



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 8, 1992

0080

Mr. Glen Zumwalt, Vice President
Utah Fuel Company
P. O. Box 719
Helper, Utah 84526

Dear Mr. Zumwalt:

Re: Remaining Deficiencies in Response to Division Order #92C (Permit Renewal),
Coastal States Energy Company, Skyline Mine, ACT/007/005, Folder #3, Carbon
County, Utah

The Division has completed a review of your submittal intended to satisfy the deficiencies noted in your permit renewal (Division Order #92C). At this point a large portion of the deficiencies have been satisfied. However, there still remain a few deficiencies that have not been adequately addressed. Please review the enclosed document that outlines the remaining deficiencies. A response to these deficiencies must be submitted to the Division no later than January 22, 1992.

Thank you for your cooperation during the permitting process and your diligence in complying with the regulatory requirements. Please call if you have any questions.

Sincerely,

Daron R. Haddock
Permit Supervisor

Enclosure

cc: P. Baker
P. Burton
J. Smith
W. Western
L. Braxton w/o enclosure
DEFITWO.SKY

**REVIEW OF TECHNICAL DEFICIENCY RESPONSE
AND
REMAINING DEFICIENCIES
COASTAL STATES ENERGY COMPANY
SKYLINE MINE
ACT/007/005
DECEMBER 7, 1992**

R645-301-222

Soil Survey

Original Deficiency #1:

Skyline must revise Plate 2.11-1 to reflect the most accurate information in the consultant's reports and include cartographic information such as scale, contour lines, streams, and roads.

Analysis:

A revision of Plate 2.11-1 was submitted. This plate shows contours, previously disturbed areas, roads, streams and soil taxonomic units on a scale of 1" = 100'. The plate is referred to on revised page 2-114, Sec 2.11, but the plate is not identified by Plate number. Page 2-114 indicates that the plate is available only at the mine site.

R645-301-222 requires that within the limits of the surface disturbance of an underground mine site, the soils will be surveyed and mapped according to the standards of the National Cooperative Soil Survey. Included on Plate 2.11-1 is a taxonomic great group which is not recognized by the "Keys to Soil Taxonomy." This great group is listed as Cryocrept. This soil was described in the 1979 EPS study conducted for the Skyline Mine. The soil survey information was updated (1980) in response to a technical deficiency review. The 1980 information does not include Cryocrepts as a soil great group at the portal site. The great groups included at the portal site are Argic Pachic Cryoborolls, Argic Cryoborolls, Mollic Cryoboralfs

Compliance:

An Administrative review of prior technical deficiencies declared that information on soils at the Rail Road Load Out, Conveyor, and South Fork Breakout was past history and the deficiencies #2 and 5 under this regulation should be dropped. Plate 2.11-1 is no more or less significant than soil survey information for the Rail Road Load Out, the South Fork Breakout, the Conveyor and the Water Tank areas. I suggest that revision of the soil survey map of the mine portals is also deleted. In place of the present Plate 2.11-1 which is inaccurate, I believe that the information provided in the 1980 Supplemental Soils Report of Vol A-2 should replace Plate 2.11-1 and that the 1980 Supplement Soils Report should be referred to rather than Plate 2.11-1 on page 2-114.

341.
R645-301-230

Mulching Techniques

Original Deficiency #1:

Mulching methods reflecting best technology currently available, whether determined through operational testing or literature sources, must be shown for all areas.

Response and Analysis:

The revised plan says that slopes of 3h:1v or less will be mulched with straw. Slopes steeper than 3h:1v will be treated with wood fiber mulch, will be anchored by chemical tackifiers or crimping. All mulching, anchoring techniques, and application rates will be determined by using BTCA at the time of reclamation. For the 1992 permit renewal, 2000 pounds of wood fiber plus 140 pounds of conweb tackifier has been used to determine the reclamation bonding calculations.

One of the stipulations on the original permit was that "...reclamation of the mine site will be required to satisfy the standards current at the time of reclamation and will be conducted using the best available current technology." (4.c.). In this submittal, the mulching techniques section of the MRP has been simplified, but the methods have not been changed. The BTCA methods suggested in the technical deficiency review, ie. crimped straw or hay applied at 1.5-2 tons per acre, are supported by several literature sources, but there are a few sources that indicate that 1 ton per acre may be adequate. As experience is gained and more information becomes available, this section of the plan may need to be changed. For the present, the commitment contained in the plan to use the best technology available at the time of final reclamation is acceptable.

