9-3507 and Water User Claim Numbers from Table 7.24-4 are difficult to locate on Drawing G9-3507. The Operator was requested to clarify the information, but claims that under investigative conditions it would not be necessary or profitable to work from the water right table to the map. It is felt the Permittee's summary table should contain source location descriptions for clarity. However, the Permittee meets the minimum requirements.

Ground-Water Information

The local groundwater consists of shallow alluvial waters. The Blue Gate Shale Member serves as a confining layer for the alluvial groundwater. The Ferron Sandstone formation is also located in the permit area in the vicinity of Wellington. This formation is a groundwater source near the town of Emery. However, the potential for groundwater impact is determined to be limited to the alluvial aquifers within the Preparation Plant and Slurry impoundment areas. No springs or seeps were identified in the permit area although one spring issues from alluvium along the Price River two miles north east of the facilities.

Groundwater seasonal water quality and quantity were summarized by the Permittee for the alluvial systems. Seasonal well fluctuations are stated to generally be highest in late spring to early fall and large water level fluctuations over short periods generally do not occur. The groundwater at the loadout is stated to have a higher salt content than the slurry area and has a strong sodium sulfate water.

Preparation Plant Area

The alluvial aquifer within the preparation plant area has two potential gradients. It appears one flow component is toward the Price River southeast of the preparation plant, and another flow component discharges to the river near topsoil borrow area "A". Although, a portion of groundwater from the preparation plant area may flow toward topsoil borrow area "A" the greatest flow component probably comes from the north, upstream of most mining related activities. The groundwater source most likely originates upstream of the permit area where alluvial deposits provide a conduit for the Price River to be conveyed through alluvium toward the site. An additional recharge zone may occur from the subsurface flows and activities at the preparation plant near Well GW-8 where the highest known groundwater elevation exists in the preparation plant area.

Because no pre-disturbance information exists actual baseline information is not available. However, the Permittee has developed well GW-14 which is considered out of the range of influence of site operations and may be used as a "baseline" well.

Slurry Impoundment Area

Two flow gradients can occur from the slurry cells based on operating conditions or precipitation events. The predominate alluvial ground water flow direction is toward the Price River in a southerly direction. Locally, a secondary flow regime toward the Siaperas ditch is likely to occur at the north west end of the slurry cells, when the water in the slurry cells is elevated above the ditch. This occurs when the water in well GW-3 rises above the 20.6 foot level (depth to water is less than 20.6 feet). This flow direction was present during slurry operations. Since slurry operations have ceased the localized flow to the Siaperas ditch occurs less frequently.

Because no pre-disturbance information exists actual baseline information is not available. However, the Permittee has developed well GW-1 which is considered out of the range of

influence of the slurry operations and may be used as a "baseline" well. The Permittee also committed to install GW-15 to monitor upstream waters. The applicant sites GW-3 as an additional undisturbed groundwater site. The Division does not feel this site represents undisturbed groundwater for the following reasons:

1. Slurry discharged from the slurry pipelines previously drained toward the embankment where GW-3 is, as evidenced by the abandoned drainage channel features.

2. When water at GW-3 is at a depth above 20' the gradient of the water is toward the Siaperas ditch and therefore has been influenced by the Slurry Waters. According to Table 7.22-1 GW-3 has a depth below casing of 22 feet, and the screened interval is from 9-22 feet. This well is not developed deep enough to determine influences on the alluvium but, may detect upward movements of salts.

3. GW-3 is in the embankment of the slurry cells immediately adjacent to the slurry and has likely been influenced by slurry water quality from capillary action, diffusion and the evaporative draw from the low point in the Siaperas Ditch.

Surface-Water Information

The Permittee has presented Price River surface water flow information from 1972 through 1986 collected at a USGS gauging station below Miller Creek near Wellington. Seasonal variation indicate the highest flows occur during spring followed by a gradual decline through-out summer. Lowest monthly flows occurred in 1977 and 1978 with the minimum monthly flow of 243 cfs in June of 1978. Maximum monthly flows occurred in 1983 through 1986, for the period of record, with the largest maximum monthly flows of 53960 cfs occurring in June of 1983. Highest monthly flows generally occurred from April through July with the highest frequency of maximum monthly flow occurrences in the month of May.

Mundorf (1972) reports that at Wellington, total dissolved solids concentrations range from 600 to 2,400 mg/l in the Price River. The major cations and anions are a variable mixed type. Downstream of Wellington, at Woodside, the dissolved-solids concentration typically range from 2,000 to 4,000 milligrams per liter and major water constituents are sodium sulfate. The high sodium sulfate waters are related to the increased contact with the Bluegate Shale Member.

Information on water use is described in the permit. The major use in the area is irrigation. 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 G9-3507, as being unapproved are going through the approval process. Based on the location of the diversion point it appears that water right 91-254 is associated with the track hopper. It allows water to be withdrawn from an underground sump for industrial use.

Site water diversion locations including: the dam and sluiceway to the pumphouse; the track hopper; and a "dust suppression water source" are shown on Exhibit 712d. The Permittee has used the track hopper for road watering. A description of that use is in Section 7.31.700.

Baseline Cumulative Impact Area Information

The Division has not revised this portion of the TA at this time. A full cumulative impact area assessment should be completed at the next midterm review.

Modeling

Some modeling, analysis and statistical data have been used by the Permittee. Monitoring data has also been included.

Alternative Water Source Information

The plan includes a statement in Section 7.27, "In the event the owner/permittee's actions result in diminution or interruption of the water rights of a legitimate water user, the owner/permittee will make available water from the owner/permittee owned or controlled water rights during the diminution or interruption" and, " In the event that the quality of water becomes unsuitable for use by a legitimate water user due to action by the owner/permittee, the owner/permittee will make available water from their owned water rights during the period of unsuitable water quality."

The Permittee's commitment to replace the water rights in quality, assumes the quality of water for their rights would not be affected. The water rights indicated to be available to the owner/permittee is approximately 10 cfs. The location of the water right diversion may affect the quality of these rights. The replacement of use or quality would need to be coordinated between the State Water Rights Department, Division of Water Quality, and the Division of Oil Gas and Mining as appropriate.

Probable Hydrologic Consequences

The potential water quality impacts at the Wellington site determined to be most critical include increases in TDS, leaching of salts including boron and selenium from the slurry cells, and the potential for hydrocarbon and chemical contamination to reach alluvial waters at the preparation plant. These issues will be discussed further in the following sections.

Water Use

Historic water uses included irrigation of test plots in 1987, and Price River water utilized for slurry operations. Current water rights belonging to the company include 10 cfs in the Price River. The Permittee has not included an estimate of current water use for mining operations but, implies that the use is small and no foreseeable changes in operations are planned. The Permittee should provide an estimate of the water used in the operations annually (road watering) and an estimate for water that may be used in future proposed operations. At this time water use is considered minimal and the probability to impact water availability is negligible.

Water Quality Impacts

Water quality data at the Wellington Plant indicate concentrations for many parameters were reduced from 1985 through 1986. According to the Permittee, increased precipitation during this period was credited for having a dilution effect on Magnesium, Sulfate, Chloride, Manganese and TDS. It should also be noted that during 1984 the load out was idled which may also have had an affect on these constituents.

Data analyses of wells surrounding the Slurry Cells indicate there is a greater concentration of TDS at GW-2 and GW-3. The Permittee suggests the increased TDS in the Ground water near wells GW-2 and GW-3 is a result of regional irrigation, groundwater flow, and evaporation. The assumption is that the Siaperas Ditch influences and concentrates salts in this area which affects the concentrations at the wells. Although some salt concentrations will occur in this area from evaporation, there is some information which suggests this is not the only factor controlling water quality in this area. (See: "Potential Groundwater Impacts" of this T.A.).

Information in the PAP includes a discussion of trends in water quality for postmining reclamation conditions related to water availability and climatic changes. Although Boron and Selenium are identified as potential water monitoring impacts, data have not been collected recently for analysis of these parameters. The Permittee does discuss characteristics and presence of Boron and Selenium as determined by the slurry soils analysis (saturated paste methods). The soil analysis completed for the upper depths of slurry show accumulations of salts that are probably attributable to capillary actions and diffusion driven by evapotranspiration. The potential impacts resulting from high Boron and Selenium to groundwater are found within Section 7.28. Increases in Boron over the amount needed by some plant species can be toxic to plants. Selenium values reported in Appendix B show concentrations ranging from 0.025 to 0.40 mg/l. With pH values above 6.6, Selenium found within the refuse ponds may potentially be leached.

Acid and Toxic

The Permittee's discussion in Section 7.28.3.3 details the analysis of the leachate sampling from the refuse pile, and includes pH, Acidity as $CACO_3$, Calcium, Sodium, and Total Dissolved Solids. Data obtained from the slurry cells included analysis for Sulfur and the Acid Base Potential. Analysis of leachate samples from the Coarse Refuse Pile and fine refuse basin were presented in Tables 7.28-5 and 7.28-6. Leachate samples indicate a potential to have high salts, Basic pH and high sodium adsorption ratio. Comparisons were made with the values from the Leachate from the plant refuse pile with the TDS values from GW-14. Leachate from the Fine Refuse Basin was not presented in these tables.

The Permittee collected and analyzed samples of the slurry to an 8 foot depth. The information provided does not suggest acid forming constituents are present. However, the samples may not necessarily represent the extent of waste material found below the 8 foot depth. According to the Slope Stability Evaluation US Steel Tailings Dike Appendix C, the lower refuse dike is approximately 35 feet high. The current elevation of the tailings is approximately 5,370

feet while the dike elevation is approximately 5,383 feet, a difference of 13 feet. Therefore, the depth of slurry is at least 22 feet (35-13 ft.) deep in some places.

The characterization of material below the 8 foot depth is not described by the Permittee's data. Well water sample analyses for pH in the slurry area have been as low as 6.62 in GW-2 (December, 1987) and in GW-4 (March 1992), otherwise pH values are near or above 7. Available data indicate the potential for acid formation at the Wellington Preparation Plant at both the slurry and Plant Refuse piles. However, Boron and Selenium values were considered to have a potential for impact.

Although it is believed an upward concentration generally exists, the quantity of downward leaching of Salts, Boron, and Selenium for moist seasons and along the contact between the alluvium and slurry materials remain unknown. The presented saturated paste data samples show a decrease in Boron with depth through the slurry. Also, an accumulation of Boron is shown near the surface. Although the concentration of Boron is occurring in the upper zone, monitoring is not adequate to determine to what degree precipitation or alluvial waters affect the transport through the profile. It is unknown, if significant leaching or accumulation occurs below the 8 foot interval. Assessment of water moving down through the profile or alluvial water table fluctuations within the interface of the slurry are largely unknown.

The Permittee has estimated, through modeling, an approximate increase of TDS to groundwater and surface waters from the slurry cells will be 0.4 to 7.5 % and suggests an increase of other parameters would be similar. When comparing TDS at GW-1 and GW-4 the data show increases are between 5% and 77% greater at the downstream station, while increases in TDS between SW-1 and SW-2 varied from 2% to 64%. Unfortunately, most surface water and ground water data were obtained on different days and are not located far enough downstream to measure influences of alluvial waters below the slurry cells. Natural variation vs. influences from the operations are difficult to determine by the sampling program existing through 1996.

No Boron or Selenium data are available from the recent water monitoring program. Selenium and Boron are regulated state water quality standards for the Price River. The Permittee has added total and dissolved Selenium and Boron to the operational water monitoring parameters in Table 7.24-2 (revised 11/10/94).

In a discussion with Dave Hansen it was indicated that the rate of transmissivity in the aquifer could not affect the well sampling enough to require same day sampling. This is true although the samples adjacent to the Siaperas Ditch and Price River could be influenced by surface waters.

The plan states the average tested permeability in Table 7.22-8 is 0.019 feet per minute. This and average velocity was estimated to be 0.3 feet per day. At this rate the water would travel between GW-1 and GW-4 in approximately 57 years.

The applicant has provided the results of the Rollins Brown and Gunnel (1978) Field Permeability test in Table 7.22-7. It is interesting to note that the logs of this report show

sections of each test have variable permeabilities. Table 1 illustrates some of the larger permeabilities found and their respective depths from the surface of the dike.

The Rollins Brown and Gunell Report makes the following statements:"The foundation materials has a wide range of permeability rates. The rates are generally greater than 5,000 ft/year" or approximately 13.9 ft/day.

Table 1
Permeable Zones from Boreholes
Rollings Brown and Gunnell 1978 Appendix C

Borehole location and comments	Bore Hole ID	Depth from surface of the dike and permeability
Upper Dike (west end) Crest at time of survey (5380') First 15-20 feet is Coal Refuse The dike is approximately 15 feet high.	1	15-25' >15,00 ft/year 25-30' 3,727 ft/year 45-47' >20,000 ft/year
	2	10-20' >15,000 ft/year 30-55' 1,670 to >20,000 ft/year
	3	Top 47' 1,274 ft/day to 31,000 ft/year
	4	10-15' 2,894 ft/year 20-40' 4,768 - 720,000 ft/day
Upper Dike (west) Crest at time of survey	5	10-15' 11,086 ft/day 20-40' 7,455 to 15,083 ft/year
Lower Dike (south east) Permeability rate increases with depth.	8	40-50' 1,550 to 3,765 ft/year
	9	40-50' 1,302 to 3,065 ft/year
	10	40-50' 1,004 to 1,144 ft/year
Lower Water Dike (north west)	11	35-50' 5,325 to 9,535 ft/year
Clear Water Dike (south east) 5370 foot embankment elevation. Dike is approximately 35 feet high.	14	45-50' 1,885 to 1,449 ft/year
	15	40-50' 1,028 to 1,268 ft/year
	16	40- 45' 1,414 ft/year
Clear Water Dike (north west)	17	25-40' 1,562 to 2,800 ft/year

The Permittee has committed to sample GW-2 for depth to water only and GW-15 will be added and placed north of the Siaperas Ditch as shown on Map E-9-3452. GW-5 will be

abandoned and sealed by a licenced well driller. GW-16 will be added within the floor of the clear water pond or the lower Refuse Pond within the general area delineated on Map E9-3451. Concurrence of drilling location will be obtained prior to drilling new wells. It is assumed the concurrence referred to is with the Division.

