

0024

### Document Information Form

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Explanation:

INITIAL COMPLETENESS REVIEW

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INITIAL COMPLETENESS REVIEW

Kaiser Coal Corporation  
Kaiser No. 5 Mine  
ACT/007/007, Carbon County, Utah

October 7, 1986

UMC 771.25 Permit Fees (JRF)

Exhibit 1 does not contain a copy of the receipt as noted on page 771-11 of the PAP.

UMC 771.27 Verification of Application (JRF)

The applicant has not signed the verification of application in Exhibit 2.

UMC 782.15 Right of Entry and Operation Information (JRF)

On page 782.18 the applicant states that Kaiser does not own all rights to mine coal in the No. 5 mine permit area. The applicant must obtain coal and surface releases for the following areas in the permit area:

Township 13 South, Range 13 East, SLBM  
Section 33: SW 1/4 NE 1/4, SW 1/4 SW 1/4,  
SW 1/4 SE 1/4

Township 14 South, Range 13 East, SLBM  
Section 5: N 1/2 N 1/2, NE 1/4 SE 1/4  
Section 4: N 1/2 N 1/2, N 1/2 SW 1/4  
Section 10: SW 1/4, SW 1/4 NW 1/4, S 1/2 E 1/4  
Section 15: E 1/2  
Section 14: SW 1/4 NW 1/4, SW 1/4  
Section 22: N 1/2 NE 1/4  
Section 23: N 1/2 NW 1/4, N 1/2 NE 1/4, SW 1/4 NE 1/4  
Section 24: NE 1/4 NW 1/4 SW 1/4

The applicant must have surface use agreements for all disturbed areas within the No. 5 mine permit area. These agreements must cover:

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Refer to Record No 0024 Date \_\_\_\_\_  
In C/ 007, 007, Incoming  
For additional information

B Canyon breakout  
Disturbed areas in C Canyon  
Air intake pads, fan pads, access shafts.

UMC 782.19 Identification of Other Licenses and Permits (JRF)

On page 782-22 of the PAP the applicant states that upon initiating mine construction, Kaiser will send UDOGM documentation of the following permits:

MSHA ID number  
NPDES Discharge Permit  
Special User Permit or Right-of-Way Permit  
Explosives Handling Permit

Kaiser must make application for these permits, prior to the MRP being determined complete. Further, the related permits must be obtained before the Division can give final approval for the Sunnyside #5 permit.

Please submit documentation in the ICR response that the above noted permits have been applied for.

UMC 783.12 General Requirements (PGL/KMM)

The anticipated total life of mine permit area for the Kaiser #5 Mine does not include a portion of proposed future mining in T14S, R13E, Sections 12 and 13 and T14S, R14E, Section 18, as shown on Map S5-5-A and B.

Additionally, the conveyor system that will be needed to remove the coal from the proposed #5 mine should be included in this permit area, and permit application package. The permit area must be shown on all applicable maps to include all future mining, the conveyor system, and any areas that will be affected by the #5 mine activities.

(b) Pages 1-11 provide an archaeological and historical overview of the permit area and surroundings. Exhibit 6 includes two reports on archaeological/historical surveys of the permit area and a letter from the State Historic Preservation Officer concurring with Kaiser opinion of "no effect" on significant resources.

The survey maps (Figures V-2 and V-6) of Exhibit 6 do not agree that the right hand fork of C Canyon was included in the field survey as indicated on Map S5-6. One of these maps should be corrected so that

the plan information is consistent. If the State Historic Preservation Officer still concurs with Kaiser's determination of no effect after reviewing both the mine plan and the survey information, DOGM will not request any additional survey information.

UMC 783.13 Description of Hydrology and Geology: General Requirements (JRF)

Surface Water

The PAP does not contain any baseline data on the ephemeral drainage in C Canyon. This drainage will receive discharge from the sediment pond and the mine water discharge pond. The PAP should, at a minimum, contain hydrologic and geomorphologic information pertaining to constant clear water discharge into a ephemeral stream. The PAP should discuss the effects of clear water discharge on Grassy Trail Creek at the confluence of Bear Creek and Grassy Trail. A complete discussion of water quality and water quantity effects on the ephemeral drainage is required.

The applicant should discuss these effects in light of information obtained from the surface baseline monitoring program and the ground water monitoring program. The ground water discussion should relate to the water that will be pumped from the mine. This information could be derived from wells constructed in the proposed mine permit area.

UMC 783.14 Geology Description (RVS)

(a)(1)(i) The applicant has not described the location of areas where subsurface water will be exposed at the face-up area.

(a)(1)(iii) The PAP incorporates chemical analyses of the roof and floor rock that is limited to the B Canyon air entry. Adequate characterization of potential acid-forming, toxic-forming and alkalinity-producing roof and floor rock requires a sampling distribution that extends across the proposed permit area (e.g., samples from Rock Canyon, Bear Canyon and the proposed exploration boreholes).

(a)(2)(i) The applicant identifies several aquifer resources occurring within proposed permit area. Each of these aquifer resources must be delineated on a piezometric surface map.

(a)(2)(iii) The applicant has not described the clay content of the stratum immediately below the coal seam to be mined. Pyritic sulphur and organic sulphur data for calculating total sulphur of roof and floor rock have not been incorporated into the PAP. Sample distribution is limited as noted under (a)(1)(iii) above.

(a)(2)(iv) The applicant has submitted a summary of the pyrite/sulphur content of the coal. The PAP must contain the laboratory analyses for these parameters.

UMC 783.15 Ground Water Information (RVS)

(a)(1) The applicant identifies several aquifer resources occurring within the proposed permit area. Each of these resources must be delineated on a piezometric surface map.

(a)(4) The applicant has not submitted baseline groundwater quality data.

(b) The applicant has not identified, on a plan view map, areas of aquifer recharge that occur within the proposed permit area. Moreover, the applicant has not utilized spring and seep flow values to characterize site-specific discharge for each of the identified aquifer resources.