The plan no longer shows how the straw will be anchored. This appears to be a typographical error. The last phrase of the statement about wood fiber mulch application appears to be a relict of the straw anchoring commitment that had been in the plan.

Remaining Deficiency:

1. The plan needs to contain a method for anchoring straw mulch.

R645-301-231.400

Topsoil Handling and Storage Areas

Original Deficiency #1:

Skyline must edit Table 2.11-1 and Table 2.11-2 for accuracy in computations and

resubmit a corrected copy of each Table.

Analysis:

Tables 2.11-1 and 2.11-2 have been deleted. Information on stored topsoil quantities is provided in Vol 1, pg 2-114 and Vol 3, Sec 4.6-4.

Cover requirements and amounts of topsoil stockpiled is restated below as listed on pg 2-114, Vol 1, and the redistribution requirements as listed in Table 4.6-4, Section 4.6-4.

Portal Yard	
Stockpile = 91,586 - 15,295 ----- = 76,291	of non Forest topsoil yd ³ of replacement topsoil available for National Forest lands
Redistribution requirements = 74,883 yd ³ , over 36.40 acres (reclamation Plate 4.4.2-1A states the disturbance is 31.1 acres)	

Rail Road Load Out	
Stockpile = 27,690 + 15,295 ----- = 42,985	yd ³ from Portal Yard yd ³ of replacement topsoil available for the private lands
Redistribution requirements for RRLO = 30,782 yd ³ , over 13.82 acres for Waste Rock Site + 2,694 yd ³ , over 1.67 acres for water tanks and well pads + 419 yd ³ , over 0.26 acre for overland conveyor route + 629 yd ³ , over 0.39 acre for conveyor bench + (omitted)	
----- = 33,597 yd ³ Total required on private lands	

South Fork	
Stockpile = 2,990 Redist. Req. = 2,275	yd ³ , to be used at the South Fork disturbance yd ³ , over 0.96 acres

This accounting does not include the conveyor bench. The reclamation plan for this area does not include replacement of topsoil (as outlined on pages 4-45, 4-45a, and 4-45b). Seeding will occur over 8.97 acres of this area (Table 4.7-7, pg 4-58).

Compliance:

Cover requirements for waste rock are not addressed in these calculations. Approximately 9,000 yd³ remain from the RRLO topsoil stockpile which could be used for additional cover over waste rock. Cover material must be dedicated to meet the requirements of R645-301-553.250 until test plots substantiate lesser cover. I recommend that Table 4.6-4 reflect cover requirements for the waste rock site.

R645-301-240 Reclamation Plan
R645-301-242 Soil Redistribution

Original Deficiency #1:

Skyline must edit Table 2.11-2, Topsoil Volumes; Table 4.3-1, Bonding Calculations; all reclamation contour maps; and the narrative to agree on the acreage of surface disturbance for all locations. The estimated values of topsoil recovery (Table 2.11-2) must be checked for accuracy and revised accordingly.

Compliance:

A contradiction remains between Plate 4.4.2-1A and Table 4.6.4 concerning the acreage of disturbance at the portal mine site. See discussion under deficiency #1 R645-301-231.400, Portal Yard.

R645-301-322 Wildlife Information

Original Deficiency #2:

Changes to high interest species status of amphibians, reptiles, and mammals with ranges potentially within the permit area as listed in Tables 2.9-1 to 2.9-3 must be updated to the most current information available.

Response and Analysis:

The pages submitted show the required changes for all of the species except red bats

and western smooth green snakes. This is a minor problem but should be corrected.

Remaining Deficiency:

Changes to the high interest species status of red bats and western smooth green snakes need to be made in Tables 2.9-1 and 2.9-3.

Original Deficiency #6:

The plan must include data from recent Wildlife Resources fisheries surveys.