The MRP states that the operator will attempt to collect "same day" samples at stations SW-1, SW-2, SW-4, GW-3, GW-15 and GW-16. Same day collection does appear to be important at surface and groundwater sites SW-1 and SW-2 in conjunction with GW- 4, GW-6 and GW-16, and potentially at the ponded area near GW-3 in conjunction with GW-15 and GW-3. Except for the fact that there may be no water at GW-3, there is no reason why this cannot be done on one day during a three month (quarterly) period.

The Permittee has committed to install a dual or triple nested Piezometer in well GW-15 and GW-16 to monitor vertical water quality gradients in the upstream and downstream wells. Prior to developing the proposed wells location and design features, the Permittee should use the information from the Rollins Brown and Gunnell report to estimate logical depths to place the nested piezometers. A permeability test is necessary to determine the rate of movement through the ground water at these wells.

Potential Surface Water Impacts

The greatest potential for surface water impacts at this site comes from two sources; the shallow alluvial waters associated with the Price River and surface water run off to the Price River. The Permittee has concluded the drainage of toxic constituents into the surface water would be minimal due to the large retention volume found in the ponds during the operations phase. The volume of water retained reduces runoff to surface waters. However, it increases potential for leaching from the slurry cell area through the alluvial aquifer to the Price River. The Permittee stated the greatest potential for rainfall contributions is during November and March. The fact that groundwater data from 1993 and 1992 shows highest elevations and highest variation in TDS in the station downstream of the slurry cells in March indicates there may be an increase in TDS with increases in precipitation. The Permittee did apply precipitation data to develop a conclusion regarding the groundwater quality changes in relation to precipitation but did not include travel time in this comparison.

The potential for increased contributions of sediment off site is minimized by the Sedimentation and Erosion Control Plan. See: "Hydrocarbons" under "Potential Impacts" discussion in this T.A. Since the reclamation phase includes removal of the dikes, topsoil and vegetative cover may play an important role in the runoff water contributions during this phase.

Potential Groundwater Impacts

Because the track hopper is completed in the water table it was felt this area was a potential source of contamination. The Permittee uses this area as a water source and has retained a pump in the building to draw water for road watering. A discussion regarding the monitoring of the track hopper has been added to the permit in Section 7.31.21. The Permittee feels the water at this site was not developed for monitoring and is not representative of local

ground water. The track hopper is considered a sink by the Permittee. Due to a constant evaporation draw, water seeps through the concrete structure into the track hopper. According to the Permittee there is no source within the building which can drive a reverse gradient.

The evaporation process occurring during the operational phase could have a potential to affect surrounding ground and surface waters since this water has a long history of being used for dust control. The Permittee feels the evaporation concentrates the salts and increases dissolved solids in the track hopper. It is recognized that Mancos shale around the site may also contribute to increased Dissolved Solids, Sodium, Calcium, and Sulfate. On April 30, 1994 the Permittee obtained a full baseline water quality sample. These results were compared with compiled averages and maximums from Wells GW-1, GW-7, GW-13 and GW-14. A summary of the data was provided in Table 731.21-3. This data shows pH, Magnesium, Chlorine and Manganese exceed historic averages. A copy of the lab results were included in the 4/30/96 submittal.

Available data indicates there is an increased TDS at GW-2 and GW-3. The Permittee attributes this to regional irrigation waters and the evaporative affects of the Siaperas Ditch. However, addition information indicates this is not the only factor with a potential to affect the water quality at these wells. The discharge from the slurry processing has historically followed a drainage pattern that brings the operational slurry discharge water past GW-3. With the evaporative draw at the Siaperas ditch, it is likely that slurry water's have also influenced water in this well.

Data analysis by the Division indicates there is an increased contribution in TDS to the down gradient wells GW-4 and GW-6. Site GW-4 has increased TDS over GW-1 for 90% of the comparable data sets. The down gradient increases could come from the slurry materials and may be controlled by the hydraulic conductivity of the slurry material where it contacts the alluvium.

The Permittee's present plan concludes that little or no impact to the groundwater system would be anticipated for the following reasons:

A. ***Levels monitored at stations GW-1, GW-2, and GW-3 and GW-14 (stations considered to be background) indicate concentrations equal to or significantly greater than concentrations recorded at other stations. Increased TDS at GW-2 and GW-3 are believed to be increasing due to a natural phenomenon related to irrigation and evaporation.***

GW-3 and GW-2 should not be analyzed as an average for background data, with the intent of comparing alluvial waters upstream and downstream of the slurry cells because of the following factors:

1. The Permittee has indicated that Well GW-3 when it is above the 20.6 level would be measuring water with influences from the slurry cells. According to Table 7.22-1 GW-3 has a depth below casing of 22 feet and the screened interval is from 9-22 feet therefore, this well is not developed deep enough to determine influences on the alluvium but, may detect upward movements of salts.

Available data indicates there is an increased TDS at GW-2 and GW-3. The Permittee attributes this to regional irrigation waters and the evaporative affects of the Siaperas Ditch. However, addition information indicates this is not the only factor with a potential to affect the water quality at these wells. The discharge from the slurry processing has historically followed a drainage pattern that brings the operational slurry discharge water past GW-3. With the evaporative draw at the Siaperas ditch, it is likely that slurry water's have also influenced water in this well.

2. GW-2 is noted to be measuring clays or the shale and is not comparable to the alluvial waters and therefore, is not likely to be influenced by the irrigation waters. A review of GW-2 confirms the well water elevation has been 0.5 to 16.3 feet below the bottom of the Siaperas Ditch (Midterm Permit Response Memo, June, 1995).

GW-1 and GW-14 appear to have little potential influence from mining operations and could be considered background. In the June 5, 1995 response memo, the Consultant noted that care should be exercised when interpreting data at GW-3. GW-3 could be used as a comparative tool to identify the local concentration of salts and/or determine if a pattern exists between concentrations at GW-3 and downstream wells.

B. The probability that the reverse gradient toward the Siaperas Ditch would occur is low based on the fact that the basin drains away from the area and accumulations in the Lower basin would reach 5374.5 feet and sufficient time to develop a reversed gradient would not occur. However, a localized condition may occur when the water elevation exceeds the elevation of the Siaperas Ditch.

The Permittee's data show past, and occasionally, present well water elevations above 20.6 feet. This is when a local reversed gradient at Well GW-3 would occur. However, the overall alluvial gradient is toward the south. Current data comparisons do not account for this local gradient influence.

C. A comparison of Stations GW-4, GW-5 and GW-6 to that of baseline stations shows that water quality at the natural outfall to the basin is either equal to or superior to baseline water quality. If the slurry basins were producing poor quality water, these stations should be the first indicator.

The Permittee has previously stated that the preparation plant area is a high sodium sulfate type water. Generally, waters in contact with the Bluegate Shale will have a higher sodium sulfate type water. When well data is compared, these comparisons should take into consideration local differences. When comparing GW-1 with G-4, and GW-6 the site specific data show increases in TDS downstream of GW-1 at stations GW-4 and GW-6. When including and averaging data for the wells developed in the Bluegate Shale, and for wells influenced by the Price River, with the wells in alluvial waters it will bias what affect the slurry cell may have on the alluvial waters downstream of the cells.

Data analysis by the Division indicates there is an increased contribution in TDS to the down gradient wells GW-4 and GW-6. Site GW-4 has increased TDS over GW-1 for 90% of the comparable data sets. The down gradient increases could come from the slurry materials and may be controlled by the hydraulic conductivity of the slurry material where it contacts the alluvium. This analysis conflicts with the applicants statement that GW-5, GW-6 and GW-4 when compared with the natural outfall of the refuse basins is equal to or superior water quality. These differences may arise because the permittee considers GW-2 and GW-3 as background stations and the Division does not.

D. Water quality concentrations collected at all ground water stations appear stable over time, meaning there are no clearly definable trends which have been observed and/or are continuing to occur since the late 1980's.

An analysis which separates the data into appropriate time periods would be prudent. Logical periods to compare data include; the time span from first data collection up to 1984 when the load out idled, and from when the load out idled to the present date. High precipitation years and drought years should be compared for climatic affects.

Earlier statements indicate a dilution of some ions with the additional increased precipitation. Available data also show an increase in concentrations of some constituents when the slurry operations ceased. These constituents appear to be relatively maintained at the level reached following termination of the slurry operations. The applicants analysis of precipitation data does not account for travel time.

E. Operations ceased adding materials and water to the slurry ponds in the early 1980's. The only water currently entering the ponds is through rainfall or natural runoff, neither of which contain high mineral contents that potentially occur in slurry water.

The salts accumulating at the surface due to evaporation influences or other constituents in the slurry materials may be leached from the slurry during high precipitation or high water table periods.

F. Decreased inflows experienced since operations ceased have translated to a decreased leaching potential of slurry material.

Decreased inflow does decrease the leaching potential below that experienced during the operational period. However, weathering and salt accumulations may have a large impact if enough water is available to flush the constituents.

The Permittee compared GW-4, GW-5 and GW-6 to that of "baseline" stations GW-1, GW-2 and GW-3. However, it was already indicated that GW-2, and GW-3 may be affected by the evaporative process of the Siaperas ditch at GW-3 and that GW-2 does not represent alluvial waters. When a comparison is made between non-mining influenced GW-1 with downstream wells GW-4 and GW-6, generally, there is an increase in TDS at GW-4 and GW-6 with a smaller increase between GW-1 and GW-6, than between GW-1 and GW-4. Since GW-4 is nearer to the base of the slurry cells this influence could be attributed to either increased concentration of salt

in the downstream direction related to irrigation, leaching from the slurry cells, or influences from the Blue Gate Shale below the site. GW-6 is near the Price River and it is likely influenced by the alluvial Price River water which may account for the lower TDS values at GW-6 in comparison to GW-4.

The water elevations between GW-1 and GW-4 follow a similar pattern supporting the conclusion that alluvial waters flow between north and south ends of the slurry cells. No additional irrigation influenced inflows exist between sites GW-1 and GW-4. The Permittee should be able to show relationships between water quality, evaporative rates, and available water, to determine what portion of the increased TDS concentrations are related to slurry waters using the proposed nested well completion methods. The sources of water which should be considered in water quality analysis include; irrigation water, slurry water, and precipitation.

The farmland north of the slurry cells has not been irrigated in the recent past. If the Siaperas ditch is the source of increased evaporation, one would expect to see an increased concentration of salts in a planar direction near the source of the Siaperas ditch and you would see a climatic variation in TDS at the well and ditch waters between the moist and dry seasons. This variability may be dependant on whether the wetting front will move the salts through the system out of influence of the well or will dilute the salts. One would expect to see a decrease in TDS during the wet season if water is in adequate quantity to leach the salts or provide dilution. One would see an increase in TDS in wells GW-1 and GW-3 when evaporation is dominating during the summer periods. At this time the determination of impacts related to irrigation waters, natural occurrences and the slurry cells can not be determined.

To rectify this situation the Permittee proposes that two nested piezometers be installed to measure vertical water quality variations in the undisturbed and disturbed area. The first well is proposed to be up-gradient of the Upper Refuse Basin, and a second well is proposed to be installed near the base of the Clear Water Pond. If the applicant uses or proposes to use the Clear Water Pond in the future this would interfere with the purpose of the wells. A more appropriate location for one of the wells, would be at the down stream end within the slurry cell. The nested piezometer should be set above and below the slurry interface and one deeper in the alluvium (dependant upon historic water elevations).

Data comparisons and supporting statistics were not presented in a manner which lends credence to the conclusions drawn by the Permittee. However, the Permittee has indicated the monitoring plan is not adequate for this determination and committed to add two additional wells. A combination of analyzing data relative to timing, operations, and comparable monitoring points and providing the proper locations for the additional wells will allow an accurate analysis of the PHC for this site in the future. The Permittee has stated the PHC will be updated when new information is obtained.

Hydrocarbons

A direct connection between the surface water and ground water can occur with underground tanks. All oil storage areas except an un-bermed concrete pad, were located on soil with the potential for direct connection to the groundwater, therefore contamination could have

reached groundwater with the previous above ground system. The Permittee indicates a bermed concrete containment will be used for the above ground tanks. These containment area dimensions would need to be included in the plan. The Operator has recently removed the tanks at this site. Storage tanks used or added to the site will require construction of the proposed containment structures. Additionally, in July of 1992 PCB transformers were removed from this site.

The information on the surface facilities map shows locations of Tanks and Oil Drum Storage Area FF. The area adjacent to the tank contained additional Oil Storage areas. Diesel and gasoline based product locations are shown on Map 712d. The shop building also contains oil, grease, and antifreeze, etc. The scale of the map for the area surrounding the main office was changed to include detail of other operation areas such as: the truck wash down area and steam cleaning area where de-greasers are used, the oil changing area, and the oil and antifreeze storage area adjacent to the office.

Facilities area EE is used for Non Coal Waste Storage and is in an alternate sediment control area. This area is not suited for all types of storage. If used for waste that may pose a threat to ground or surface water, it would require additional facilities that prevent leakage to the ground or surface water.

Dust suppressant is identified as soap and water. The plant contains drums of antifreeze in the area adjacent to the office. Although not discussed as such, antifreeze has been used as dust suppressant over the loaded train cars.

Findings:

The permittee has not met the requirements of this section. However a proposed monitoring program has been established which, if followed, will provide the data necessary to satisfy the regulatory requirements. Additional Analysis will be required at that time.

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:

Affected Area Boundary Maps

The affected area boundary does not extend beyond the permit area. The disturbed area is located on the Soils Resource Map E9-3339 and is identified as being 392 acres. The applicant has provided an outline of the disturbed area and incorrectly referred to it as the permit area on some maps. Soils resources are identified on G9-3510 and topsoil borrow area soils are identified on G9-3511 (incorporated September 13, 1995). Soil sampling locations associated with the preparation plant area and haul road construction are located on Drawing 4076-6-8 B.

Archeological Site Maps

No Archeological Sites were identified in the permit or adjacent area.