UMC 783.16 Surface Water Information (JRF)

On page 783.16-1 the applicant notes that all drainages in the #5 permit area have intermittent or ephemeral flow, yet there is not data supporting this information. Baseline data will be needed to determine intermittent, ephemeral or perennial flow in all drainages for the Sunnyside #5 mine permit area.

On page 783.16-2 the applicant states in the bottom of the top paragraph that hydrologic and geologic conditions are similar throughout the Book Cliffs coal field area, and that information on nearby watersheds is applicable to all watersheds within the #5 permit area. This statement is misleading due to the fact that the PAP does not have any data within the #5 permit area and general area to compare with nearby watersheds. UMC 783.16 specifically asks for information on flow and quality for this specific permit area. This data will be needed for the permit package to be complete.

On page 783.16-5 under the Bear Canyon description, the applicant notes Bear Canyon as an ephemeral stream. While on a site visit in June, 1986, Division personnel noted that there was flow emanating from springs at the head of Bear Canyon and flowing down the channel for approximately 2,000 feet. Again, data will need to be collected to determine if Bear Canyon is ephemeral or perennial.

In the description of C Canyon, the applicant notes that a spring located at the right fork of C Canyon was found to be flowing overland during the fall survey of 1985. The applicant needs to identify which springs contribute to the stream flow in C Canyon. These springs will need to be discussed as far as quantity and quality.

On page 783.16-8 at the bottom of the paragraph, the applicant notes that temperature, pH and electric conductivity were measured for each seep and spring located during the inventory. However, this data may not be valid since these measurements were not taken as field measurements. Division personnel observed that the June inventory field measurements were not taken in the field. Field measurements should be measured in the field at the site where the sample was taken.

Table 6 on page 783.16-8 of the PAP notes flow characteristics for the major drainages within the #5 permit area. The regulations under 783.16 specifically require seasonal variation on all flow characteristics. The applicant's methodology presented here is from computer approximations. There is not site-specific hard data reflecting seasonal variation presented. This information must be included.

#### UMC 783.17 Alternative Water Supply (JRF)

To assess whether and to what extent mining activities will result in contamination, diminution, or interruption of domestic, agricultural, industrial, or other legitimate water use, the applicant must derive and present adequate data to accurately characterize surface and ground water resources in the permit and adjacent areas. For example, data indicate the potential for groundwater contamination within the workings following mine closure. The extent and impact of the potential contamination has not been identified or discussed.

The applicant references Exhibit 8 as containing location and use of all 12 water rights in the #5 permit area and adjacent areas. Exhibit 8 does not contain the water right numbers for Kaiser Coal Company on Range Creek and the Price River.

On page 783.17-2 the applicant notes that Kaiser Coal owns significant water rights on Grassy Trail. What is significant, this must be quantified. Exhibit 8 contains some of the flow information in cubic feet per second (cfs), and other flow information in acre-feet per year. Accurate presentation of this data shall reflect all data in the same units. In the PAP the applicant discusses ownership of 2,000 acre-feet per year of water from Range Creek.

The applicant must discuss capability of conveying flow to a water user whose supply has been diminished. In effect, this means worst case possible; how feasible would it be to get water to this potential water user whose flow has diminished.

#### UMC 783.18 Climatological Information (KMM)

(a) This section provides a general overview of the permit area climate, including average seasonal precipitation (p. 3, 4), general information on winds (p. 2), and temperature (p. 5-8). Since the precipitation and temperature normal have been statistically calculated from available data rather than the typical 30 years, the applicant should indicate what years, or at least how many years were available for the statistical calculation.

(b) Table 8 should indicate how and by whom the data are collected at the Sunnyside mines (see also 771.23).

#### UMC 783.19 Vegetation Information (KMM)

(a) This section includes descriptions and maps of vegetation types of the permit area (Map S5-24) and the disturbed area (Map S5-25). While Map S5-24 is not of the scale originally agreed to (see letter of Hasenjager to Kunzler, Exhibit 9) it is acceptable because it corresponds in scale to other resource maps for the permit.

It should be noted in Exhibit 9 that agreements made between Kaiser and DOGM (specifically standards for the Mixed Mountain Conifer, Valley P-J, Chained P-J,

and Sagebrush types) are no longer applicable because significant changes in the mine plan have been made since the original vegetation consultation was conducted.

As discussed with Kaiser consultants, the Division considers the vegetation community which occupies the bottom of C Canyon to be significantly different from the steep sloped Pinyon Juniper vegetation type represented by the reclamation reference area. The Canyon bottom community is diverse, difficult to quantify but important from both a wildlife and aesthetic (i.e., recreational land use) perspective. Description of this canyon bottom community should be included in the MRP. Revegetation of the canyon bottom community can be evaluated either with a reference area, pre-disturbance sampling, or through a negotiated standard.

Kaiser describes their efforts at surveying the permit area for threatened or endangered species (p. 11). Exhibit 9, which includes a report on Hedysarum occidentale var canone, should be referenced on page 11. While this species is not listed, it is "under review" and therefore considered "sensitive". Discussion of impacts on this species and any mitigation measures should be discussed in this section or UMC 784.21(b)(1).

UMC 783.20 Fish and Wildlife Resources Information (KMM)

(a) The section includes information on fish and wildlife resources of the permit area based upon literature review, consultation with state and federal agency personnel and field studies.

The plan should incorporate information on the local deer and elk herds available from Larry Dalton of the Utah Division of Wildlife Resources, including plans for transporting elk to the area. Incorporation of this information may help to explain the sparsity of deer during the survey period. The 1986-87 study plan should (1) indicate dates of bird, mammal and deer transect sampling already conducted, and (2) be amended to incorporate changes discussed at the wildlife consultation meeting held on August 18, 1986 for the Sunnyside Mine conveyor corridor.

While the comparisons of mammal and bird abundance and diversity to areas of the Uinta Basin is interesting and gives a regional perspective, a comparison to similar environments in the Price area would be more useful in evaluating the relative impacts on local fauna. While comparative field studies are not expected, the applicant should discuss any available data which might better characterize the relative importance of the impacted area.