Response and Analysis:

The preliminary response indicated that appropriate summaries would be included in the plan, but the October 5, 1992, submittal did not contain this information. According to Ken Phippen of DWR, fish surveys were conducted at least annually for the first few years after the mine was constructed, but they have been conducted at irregular intervals since then. The most recent information available is from a 1991 study. This information is available from DWR and should be included in the plan.

Remaining Deficiency:

1. The plan must include data from recent Wildlife Resources fisheries surveys.

R645-301-341.300

Revegetation Feasibility Demonstration

Original Deficiencies #1 and #2:

1. *The plan must demonstrate revegetation feasibility in those areas where a variance from approximate original contour is proposed.*
2. *The plan must be revised to show that quantitative data, including percent cover by life form, woody species density, and shrub survival rates, will be gathered for the conveyor bench in 1992 and annually thereafter for at least the next two years (1993-1994) if the reference area standards are not being approached this year. Further data may be needed after that period, and the reference area may also need to be evaluated for some of these parameters for comparison.*

Response and Analysis:

The first deficiency was improperly worded in that it was meant to apply to slopes greater than 1.5h:1v and to the conveyor bench and associated cut slopes rather than to all areas with a variance from approximate original contour. Information in the plan demonstrates the difficulty of revegetating these areas, and in my professional opinion, these types of slopes cannot be revegetated to the performance standards using the methods described in the plan or any reasonable reclamation technology of which I am aware.

Steep slopes proposed to be left in the portal area are relatively small. The greatest concern is for the conveyor bench which is proposed to be left intact at final reclamation. These slopes were originally to be regraded to approximate original contour upon final reclamation. This could only occur because the road was to be reclaimed to a gravel road as it was before the mine was built. Since the road is to be retained in its present configuration, it would be impossible to achieve approximate original contour for the conveyor cut slopes. For this reason, attempting to restore approximate original contour is not practical, and achieving the premining vegetation cover is not possible without decreasing the slope, reducing the amount of exposed rock, and adding topsoil.

One alternative to this problem is to change the postmining land use from wildlife and grazing to a type of industrial use, ie. being part of the road cut slope. This would eliminate vegetative production requirements, and the vegetative cover would simply need to be adequate to control erosion. The plant species would still need to meet the other general requirements of R645-301-353, but this should not be difficult. Together with changing the postmining land use and addressing the requirements for a variance from approximate original contour, Skyline should determine if some regrading of the conveyor bench is feasible to reduce the slope over at least part of the area.

A change in the postmining land use would be a significant permit revision, and Skyline would need to address the requirements for an alternative postmining land use. (Any area not meeting approximate original contour requirements should address the requirements for an alternative postmining land use.) If a change such as this is not made, I do not believe that the Division can find that the conveyor bench and associated cut slopes are reclaimable according to the plans in the current mining and reclamation plan.

Remaining Deficiency:

1. The Operator must demonstrate that areas of the conveyor bench and associated cut slopes are reclaimable according to the plans presented in the mining and reclamation plan. As an alternative to the current plan, Skyline may consider changing the postmining land use for this area.

R645-301-413 Land Use Reclamation Plan

Original Deficiency #1:

The Application must contain comments on the proposed postmining land use for the loadout area.

Response and Analysis:

Table 4.12-1 on page 4-75 has been changed to indicate that the postmining land uses for the loadout area will be wildlife habitat and grazing, and the footnote states that the permittee is the landowner of this site and is not in the recreation or livestock business and elects not to reestablish the picnic and livestock facilities. Drawing 1.6-1 has been updated to show the ownership change for the loadout.

The change in land ownership is a change to the plan outside of the scope of the Division Order that should have been identified in accordance with R645-303-223.

R645-301-114.100 requires that the application contain a description of the documents upon which the applicant bases their legal right to enter and begin coal mining and reclamation operations in the permit area and will state whether that right is the subject of pending litigation. The description is also required to identify the documents by type and date of execution, identify the specific lands to which the document applies, and explain the legal rights claimed by the applicant. Although Drawing 1.6-1 and Table 4.12-1 show the change of ownership for the loadout area, the plan does not identify the documents by type and date of execution or identify the specific lands to which the document applies other than on the map.