Cultural Resource Maps

No cultural resources were identified in the permit or adjacent area: no map is required at this time.

Coal Resource and Geologic Information Maps

Geologic information is provided on Drawing C9-1213-R. Drill hole information for the loadout facility is presented on E-93428, 1 of 4 through 4 of 4.

Existing Structures and Facilities Maps

Structures located with 100 feet of the Price River are located on Drawing E9-34306. The permittee has presented the existing surface facilities on E9-3341. The "as-built" for the haul road is provided on Drawing 4067-6-9A. And is certified by Louis G. Manwaring a Registered Professional Engineer in the Sate of Utah. This mine was considered to be continuously mined according from the pre-law period to present operations.

Existing Surface Configuration Maps

The Permittee has provided an accurate representation of the natural slopes which reflect existing geomorphic differences, as presented on F9-177, (1 of 2 and 2 of 2) and on G9-3504 as well as other maps. Premining surface configuration maps are not available where mining activities in this area occurred prior to SMACRA.

Mine Workings Maps

There are no mine workings in the permit area.

Surface and Subsurface Ownership Maps

Surface ownership information is provided on E9-3341A. No subsurface ownership maps are presented since no underground mining will occur.

Monitoring Sampling Location Maps

Drawing E9-3451 shows the monitoring locations for the operational phase monitoring.

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 are not

represented with the permit area boundary as identified in the issued permit. The railroad-right of-way previously shown on Exhibit E9-3341 was removed. Areas previously described as future topsoil salvage areas and previously leased areas within the permit area (Costal Corporation, and Utah Power and Light) were not retained from Exhibit E9-3339. New topsoil borrow areas are identified on Exhibit G9-3511, which also shows the proposed extent of the disturbed area during reclamation.

Surface and Subsurface Manmade Features Maps

Surface ownership information is provided on E9-3341A. No subsurface ownership maps are presented since no underground mining will occur.

Subsurface Water Resource Maps

Information on groundwater monitoring wells and surface water information collected in January and May of 1990 can be located on Drawing G9-3510 and was certified by Louis G. Manwaring, a Registered Professional Engineer in the Sate of Utah. Information on depth of alluvium can be located in 612a certified by David Hanson on June 9 1995, Registered Professional Engineer in the Sate of Utah. Other information on subsurface water can be found on Exhibit 712d and E9-3451. The track hopper water source is located on Exhibit E9-3341. The Permit states the diversion structure on the Price River is located on Exhibit E9-3430. This structure is shown in Cross Section A, which in turn is located in plan view on the upper right hand corner of Exhibit E9-3430. For additional clarification purposes the location of the river diversion structure is also found on Map 712d.

Surface Water Resource Maps

Watersheds are delineated on Drawing 3504. The water rights are located on Drawing G9-3507. A note was added to this map and the search radius changed from the original certification.

Vegetation Reference Area Maps

Vegetation Reference area maps are included in E9-3443 "Vegetational Study Map -C"; E9-3345 "Vegetative Types and Plant Communities"; F9-178,179 "Vegetative Study Map"; and G9-3506 "Proposed Test Plot Irrigation System".

Well Maps

Information from the Ferron Sandstone is obtained from old oil exploration well logs. These wells are outside of the permit area. Other well information is provided on G9-3507 and Drawing G9-3510.

Contour Maps

Reclamation contour maps are provided on Sheet No. E9-3342 (1 of 2 and 2 of 2).

Findings:

The applicant has provided the required maps. Therefore, this section is determined complete.

OPERATION PLAN

GENERAL REQUIREMENTS

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

Analysis:

Operations History

The Wellington preparation processing plant began operations in 1958. Mining operations consist of a preparation plant only: No insitu surface coal mining or underground coal mining occurred at this site. The total disturbed area associated with the preparation plant is 392 acres. The Processing Plant historically has received coal from the Somerset Mine in Colorado and operated as a coal cleaning plant until 1985. It is estimated the plant received from 1.5 to 1.8 million tons of raw coal, shipped 1.2 to 1.5 million tons of clean coal by rail, and disposed of approximately 300,000 tons of refuse annually (1984 Technical Analysis).

Coal processing waste or "refuse" was disposed of in two locations. Coarse refuse was disposed of in the Plant Refuse Pile while fine refuse was slurried through the pipeline to the slurry impoundments located east of the Price River. Slurry was pumped and transported via the fine slurry refuse pipeline, identified on the Facilities map (E9-3341), to the upper slurry cell where fine materials settled out. The partially clarified slurry water then passed to the lower slurry cell where additional fines settled from the slurry water. The remaining processing water passed through the Clear Water Pond before being returned to the processing plant. Additional water needed for processing was pumped from a well completed in the alluvium adjacent to the Price River (excerpted from the 1984 Technical Analysis).

Type and Method of Mining Operations

The Wellington Preparation Plant was used for storage, screening and loading trains when purchased by Genwal Coal Co in August, 1989. At full production approximately 500,000 tons per year of coal was handled. Coal was separated into as many as four products from crushed at a minus 1 or minus 2 mesh to Oiled Stoker Coal. Presently the permittee is neither processing, handling or loading coal in the Permit area.

Facilities and Structures

Existing and previous uses of structures at the Wellington Preparation Plant are discussed in Sections 5.26.

All Facilities and structures are located on E9-3341. The Permittee has also shown the location of the Septic Tank and Drain Field in the area north of the coarse refuse pile near the railroad spur on E9-3341. The Permittee indicates the location of the tank and drain-field were obtained from Drawing E9-1296 from earlier submittal. The Permittee stated the exact location was difficult to obtain from the original map.

Findings:

The plan incorporates the minimum requirements of this section.

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.

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.

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR Sec. 784.18; R645-301-521, -301-526.

Analysis:

Historically the Wellington haul road headed across the present ridge road location to the west along the Price River. The Ridge Road, a county road, which crosses at the west end of

the permit area was constructed beginning 1989 and was completed in 1990. The Permittee has not relocated a public road.

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. It also states that maintenance is provided for the Carbon County Special Service District and Carbon County. It is assumed the Department of Transportation has authority for this road through the agreement with the county, it is also assumed the county meant to indicate activities within 100 feet of the Ridge Road. County roads are identified on the Permit Area Facilities Map E9-3341.

Findings:

The plan contains the minimum requirements of this regulation.

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. This section also contains narrative on facilities and methods used to control air pollution.

Findings:

The plan is considered to meet the requirements of this regulation. Further clarification of the Air Quality Order and applications to fines processing may be available at the minesite.

COAL RECOVERY

Regulatory Reference: 30 CFR Sec. 817.59; R645-301-522.

Analysis:

This operation is considered a processing plant and does not operate an underground mine or surface mine at this time. Therefore, this section is not applicable to operations at this site.

Findings:

The plan meets the minimum requirements of this section.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

There are no underground mining activities on the site nor are any anticipated. Subsidence from underground mining would not occur on this site.

Findings:

The plan meets the minimum requirements of this section.

SLIDES AND OTHER DAMAGE

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

Analysis:

Section 515 includes a discussion addressing impoundment hazards. MRP contains a commitment to notify the Division by the most prompt available means and to comply with remedial measures . Although this regulation refers to "slides and other damage" the "other damage" appears to refer to that damage related to slide occurrences.

Findings:

The plan meets the minimum requirements of this section.

OPERATIONAL TOPSOIL AND SUBSOIL

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

Analysis:

A summary of information found to be pertinent to reclamation measures as reported in the 1986, 1987 and 1989 annual reports is presented in the following paragraph. Other measures deemed to be important to reclamation success based on vegetation plot information are also discussed below.

In the 1986 annual report a reclamation treatment description included 2 tons of hay amendment incorporated into the soil prior to seeding/fertilization/and mulching. This treatment appeared to provide successful results in reclamation on some of the areas contemporaneously reclaimed in 1986 (see map attached to 1986 Annual Report). In the 1987 Annual Report analysis of the soil materials from the fine slurry and coarse slurry test plots displayed very erratic SAR values within the test plots. In the 1989 Annual Report, chemical analysis of the native soils (locations shown on Drawing 4067-6-8 B) indicate that below two feet, the soils are fine textured and sodic. The recommendation for topsoil salvage was 6 inches (0-15 cm) along the access road and the screening facility.

An organic amendment was used on the slurry and refuse test plots. Information on the type of organic matter application, the depth of incorporation and the amount of fertilization is lacking. The Division is unable to reach a conclusion on the appropriateness of the organic matter treatment for the site. No advantage was apparent in the 1990 evaluation of these test plots, but the value of organic matter was assessed in terms of shrub establishment and not it's other values such as lowering soil temperature, increasing soil moisture and improving tilth.

A reclamation treatment which should be utilized at Wellington Preparation Plant is the incorporation of organic matter into the soil prior to seeding and fertilizing. The benefits of organic matter addition are: increased water holding capacity; improved structure; increased fertility (depending upon the type of OM); adsorption of soil salts; improvement or micro-organism population etc.

Vegetation test plots at Wellington have revealed that water capturing strategies will aid plant establishment in this harsh environment. The Division strongly recommends that an organic amendment is incorporated into the soil prior to seeding. The Division would also support experimentation with dried, digested sewage sludge as a source of structure- building fertilization for the refuse, slurry, and surface facilities area reclamation.

The addition of gypsum to localized sodic areas has been discussed within the plan. The possibility of using gypsum as a soil amendment will depend upon the exchangeable sodium found within the soil. After seedbed preparation, the soil will be sampled for fertility and toxicities (Section 3.41). The MRP should outline final reclamation sampling for fertility and soil amendments as follows: frequency (number of tests and spacing of tests within each acre); depth of sampling; and type of sampling (composite or depth segregated).

The reclamation plan calls for the use of topsoil and substitute material. An estimated total of 5,553 yd^3 has been salvaged and stored on site (page 3, Section 2.31). Topsoil (stockpile #1 and #2) recovered during haul road construction amounted to 1,526 cubic yards, and topsoil from the pad area (stockpile #3) was 1,537 cubic yards. A survey of topsoil recovered in Stockpile storage area #4 is included in Appendix F and is estimated to be 2,490 cubic yards.

No topsoil borrow is proposed to be used at the main plant area. It is not clear whether the existing topsoil piles recovered from the main plant area will be used to replace topsoils from post-law disturbed areas. Six inches of borrowed topsoil is proposed for the pumphouse area, and four feet of topsoil substitute would be placed over the (Plant) Coarse Refuse Pile, the Upper Slurry Pond, the Lower Slurry Pond and the Coarse Slurry (Slurry Pond) areas. The areas with 4 feet of cover were determined to have undesirable characteristics and toxic forming potential.

Native soils in the area are limited for their use as topsoil borrow material. New borrow areas proposed for final reclamation are discussed in the Section "Topsoil and Substitute Requirements". Topsoil borrow areas have been identified on Drawing E9-3341. Further topsoil borrow areas are shown on Drawing E9-3339. Currently the proposed Topsoil Borrow areas are Area "A" and area "E" identified on Sheet G9-3511.

Additional areas would also be suitable for borrow according the Permittee. A potential future alternative posed in the PHC is to use Area "G" to cover the Coarse Slurry; use Area "D" to cover the Slurry Ponds; Use Area "B" to cover the Coarse Refuse and Area "A" could be used to supplement as a final seed bed medium. If available data is not found to be adequate, further testing of these areas could be necessary to demonstrate that the Permittee is using the best available material. Additionally bond adjustments for transportation may also be necessary.

The sampling conducted and reported in the 1989 Annual Report went to a four foot depth. A deeper excavation was investigated for Borrow area "A" in 1995.

The specific pedon descriptions from the soil borrow material investigation 1995 for Borrow area "A" are summarized below:

1. NEICO-1, Ravola silty clay loam, 1 to 3% slopes, is a deep soil of fine silty, mixed (calcareous), mesic Typic Torrifluvent. The 12 inch plow layer has a silty clay loam texture. Below the plow layer to a depth of 52 inches is a stratified silt loam < 2% rock fragment. Between 52 and 59 inches is a finer lens with an EC value of 4.3, high enough to be considered saline. A clay stratum exists between 72 and 91 inches. This area is considered moderately well drained and is the only variance from the Ravola series characteristics. Assuming that 1.5 feet of soil material is left for suitable growth material, salvage to 72 inches is available.

2. NEICO-2, Billings silty clay loam, 1 to 3% slopes is a fine-silty, mixed, calcareous, mesic Typic Torrifluvent. It has higher EC and SAR values below the silty clay loam surface layer. From 12 to 29 inches the soil has an EC of 12.9 and SAR of 11.7. This increases to an EC of 13.6 and SAR of 13.2 at 29 to 50 inches. NEICO 2 is considered saline below the surface layer with the 50 to 85

inch depth saline-alkaline. The 50 to 85 inch depth exhibits a slightly unsuitable SAR of 16.1, which should dilute upon salvage and natural soil mixing. The entire profile could be could be salvaged to 100 inches in the vicinity of NEICO 2. SCS use rating as a topsoil is rated fair: too clayey with excess salt.

3. NEICO-3 - Billings silt loam, 1 to 3% slopes, NEICO 3 is considered saline below 24 inches in the profile. Below 38 inches the EC and SAR values are rated poor. No unsuitable values were encountered. About 122 inches of soil was considered suitable for salvage, with the lowest horizon between 73 and 140 inches having a clay texture. SCS use rating as a topsoil is rated fair: too clayey with excess salt.

4. NEICO-4 - Billings sandy loam, 1 to 3% slopes, is a fine-silty, mixed, calcareous, mesic Typic Torrifluvent. NEICO 4 is similar to NEICO 2 and 3 and also has a high EC and SAR value between 7 and 42 inches, and a saline-alkaline layer between 22 and 42 inches. This site has a high unsuitable Selenium value at 22 to 42 inches. If the unsuitable Selenium SAR and EC values would dilute upon mixing to an acceptable level then the entire profile to 96 inches would be considered suitable for salvage. SCS use rating as a topsoil is rated fair: too clayey with excess salt.