UMC 783.22 Land Use Information (KMM)

(a) This section describes the pre-mining land use, productivity, condition and capability of the land to support other uses. Wildlife and grazing uses are described in sufficient detail in this and other sections of the MRP. Recreation, which is one of the justifications for the county road to the permit area, is briefly mentioned but should be described in more detail such that the impacts on this land use can be evaluated for the life of the mine.

UMC 783.24 Maps: General Requirements (PGL)

The conveyor system and access road should be included in the boundaries of the area proposed to be affected over the estimated total life of the underground coal mining activities. The permit area should be revised to reflect this.

UMC 783.25 Cross Sections, Maps and Plans (PGL)

(f) The applicant must address the location and extent of sub-surface water, if encountered, within the proposed mine plan or adjacent areas, including, but not limited to, areal and vertical distribution of aquifers and portrayal of seasonal differences of head in different aquifers, and portrayal of seasonal differences of head in different aquifers on cross-sections and counter maps.

(k) The cross sections shown presently indicate pre-mining and post-mining. The applicant states throughout the plan that the approximate original contour will be achieved. However, the cross sections should indicate pre-mining, active mining, and post reclamation. This would clearly differentiate the different contours.

UMC 784.11 Operation Plan: General Requirements (PGL)

The applicant explains on 784.11-2 that the primary means of access for the life of the mine will be through portals in the C Canyon area. On page 784.13-6 the applicant states that shafts and drift openings will be the type of mine openings. The narrative description of the coal mining procedures should be consistent throughout the text and on accompanying maps.

The conveyor system should be listed and included in the PAP because it will be used at and for the #5 Mine operation. The construction, use, maintenance and removal of the conveyor should be included in the PAP.

UMC 784.13 Reclamation Plan: General Requirements (PGL/KMM)

(a)(3) The anticipated final configurations should be shown post reclamation. The cross sections as shown are not to approximate original contour as described in the plan; please clarify?

(b)(8) The applicant must include a plan for plugging exploration holes, other bore holes, wells or other openings within the proposed permit area.

(a)(5) The plan for revegetation includes a general schedule, species, and amounts of seed per acre, seeding methods, mulching techniques and measures proposed to determine revegetation success.

Schedule. Page 13 states that although seeding will be normally conducted during spring or fall, seeding may be conducted other times of the year "under special circumstances". Figure 10 (p. 19) indicates that seeding may not immediately follow construction activities which include topsoil placement. Provisions should be made for topsoil protection (e.g., cover crop planting).

Seed Mix. Since temporary revegetation may be in place as long as 30 years, the Division recommends using the permanent revegetation seed mix or a modification of it, in all revegetation. While the areas will be redisturbed, use of the permanent mix should provide additional seed of the permanent mix species rather than a seed source of the introduced species from the temporary mix.

Bouteloua gracilllis seems to be an inappropriate species for the seed mix since it does not grow in the native P-J community, the reference area, or the Kaiser test plots. Being a warm season grass at the edge of its range and the range of commercial seed sources, it is not likely to do very well. A substitute should be considered.

Mulch. The MRP (p. 16) states that straw, native hay or wood fiber will be applied at 2 tons per acre. Alfalfa hay should be considered as a substitute for straw because of a more favorable carbon/nitrogen ratio. If wood fiber mulch is used, special consideration should be given to fertilization requirements.

The MRP (p. 13) indicates that seed availability will determine the ultimate seeding mixture. The applicant must commit to contacting the Division prior to seeding for approval of any changes in the seed mixture.

Monitoring Methods. Monitoring schedules and methods are described or referenced on pages 16-17. The MRO should clarify how "emergence and establishment" will be sampled (year 1) as opposed to cover and density (years 2, etc.) or if it will be a qualitative evaluation. The section should be amended to include a discussion of the success standard to be used for the canyon bottom community.

Page 18 indicates that "80 percent confidence level with a 10 percent change in the mean will be used to establish success..." This should be reworded so that it does not imply "successful revegetation" but that "sample adequacy has been met".

#### UMC 784.14 Protection of Hydrologic Balance (JRF)

According to Subpart (b)(3) of this regulation, the applicant must commit to reporting water quantity and quality data collected quarterly and summarized in an annual report. This information cannot be found in the applicant's PAP. Subpart (C) of this regulation has also not been addressed. This part specifically requests that a description of the probable hydrologic consequences shall be in the PAP. This information is not contained in the PAP. The PAP cannot be determined complete until such information is provided.

On pages 784.14-1, 2, and 3, the applicant states that upon closure of the mine, ground water will discharge down into the Mancos Shale from the mine itself. The applicant does not address discharge of the mine water laterally into other aquifers. There is also no data presented on the presence or location of any aquifers below the coal seam. The applicant must provide aquifer data to determine presence and/or characteristics of any aquifers above and below the coal seam to be mined.

The applicant indicates on page 783.14-13 that roof and floor rock may be potentially acid forming. Accordingly, under part (a)(1) of this regulation the PAP must incorporate a detailed description of the measures taken during and after mining to ensure protection of the quality of surface and ground water.

In Section 784.14 of the PAP, there appears to be no discussion of road surface drainage treatment from Culvert C-5 to the southern permit boundary. The applicant needs to discuss sediment control measures off the road surface for the mine site as noted on Map S5-35. The disturbed area is spread out over a relatively large area. It is recommended that the facilities area, water tanks, rock dust silo, explosive magazine pad, and small storage area, should be located near the sediment ponds. The sediment ponds could be moved to the southwest, and the previously-mentioned facilities could be located in the present sediment pond area.

Utilizing a site configuration as mentioned would result in not having to install Culvert C-4 nor the culvert for the mine facilities to the sediment pond. Furthermore, a compact site configuration would have less impact on the environment and may be more economically feasible to attain compliance with UDOGM regulations.

On page 784.14-5 the applicant states that permanent portal closure will not include hydrostatic seals due to the high elevation of the portals. However, the PAP does not incorporate any data pertaining to volume of water that will enter the mine after mine closure. At what elevation will water rise to in the mine after pumping has ceased?