It is felt that the change in land use from livestock corrals and a picnic area to wildlife habitat and grazing is desirable. Although it is a change compared to the use of the land immediately preceding mining, wildlife and grazing use are premining land uses. Therefore, this change should not be considered an alternative postmining land use that would require a significant revision to the plan. The change would serve to enhance wildlife habitat and should be approved.

Remaining Deficiency:

1. The right of entry information for the land at the loadout must be updated in the plan in accordance with R645-301-114.100.

Original Deficiency #2:

The application must include either a copy of the lease agreement for the conveyor corridor land, excerpts from this agreement, or other comment from this land owner on the postmining land use.

Response and Analysis:

A copy of the lease agreement has been submitted.

It was anticipated that the lease agreement would provide a form of comment on the postmining land use. It basically states that the land containing the conveyor corridor and some other facilities may be altered by the Lessee (Skyline) but that these lands must be reclaimed according to Federal, State, and local laws and regulations. Where the postmining land use is presently proposed to remain wildlife and grazing, this lease agreement should be adequate. As discussed under R645-301-341.300 Revegetation Feasibility Demonstration and in another memorandum which covers the topic of land owner consent to a variance from approximate original contour, however, this lease does not provide adequate comment to change the land use or for receiving approval for a variance from approximate original contour.

Although the submittal included a copy of the lease agreement as required, the agreement is marked "confidential", and landowner comments on the postmining land use cannot be considered confidential. Skyline may wish to quote from appropriate portions of the agreement. Additionally, it is not known where the lease agreement should be placed in the plan. Reference to the agreement could not be located in the plan.

Remaining Deficiency:

1. If the lease agreement between Coastal States Energy and Nick and Koula Marakis and Helen Lumbi is to constitute comments on the postmining land use, the agreement cannot be considered confidential and Skyline must indicate how this agreement is to be inserted into the plan, including reference to it in the text of the plan.

Original Deficiency #3:

The cross reference must show the locations of surface owner or manager comments concerning the postmining land use for all areas.

Response and Analysis:

The cross-reference states under R645-301-412.200 that the MRP location for land owner or surface manager comments is V3 4.12.6. Section 4.12.6 contains land owner comments for the waste rock disposal site only. It does not contain comments from the Forest Service or from Nick and Koula Marakis and Helen Lumbi. Comments from the Forest Service in the form of excerpts from the management plan are included elsewhere in the plan, and the lease agreement discussed above is intended to serve as comments from the Marakis's.

Remaining Deficiency:

1. The cross reference must show the locations of surface owner or manager comments concerning the postmining land use for all areas.

R645-310-522

Coal Recovery

Applicant's Response:

The Applicant has not addressed this regulation.

Analysis:

The mine and reclamation plan will include a description of the measures used to maximize the use and conservation of coal resource. With respect to federally leased coal the Applicant may satisfy this regulation by demonstration that coal will be recovered in accordance with the resource recovery and protection plan.

Remaining Deficiency:

1. The Applicant must demonstrate that the mining operations will maximize the use and conservation of the coal resources.

R645-301-525.100

Subsidence Control Plan

Applicant's Response:

The Applicant supplied the Division with Map 4.17.1-1 (revised October 1, 1992), Extent of Planned and Controlled Subsidence Areas. The map was not certified nor were the permit boundaries identified. The protected subsidence boundaries were not

identified on the map, just the areas where subsidence was permitted.

Analysis:

The Applicant has not supplied the Division with adequate subsidence control information. The subsidence map must be certified and show those area that are expected to subside, those areas where subsidence is permitted, and protected areas.

Remaining Deficiency:

1. The subsidence control map will be certified by a qualified registered professional engineer. The map will show the permit boundaries, the areas where subsidence is anticipated, the areas where subsidence is permitted and areas protected from subsidence.

R645-301-528.323

Burning and Burned Waste Utilization

Applicant's Response:

The Applicant did not address this issue.

Analysis:

The Applicant failed to address this regulation.

Remaining Deficiency:

1. The Applicant must address this regulation in the Mine and Reclamation Plan.

R645-301-536

Coal Mine Waste

Original Deficiency #1:

The analyses of the Skyline waste rock material (in storage at the Railroad Load Out) must be included in the MRP and its location within the MRP must be referred to on page 4-87.