5. NEICO-5 - Moffat loam, 1 to 6% slopes, is a coarse loamy, mixed, mesic Typic Calciorthid. A calcic horizon exists between 16 and 32 inches. Shale bedrock was encountered at 123 inches. Soil pH are poor (8.7, 8.9) below 16 inches. A depth of 105 inches was considered suitable for salvage. This site has more rock fragments than other areas. SCS use rating as a topsoil is rated fair: small stones.

6. NEICO-6 - Greybull, deep silty clay loam, 1 to 6% slopes, is a fine loamy, mixed, mesic Typic Torriorthent. A gravelly silt loam exists between 43 and 93 inches. A cobbly loamy sand lens was encountered at 93 inches. No limiting factors were determined for this area and 75 inches are considered suitable for salvage. SCS use rating as a topsoil is rated fair: area reclaim, thin layer.

7. NEICO-7 - Gerst, moderately deep, gravelly loam 10 to 40% slopes, has 33 inches of soil above Mancos shale bedrock. The pH (8.7, 8.5) value, and SAR (11.5) were poor between 7 and 18, and 7 and 33 inches respectively. Weathered Mancos shale was encountered at 33 to 39 inches with a poor EC (11.6). At 69 to 84 inches the soils was saline. A 15 inch depth was considered suitable for salvage. SCS use rating as a topsoil is rated poor: area reclaim, small stones, slopes.

Reclamation concerns for soil salvage include the following in Topsoil Borrow area "A"; Clay stratum exists below the 72 inch depth and the resulting change in depth of soil to 1.5 feet may change the reclamation feasibility of the borrow area to meet postmining land use and farming production criteria. It is necessary to provide a method which demonstrates to the Division that the resulting soil medium is equal to, or more suitable for sustaining vegetation on farmland areas, than the existing topsoil for the topsoil borrow areas. It may be necessary to

include a demonstration that the change in depth to the water table and changes in salt accumulation will not affect the capability of the soil to meet vegetative requirements.

Soils of high EC values and salt accumulations may influence reclamation of the site where used as topsoil application and where retained at the borrow area. Salt accumulations will move within the soil profile and may vary according to seasonal variability and moisture availability. Both the borrow area and reclamation site may need special mixing and handling requirements to assure adequate dilution of the soil EC and SAR.

Borrow area "E" is identified as Ravola Slickspots Complex. 70 % Ravola Loam (alkali), 20 % slickspots, and 10 % Billings. (Read previous description under "SOILS RESOURCE INFORMATION") The SCS rating for using this soil as a topsoil is rated fair: excess salt. The reclamation concerns for Borrow area "E" include identifying the extent of the slickspots and excluding their use as a substitute material. Handling practices for the substitute materials and soil cover for insitu slick spots occurrences may be necessary if they are extensive enough to affect revegetation success in the borrow area. Determining the alkalinity and salts present and the usable portions of the substitute materials for distribution is necessary. See further discussions on topsoil borrow in the RECLAMATION section of this T.A.

Findings:

The plan is determined to meet the minimum requirements for describing operational handling of topsoil and subsoil. See: Reclamation Plan, Topsoil and Subsoil of this TA for further discussions.

INTERIM STABILIZATION

Regulatory Reference: R645-301-331

Analysis:

The plan states disturbances will be limited to those areas where permitted and necessary for efficient operations. Interim revegetation will be done when disturbed areas are not needed for further operations. These will be reclaimed and seeded at the first appropriate season following the methods in the reclamation plan.

Although the applicant discusses interim measures as contemporaneous measures in this section, in general the applicant has provided interim measures where possible. Specific areas and specific timing of interim reclamation measures were not discussed. Interim revegetation is developed to pertain to the outslopes of roads and other small areas to control erosion during operation periods. The Permittee has generally completed interim measures on roads and outslope areas as required under this regulation.

Findings:

The plan meets the minimum requirements for this section.

FISH AND WILDLIFE PROTECTION

Regulatory Reference: R645-301-333.

Analysis:

The fish and wildlife plan in Section 3.33 includes several measures recommended by Wildlife Resources. These include employee education about impact avoidance and mitigation, minimizing fugitive dust and sediment yield, maintaining instream flows in the Price River as far as possible, avoiding disturbance to riparian habitat, preventing wildlife use of ponds or other potentially hazardous areas, and protecting certain critical habitat areas. The Permittee will promptly report the existence of any threatened or endangered of which it becomes aware.

The plan contains an April 8, 1992, letter from the Fish and Wildlife Service concerning power lines in the area. It says the lines do not conform to raptor protection specifications, but they did not recommend modifications because they are not being used by raptors.

Findings:

The plan complies with regulatory requirements of this section.

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 is incorporated through a December 21, 1989 submittal and is 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 should incorporate applicable portions of the "As-built" in the main text for clarity.

The Permittee indicates primary roads are surfaced with rock, crushed gravel and asphalt or other material, and are routinely maintained. The Permittee should include discussion of the specific surfacing for each primary road. 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 be unimproved with a top cover of coal cleaning waste used when necessary for stability. This statement does not meet the regulatory requirements unless the Permittee can demonstrate the material to be applied is non-acid and non-toxic forming and the material is adequately handled during the reclamation phase.

The Permittee has not discussed how other roads meet the requirements of ancillary roads. The road adjacent to the slurry operations is proposed to be retained as a permanent road. It is used frequently (required for weekly MSHA inspection) and is used for more than a 6 month duration. Road surfacing should be adequate to provide access during the required inspection periods. Clarification of the road access to the slurry ponds is necessary.

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 were clearly 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 on 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. (Without retaining the existing "as-built" description for the haul road the applicant has not supplied the required road surfacing information, additional information for the road access to the sluceway and dam from the railroad spur and the roads at the north west end of the permit area should be clarified. The plan does not discuss how other roads meet the requirements of ancillary roads. The road adjacent to the slurry operations is proposed to be retained as a permanent road. It is used frequently (required for weekly MSHA inspection) and is used for more than a 6 month duration. Road surfacing should be adequate to provide access during the required inspection periods).

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:

Disposal of Noncoal Mine Wastes

In Section 5.28.3 the plan states "The Noncoal waste is temporarily stored then hauled to an appropriate land fill." Map E9-3341 provides the facilities map and shows the existing structures, an oil storage area, fuel storage building, and the non-coal waste storage area. The Permittee did remove a PCB containing transformer from the pumphouse site in 1992.

The Permittee committed to move existing gasoline and diesel tanks and any contaminated soil found beneath the tanks using proper disposal prior to constructing concrete containment structures. The Permittee has removed these tanks but, no sample identification of the soils beneath the tanks is known to be completed. The Permittee's proposal describes several scenarios for proposed containment structures. Following construction the "as-built" design(s) will be included with the designs for the proposed 2" steel pipe with valve and screw cap and 4" concrete filled pipes for drain protection.

The Permittee has included a commitment to dispose of concrete materials two feet below the reclaimed surface elevation in the reclamation plan timetable. Disposal information during reclamation for noncoal waste can be found in Section 5.40.

Coal Mine Waste

The Permittee previously disposed of coal mine waste at two general locations. The Preparation Plant south of the Price River and the Slurry Impoundment Basins North of the Price River. The Preparation Plant coal mine waste disposal site is referred to as the Preparation Plant Refuse Pile. The Slurry Impoundment Basins are separated into the following sections; the Coarse Slurry Refuse Pile, the Coarse Slurry Pond (upper refuse impoundment), and the Fine Slurry Pond (lower refuse impoundment). The Coarse and Fine Slurry Ponds are currently inactive and may have potential future resource use.

The Preparation Plant Refuse Pile is not in its final configuration at the time of this T.A. It is approved to receive pond cleanout wastes from the Crandall Canyon Mine. Mines generally clean out their ponds after three or more years of use. The Permittee has committed to include dates that waste is received in the inspection reports.

Refuse Data Analysis and Interpretation

Table 2-11 and 2-12 contain the results of the soil and refuse sampling programs conducted in December, 1990 and April, 1994, respectively. It must be noted that at no time has the slurry, coarse slurry or coarse refuse been sampled to their full depth. No monitoring wells exist or are completed within the slurry pond area. Therefore water quality emanating from the slurry ponds can only be interpreted from the refuse data presented.

Two sample pits (eight depth segregated samples) were excavated in the Coarse Refuse Pond Refuse Pile (i.e. coarse slurry) and sampled down to eight feet (sample depth intervals: 0-1';1-2';2-3';4-8'). AB-DTPA extractable Selenium concentrations range from 0.08 mg/Kg - 0.52 mg/Kg and averaged 0.20 mg/Kg. Hot Water Extractable Boron concentrations ranged from 2.5 mg/Kg - 3.39 mg/kg and averaged 2.9 mg/Kg. Saturated Extract Electrical Conductivity (EC_e) ranged from 2.45 mmhos/cm - 8.00 mmhos/cm and averaged 5.28 mmhos/cm. Sodium Adsorption Ratio (SAR) ranged from 0.47-6.01 and averaged 2.32. Saturation Percent ranged from 21.8 % - 29.52 % and averaged 25.66 %.

Two sample pits (nine depth segregated samples) were located in the Plant Coarse Refuse Pile (i.e. coarse slurry) and sample down to eight feet (sample depth intervals: 0-1';1-2';2-3';4-8'). AB-DTPA extractable Selenium concentrations range from 0.06 mg/Kg - 0.19 mg/Kg and averaged 0.10 mg/Kg. Hot Water Extractable Boron concentrations ranged from 1.5 mg/Kg - 3.37 mg/kg and averaged 2.55 mg/Kg. Saturated Extract Electrical Conductivity (EC_e) ranged from 2.4 mmhos/cm - 14.00 mmhos/cm and averaged 7.08 mmhos/cm. Sodium Adsorption Ratio (SAR) ranged from 8.77 - 86.34 and averaged 32.37. Saturation Percent ranged from 27.73 % - 40.36 % and averaged 31.91 %.

Two separate sample programs were conducted on the Slurry Pond Basin Area, one in December of 1990 and a more extensive program in April, 1994.

In December of 1990 two pits (28 depth segregated samples) were sampled to a depth of thirteen feet (sample depth intervals: 6-12"and one foot intervals thereafter). AB-DTPA

extractable Selenium concentrations range from 0.15 mg/Kg - 0.57 mg/Kg and averaged 0.32 mg/Kg. Hot Water Extractable Boron concentrations ranged from 1.54 mg/Kg - 10.49 mg/kg and averaged 4.97 mg/Kg. Saturated Extract Electrical Conductivity (EC_e) ranged from 1.85 mmhos/cm - 6.4 mmhos/cm and averaged 3.3 mmhos/cm. Sodium Adsorption Ratio (SAR) ranged from 1.26 - 7.99 and averaged 3.84. In both sample pits Boron concentration and EC_e were highest in the upper six inches.

In April of 1994 six pits (30 depth segregated samples) were located in the Slurry Pond Basin Area (i.e. slurry ponds) and sampled down to eight feet (sample depth intervals: 0-1';1-2';2-3';4-8'). AB-DTPA extractable Selenium concentrations range from 0.02 mg/Kg - 0.30 mg/Kg and averaged 0.15 mg/Kg. Hot Water Extractable Boron concentrations ranged from 3.34 mg/Kg - 26.74 mg/kg and averaged 7.61 mg/Kg. Saturated Extract Electrical Conductivity (EC_e) ranged from 1.46 mmhos/cm - 9.5 mmhos/cm and averaged 3.8 mmhos/cm. Sodium Adsorption Ratio (SAR) ranged from 1.22 - 6.74 and averaged 3.98. Saturation Percent ranged from 43.74 % - 92.3 % and averaged 63.54 %.

In six out of six pits (top eight feet) Boron concentration was highest in the upper one foot. Boron concentration averaged by depth interval were as follows: 0-1'=13.80; 1-2'=6.99; 2-3'=5.71; 3-4'=6.08; 4-8'=5.45.

In six out of six pits (top eight feet) nitrate(NO_3)-nitrogen concentration was highest in the upper one foot. nitrate(NO_3)-nitrogen concentration averaged by depth interval were as follows: 0-1'=5.75; 1-2'=1.65; 2-3'=1.74; 3-4'=1.72; 4-8'=1.61.

In four out of six pits (top four feet) EC_e was highest in the upper one foot. EC_e averaged by depth interval were as follows: 0-1'=4.29; 1-2'=3.08; 2-3'=3.04; 3-4'=3.69; 4-8'=5.14.

Multiple regression analyses were conducted on the thirty sample collected in April 1994. Comparisons between the various constituents of concern (i.e. EC_e, Hot Water Extractable-Boron, AB-DTPA Extractable Selenium, nitrate(NO_3)-nitrogen, sample depth interval) were conducted for each separate pit, each depth interval and total sample set. Data indicates that mobilization of salts in the soil profile are present.

The following correlations coefficient of $r^2=0.50$ or greater were noted. Normality tests were not conducted and adequate sample size determination were not accomplished. (Slurry Pond Sample Pit-# will be denoted as SP-#).

Station	Boron/ Selenium	Boron/ Nitrate-Nitrogen	Selenium /nitrate-nitrogen	Depth/ Boron	Depth/ Selenium	Depth/ nitrate-nitrogen	Depth /EC_e	Ec_e/ Boron	Ec_e/ Selenium	Ec_e/ nitrate-nitrogen
SP-1		r^2=0.82		r^2=0.59	r^2=0.60					
SP-2		r^2=0.98					r^2=0.73			
SP-3	r^2=0.78	r^2=0.94	r^2=0.60					r^2=0.93	r^2=0.72	r^2=0.96
SP-4		r^2=0.56	r^2=0.54	r^2=0.87			r^2=0.85	r^2=0.56		
SP-5		r^2=0.83			r^2=0.72		r^2=0.82		r^2=0.77	
SP-6		r^2=0.62				r^2=0.51		r^2=0.93	r^2=0.61	
DI * 0-1				r^2=0.82	r^2=0.82			r^2=0.50	r^2=0.81	
DI * 1-2		r^2=0.84		r^2=0.82	r^2=0.82			r^2=0.82	r^2=0.82	r^2=0.82
DI * 2-3	r^2=0.61		r^2=0.69					r^2=0.76		

* Note: DI stands for the depth interval and the number denotes the depth in feet

The Permittee's topsoil cover proposals are identified below by area:

1. **Surface Facilities Area:**

   No topsoil applied.