On page 784.14-6 of the PAP the application discusses using silt fences and straw bales for sediment control during construction; a description and verbage as to how the silt fence and straw bales will

be installed and maintained is required. The applicant needs to discuss in detail what sediment control will be used, specifically for construction, and maintenance of the facilities. This shall be provided for all disturbed areas which includes roads, pads, facility areas, sediment pond, mine water, discharge pond, topsoil storage and leach field. Sediment controls need to be addressed for all disturbed areas.

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments (PGL)

(a)(1)(iii) The application must include preliminary geologic information required to assess the geotechnical appropriateness of the structural foundation.

(3)(ii) Were any geotechnical investigations conducted for the ponds?

UMC 784.19 Underground Development Waste (PGL/RVS)

The applicant must submit a Management Plan for Underground Development Waste. Since the applicant indicates two separate methods of managing underground development waste may be employed, the Management Plan for Underground Development Waste must encompass both methodologies and address all portions of UMC 784.19. In particular, the plan must incorporate a calculation of anticipated volume of development waste to be generated, analyses of the chemical quality of development waste, methods of development waste transport, and the location and configuration of final disposition of development waste.

UMC 784.20 Subsidence Control Plan (RVS)

The renewable resource survey must identify not only aquifers, but also areas for the recharge of aquifers. The Division recommends that areas for the recharge of aquifers be identified in plain view on a map (see comment under 783.15(b)).

The applicant indicates renewable resource lands occur within the proposed permit and adjacent areas (p. 784.20-1). Accordingly, the PAP must include a Subsidence Control Plan that contains information described under UMC 784.20. Specifically, the Subsidence Control Plan must describe a monitoring

program for the permit area. The description of the monitoring program must include the locations of monuments, methods of deriving ground movement and schedules for conducting monitoring and submitting subsidence monitoring data.

The applicant indicates on Map S5-42 the projected surface extent of subsidence based on a 15 degree angle-of-draw. The applicant must provide site-specific data and pertinent calculations that document the 15 degree value for angle-of-draw. The applicant must provide a calculation, utilizing site-specific data, that gives the total anticipated vertical movement of the surface above workings.

UMC 784.21 Fish and Wildlife Plan (KMM)

This regulation requires that the MRP (A) minimize disturbance and adverse impacts on fish and wildlife and related environmental values, and (B) show how enhancement of these resources will be achieved, where practicable. Threatened and endangered species of plant and animals, species protected by state or federal law (especially species of special interest) and habitats of high value are singled out by the regulation for discussion.

(a) While 26 acres is a relatively small mine disturbance, it appears that additional care could be taken to reduce adverse impacts created by the #5 Mine either within the permit area or on lands adjacent to it or to mitigate those impacts for the life of mine until revegetation can restore productivity.

Since it has not been determined that the powder magazine in the left fork of C Canyon is essential, both the potential magazine and off-road storage area should be moved. In addition, after the location of buildings, etc., in the facilities area is planned, careful thought should be given to moving as much of the disturbance as possible, either underground or out of the canyon mouth.

The design and arrangement of surface facilities in C Canyon are not sufficiently specific to evaluate hazards to wildlife, particularly deer and elk, attempting to move through the area. For example, is there a highwall formed by the cut slope on the west

side of the pad area? Placement of facilities on the pad area and cross sections of the facilities area should be provided in the MRP. (See also 784.13(a)(3) and 817.101.)

Road kills are expected to have a minor impact on overall wildlife populations (p. 4). The plan should, however, address species at particular risk, e.g., deer, considering the increased travel in the area due to the mine and a potential for winter ground fog lasting several weeks. The MRP should include plans for monitoring road kills and include potential mitigation measures. While the majority of the mine access road is not currently within the permit area, the MRP should include analysis of off-site (i.e., outside the permit area) impacts that can be directly attributed to the #5 Mine, e.g., employees travelling to work, particularly at night when tourists are not likely to be travelling.

While provisions are being made for raptor safety on power transmission lines within the permit area, wildlife enhancement activities should include taking the initiative to propose that transmission lines leading to the permit area also be made "raptor safe".

The MRP indicates that both cliff face spalling and normal subsidence are expected to have minimal impact on wildlife, but there is no plan for evaluating the extent of subsidence and no discussion of actions to be taken if the assumption of "minimal impact" proves to be incorrect. The 1986 raptor survey indicates that no active nests of species of high federal interest currently exist over outcrops to be undermined. The MRP should, at a minimum, propose to resurvey cliff areas in the spring prior to undermining and during the period of likely subsidence. Commitments should be made to apply for a "take permit" for inactive golden eagle nests which may exist at the time of cliff undermining and to cooperate with USFWS for protection or movement of active nests which may be in danger. A monitoring plan for cliffs without eagle nests could be proposed to demonstrate that a subsidence problem does not exist.

(b) Since available water is a limiting factor in this area, the mine water discharge pond should be an enhancement of wildlife habitat (p.7). The plan should include a short discussion demonstrating that pond water quality and access are suitable for wildlife. Plantings to provide wildlife cover around

the pond should also be addressed. Consideration should be given to enhancement of undisturbed canyon bottom areas (e.g., upper right fork of C Canyon) to compensate for loss of "areas offering special shelter or protection" (UMC 784.21(b)(3) in the lower canyon. Since water is a limiting factor, water retaining/conserving structures might be appropriate.

The general lack of water on the west side of the ridge makes any loss to seeps or springs critical. While the Division of Wildlife Resources (7/1/86 letter from Livesay to Parrish) indicates that 50 percent reduction in water from a given seep or spring would constitute "substantial" impact and should be mitigated, limiting mitigation of spring loss to quantities greater than 50 percent at low flow does not meet the Division of Oil, Gas and Mining's requirement to "minimize disturbance". Commitment should be made to negotiate mitigation needs on a case-by-case basis for flow reductions between 0 and 50 percent.