Compliance:

Sample analyses from 8/11/92 were found with the submittal. The analytical report

should be referred to on page 4-87 of the MRP. Acid/base accounting results should be included with these reports.

Original Deficiency #2:

The text must be revised to include current analysis of the waste rock deposited at the Scofield Waste Rock Site and remove conflicting statements regarding the nature of that material.

Analysis:

No further information was provided with the submittal. The latest sample information included in the permit is from July 1991. Statements in Section 2 of the plan suggest the material is non-toxic. Statements in Section 4 suggest the material could be acidic. These statements appeared to be contradictory and for this reason, the deficiency was written. A single sample taken in 1987 was determined to be acidic. Sampling since then has not produced any negative acid/base potentials. The terms non-toxic and acidic can be mutually exclusive. Therefore description of acidic material as nontoxic may be acceptable.

Compliance:

The Permittee is in compliance with this deficiency, however a recent (1992) analysis is requested for inclusion in Exhibit 4.4.5..

R645-301-540

Reclamation Plan

Original Deficiency #1:

Skyline must commit to a minimum of 3 feet of non-toxic, non-combustible cover placed on top of waste rock in permanent storage at both the Railroad Load Out and the Scofield Waste Rock sites. This cover will be overlain with the one foot of topsoil (at both sites), for a total of four feet of non-toxic, non-combustible cover material. The Division may waive this requirement based on sampling of the waste at final reclamation, but not before sampling results are known.

Analysis:

A test plot for determining depth of cover has been proposed with this submittal (pg 4-38a). The test plots will compare 1 foot of topsoil over coal mine waste with 0 - 3 feet of

intervening nontoxic, nonacidic material. Page 4-38(b) describes sampling the cover and topsoil material to be used for the parameters in Table 1 of the Division's "Guidelines for Management of Topsoil and Overburden ..."

Compliance:

For the purpose of determining the non-toxic, non-acidic nature of the material, the following analyses (described in Table 6 of the "Guidelines for Management of topsoil and Overburden...") should be added to Table 1: acid/base accounting, selenium, boron.

Original Deficiency #2:

Skyline must develop a sampling plan for the waste disposal sites located at the Railroad Load Out and Scofield to include the parameters outlined in the Division Guidelines for Overburden Management including: SAR, EC, hot water soluble Se and B, acid/base potential, and percent coal. The plan must include the sampling interval and number of total samples to be taken at each site; depth segregation of samples, and a total sampling depth of at least three feet.

Compliance:

No changes to the present plan could be found in Section 4.6.4.1, 4.7.7 or Section 4.4.5 was noted. Further information is requested concerning a sampling program for the final graded surface of the waste rock site, if a reduced level of cover is finalized.

R645-301-700

Hydrology

Original Deficiency #1:

The Permittee shall update potentiometric surface maps to show long term impacts due to mine water inflow or other long term factors and, if data are sufficient, seasonal variations. The effects of the water level fluctuations in wells 14-2A and 26-1 on the potentiometric surface should be shown, or if the effects of these fluctuations are not significant this should be discussed in the narrative. The discrepancy as to the direction of ground water flow in W22-2 needs to be resolved.

Proposal:

Water level data from 1992 were used to make the potentiometric map on Plate 2.3.4-2, which updates Plates 7 and 11 that were based on data from 1979. At the map scale and

contour intervals used there is little evident change. Seasonal variations are discussed in page 2-29 and in the PHC; they are of too small of magnitude to be mapped. The greatest water level fluctuations occur in wells that are interpreted to be in direct connection with fractures and to respond directly to seasonal changes in precipitation. The apparent change in gradient in W22-2, from upward flow to downward flow, is attributed to both drought and dewatering of the area by the mine operations (p. 2-29a).

Analysis:

Water level data for W22-2-2 on Plate 2.3.4-2 and in Appendix 4 indicate water levels measured in 1979 and used by Vaughn Hansen Associates (VHA) to produce Plates 7, 11, and 12 in the original MRP may have been erroneous. Levels for W22-2-1 between July 1982 and Oct 1991, as shown in Appendix 4, never were as low as the level shown on Plates 7, 11, and 12, and water levels in well W22-2-2 between July 1982 and Sept 1985, when the casing failed and measurements stopped, never had water levels as high as that shown on Plate 7, 11, and 12. The water levels used by VHA fall roughly midway between the water levels reported in Appendix 4, with the gradient reversed between the two data sets. Even though regular measurements of W22-2-1 have recorded a steady decline of water level since July 1982, the water level given on Plate 2.3.4-2 is still 31 feet higher than the level used by VHA for Plates 7, 11, and 12.