2. **Coarse Refuse Pond Refuse Pile (i.e. coarse slurry pile):**

   Cover with at least four feet of topsoil or "other suitable material". However in Section 5.42.2 thru 5.42.7.42 BACKFILLING AND GRADING (revised 11/10/94) the Permittee commits to covering the Coarse Refuse Pond Refuse Pile with "48 inches of top soil [*sic*]".

3. **Plant Coarse Refuse Pile:**

   Cover with at least four feet of "material". However in Section 5.42.2 thru 5. 42.7.42 BACKFILLING AND GRADING (revised 11/10/94) the Permittee commits to covering the Plant Coarse Refuse Pile with "48 inches of top soil [*sic*]".

4. **Coal Storage and Processing Area:**

   Cover with six inches of borrow area soil.

5. **Slurry Pond Basin Area:**

Soil may be ripped.."little ripping may be needed because so much of the area will be unconsolidated with the addition of material i.e. coarse slurry and topsoil". Cover with four feet of borrow area soil.

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.

Impounding Structures

The Permittee indicates that the Coarse Slurry Refuse pile is not a refuse pile but is actually a part of the refuse basin impoundment. However, there is a separate existing MSHA number for this portion of the plan. The Coarse Slurry Refuse Pile is currently inactive. This pile was constructed with drag lines from the Coarse Slurry Pond when the pond could not accommodate more waste. Since this site was developed from an impounding structure, the plan for this site does not specifically fit the requirements of R645-301-745.200. Currently any destabilization or erosion from this pile would be deposited in the slurry impoundments. This site, at reclamation, will be regraded. However, the plan does not remove the pile to original

ground level, instead the pile is simply regraded and redistributed. At the time of reclamation this site and the impoundments will fall under the definition of coal mine waste.

In reclamation the Permittee proposes to remove the elevated portion of the impounding dikes to a level graded even with the waste piles. The subsurface dikes for the slurry cells are proposed to be left in place permanently. The August 22, 1984 Technical Assessment indicates that the upper refuse dike, the lower refuse dike and clear water dike were constructed of coarse coal refuse prior to SMCRA. According to R645-301-746.311 structures made of or intended to impound coal mine waste may not be retained permanently as part of the post mining land use. The Permittee contends the removal of the structure to grade provides for a free draining (non-impounding) structure at the coarse and fine slurry cells. The report from Rollings, Brown and Gunnel appears to indicate a hydraulic connection with the alluvium below the slurry also indicating the buried portion of the structure will promote draining.

In the reclamation phase the impounding structures will be redefined as a refuse pile. The definition of Refuse Pile is a surface deposit of **coal mine waste** that does not impound water, slurry or other liquid or semi liquid material. Coal mine waste means coal processing waste; refer to the definition under R645-100. The reclamation design plan does provide ditch designs for the 100 year 6 hour precipitation event.

Burning and Burned Waste Utilization

The permittee has provided a fire fighting control and evacuation procedure for the preparation plant which was approved and incorporated as Appendix K as part of the stoker coal amendment.

Return of Coal Processing Waste to Abandoned Underground Workings

No coal processing waste will be returned to abandoned underground workings.

Excess Spoil

No spoil material has been or will be developed by mining and reclamation operations at the Wellington site.

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:

General Water Monitoring

Water quality monitoring parameters are shown in Table 7.24-2 for groundwater and are shown in Table 7.24-5 for surface water. The total and dissolved forms of Selenium and Boron were added as quarterly sampling parameters in Tables 7.24-2 and 7.24-5 for surface and groundwater sites. A commitment was made to include comparisons of Boron and Selenium concentrations in water, in the annual reports, as information becomes available. The applicants water monitoring parameters in Tables 7.24-5 and 7.24-2 now follow the Division Guideline and are based on down stream uses and state and federal water quality standards.

Well GW-2 did not have a cover over the metal casing as observed in the site visit on March 7, 1995. The well in this condition does not meet the requirements of R645-301-731.225. The precipitation which occurred prior to the site visit, probably entered the well and may be the reason for recent (3rd and 4th quarter of 1995) increases of water at the well. This well should be appropriately capped since the Permittee intends to retain this as a monitoring well.

Ground Water data collected in 1987, during coal slurry operations, indicates an increase in Boron concentration occurred between GW-1 and GW-4 and between SW-1 and SW-2. Boron concentrations have exceeded the 0.75 state water quality limit for Class 4 waters. Data representative of current conditions are not available for Boron. In order to determine water quality impacts total and dissolved Boron should be compared for related surface and groundwater sites.

Surface-water Monitoring

The following surface water monitoring sites are used to monitor for potential impacts at the Wellington site. SW-1 and SW-2 are used to monitor the Price River above and below the Preparation Plant. SW-3 and SW-4 are in the ephemeral drainage above and below the Siaperas ditch north of the slurry cells. SW-5, SW-6 and SW-7 were set at the inlet and outlets of the slurry cells to monitor changes in quality as water was cycled through the system. SW-8 was to be used to determine water quality utilized and discharged from the preparation plant.

The surface water monitoring stations will be monitored quarterly. However, the Permittee indicated stations would not be monitored during local precipitation events. In Table 7.28-2, monitoring of each surface water station was discussed in terms of the overall value of monitoring each station during precipitation events based upon the program already in place. Clarification was added to Section 7.28-2.

The Permittee proposes that SW-3 no longer be monitored because it is not impacted by the loadout. The purpose behind monitoring this site is to describe the waters upstream of the disturbed area and to determine if downstream water quality changes occur from the adjacent slurry cells. This site was described as being located in the Siaperas ditch above the disturbed area (location shown on E9-3451 is poorly placed) and is an ephemeral system. If flow is obtained downstream at SW- 4 during an event the data from SW-3 would be of importance to the operator.

SW-4 is placed at the down stream of the Siaperas ditch to determine the affects of water contributions from the slurry cells. This channel used to flow when the slurry operations were conducted at the preparation plant and flow occurs intermittently at the present time. Water was observed in the Siaperas ditch September 8, 1994 and March 7, 1995. The Permittee proposes a grab sample be taken to determine affects of salts after a long dry period. An additional sample would be obtained also at the same time as a water sample is available in GW-3. This approach approved and is encouraged. However, a sample during a moist period would also be necessary in order for the data to provide any information that assists in determining effects of dilution or evaporation on water quality at GW-3 and the Siaperas ditch.

Monitoring sites SW-5, SW-6 and SW-7 are related to the slurry impoundments at the spillway outlets. Currently no UPDES discharge points are shown on the Watershed monitoring map for the slurry impoundments. It is not clear whether their UPDES permits reflect this. A discharge monitoring point is not required unless the site discharges. If this site does discharge the Permittee would be in violation of the state regulations. No discharge is expected under the present inactivity at the site.

SW-8 was monitored at the overflow of the plant water sump. The plan indicates that data from this site was unavailable since 1988 when cessation of operations at the plant eliminated overflow.

SW-2 will be used for sampling water quantity (flow rate) only, beginning in 1996. Site SW-2a will be monitored for water quality at the downstream section below the influence of groundwater flow from the slurry cells.

The Permittee has problems obtaining specific flow data on the Price River. This information is important to determining affects of the Price River on water monitoring well GW-6 and other wells. The Permittee has presented flow values for the Price River Surface Water as being "> 10 cfs" for high flows. On March 7, 1995, a site visit was conducted with Mel Coonrod, Environmental Industrial Services and other Permittee representatives. During the visit it was indicated that flow depths along the weir were actually recorded for dates where flow is reported to (> 10 cfs)". In a phone conversation with Dave Hansen , Hydrologic consultant Hansen Allen and Luce, it was indicated that this information is not available. Flows recorded with a greater than or less than sign may be considered a violation of R645-301-731.222.1. A commitment to submit all field data when requested by the Division was presented in the plan. It was also indicated that a U.S.G.S. gaging station upstream of the site may still provide measured flows. It was requested this information be provided but, none was available. The site also has

a stilling well that is no longer operable but could be improved and provide data for determining high flow rates.

Groundwater Monitoring

The Permittee has presented grouping of monitoring stations for comparison purposes for water monitoring analysis in Table 7.28-2. The Permittee has stated that GW-1, GW-2 and GW-3 are grouped together because they monitor undisturbed groundwater quality (since flow is from a northerly direction). However, a comparison of GW-1 and GW-4 and GW-6 provides a better comparison on resulting probable hydrologic impacts in the alluvial waters upstream and downstream of the slurry cells, for the following reasons:

1. Well GW-2 was either completed in a tight clay formation or in shale. It is not likely this well represents timely or accurate alluvial water quality data. Therefore, concentrations due to irrigation water are not likely to be realized at this well and this well should not be used as data to compare alluvial water quality.

2. Well GW-3 is completed 7 feet into the alluvium and is approximately at the same elevation as the Siaperas ditch. This water may be affected by evaporative influences of the Siaperas ditch. The water quality at GW-3 is influenced by water in contact with the slurry when the water elevation is above 20.6 feet from the top of the casing. (GW-3 may provide an indication of the potential for influences of TDS from the slurry).

No wells are completed in the slurry cells to allow a determination of the impacts resulting from the slurry verses natural background increases. The Permittee has committed to install new wells GW-15 and GW-16. GW-2 is proposed to be used only for depth to water and GW-5 is proposed to be properly abandoned.

The applicant has stated that they will attempt to collect both surface and groundwater samples on the same day. Collection of "same day" surface and groundwater samples may be important at stations SW-2 and GW-6, GW-4 and GW-16; and at SW-4 and GW-2 and GW-3 and GW-15, since there is a potential connection between surface and groundwater at these stations.

The Permittee has been unable to produce information on the screened interval for the following wells. GW-1, GW-4, GW-5, GW-7, GW-9, GW-10, GW-11, GW-12, GW-13. The Division has requested review of the field notes for the downhole camera investigation and any other well investigation data. Data for some of these wells is in Appendix 6. When the applicant places wells GW-15 and GW-16 a test for the hydraulic conductivity of these wells is necessary.

Acid- and Toxic-forming Materials

The determination of the potential for Acid and Toxic forming materials was based on leachate samples from the coarse refuse pile and the slurry refuse basins. The results indicate a high SAR in the Coarse Plant Refuse Pile, and potentially toxic selenium and boron concentrations in the slurry cells.

Coarse Refuse Pile

The high SAR at the Plant Coarse Refuse Pile is not considered leachable: according to the Permittee sodium must be replaced by another cation and with the lack of moisture probably would not be leached downward far enough to affect groundwater. The leachate sample had 1,270 ppm sodium; a basic pH value of 8.4 and TDS 7,040 mg/l. While observed values of water quality data from GW 14 (1985 through 1989) varied from 2,218 to 5,330 mg/l with an average of 3,701 mg/l Sodium; pH values varied from 6.54 to 7.9; and TDS values varied from 8,050 to 17,728 mg/l (the unit mg/l was assumed since the Table 7.24 provides no units). If the leachate and well water were directly comparable it would indicate pH values are the only notable difference. The information provided indicates there would be little potential impact to downstream uses for the sampled constituents.

The Permittee will cover the Plant Refuse pile with 4 feet of topsoil. The total water holding capacity is expected to be greater than 7 inches. With the average annual rainfall of 8 inches and the average annual (pan) evaporation rate of thirty inches the Permittee does not anticipate the leachate will move through the pile to the underlying groundwater. A soil and water balance accounting was not presented. Also, the reasoning assumes the rainfall and evaporation are evenly distributed over time.

Slurry Cells

The Permittee has indicated the evaporative component may be more dominate than the downward component for water migration. With that in mind, the occurrence of water in the alluvium below the site may increase the opportunity for continued salt accumulation over time. The degree and propensity for this to occur can not be determined with the existing data. During moist climatic periods the mobile salts which may have accumulated through time could be leached downward.

The Permittee, provides the following measures during the reclamation period to minimize acid and toxic forming potential: 1) Diverting water around the slurry cells thus, minimizing water available for leaching and, 2) Leaving a roughened surface to maximize plant water uptake(this may however increase the salt movement to the surface and, 3) Evaporation rates are greater than precipitation rates (this should be estimated based on monthly averages at a minimum not annual averages).

Transfer of Wells

The Permittee has not applied for transfer of any wells to another party.

Discharges into an Underground Mine

No discharges into an underground mine are proposed. No underground mines exist in the preparation plant vicinity.

Gravity Discharges

No gravity discharges are requested or approved. No underground mines exist in the preparation plant vicinity.

Water-Quality Standards and Effluent Limitations

Until the Permittee is able to describe the existing site characteristics for Boron, Selenium and leachable salts, the determination of completeness for R645-301-750, R645-301-751 and R645-301-730 cannot be met. Further discussion and review is necessary for this section.

Other Hydrologic Protection Measures

Map E9-3341 provides the facilities map showing an oil storage area, fuel storage building, and the non-coal waste storage area. The location of diesel and gasoline are shown on Map 712d. Text includes discussions of truck wash down areas and oil changing areas on page 14 and 16 in Section 7.28. Table 7.28.4 in the PAP, lists chemicals currently stored within the beltline and power building. The shop building is also used to house all other oil, grease, antifreeze etc. and is used as the site for all truck maintenance. Trucks too large to fit in the shop are cleaned and have their oil changed in back of the shop in the general shaded area as shown on Map 712d".

The gas and diesel storage tank enclosures have been sized as required in Section 7.28.3. " Tanks will be moved and any contaminated soil currently found beneath the tanks will be removed and properly disposed of, after which rectangular concrete bases will be constructed..." A discussion is included in Section 7.28.3 and attached design calculations are included in Appendix 7.28-1 for sizing of containment berms for storage tanks areas. The Permittee's proposal describes several scenarios. Following construction the as-built design should be included in the plan. The Permittee also presented designs for a 2 " steel pipe with valve and screw cap and 4" concrete filled pipes for drain protection.