The discussion of monitoring (p. 8) is obscure. What monitoring programs will be continued, how will these be reported, and how will the data be used to minimize/mitigate impacts? A commitment to report all eagles and threatened or endangered plants or animals should be included.

#### UMC 784.22 Diversions (JRF)

The PAP contains one typical cross-section labelled Figure 13 on page 784.22-2. The typical diversion does not contain a scale, nor does it contain filter blanket depth or riprap depth if applicable. The plan must delineate all diversions needing riprap, riprap and filter blanket design criteria, and locations of filter blanket and riprap on appropriate drawings.

#### UMC 784.23 Operation: Maps and Plans (PGL)

The conveyor corridor must be included in the permit area on all applicable maps. Additionally, the access road since it is presently sole use and thus not public, must be included in the permit area on all applicable maps.

(b)(3) The area of land for which a performance bond will be posted must be outlined and distinguished on a map. This should include the conveyor and access road. Any areas that are previously bonded with Sunnyside should be indicated as such.

(b)(9) The explosive storage and handling facility is shown, yet the applicant states that there will probably be no blasting; this is a contradiction. Please clarify.

UMC 784.25 Return of Coal Producing Waste to Abandoned Underground Workings (PGL/RVS)

The applicant indicates coal processing waste may be returned to abandoned underground workings. Accordingly, the PAP must include a plan that addresses all portions of UMC 784.25 for the return of coal processing waste to abandoned underground workings.

UMC 784.26 Air Pollution Control Plan (KMM)

The air pollution control plan should include enforcement of a reasonable speed limit on the permit area and encouragement for employees to do the same on the access road (this could be incorporated into employees' training). The MRP should include an air quality monitoring plan or justify a lack of need for monitoring.

0913R

TECHNICAL DEFICIENCIES

Kaiser Coal Corporation  
Kaiser No. 5 Mine  
ACT/007/007, Carbon County, Utah

October 7, 1986

UMC 800 Bonding (PGL)

Kaiser will have to bond for the disturbance during the entire 5-year permit term. This would include the conveyor and all associated disturbances to the No. 5 permit. The estimate must include costs for hydrologic monitoring, erosional monitoring and subsidence monitoring.

UMC 817.22 Topsoil Removal (DD)

According to Table 30, page 783.21-15 of the PAP, 15.2 acres of the Strych Soil will be disturbed, but only 8.68 acres will be stripped of topsoil. All topsoil must be salvaged under UMC 817.22(b) unless the Division grants an exception, according to UMC 817.22(g)(1). Please provide an explanation requesting a variance or modify the proposed plan.

Topsoil stripping volumes as shown in Table 30 are also incorrect. For example, if the 2.82 acres were to be stripped to the average depth of 4.5 feet in the Strych Soil of the Gest-Strych-Badland complex, this would calculate to 12.7 acre feet of topsoil, or 20,468 cubic yards of material. These volumes need to be recalculated.

The PAP states that sufficient topsoil will be removed from the disturbed area to provide for 1 foot of topsoil to be replaced over the regraded area (pages 784.13-3 and 817-6). Table 30 indicates 25.65 acres will be disturbed which would require at least 41,382 cubic yards of topsoil for the proposed 1 foot cover, but only 31,900 cubic yards would be salvaged, according to Table 30. Please clarify this discrepancy.

UMC 817.23 Topsoil: Storage (DD)

When the appropriate volumes of topsoil are calculated, a plan showing the geometry of the topsoil stockpile including all dimensions and slope angles needs to be submitted. This will allow alternative designs to be evaluated. The geometry of the stockpile should be designed so slopes and depths of the stockpile are reduced as much as possible to contain the material in the proposed delineated area for the stockpile.

The seed mix to revegetate the stockpile should be the permanent seed mix, since the stockpile will be in place for the life of the mine, and since it will provide a soil seed source at the time of reclamation. The permanent seed mix also includes shrub species which are deeply rooted. This will provide a deeper root zone that is biologically active.

On page 784.13-4 of the PAP it states that temporary revegetation of the topsoil stockpile will be performed solely to minimize erosion and loss of topsoil from the stockpile. When stockpiling of topsoil is required, designs need to be considered that will allow as much material as possible to be within the root zone. The root zone is the most biologically active zone of soil profiles and of stockpiles. Soil microbes are essential for nutrient cycling and some fungi such as mycorrhizae provide numerous benefits to their host plants. Stockpiles with more root zone material will also provide more inoculum for sterile soil within the stockpile when the soils are mixed as the topsoil is removed and redistributed during reclamation.

UMC 817.24 Topsoil: Redistribution (DD)

After topsoil volume calculations have been corrected, this section needs to be readdressed to determine the actual depth topsoil will be redistributed to.

UMC 817.25 Topsoil: Nutrients and Soil Amendments (DD)

This section has not been addressed; it should be cross-referenced back to page 784.12 of the PAP.

UMC 817.41 Hydrologic Balance: General Requirements (JRF/RVS)  
Existing Environment and Applicant's Proposal -  
Surface Water (JRF)

There has not been sufficient baseline water quality or quantity data presented to characterize the seasonal variation or stream classification of any drainages in the permit area. This information must be provided before a Technical Analysis can be completed.

It appears in the PAP that the applicant is only going to treat the disturbed drainage from the mine facilities area with the sediment pond. The applicant must address sediment controls for all other disturbed areas, including roads, pads, storage areas and portal areas.

On page 784.13-10 of the PAP the applicant notes that during reclamation, the pre-mining drainage pattern will be examined along with the existing surface drainage patterns in the area. This is to reclaim the diverted natural drainage underneath mine facility areas and other areas. The applicant must do this reconnaissance before any disturbance takes place. All drainages diverted or otherwise affected by mining must be surveyed at an appropriate scale to denote configuration of the channel in the form of meanders, pools, riffles or drops. Adequate cross sections and profiles will be needed to determine post-mining reclamation pertaining to the channel configuration.

The applicant has referred to other portions of the mine plan for review of regulation 817.41. In order to facilitate review of the PAP, the applicant should reference specific portions of a regulation section. It would be helpful if the applicant could reference specific page numbers.