Similarly, data for Well W26-1 indicate a large water level drop between the 1979 VHA measurement and 1982, but data in Appendix 4 also show this well is subject to large seasonal variations.

Water levels shown for W35-1 on Plate 2.3.4-2 should be double checked to make sure the values for the shallow and deep aquifers have not been reversed. As currently shown on Plate 2.3.4-2, water level values indicate there has been a reversal of the vertical gradient in this area also. If the shallow and deep water levels have been reversed then the reversal needs to be corrected and the contour line repositioned.

Remaining Deficiencies:

1. Shallow and deep water levels appear to be reversed in well W35-1.
2. Contour lines on Plate 2.3.4-2 don't correspond with water levels given for well W22-2 (and for well W35-1 if the shallow and deep values have been switched).
3. Well W26-1 monitors the shallow aquifer rather than the deep aquifer as shown on Plate 2.3.4-2.

4. The dates related to Plates 2.3.4-2 and 7, 11 and 12 at the top of page 2-29a are reversed.

Original Deficiency #2:

The Permittee shall prepare and certify maps and cross sections required by R645-301-722 as appropriate, as required by R645-301-712 and R645-301-512.140.

Proposal:

The potentiometric surface map, Plate 2.3.4-2 and the cross sections of the waste rock disposal site (Plate 2.2.1-2), railroad loadout (Figure 2-30B), and Eccles Canyon (Figures 2-30C and 2-30D) have been submitted to satisfy deficiencies that were identified when the MRP was submitted for renewal.

Analysis:

Maps from previous MRP submittals, which were approved without certification, should not be required to be certified retroactively during permit review or renewal. New maps and cross sections and revisions or updates of older maps and cross sections should be certified as per R645-301-512 and R645-301-722.

Remaining Deficiency:

1. Cross sections and maps submitted to satisfy current deficiencies to the MRP are not certified, as required by R645-301-512, as having been prepared by or under the direction of a qualified registered professional engineer or land surveyor, with assistance from experts in related fields such as hydrology and geology.

Original Deficiency #5:

The Permittee shall determine the location and extent of ground water at the waste rock disposal site and show this information on appropriate maps and cross sections.

Proposal:

A water monitoring well has been installed at the waste rock disposal site. The current water level has been determined in that well and the well has been added to Skyline's

ground water monitoring schedule for measurement of water quality. Ground water elevations indicate a continuous regional system connecting with ground water along Pleasant Valley Creek (p. 2-30a).

Analysis:

The location and extent of ground water at the waste rock disposal site is discussed on pages 2-30 through 2-30b. There is only one monitoring well for this site, and the well is separated from the actual waste rock disposal area by at least one fault, with several faults running through the waste rock disposal site. The ground water system possibly is not affected by the faulting, but old underground mine workings and a recent coal burn are two other factors that may be affecting ground water quality and flow at this site, and one well may not be adequate.

Remaining Deficiency:

1. Location and extent of ground water at the waste rock disposal site are not shown on maps or cross sections, specifically Plates 2.3.4-2, which shows the potentiometric surface of the regional system, and 2.2.1-2, which shows the cross section at the waste rock disposal site.

R645-301-728

Probable Hydrologic Consequences (PHC) Determination

Original Deficiency #4:

The Permittee shall incorporate into the determination of the PHC data collected to date from the flumes or other sources along Burnout Creek and the upper reaches of Upper Huntington Creek. The determination of the PHC to these drainages shall include but not be limited to subsidence of perennial streams and of the loss of Yellowstone cutthroat trout spawning habitat.