A spill prevention and countermeasure plan certified and dated December 6, 1993, is contained in Appendix K. The main components identified by the plan are:

1. Any leaks, damage or unusual conditions will be reported immediately.
2. Diesel, gasoline and stoker oil tanks will be visually inspected regularly.
3. Transformers and components will be checked regularly for leaks or other damage.
4. Repairs will be completed as soon as possible.
5. Absorbent material such as oil-dry, straw, sawdust, rags or earth shall be used to soak up spilled fluids and will be maintained on site for emergency use.
6. Oil soaked materials will be collected and placed in barrels and disposed of as contaminated materials

Diversions

Information on diversions are presented in Sections 7.42 and in Hydrologic Appendices. The upgraded haul road diversions are found in the As-built Facilities amendment revised 2/23/90. DD-1 and DD-2 no longer are part of the facilities drainage area. The peak flow designs for DD-3 were provided and a design flow depth was presented with a minimum depth of one foot. The culvert designs for C-10, C-11 and an Unnamed Culvert (C-12?) are found in Watershed #4 and C2, C-4, C-6, C-7, C-10, were all presented in Watershed No 1 computations The culverts were designed to handle the 10 year-6 hour event assuming 0.1 cfs per acre of runoff.

Table 2
Undisturbed Drainage Diversions

Diversion	Design Life	Design Event	Function
UD-1	Temporary Diversion	10 year-6 hour	Collects flow from Watershed #2 and #3 diverts water around preparation plant area.
UD-1A	Temporary Diversion	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.
Pipeline Slurry South and North Ditches	Temporary	10 year-6 hour	Collects flow from disturbed areas in Watershed #8 and diverts therm to the Pipeline Slurry Sediment Pond.
Permanent Diversion	Permanent	100 year-6 hour	Collects all undisturbed flow north of the Slurry Cells and diverts water into the Siaperas ditch.
UD-2	Haul Road Diversion		Collects drainage from south side of haulroad to CU-1 and crosses under the road.
UD-3	Haul Road Diversion		Collects drainage from south side of haulroad to CU-1 and crosses under the road.
UD-4	Haul Road Diversion		Collects drainage from south side of haul road and diverts water under the road through CU-2.
UD-5	Haul Road Diversion		Collects drainage from south side of haul road and diverts water under the road through CU-2.
CU-1	Haul Road Diversion		Passes drainage under road to SAE-1.
CU-2	Haul Road Diversion		Passes drainage under road to SAE-7.

Table 3
Disturbed Drainage Diversions

DD-3	Pad Drainage Area	10 year-6 hour	Diverts Drainage from pad area to Plant Sedimentation Pond.
DD-4	Pad drainage and Pond Discharge Ditch	10 year-24 hour	Takes drainage from the Plant Sedimentation pond to the area between the Railroad and Plant Refuse Pile.
C-5, C-4, C-7 and C-8	Preparation Plant Railroad Spur	10 year-6 hour	Passes drainage from Watershed #1 along railroad spur. To C-9 under the railroad spur.
C-9	Preparation Plant Railroad Spur	10 year-6 hour	Passes drainage from the Watershed #1 under the railroad spur. The unnamed north-south culvert near C-9 should be removed as it appears to drain into Watershed #4. A berm just south of C-8 should be built to a height to 2.6 feet higher than the top of the inlet to C-22 to prevent water from entering Watershed #4 .
C-21, C-22 and C-24	Preparation Plant Railroad Spur	10 year-6 hour	Passes drainage under the Denver and Rio Grande Western Railroad. It is recommended that a berm be built south of the inlet C-22 to a height of the top of the 36 inch culvert so flow will pass through the culvert before overflowing to Watershed #4.
C-10 , C-11, C-23, C-24 and an un-numbered culvert	Preparation Plant Watershed #4	10 year - 6 hour	Passes drainage from the Road Pond and Auxiliary Ponds to the Dryer pond.. In the future the ponds are proposed to be removed and water will drain from the disturbed area to the pond.

A nick point has occurred in the Permanent Diversion due to the pond that is excavated in the ditch. The Permittee has committed to fill in the excavated area. Original designs included the pond on Exhibit E9-3427. The pond should be removed from the designs following it's repair.

It is proposed by the Permittee that sections of the south pipeline slurry ditch steeper than 4% be stabilized using an erosion control blanket such as North American Green C125 flexible channel liner. The Permittee has committed to use the erosion control blanket according to manufacturers recommendations in the text of the plan. The Permittee has provided the necessary information for implementation of this project. The Permittee uses Manning's "n" of 0.035, to provide the tractive force determination, however the manufactures co-efficient indicate Manning"s "n" from 0.022 to 0.014 should be used for the proposed blanket at the potential depths of flow. The proposed use is for areas where the gradient is from 4 to 21%. Even though the design for a 0.21 ft/ft bed slope slightly exceeds the allowable tractive force, the design flow is moderately conservative based on the information presented by the Permittee. Assuming the values used in design computations are representative of the site, the use of the proposed blanket up to 0.21 ft/ft bed slope reaches the upper limit for applicable use of this product. Therefore, the potential for failure is greater at that gradient.

Stream Buffer Zones

Stream Buffer zones were established in the August 22, 1984 permit approval. Suspension bridges carrying slurry pipelines; a diversion dam and sluiceway to divert water to the pumphouse; and a bridge for an access road were constructed prior to enactment of the Surface Mining Control and Reclamation Act in the buffer zone. Buffer zones signs were placed within 100 feet from the Price River. In section 5.21 the permittee states that the buffer zone signs are placed so as not to affect water quality. For clarification, the intent of the regulation is to exclude disturbance in those areas unless approval is granted by the Division as well as protection of the water and riparian resource.

Sediment Control Measures

ASCA#1 receives runoff from Watershed #1 and passes the waters to the opposite side of the railroad spur. Watershed #1 has not been disturbed in conjunction with the mining operations but was utilized previously by the county and the power utility company, however the applicant has removed information verifying the previous disturbance.

The Permittee has proposed ASCA#7 which utilizes the present practice of silt fences and straw bales as means for alternate sediment control. In the response memo (May 2, 1994) the Permittee, proposed to reclaim ASCA #7 through reseeding the disturbed area. The existing silt fence and straw bale system was to be maintained until revegetation was successful.

The Permittee has had problems with the existing silt fences at ASCA #7 such that piping regularly occurs through the fence. In field conditions it was recognized the fence is constantly maintained but does not function well (i.e. may not meet Best Technology Available) for this area. This area has a low potential impact with current operations relative to downstream conditions since the drainage passes through Mancos Shale. Performance standards and field inspections will determine the success of the design.

Additional changes to the ASCA's are presented by the Permittee to conform with Directive Number Tech-003 from the Division.

Proposed changes to the alternate sediment control measures include using a berm and silt fence at ASCA #3. The Permittee presented minimum berm dimensions which include a 1' freeboard for conveyance of water from a 10 year - 6 hour event to a silt fence, and a 10 year - 24 hour storm volume of 0.25 AF.

Proposed changes to ASCA #4 include a CN change and a 10 year -24 hour runoff volume of 0.04 AF. No control methods are identified in text, however the diagram shows a silt fence at the north east end.

ASCA #5 includes a minimum berm height of 1.15 feet. The Design berm for a 10 year - 6 hour event with a peak flow event of 0.69 cfs was 1 foot.. The berm however is located in a low point and is not used as a conveyance structure. Although the size should be adequate for a 10 year - 24 hour event the design should be for that event. A portion of the site also drains to a

silt fence and/or straw bales at the north west end of the disturbance and would receive a runoff volume of 0.1 acre feet from the 10 year - 24 hour event.

Siltation Structures

The inspection description includes the weekly requirements for the Clearwater Pond and Lower and Upper Refuse impoundments and is presented in section 5.14 (5/2/94). Other sedimentation ponds will be inspected quarterly.

Sediment Ponds

References to cross-sections provided for the Road Pond and Auxiliary Pond emergency spillways are found on Drawing 712d. Sediment cleanout 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 and is a more easily inspectable plan. This information was also provided for the Dryer pond. The Permittee has provide 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 made it clear whether those ponds are intended to be retained or removed at this point in time. The Division therefore assumes the ponds will remain until formal notification is presented to 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.

There remains some question as to whether the primary and emergency spillway and the 24 inch inlet are at adequate elevations so that the water will not back out of the inlet in a large event 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 and it is determined that the pond inlets and outlets do not properly drain and therefore 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, the Permittee must provide complete site grading as presented in E9-3342 prior to removal of the Auxiliary Pond or provide site specific information including proposed elevations and cross sections for the inlet and surface elevations prior to Auxiliary Pond removal.

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 a lab sheet is required to demonstrate the soils analysis 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 information presented is not clear as to the operational configuration, the Permittee would have to regrade the site and move the inlet to provide a prudent engineering design required by **R645-301-512.240** and meet **R645-301-742.221.35**.

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 applicant has not provided this but, is willing to provide certified designs for the pond. The lack of a more conventional design is not expected to

increase significantly environmental safety at this site with the site as it is currently in a non-operating mode.

Other Treatment Facilities

No other treatment facilities are used at the Wellington Preparation Plant.

Impoundments

History

In 1978 the upper refuse pond was removed from service and all clarification processes were completed in the lower pond. In 1983 the height of the lower slurry pond embankments (Lower Refuse dike) was increased 11.1 feet, changing the initial configuration. Work was completed in the spring of 1984. The proposed change to extend the North Dike and Upper refuse dike was never completed, but was proposed to be completed in 1985. (Rollings Brown and Gunnel report Appendix E 1983).

North Dike

The North Dike was formed by dumping material excavated for a trench (the Siaperas ditch) and was not compacted according to information presented in Appendix C. Seepage has been observed at the downstream face of this dike. Most sands start at a depth of approximately 15 feet from the top of the embankment.

Upper Refuse Dike

Historically, seepage has been reported to have occurred around the left abutment of the upper tailings dike in the natural materials. The upper 15 to 25 feet are composed of coal refuse. Silt and granular materials are the foundation materials. It was expected that the subsurface materials were saturated on both sides of the dike. The Upper Refuse Dike is approximately 20 feet high. Most sands start at a depth greater than 20 feet from the top of the embankment. Sandy soils are found below the Upper Refuse Dike at test holes numbers 2, 3, and 4. The location of these drill holes may represent the most likely place for movement of water through the alluvium below the upper refuse basin, in other words, in the central portion of the Upper Refuse Dike embankment.

Lower Refuse Dike

The Lower Refuse Dike within the embankment was determined to consist primarily of silty clays to the base of the structure and is underlain with sandy gravel to gravelly sands. It could be anticipated that some seepage would occur below this dike. The most extensive portions of gravel are under drill holes 10 and 11 to the center and north west of the center of the dike. The Lower Refuse Dike is approximately 35' high. Most sands are located at a depth greater than 35 to 40 feet from the top of the embankment. It was noted that no seepage was seen through the embankment 1 year after the 1983 dike expansion.

Clear Water Dike

The embankment of the Clear Water Dike also consists mostly of silty clays with some sand lenses. The phreatic surface was determined likely to exist throughout the embankment. Seepage appeared to occur under the dike. The sandy gravelly portions were found under test holes 15, 16, and 14 from the center to the south of the dike. Most sands are located at a depth greater than 35 to 40 feet from the top of the embankment.

The Permittee has provided calculations for the runoff from Watershed #7 (Refuse Basin) generated by the PMP-6 hour event estimated to be 439.1 acre feet. The capacity of the basin was calculated to be 763.6 acre feet. The calculated runoff from the PMP would occupy only 58% of the capacity of the basin.

Casing and Sealing of Wells

The Permittee commits in 7.38 and 7.48 that monitoring and water wells will be temporarily or permanently sealed in compliance with **R645-301-748**. In section **731.400** of the plan it is stated that exploratory and monitoring wells will be sealed in accordance with requirements of the State Engineer and DOGM. In Section 7.28.3.1 the plan it is stated that monitoring wells will be used to replace a "significant diminution" of surface or ground water caused by operation of the plant. In section 5.40 of the plan it is stated that the well casing will be removed at 2 feet below final grade and filled with soil from the pump house.

Water wells and ground water monitoring wells are permitted by the State Engineer through the Utah Division of Water Rights. Water and monitoring wells must be installed, operated, and closed in accordance with Utah Code Section 73-3-25 and Utah Rules for Water Well Drillers. The Permittee does not state whether or not the Division of Water Rights permitted the monitoring wells and if that Division's standards were followed.

If any future groundwater monitoring wells are anticipated then methods of installation, management, and closure should be approved and permitted by the Division of Water Rights and the information included in the MRP. If these wells do not come under the requirement of these regulations the wells should be closed in a manner that prevents degradation of water quality.

Findings:

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

R645-301-740 and 760, provide site specific information including proposed elevations and cross sections for the inlet and surface drainage for water passing from where the existing auxiliary pond is located under the railroad spur to the Dryer Pond, remove the discussion referring to removal of the auxiliary pond or provide other methods to demonstrate that water will enter into the Dryer Pond and will not cause backwater in the inlet (where the current Auxiliary Pond spillway is located) before spilling out the primary and emergency spillways of the Dryer Pond.

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

The permittee has provided the statements required by R645-301-526.200 in Chapter 5.26 of the PAP.

Findings:

The plan meets the requirements of this section.

SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

Analysis:

Signs and markers have been posted and are maintained at access areas from public roads; at topsoil stockpiles; and at the stream buffer zones along the Price River.

Findings:

The plan meets the requirements of this section.

USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

Analysis:

The Permittee states that no blasting or explosives are used in the present operations plan. If blasting is required in the future, a plan will be submitted to the Division with standards that are in compliance with R645-301-524. The Permittee does not currently use or store explosives on site. If the need arises the Permittee must obtain Division approval prior to use.

Findings:

The plan meets the requirements of this section.