The applicant has provided pre- and post-mining topography cross sections of the facilities area, magazine pad area, storage area, and portal facilities area in the right fork of C Canyon. However, the applicant has not provided pre- and post-mining cross sections for the leach field, topsoil pad, mine water discharge pond, and sediment pond. This information must be supplied, and a commitment made, to returning these areas to pre-mining topography upon closure of the mine.

The pre-mining and post-mining cross section maps S5-31 and S5-32 appear not to reflect post reclamation topography. The cross sections should contain pre-mining topography, active mining topography, and post-reclamation topography.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations (JRF)

The applicant must commit to removal of the sediment ponds after drainage entering the sediment ponds meets state and federal water quality standards after final reclamation. On page 784.11-6 the applicant states that Kaiser intends to construct sediment controls after construction of the main facilities area, magazine pad, and facilities in the right fork of C Canyon. Sediment controls must be installed before construction begins.

UMC 817.43 Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Groundwater Flow, and Ephemeral Streams (JRF)

The applicant's methodology used to determine the unit hydrograph parameters is not well supported. The applicant states that a runoff hydrograph was chosen for each area modeled. This information cannot be found on the computer analysis sheets in Appendix 13. The applicant should present all inputs for the Sedimot analysis in a clear and concise manner. The applicant must also reference the return period and precipitation values found on page 13-3.

The applicant's curve number methodology is deficient. On Table 13-1 several soils that are listed as B and C complexes should be listed in either C or D complexes, according to the "National Engineering Handbook Notice" of 1982. The applicant must justify with references, the present methodology, or use the groupings from the Engineering Handbook Notice. The applicant does not give field condition or land use to determine curve number groupings. Hydrologic condition and percent vegetation cover must be included in the curve number methodology.

On 13-4 the applicant cites Van Havern as the source of the curve number methodology used. Please provide the table and/or a copy of this methodology.

In Exhibit 8 under "Hydrology Calculations" it is difficult to discern which calculation belongs to a specific area. On Maps S5-35 and S5-39 the applicant identifies watershed drainages for culverts, disturbed area ditches, and undisturbed area ditches. Map S5-39 has a scale of 1:200, whereas Map S5-39 has a scale of 1:500. To adequately assess drainage areas one map at the same scale is needed. The applicant has not provided specific design and location details for each structure proposed. Structures would include culverts, diversions, and energy dissipators. This information is needed to adequately assess design details on a site-specific culvert-by-culvert, diversion-by-diversion case.

The PAP does not contain adequate information for a proper culvert analysis. All culverts must have specific design details, including but not limited to:

- Inlet and outlet protection, if required.
- Headwater depth and embankment height.
- Water surface and ditch profiles.
- Inlet and outlet elevations.
- Classification as to inlet or outlet control.
- Design flow, Manning's n value, outlet velocity.

Culvert C-4 should have a trash rack installed at the inlet. Proper engineering design criteria should be utilized and demonstrated for the trash rack.

Culvert C-4 should be designed under the 50-year, 24-hour storm criteria, due to the fact that this culvert routes 2 major drainages underneath the disturbed facilities area. Failure of this culvert would result in major damage and erosional problems.

The applicant states on page 13-8 that values used in design equations for the temporary diversions are shown on Figure 13, a typical diversion. The applicant must give wetted perimeter and other design information for each diversion. Manning's n values must be justified for all riprap areas and diversion areas. On Plate S5-38 diversion, Ditch D-1 is depicted as having a 2 percent gradeline, while on Plate S5-35, the natural terrain at which Diversion D-1 must be constructed over has a slope of 20 percent. Please discuss how the diversion can be constructed in this area on a 2 percent slope. The applicant must provide detailed designs for all diversions and how they are going to meet design slope.

The applicant must present riprap design information for each diversion. This information should include D50, and proper gradation of rock size, filter gradation and all supporting documentation and calculations.

All calculations and methodologies used in sizing riprap should be in the PAP. The applicant needs to size the riprap on a steep slope velocity basis, and the channel depth should be calculated on the flat slope section. The disturbed area slopes cannot be determined without the diversions presented on a profile of adequate scale with cross sections and profiles. Please provide this information.

According to UMC 817.43, each temporary diversion shall be removed and the affected land regraded, topsoil replaced and revegetated where no longer needed. The applicant must address this under UMC 817.43, or reference it in a section of the mine plan by specific page numbers.

817.44 Hydrologic Balance: Stream Channel Diversions (JRF)

The PAP does not contain adequate information to determine pre-mining stream channel characterization. Map S5-35 is of an inappropriate scale to determine drainage pattern for the ephemeral channels. Cross sections of the existing and proposed channel and flood plain will be needed to determine pre-mining drainage characteristics. A pre-diversion channel morphologic pattern is needed at an adequate scale to determine morphologic characteristics of all channels that will be disturbed. Upstream and downstream cross sections and hydraulic parameters, i.e., Manning's velocity inputs, are needed to demonstrate equal channel capacity through the diverted reach. The applicant needs to file Form 93-R with the State Engineer's Office. This is a "Stream Alteration Permit".

Backwater analyses are required for stream channel diversions SD-4 and SD-6. These channels are on slopes greater than 10 percent.

The applicant must address a plan for regrading and revegetation of all diverted areas, including timing and diversion removal. Diversion installation and removal should be done during the low flow season.

The applicant must document channel roughness of the natural stream system in the mine plan area with pictures and/or calculations and methodologies provided.

On Plate S5-38 the horizontal scale is not adequate to fully determine existing channel slope and proposed channel slope for diversions. A scale of 1"-25' would be adequate. The applicant must also address volume of material removed, and the disposal of such material removed for all diversions, pads, etc.

UMC 817.45 Hydrologic Balance: Sediment Control Measures (JRF)

On page 784.11-16 the applicant has noted that during construction, Kaiser intends to make minimum use of sediment control structures such as straw bales and silt fences. Sediment control measures must be present during construction, prior to any disturbance in the permit area. The sediment pond can be built and diversion ditches installed to prevent additional contributions of sediment to the natural environment. Temporary sediment controls such as straw bales and silt fences may be necessary during road construction of the Class II roads.