Proposal:

Subsidence is planned beneath Burnout Creek (PHC p. 3-7) and an ongoing study of the effects of subsidence is being done under the direction of the USFS (pp. 2-27 and 2-43). Three additional springs and eight flumes have been added to the monitoring of the Burnout Creek and Upper Huntington Creek drainages. Data from these monitoring points are not available yet. Expected subsidence impacts in Burnout Creek would be short term increases in TSS and TDS in spring water (PHC p. 2-21). Remediation measures will be determined when the study is complete (PHC pp. 3-14 to 3-15).

The naturally reproducing population of cutthroat trout in Eccles Creek was reduced when construction there increased the sediment load in the stream. Habitat improvement resulted in near recovery of this population (p. 2-66). Future aquatic monitoring is planned only on an as needed basis (p. 2-71).

Analysis:

There is no new information on which to base a determination of the PHC of coal mining to the Burnout Creek and Upper Huntington Creek drainages. See the discussion for *Deficiency 6*. under **R645-301-700**. above. In spite of the lack of new data from the ongoing study being done under the direction of the USFS, preservation of cutthroat trout spawning habitat in tributaries to Electric Lake is still of great importance and needs to be addressed in the PHC.

Remaining Deficiency:

1. A determination of the PHC to the cutthroat trout spawning habitat in Burnout Creek and Upper Huntington Creek, based on current knowledge, has not been made.

Original Deficiency #8:

The Permittee shall include in the PHC a discussion of the decreased biologic activity in Eccles Creek downstream of the mine. The information in "Eccles Canyon Invertebrate Studies and Rock Dissolution Experiment" shall be used in the determination of impacts of mining and reclamation on sediment yield from the disturbed area, streamflow alteration, and water quality.

Proposal:

Information in "Eccles Canyon Invertebrate Studies and Rock Dissolution Experiment" has been used in determining the PHC. Reduced biological activity below the mine is the result of higher percentages of medium grained sediment that has filled the void space around the gravels in the bed of the creek. The change in sediment size distribution below the mine may be due to scouring of sediments at the mine water discharge point and subsequent deposition of the scoured sediments downstream (PHC pp. 3-5 - 3-6).

Elevated TDS concentrations in the mine discharge waters may cause a decrease in the biologic activity in Eccles Creek, but the elevated TDS concentrations found in Eccles Creek are not acutely toxic to invertebrates. Chronic toxicity is not known (PHC pp. 3-9 - 3-11).

Rock dust contaminated with gypsum has been identified as the source of the elevated TDS in the mine discharge water, and TDS levels should decrease without further remediation efforts now that the contaminated rock dust is no longer being used in the mine (PHC p. 3-11).

Analysis:

On pages 3-5 and 3-6 of the PHC is a discussion of how the discharging mine water is altering the streambed of Eccles Creek below the mine and how that alteration is decreasing invertebrate activity in the stream. On page 3-8 this is summarized in the last paragraph of Section 3.2.3 "Potential for Flooding and Streamflow Alteration". The last sentence of that paragraph then states that there is no evidence that mining operations are impacting the nature of the stream bed, which contradicts everything stated previously.

Remaining Deficiency:

1. It is unclear what is meant by the concluding statement of Section 3.2.3 on page 3-8 of the PHC that there is no evidence that mining operations are impacting the nature of the stream bed, when previous pages contain a discussion of impacts the mine operation is having on the stream bed.

R645-301-731.200

Water Monitoring

Original Deficiency #4:

The Permittee shall identify sources of ground water quality information near Scofield and place the information on the appropriate maps. The nature of the water quality variation in Eccles Creek and Pleasant Valley Creek, mentioned on page 2-33 of the PAP, shall be clarified.

Proposal:

Surface water monitoring points VC-9 and M-1 are identified on page 2-33 as the sources for the water quality information near Scofield. Their locations are on Plate 2.3.6-1. Dissolution of evaporites from the Mancos Shale is the source of increased magnesium and sulphate downstream in Eccles Creek and Pleasant Valley Creek.

Analysis:

Identification of the two points clarifies the meaning of the water quality information as given. Even though they are surface water monitoring points, including this information

in this section helps in understanding the evolution of water quality in this drainage; however, it could still be made clearer in the text that they are monitoring points for surface water, rather than ground water.

Point M-1 is not mentioned anywhere else except page 2-33 nor shown on any map other than 2.3.6-1, and no monitoring data are given anywhere in the MRP.