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 does not fully meet the requirements of this section. The Permittee must provide the following as a stipulation to the permit:

R645-301-121.200, provide maps that clearly and consistently show the appropriate boundaries for disturbed areas, permit areas and legends that clearly identify between the various symbols used on each map.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Discussions Related to Selenium and Boron Plant Uptake and Toxicity:

The Division Guidelines for the Management of Topsoil and Overburden, Table Two, classify material with extractable Selenium concentration greater than 0.1 mg/Kg and extractable Boron concentrations of greater than 5 mg/Kg to be toxic forming. The Slurry Pond Basin Area data values shows; 62% were greater than 5 mg/Kg extractable Boron and 95% of the slurry were greater than 0.1 mg/Kg extractable Selenium. Based on the Coarse Refuse Pond Refuse Pile data values, none were greater than 5 mg/Kg extractable Boron while 75% of the coarse slurry sample data were greater than 0.1 mg/Kg extractable Selenium. For the Coarse Refuse Pond Refuse Pile data collected no values were greater than 5 mg/Kg extractable Boron while 44.4% had values greater than 0.1 mg/Kg extractable Selenium.

The Division is fully aware that the typical 5 mg/Kg HWE-boron agricultural standard may not be suitable to the reclamation plant species proposed. Many of these species may or may not be well adapted to HWE-boron greater than 5 mg/Kg. Keren and Bingham (1985) and Maas (1986) have presented threshold concentration range of Boron (B) for sensitive (0.078 - 0.093 mol B/m^3){ 0.57 - 0.68 mg/Kg}, semi-tolerant (0.093-0.37 mol B/m ^{3}} {0.68 - 2.72 mg/Kg}, and tolerant crops (0.37-1.39 mol B/m^3){2.72 mg/Kg - 10.21 mg/Kg}. Extensive descriptions of B toxicity symptoms are given in publications by Eaton (1944) and Gupta et al. (1985).

Correspondingly soil/refuse/spoil AB-DTPA and HWE-selenium and plant tissue concentrations may or may not be correlatable. However one cannot ignore that plants tend to concentrate most elements relative to the soil concentration (Gough and Erdman, 1980). Soils developed under drier regimes often closely reflect the chemical and physical properties of the soil parent materials (i.e. coal mine waste). In the semi-arid west Se and B form soluble anions at higher pH (Boon et al. 1987). Plant samples containing greater than 5 ppm Se are considered toxic to livestock (National Research Council, 1976).

The slurry ponds represent the greatest single disturbance on site and may jeopardize the post mining land by creating forage that will induce either acute or chronic toxicity in herbivores. Several difficulties exist in making interpretations of Selenium analytical data. The problems are

partially based on plant species that have differing capacities to extract and incorporate Selenium into their tissues. As an example the widespread use and successful establishment of Western Wheatgrass and Fourwing Saltbush in reclamation efforts are widely accepted. Both species are quite palatable to livestock and have been described as secondary accumulators (Rosenfeld and Beathe, 1964). Both species have demonstrated capacities to accumulate relatively high concentrations (over 100 ppm) of Selenium in their tissues (Munshower and Prodgers, 1990).

The slurry ponds represent the greatest potential for adverse impact on groundwater and surface water quality. The geomorphologic position of the slurry ponds is within the one hundred year flood plain of the Price River and probably hydrologically linked to the Soldier Creek alluvium. Transport of soluble forms of Selenium, Boron and other trace elements with percolating waters will occur during precipitation events, snow melt, through alluvial deposits and vary seasonally. The total Selenium, Boron and other trace element concentrations and ion species are important in defining potential trace metal groundwater contamination problems. An understanding of the equilibrium developed between the mineral and solution phase, as well as the redox conditions in the backfill and alluvial environments, will be important in defining the potential for hydrologic transport and water quality degradation.

The Division does not consider the revegetation test plots representative of the growth conditions on the slurry ponds. As of the spring of 1989 slurry ponds were saturated (personnel observations base on four trench excavations). Based on the most recent sampling of the slurry ponds (Spring of 1994) the upper eight feet, at the time of the sampling were "dry". Evapotranspiration has diminished (on average) the moisture content of the upper eight feet of the slurry pond profile. Diffusion and capillary action has transported Boron, nitrate-nitrogen and other soluble salts to the slurry surface. Cessation of slurry delivery has resulted in a reversion of the slurry to more aerobic conditions. Potentially increasing the mobility of trace elements within the slurry ponds. In addition, slurry deposition during commercial operations have resulted in slurry many times the thickness of that found in the revegetation test plots and has potentially release greater quantities of trace elements and salts.

The vegetation growing on the Coarse Slurry and the Fine Slurry revegetation test plots, the volunteer species currently growing on the slurry ponds, and a geobotanical vegetative survey should be conducted to determine the plant species tissue trace element concentrations, frequency and distribution to demonstrate that the site will meet postmining land uses. In addition to the above evaluation, the Permittee should include pot culture and greenhouse tests, artificial weathering, long-term column leach studies, Selenium, Boron and potentially other trace element partitioning studies.

Weathering test, column studies, greenhouse and field trials used to evaluate increased topsoil depths and thickness and type of capillary barriers (i.e. capillary barriers consisting of 20 cm of durable cobblestones and 10 cm of durable coarse gravel and/or combinations thereof). In general coal mine waste covered by the greatest topsoil depths have the least potential of salt and trace element movement in either direction in the profile. The deeper the coal mine waste is buried, the less it is affected by leaching and capillary effects. The closer the coal mine waste is

to the surface, the greater the increase in deep percolation. The applicant has provided for four feet of cover which will aid in limiting movement. However, the movement of salt and trace elements under this site condition are unknown.

Over the reclamation period vegetation that may be utilized should be assessed to determine if the vegetation is bioacummulating toxic elements and to assure the site meets the postmining land use and for the protection of wildlife (i.e. is not toxic to wildlife or range).

Findings:

The reclamation plan provides for 4 feet of cover over the slurry material which should reduce the potential for salt and trace element movements in the profile. Further demonstrations showing the vegetation is not toxic to wildlife may be necessary. The permittee has met the requirements of this section at this time.

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" and "E" were historically used as cropland, cropland use was not illustrated on Map E9-3343, nor approved as a premining land use with the 1984 permit decision package. These areas were considered to be "lightly grazed and undeveloped lands" at the time of permit issuance. However, in recent years, these areas have been used for cropland, and mining and reclamation operations have not yet occurred in these areas. The current land use for the topsoil borrow areas are shown to be cropland however the vegetation map describes these areas as pastureland/grazing. Some confusion exists as to what the premining land use and the proposed post mining land use is intended to be.

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 provides 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. Also a demonstration that the roaded area between the railroad and the haul road at the north west end of the Preparation Plant area is not a mining related activity is necessary. 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

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 areas "A" and "E" are shown to be used as cropland. Some descrepancies exist between the current land use, and proposed postming land use for the Borrow areas.

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

R645-301-542.600, provide for complete reclamation of roads that are not to be retained for the postmining land use. The Haul Road and the road formerly used to gain access to the site needs to be fully reclaimed, including grading to approximate original contour.

R645-301-542.600, provide a demonstration that the roaded area between the railroad and the haul road at the north west end of the Preparation Plant area is not a mining related activity or provide for grading and reclamation of this area.

R645-301-120, clarify the current land use and proposed postmining land use for the topsoil borrow areas.

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).

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The reclamation grading on Drawing E9-3342, Sections 3.41 and Section 7.28 provides for drainage over the coal mine waste (slurry impoundments). The regrading plan and ditch locations attempt to blend into and complement the drainage pattern of the surrounding terrain as required by **R645-301-553.110.** The configuration does not blend into and complement the drainage pattern for the land prior to mining. An alluvial or deltaic formation would be found in the filled drainage and the slope at the base of the coal mining waste is greater than what was present prior to mining. The constraints that limit the design are the retention of the upper and lower impoundment dikes. It appears the Permittee is routing the drainage around the lower dike to prevent destabilization of the dike. It would be preferable to provide a more central drainage route without the one large meander at the east end of the dike although this would require additional grading and removal of the lower dike. The proposed configuration may not provide long term geomorphic stability and could erode through the dike and slurry over time. However, with the diversions the drainage area has been decreased. The drainage is ephemeral in nature. The applicant has met the minimum requirements for this site as it pertains to Approximate Original Contour.

Findings:

Prior to completing a finding on Approximate Original Contours the applicant must demonstrate the refuse site meets the requirements identified in the backfill and grading section below.

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 highwalls 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 permit has committed to grade the site to blend with the surroundings. Since this site is relatively flat it is difficult to show the proposed grading through contour information. However the Permittee should show areas to be graded for the following locations. The Haul Road, the drainage/road system where the slurry pipeline is shown, the final contours for the topsoil borrow areas and any area where grading is required to meet the approximate original contour and promote drainage. Where a stipple pattern is used provide arrows to show overall drainage direction (Exhibit E-9-3342 1 of 2 November 6, 1995 submittal).

Findings:

The plan does not meet the requirements of this section. Refer to defeciencies under Reclamation, Post Mining Land Use of this TA. Prior to completing grading and reclamation at the slurry cells the applicant must provide the following:

R645-301-553, show final contours and grading for the topsoil borrow areas and describe how these areas will be blended with the existing area including the final elevational changes.

R645-301-542.400, 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.

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

No mine openings are associated with this operation.

Findings:

This requirement does not apply to the operations at this site.

RECLAMATION TOPSOIL AND SUBSOIL

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

Analysis:

The specific pedon descriptions from the soil borrow material investigation from 1995 and 1996 for Borrow areas "A" and E" are summarized in the operations section and section 2.41.

Reclamation concerns for soil salvage include the following in the Topsoil Borrow area "A"; Clay stratum exists below the 72 inch depth and the resulting change in depth of soil to 1.5 feet may change the reclamation feasibility of the borrow area to meet postmining land use and farming production criteria. Soils of high EC values and salt accumulations may influence reclamation of the site where used as topsoil application and where retained at the borrow area. Salt accumulations will move within the soil profile and may vary according to seasonal variability and moisture availability. Both the borrow area and reclamation site may need special mixing and handling requirements to assure adequate dilution of the soil EC and SAR.

Borrow area "E" is identified as Ravola Slickspots Complex. 70 % Ravola Loam (alkali), 20 % slickspots, and 10 % Billings. (Read previous description under "SOILS RESOURCE INFORMATION") SCS use rating for using this soil as a topsoil is rated fair: excess salt. The reclamation concerns for Borrow area "E" include identifying the extent of the slickspots and excluding their use as a substitute material. Handling practices for the substitute materials and

soil cover for insitu slick spots occurrences may be necessary if they are extensive enough to affect revegetation success in the borrow area. Determining the alkalinity and salts present and the usable portions of the substitute materials for distribution is necessary.

The Permittee has provided identification of materials for proposed borrow site "E". In order to meet the requirements of R645-301.224, R645-301.233, and R645-301.233.100, the Permittee committed to provide a soils field investigation on Topsoil Borrow area "E" in April of 1996 to identify the extent of slick spots and soil phases that are high in clay and sodium,and todemonstrate suitability of Topsoil Borrow Area "E" for use as a topsoil substitute.

Topsoil borrow area "E" is within the NEICO permit boundary, contains approximately 63.7 acres, and is identified as Ravola Slickspot Complex. The current Mine Reclamation Plan proposes salvaging soil material to approximately 3.7 feet across "Area E".

Five soil description and sample sites (NEICO 8 thru 12) were selected from "Area E" for characterization. Three sites (NEICO 8, 9, & 11) were located within inactive agricultural fields. NEICO 8 and 9 were located in the west-central and east-central parts of the agricultural fields, respectively, while NEICO 11 was located in a "slickspot" inclusion. NEICO 10 and 12 were located in a small native area south-adjacent to the agricultural fields. NEICO 10 is located in soils supporting typical native vegetation and NEICO 12 is located in a nearby small "slickspot" inclusion.

Because the study was a special investigation designed to sample potential soil borrow materials, only the parameters with unsuitable values according to DOGM soil Table 2[1] (i.e., pH, EC, SAR, Selenium, & Boron), were analyzed by the soils laboratory. Soil Texture, rock fragment content, Munsell color, and qualitative calcium carbonate content were determined in the field. Acid/Base Potential (ABP) was not run on the samples since ABP was determined to be satisfactory for the coal waste materials and the native soils based on the 1994 Mt. Nebo Scientific study of topsoil borrow area "E ".

Complete soil profile descriptions and a thorough discussion of the chemical and physical parameters are given for each of the five sites. Field soil profile descriptions were described and recorded for the five soil pedons accompanied by footnotes in Appendix A. Profile and landscape photographs are given in Appendix B, and soil laboratory data is provided in Appendix C. Locations of the five sampling sites are provided on the soils map provided with the study.

Based on the site-specific field and laboratory data, three of the five sites (NEICO 8, 9, & 10) were classified according to current NRCS soil taxonomy. The slickspots (NEICO 11 & 12) are barren or nearly barren and, by convention, are not classified by NRCS and were not classified to established Utah soil series. Soils at NEICO 8, 9, and 10 were classified to established Utah soil series, with specific differences noted. In addition, soil descriptions and salvage suitability is provided for each site by depth, according to the DOGM guidelines.

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[1]Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

In summary, the only suitable soil that could be salvaged in "Area E" is from sample NEICO 9 (Map Unit 93, Ravola). Map Unit 93 constitutes approximately 57.3% (36.5 acres) of the 63.7 acre "Area E". Unsuitable slickspot inclusions, occurring over 15% of Map Unit 93, are highly visible and could be flagged to be avoided during salvage operations. The soil sampling results show that 31 acres could be salvaged from Area "E" to 10 inches or, approximately 41,544 yd^3 of suitable topsoil. Removal to this depth, would provide a remaining 18 inches of suitable topsoil for a sufficient growth medium on Area "E" after salvage.

However, inorder to meet the 4 foot cover requirement for the Plant Coarse Refuse Pile, the Slurry Pond Coarse Refuse Pile and the Slurry Pond Basin Area, 57,613 yd^3 of borrow material is needed. The 41,544 yd3 of borrow from "Area E" does not supply the required borrow volume. An additional 16,069 yd^3 of borrow are still needed to fulfill the minimum regulatory requirement for cover.

Findings:

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

R645-301-533.252, supply the needed amount of borrow material to meet the minimum regulatory requirement of 4 feet of the best available, nontoxic and noncombustible material.