The applicant must also commit to installing all culverts prior to major construction of facilities areas, roads, magazine pad area, and facilities on the right fork of C Canyon. To minimize erosion, all outslopes of construction pads and road cuts should not exceed 50 percent.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds (PGL)

(a)(1) The applicant must commit to construct the sediment pond before any disturbance of the undisturbed area is undertaken.

(a)(2) The entire facilities area should be moved to a lower and flatter site. This would move the ponds to a new location closer to the disturbed area, as is recommended by this regulation.

(b) The design volumes must be clearly documented. All of the disturbed and undisturbed areas must be clearly delineated on a map. Once these areas are delineated, then all of the calculations and all inputs must be documented and sources cited for the sediment storage volumes shown on Plates S5-36 and 37.

(b)(3) The sediment storage volume must clearly state if it is the 3-year accumulation of sediment volume or the one-year volume. The associated tables and calculations must also depict this.

(c) The applicant must demonstrate that the ponds can meet a detention time sufficient to meet effluent limitations.

(d) The dewatering device is a 1-inch diameter drain hole cut in the discharge structure. The dewatering device must insure that the discharge rate achieves the required theoretical detention time. This justification should be included in the calculations. How long will it take to decant the 10-year storm? This length of time must be shown in the calculations.

(g) The emergency spillway must be shown on the drawings and labelled as such. The principal spillway must include all of the following in the design:

- (1) stage-discharge curve,
- (2) height of drop riser,
- (3) co-efficient of pipe inlet,
- (4) n-value for pipe,
- (5) dimensions of all pipes,
- (6) values for  $K_e$  (entrance, loss),  $k_f$  (friction loss) and  $K_b$  (bend loss),
- (7) peak flow calculations,
- (8) conduit outlet protection including exit velocity and calculation,
- (9) designs for protection of outlets to stream channels.

(i) The sediment pond is designed for the 10-year, 24-hour precipitation event. The required design events are: 10-year, 24-hour event for the principal spillway, and 25-year, 24-hour event for the emergency and principal spillway in combination. The supporting calculations used should be clearly noted in the design. No emergency spillway is shown on the drawings. An overflow emergency spillway should be provided in the sediment pond design information.

(n) The embankment foundation should be keyed in (as shown on page 240 of "Design of Small Dams"). There should be a pervious drain underneath the 24-inch CMP.

(o) The applicant has stated (784.16-2) that the source of borrow material will be areas within the disturbed area as needed. A commitment to use clean fill should be included in the PAP.

(p) Will the embankment compaction be tested to verify design specifications? It is noted in the text that water will be added "as necessary" to achieve compaction? Please elaborate on this.

(t) The ponds do not meet the capacity of 20 acre-feet and must, therefore, be inspected quarterly. The submittal dates of these reports must be given in the text.

(u) The applicant must have post-reclamation monitoring plans that include:

- (1) Map of sampling points entering each sediment pond, sample frequency and parameter list,
- (2) Procedure for recording and reporting of data,

Additionally, how will the ponds be accessed after road removal?

The hydrologic monitoring costs during the liability period must be included in the bond estimate.

UMC 817.47 Hydrologic Balance: Discharge Structures (JRF)

The PAP addresses discharge structures on page 817-10. The applicant does not discuss the outlet velocities, nor energy dissipation for channels even though they may be riprapped. According to UMC 817.47, discharge from sediment ponds, temporary impoundments, and diversions, shall be controlled by energy dissipators or riprap channels and/or other devices where necessary. The applicant has not sufficiently addressed protection from discharge structures. This includes all diversions, all culverts, all pond outlets. The applicant has not provided any culvert outlet velocities to determine if riprap will be needed. The applicant must provide sufficient information to determine velocities on all culverts, and outlet structures to demonstrate that non-erosive velocities are achieved.

UMC 817.49 Hydrologic Balance: Permanent and Temporary  
Impoundments (PGL)

(h) The applicant must specify the contents of certification reports as noted in this section, parts 1-5.

UMC 817.50 Hydrologic Balance: Coal and Underground Mine Entry  
Access Discharge (JRF)

On page 817.11 of the PAP the applicant has stated that all entries to the #5 mine are located and designed to be at the highest elevation practicable, thereby preventing gravity discharge of water from the mine. The applicant must supply information, maps, cross sections and aquifer information to substantiate this statement. The applicant has not submitted sufficient information to determine the volume of flow entering the mine and the pump discharge. The applicant must submit aquifer characteristics, including rate and direction of flow, transmissivity, water level trends, storage, recharge, and areal extent. The applicant must also supply information to determine if there are any acid-forming or iron producing coal seams within the No. 5 permit area.

The applicant must also supply sufficient information to determine groundwater quality for anticipated aquifers that will be impacted by the mining process.

The applicant must commit to quarterly inspections of the mine discharge pond.

UMC 817.52 Hydrologic Balance: Surface and Groundwater Monitoring  
Surface Water (JRF)

On page 817-12 the applicant states that the principal hydrologic impact will be an increase in surface water flows in the C Canyon drainage for the duration of the mine operations. The increased flow will ultimately impact Grassy Trail Creek, the Price River and the Colorado River. The applicant states that this may be a positive impact; however, the applicant does not address morphological impacts due to transgressing an ephemeral stream into a perennial or intermittent stream. These impacts should be addressed.

Map S5-35, Drainage and Sediment Control Plan, should contain the monitoring stations for B and C Canyons. These stations should be located to insure sampling below disturbed areas. On Table 34 the applicant notes that oil and grease parameters will not be measured for initial streamflow samples. This parameter must be sampled for baseline and operational sampling. Also, total hardness needs to be sampled for baseline and operational monitoring.

The applicant needs to propose a post-mining sampling program with the following information: sampling points, sampling parameters and sampling frequencies. The PAP must also contain a commitment to remove any monitoring structures or equipment just prior to bond release.