Mancos Shale is not shown in lower Eccles Canyon and along Pleasant Valley Creek on Plate 2.2.1-1, but the explanation to that map clarifies that unit identified as lower Star Point Sandstone consists of intertonguing Mancos Shale and Star Point Sandstone.

Remaining Deficiency:

1. Information on monitoring point M-1, similar to that given for other surface water monitoring points, is not given in the MRP.

Original Deficiency #5:

The Permittee shall repair or replace monitoring wells 14-2b and 22-2-2. As an alternative, if the Permittee can demonstrate to the Division that sufficient ground water monitoring can be conducted without these two piezometers, the PAP should be modified and the wells abandoned following the plan outlined in Section 4.9, Volume 3 and State Of Utah Rules for Water Well Drillers.

Proposal:

Wells W22-2-2 and W14-2B have casing that has failed for reasons associated with subsidence.

In an earlier response to DOGM, the Permittee indicated these wells were drilled as exploration wells with ground water monitoring as a secondary function. Casing failure is probably related to subsidence or slumping and repair of the wells is impractical. Replacement is also impractical for economic and operational reasons, and replacement wells would be subject to the same slumping or subsidence problems.

Analysis:

Failure of the casing is described on page 2-29a and in statements in the Water Well Data Summary in Appendix 4, but there is no demonstration that repair or replacement of W22-2-2 and W14-2B is not needed for ground water monitoring. At places in the MRP, such as page 2-29 and Table 2.3.7-1, it is not clear that these two wells are not still

operational and being used to measure water levels.

Economics are certainly a consideration in deciding on the need to replace or repair these wells, but not necessarily the most important. If mine dewatering is one of the causes of the declining water levels, as is presented on page 2-4 of the PHC, then continued monitoring of these areas at these depths may be a more important factor than the cost.

Neither W22-2-2 nor W14-2B is in an area that is subsiding according to the 1991 Annual Report. W22-2-2 is not near any past or current mining and W14-2B is between the mains of Mines 1 and 3, an area of no-subsidence mining. Failure of casing is probably due to plastic flow or sloughing of rock into the borehole. Proper monitoring well design and construction, including casing material designed to withstand tensile, compressive and collapse forces in the borehole and proper placement of the annular seal and filter pack, would greatly reduce the possibility of casing failure in a replacement monitoring well.

Monitoring of shallower wells may be sufficient if good interconnectivity between the deeper and shallower aquifers can be demonstrated, but data in other sections of the MRP indicate there is very low vertical hydraulic conductivity. Another consideration is that data indicating a ground water gradient reversal in the vicinity of wells W22-2-1 and W22-2-2 may not be accurate. (See the discussion for *Deficiency 1*. under Section **R645-301-700** above.) Whether or not there really is or has been a gradient reversal at W22-2-1 and W22-2-22 is an important consideration in deciding whether or not to repair or replace W22-2-2.

Remaining Deficiencies:

1. If wells W22-2-2 and W14-2B have been abandoned, proper abandonment procedures have not been followed.
2. The MRP does not contain data and arguments that support abandonment of monitoring the Star Point aquifer at wells W22-2-2 and W14-2B



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 7, 1992

Vernal Mortensen
Senior Vice President
Coastal States Energy Company
175 East 400 South
Salt Lake City, Utah 84111

Dear Mr. Mortensen:

Re: Reclamation Agreement Revision, Coastal States Energy Company, Skyline Mine, ACT/007/005, and Convulsion Canyon Mine, ACT/041/002, Folders #3, Carbon and Sevier Counties, Utah

The Division recently reviewed the permit status of the Skyline and Convulsion Canyon Mines. As a result of that review, the bond for each mine was revised. Although we have received riders from your surety company, the Reclamation Agreements have not been revised to reflect the changes. Enclosed are copies of the pertinent sections, Exhibits, A, B, and D. Please complete, sign, and return these Exhibits for each mine as soon as possible.

Thank you for the updated information. Please call if you have any questions.

Best regards,

Dianne R. Nielson
Director

vb

Enclosures

cc: K. Payne, w/o enc.
G. Zumwalt, w/o enc.
L. Braxton, w/o enc.
D. Haddock, w/o enc.

recagrmt