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 the haul road a portion of the railroad spur and the county road adjacent to refuse pile to be retained. Retention of the haul road is not an approved structure for the postmining land use. The applicant would need a change in postmining land use to retain the haul road as part of the post mining land use.

Findings:

Plan does not meet the requirements of this section see: R645-301-542.600 under "Postmining Land use" in this T.A.

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:

Water Monitoring

Some modifications to the surface water and ground water quality monitoring plan for reclamation were made to both Sections 7.31.21 and 7.31.22. These essentially confirm the maintenance of all groundwater stations, the elimination of two current stations, a slight change in the sampling location of another, and the addition of one new surface water monitoring station.

Water quality stations SW-5 and SW-6 will be eliminated due to recontouring activities (SW-5 and SW-6 are at discharge outlets to the upper and lower refuse pond). Water quality samples from the Clear water Pond will be collected from the ponded water surface at the approximate location of SW-7 and not from the discharge structure itself (the existing SW-7 is the water discharge point from the clear water pond). Station SW-9 will be added (if practical and feasible) to obtain data from the reclaimed refuse pond surfaces (Section 7.31, page 6 (5/2/94)). No discussion of changes in monitoring is presented for the loadout area.

The proposed reclamation monitoring station at the clear water pond should assist in describing the waters coming off the surface of the slurry cells but does not address the sites at the loadout. Additional monitoring points at the preparation plant ponds and at the seep occurring at the base of the clear water pond provide information on the reclamation at the preparation plant and on water seeping through the pile.

The Permittee is proposing to provide irrigation to the slurry cells during reclamation. This increase in water application, beyond existing applications will leach salts through the profile. Often when changes in moisture occur a plume of water will develop with a high concentration of leached constituents. To determine impacts during this phase an increased water monitoring schedule will be necessary. It is suggested that during the application period the Permittee increase the number of samples obtained at well GW-6, GW-4, GW-1 and SW-1 and SW-2. A site downstream of the slurry cells and operations influence should be included.

Acid- and Toxic-forming Materials

The applicant has proposed covering of acid and toxic forming materials with 4 feet of nontoxic materials to minimize the potential for leaching and upward mobility of toxic materials to the root zone.

Transfer of Wells

The applicant has not proposed transfer of wells to another entity and none is approved. The wells will be removed following a finding of no further potential for impacts to the ground and surface waters. Removal will be conducted following Division approval according to the requirements for bond release.

Discharges into an Underground Mine

No discharges into an underground mine will occur at this site.

Gravity Discharges

No gravity discharges from portals will occur at this site.

Water Quality Standards and Effluent Limitations

The Permittee must provide water monitoring for ponds retained during the reclamation phase until approval for pond removal is granted. The applicant has committed to continued to monitor through the reclamation phase until bond release to demonstrate federal and state water quality requirements will be met.

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 haulroad 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 not proposed to be graded but will be revegetated. To the best of the Divisions understanding through reviewing previous documents, this area (except changes related to the haul road and rail road spur) was not used in mining related activities. Instead 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 land status in this region. Should the applicant demonstrate that these disturbances are not part of mining related activities the applicant would be cleared of reclamation on this area. However, where the haul road and related structures are present they must be removed, drainage patterns recreated, and sediment control measures provided.

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 Permittee has proposed the drainages be maintained as provided in F9-177, until bond release is granted, and then the drainages will be graded to the configuration presented on E9-3342. This precludes allowance for Phase I bond release which can be returned "after the operator completes the backfilling and regrading and **drainage control** of a bonded area..."

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 pumphouse along the Price River. No additional disturbed area beyond the existing disturbance is proposed to provide for reclamation of the site. As long as the Permittee will not be working in the stream channel a stream alteration permit would not be necessary. Sediment control measures will be employed to prevent additional contributions of sediment to surface waters.

Sediment Control Measures

The Sediment control measures to be employed include retention of the sedimentation ponds including the Clear Water Pond the Preparation Plant Pond and Dryer Pond. In the riparian area near the Price River the applicant has proposed strawbale barriers to be used. The effectiveness of the Alternate Sediment Control Area (ASCA) where straw bales used in combination with mulch and roughening techniques will be applied will be determined adequate through effectiveness of the performance standards as determined under field conditions.

Sedimentation Ponds

The Permittee included a schedule for removal of sedimentation ponds in Section 5.40.

Other Treatment Facilities

There are no other treatment facilities at this site.

Exemptions for Siltation Structures

There are no exemptions for siltation structures granted.

Discharge Structures

No discharge structures associated with siltation structures will be retained as permanent structures.

Impoundments

The slurry impoundments will be considered refuse piles for reclamation phase with removal of the impoundments through regrading the embankments. See the discussion under

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 pumphouse 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.

Casing and Sealing of Wells

The Permittee included a schedule for sealing monitoring wells in Section 5.40.

Findings:

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

R645-301-761, include a discussion in the plan pertaining to the road traveling from the railway to the sluceway and the weir structure used as a point of diversion in early mining activities and clarify the status of these structures in reclamation or their retention as a postmining land use. A memo or other verification supplied from the Division of Water Rights, or other authorized entity should be supplied for retention and acceptance for maintenance of the weir across the Price River.

R645-301-762.100, provide for restoration of the natural drainage patterns for the area. Provide a proposal so the drainages as designed are constructed and maintained as presented on E9-3342 to allow for completion of drainage requirements prior to release of Phase III bond. (The proposed grading configuration on F9-177, is proposed to be incorporated until bond release can be granted, and then the drainages would be graded to the configuration in E9-3342 according to section 7.60 of the plan. This precludes allowance for Phase I bond release under **R645-301-880.310**. Phase I bond can be released "after the operator completes the backfilling and regrading and **drainage control** of a bonded area...").

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. Areas not to be used in the future will be contemporaneously reclaimed under the schedule determined through the Division Order Process.

Findings:

The reclamation plan does not comply with R645-301-352. The Permittee is required to provide a reclamation time table through Division Order 96A.

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 top soiling, 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.

Establishment of willows from seed is not a common practice, and the Division is not aware of exactly what techniques would be needed to accomplish this. Based on information from limited literature sources, it appears to be possible. Willow seeds apparently have a very limited viability period, so seeding would probably need to take place shortly after seed collection

in the spring. It is not known how fluctuating water levels in the Price River would influence germination and establishment.

Although willows are not available in the immediate area, seedlings could be purchased from a commercial nursery or from the Lone Peak State Nursery. This may be a better option than trying a relatively unknown technology. However, since there have been a few successful experiments with establishing willows from seed, revegetation is considered feasible using this technique.

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.

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.

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.

The Vegetation Information Guidelines are referenced in the regulations for methods to determine revegetation success. The only methods approved for vegetation cover and production comparisons are to use reference areas, baseline data, and the range site method. For areas with a wildlife habitat postmining land use, the woody plant density standard is set by the Division after consultation with the Division of Wildlife Resources. Technical standards, similar to what the permittee proposes, are not allowed. Revegetation success standards for the riparian area need to be based on approved methods. If the Permittee decides to use a reference area, the greasewood reference area is probably most similar to what existed prior to mining. The riparian area could also be compared to an appropriate NRCS range site.

Since the approved postmining land use is grazing, the regulations do not require a woody plant density success standard. However, the permittee must use the best technology currently available to enhance wildlife habitat, particularly in the riparian area since it is critical habitat. This necessitates establishment of some tall, desirable vegetation next to the river. Since tamarisk dominates the riparian areas outside the disturbed area, it is difficult to say exactly how

the reestablished riparian habitat should appear. If tamarisk was not present, dominant species would probably be willows and/or tall grasses, such as common reedgrass or reed canarygrass. Farther from the river but still in the riparian area, it is expected greasewood and saltgrass will predominate.

Section 3.41 includes methods for measuring cover, shrub density, frequency, production, and diversity. Cover will be measured by ocular methods using meter square quadrants. 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 quadrant 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 quadrant 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 quadrants 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:

This section of the plan is considered complete and accurate. The plan includes four methods of measuring seasonality and diversity but does not show complete standards for these methods. This analysis includes a discussion of the standards that should be used for judging these elements of

revegetation success, but the Division will need to use professional judgment to make a final determination whether the success standards have been met.

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 andhas secured surface facilities where operations are expected to be resumed under an approved permit.

The applicant has not provided a description of the procedures to be taken when under going a temporary cessation and the applicant has not described the notification procedures under the requirements of 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 a description of procedures for temporary cessation of operations.

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 potentially disturbed topsoil borrow area and the proposed extent of the reclaimed surface area. The haul road the axillary road and drainages adjacent to the slurry sedimentation pond should be included as regraded affected areas.

Bonded Area Maps

The disturbed area presented on the revised reclamation Map E9-3342 shows the potentially disturbed topsoil borrow area other areas that are included as bonded area are not clearly presented on any Map. Map F9-177 incorrectly identifies the permit boundary. Although this boundary appears to outline the disturbed area it does not correctly show the disturbed area and thus the bonded area.

Reclamation Backfilling and Grading Maps

Map E9-3342 shows the proposed extent of the graded areas. This map does not include areas such as the haul road the road ancillary to the slurry pipeline sedimentation pond or the associated drainages.

Reclamation Facilities Maps

The Reclamation map E9-3342 still shows the retention of the slurry pipeline which is proposed for removal in section. Culverts between D4 and D6; culverts at the north east and south east ends of the roadside ditch are the only structures proposed to be retained.

Final Surface Configuration Maps

It is assumed the final surface configuration Map E9-3342 is the proposed final configuration. However, this map still retains the new haul road, the culvert from the old haul road, and the slurry pipeline. The slurry pipeline is described as being removed in the text under Section 5.40.

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 as manmade features are proposed for retention. The Rail road right of way is shown on E9-3342. The county road is shown on E9-3342 but, so is the haul road which is not to be retained as a postmining land use.

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

R645-301-540, provide maps which accurately show final reclamation that meets the applicable requirements of the R645-301 regulations, include areas to be regraded, all disturbed areas, and all proposed retained structures including roads weirs and culverts.

R645-301-121.200, provide a map that clearly and consistently show the appropriate boundaries for disturbed areas, permit areas and legends that clearly identify between the various symbols used on each map.

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. However, it has recently been discovered that there is asbestos at the site. On January 29, 1996, a Cessation Order was issued to NEICO. The information presented allowed the Division to make a determination that the current bond is adequate to cover costs of removing the asbestos material as discussed in the memo from Wayne Western to Joe Helfrich on April 2, 1996.

Findings:

The Division made a determination that the existing $6,036,000.00 bond is adequate. Pertinent discussions are found in the April 2, 1996 and the August 21, 1995, memo's on bonding.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

INTRODUCTION

Regulatory Reference: 30 CFR Sec. 785; R645-302, et seq.

Analysis:

Based on current information found in the plan, the permittee is not required to nor has applied for any variances or special conditions that require additional information in responce to the following sections of the regulations. .

Findings:

The plan meets the requirements for permits for special categories of mining.

EXPERIMENTAL PRACTICES MINING

Regulatory Reference: 30 CFR Sec. 785.13; R645-302-210, -302-211, -302-212, -302-213, -302-214, -302-215, -302-216, -302-217, -302-218.

Analysis:

The permittee has not applied for Experimental Practices Mining as conditioned under this section of the regulations.

Findings:

This section is not required to be addressed under the proposed plan.

MOUNTAINTOP REMOVAL MINING

Regulatory Reference: 30 CFR Sec. 785.14, 824; R645-302-220, et. seq.

Analysis:

The permittee has not applied for nor intends on conducting mountaintop removal mining as shown under this section of the regulations.

Findings:

This section is not required to be addressed under the proposed plan.

STEEP SLOPE MINING

Regulatory Reference: 30 CFR Sec. 785.15; R645-302-230 et. seq.

Analysis:

No information found within the plan shows that the permittee intends to conduct steep slope surface coal mining and reclamation operations as provided under the requirements of this section of the regulations.

Findings:

This section is not required to be addressed under the proposed plan.

PRIME FARMLAND

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-300 et seq.

Analysis:

The conclusion of the Prime Farmland as described in the Environmental Resource Information section of this Technical Analysis states that the soils in the area do not meet the criteria of either Prime or Important Farmlands.

Findings:

This section is not required to be addressed under the proposed plan.

COAL PREPARATION PLANTS NOT LOCATED WITHIN THE PERMIT AREA OF A MINE

Regulatory Reference: 30 CFR Sec. 785.21, 827; R645-302-260, et seq.

Analysis:

Coal preparation facilities are within this permit area. These facilities were used to size and sort refuse materials and to conduct coal cleaning operations. Mining in the permit area consists of the handling and processing coal.

Findings:

The mining and reclamation operations associated with this permit are considered a coal preparation plant outside the permit area of a mine. The applicant has met the requirements of this section. See applicable portions of this T.A.

OPERATIONS IN ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR Sec. 822; R645-302-324.

Analysis:

Refer to comments made in the Technical Analysis in the Environmental Resource Information section under Alluvial Valley Floors.

Findings:

Information regarding this section of the regulations is considered adequate. The Division waives the requirements of R645-302-320 which deal with providing additional technical information for operations affecting designated alluvial valley floors (AVFs) at this time.

IN SITU PROCESSING

Regulatory Reference: 30 CFR Sec. 828; R645-302-254.

Analysis:

The Permittee does not propose to conduct in situ processing as part of the permitted operations.

Findings:

The requirements of this section are not considered applicable to this permit.

AUGER MINING

Regulatory Reference: 30 CFR Sec. 785.20, 819; R645-302-240 et. seq.

Analysis:

The Permittee does not intend to conduct any auger mining within the permit area.

Findings:

The requirements of this section are not considered applicable to this permit.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The Division prepared a Cumulative Hydrologic Impact Analysis (CHIA), dated August 22, 1984 with the Wellington Preparation Plant original permit issuance. This document has not been revised since the issuance of the permit.

The permittee will continue to collect water quality information from the sites identified in the plan. This information plus additional information generated from the new proposed wells will need to be incorporated into the plan. Baseline water quality for surface waters and groundwater sources is being collected and will be submitted to the Division.

With new information presented in the probable hydrologic consequences, suitable changes to the CHIA will also need to be accomplished.

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