It is also recommended that the applicant install monitoring points on the ephemeral drainages above all disturbed areas, and at the mine water discharge pond entrance and sediment pond entrance. These stations and resulting information from them will help to determine bond release standards.

UMC 817.55 Hydrologic Balance: Discharge of Water Into an Underground Mine (JRF)

On page 817-13 of the PAP the applicant states how surface water will not be diverted, or otherwise discharged into any underground mine workings. The PAP should contain sufficient information, topography maps, cross sections and profiles to adequately assess that runoff will not enter any of the mine discharge shafts, adits or portals.

UMC 817.59 Coal Recovery (PGL)

The applicant must include the approval for the Resource Recovery and Protection Plan from the BLM.

UMC 817.61-68 Explosives (PGL)

The applicant states that if any surface blasting is conducted, Kaiser will conduct all blasting operations in accordance with appropriate Utah and Federal regulations (page 817-15) and obtain permits (784.11-15). The applicant must commit to notify the Division and demonstrate through proper submittals how Kaiser will comply with applicable regulations 817.61-68. The magazine is shown on the surface facilities plates. Why is it shown if blasting is not expected?

UMC 817.89 Disposal of Non-Coal Waste (PGL)

The applicant should include the East Carbon landfill agreement for disposal of non-coal waste.

UMC 817.101 Backfilling and Grading: General Requirements (PGL)

The applicant shows 4 feet of topsoil on slopes near highwalls. The areas that will retain small highwalls must be outlined on a map and justification fully described. The postmining topography shown is not the approximate original contour described (with four feet of topsoil), therefore, the maps should have 3 differentiations: pre-mining; active mining; and post-reclamation contours.

UMC 817.103 Covering Coal and Acid and Toxic-Forming Materials (PGL)

How will acid- or toxic-forming materials be identified for disposal in the existing Sunnyside refuse disposal facilities?

UMC 817.106 Regrading or Stabilizing Rills and Gullies (PGL)

The applicant must include some monies in the bond estimate for erosional monitoring, i.e., repair of rills and gullies.

UMC 817.162 Class II: Design and Construction (PGL)

(d)(5) How will the moisture content sufficient to ensure proper soil compaction be achieved?

(d)(9) A minimum safety factor of 1.25 must be demonstrated in the PAP for all embankments.

UMC 817.163 Roads: Class II: Drainage (JRF)

On page 817-34 of the PAP the applicant discusses drainage of Class II roads. The applicant discusses culverts that will pass undisturbed drainage underneath the roads in Exhibit 13. However, the applicant does not discuss road drainage or sediment control from the road surface itself. This is deemed a disturbed area, and according to UMC 817.42 and 817.45, all disturbed areas will be treated for sediment control with a treatment facility. All sediment controls for roadbed erosion control shall be designed and constructed in accordance with UMC 817.153(B). The applicant must also discuss erosion

control for all outlet structures and headwater depths for all inlet structures. A profile for each culvert with inlet and outlet control shall be provided with cross sections to verify that the ditch and/or road will not be overtopped by the design flow event.

According to Map S5-35, there are several areas where overland flow of undisturbed drainage will occur down the outslope or inslope of the roadbed to a culvert, before being conveyed underneath the road. The applicant must address reduction of velocities of this diverted flow alongside the road, or install more culverts as follows:

the C-7 area requires 1 more culvert,  
C-8 drainage area requires another culvert,  
C-12 drainage area requires 1 more culvert,  
C-5 area requires 2 more culverts,  
C-14 requires 1 more culvert,  
C-16 requires 1 more culvert,  
area C-20 requires 2 more culverts, and  
2 culverts will be needed in the unnamed drainage to the north of the sediment pond.

Culvert C-21 appears to discharge into the topsoil pile. Conveyance of this flow must be altered so it will not drain into the topsoil pile or the mine water discharge pond.

It is recommended that the applicant install culverts at all drainages intersected by disturbed areas, (primarily roads). If the applicant installs ditches to convey overland flow from an ephemeral drainage to a culverted ephemeral drainage, sediment control will be required. According to the slope culvert spacing criteria:

0	3% slopes, culvert every 1,000 feet
3	6% slopes, culvert every 600 feet
6	10% slopes, culvert every 400 feet
	10% slopes, culvert every 200 feet.

The applicant must install a culvert between drainages C-9 and C-8, and a culvert between C-1 and the water tank pad will be needed. Two culverts need to be added between drainage area C-16 and the magazine pad due to the slope criteria.

UMC 817.165 Maintenance (PGL)

How will the roads be maintained during the winter?  
Where will the snow be removed to? (Page 784.13-22)

UMC 817.166 Roads: Class II: Restoration (PGL)

Conceptual Concrete Proposal shown on Figure 9 indicates 4 feet minimum of topsoil will be placed. Another conceptual design should be done for the roads. This should show the 6 inches of road surfacing at the outside of the road and the AOR with topsoil for the road restoration.

UMC 817.170 Roads: Class III (PGL)

By definition, the Class III roads, i.e., the access road to the sediment pond and topsoil site, will most likely be a Class II road; the use is frequent. As it has been suggested before, perhaps the facilities should be moved down canyon from their present location and the road issue thought through once again.

The comment should be made that if the road configuration remains as is, that the maintenance cannot be done as outlined because when climatic conditions would cause degradation, is the time when the sediment ponds would need to be maintained. This is a dilemma.

UMC 817.173 Roads: Class III: Drainage (JRF)

On page 817-36 of the PAP, the applicant specifically requests that the Division approve the location of the Class III road as shown on the mine facilities map S5-4A,4B. The Division does not concur with the Class III designation of the road to the sediment pond, mine water discharge pond, topsoil pile and leach field. The applicant should commit to a maintenance schedule per Class II specifications, and drainage controls per Class II specifications.

UMC 817.180 Transportation Facilities (PGL)

The conveyor system that will be needed for the No. 5 mine should be incorporated into the PAP and all appropriate permitting issues addressed.

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