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Mine File
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Energy Company

October 14, 1986

Lowell P. Braxton, Administrator
Mineral Resource Development and
Reclamation Program
Division of Oil, Gas and Mining
335 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Proposed Modification of the Skyline Mining and Reclamation Plan

Dear Mr. Braxton:

The attached information is submitted in response to the second "Determination of Completeness Review", as outlined in your correspondence dated April 18, 1986.

Summary of Action to Date

- January 9, 1986. The original application for the proposed modification of the Skyline M&RP was submitted. The cover letter for this application included an indication of the urgency of obtaining approval.

- January 16, 1986. A coordination meeting was held at the DOGM offices to review the proposed action and to identify problems in meeting the required schedule. Coastal and agency personnel agreed at this time that through mutual cooperation, the approval could be obtained within the recommended timeframe. Participants at the meeting included DOGM, OSM, USFS, BLM, Utah Fuel Company, and Coastal States Energy (complete list of participants is attached).

- February 4, 1986. The applicant was sent a "Determination of Completeness" which identified three areas requiring additional information.

- March 12, 1986. The applicant responded to the February 4, 1986 correspondence with all of the available data relating to the deficient areas.

- April 18, 1986. The Division submitted a second "Determination of Completeness" identifying eight essentially new areas of incompleteness. It was at this time that the need for a "stand alone" document was first identified.

At this point it became evident that the Division did not intend to honor the schedule commitment and submittal form agreements made in the January 16, 1986 meeting. Consequently, Utah Fuel Company found it necessary to modify the mining sequence in order to meet contractual obligations. In spite of this set-back, the concept of including the extension to the north in our mining plans is still valid and needs to be pursued, albeit with less urgency.

Response to Determination of Completeness Review

Much of the information requested in the April 18, 1986 correspondence has been previously transmitted, either in the original M&RP or, perhaps more specifically, in the recently submitted M&RP renewal. The requirement to address the various issues on the permit and adjacent area has in and of itself included the extension area, since the new boundary is all located within approximately 1300 feet of the presently permitted area. Consequently, very little additional information can be presented, except to expand the surface water monitoring system to facilitate the review. However, the following references are provided as a direct response to the April 18, 1986 request.

Item 78.13 Description of Hydrology and Geology

Response Refer to Sections 2.2, Geology and Geotechnical; 2.3, Ground Water Hydrology; and 2.4, Surface Water Hydrology of the M&RP renewal. These sections reflect the latest information available on the subject (see pages 2-4 through 2-118).

Item 783.14 Geology Description

Response Refer to Section 2.1, Geology and Geotechnical of the M&RP renewal (see pages 2-4 through 2-57).

Item 783.15 Groundwater Description

Response Refer to Section 2.3, Groundwater Hydrology of the M&RP renewal (see pages 2-58 through 2-110).

Item 783.16 Surface Water Description

Response Refer to Section 2.4, Surface Water Hydrology of the M&RP renewal (see pages 2-110 through 2-118).

Item 783.17 Alternative Water Supply Information

Response Refer to Section 2.5, Hydrological Impacts of Mining Activities and Section 4.11, Protection of Hydrological Balance of the M&RP renewal (see pages 2-119 through 2-121, and 4-48 through 4-52).

Note: Plates 2.3.5.1-1 and 2.3.5.2-1 show no specific surface or groundwater rights in the expansion area. Water rights and replacements are addressed in Section 4.11.1 of the renewal document.

Item 784.14 Protection of the Hydrological Balance

Response Refer to section 4.11, Protection of Hydrological Balance of the M&RP renewal (see pages 4-48 through 4-52).

Item 784.20 Subsidence Control Plan

Response Refer to Section 4.17, Subsidence Control Plan of the M&RP renewal (see pages 4-74 through 4-81). The plan as presented in this section is the result of a coordinated effort between the U.S. Forest Service and Utah Fuel Company, and was recently approved by the Division of Oil, Gas and Mining.

Item 786.19(c) Probable Cumulative Hydrologic Impacts

Response Refer to sections 3.2, Components of Operation (specifically see subsection 3.2.5, Water Pollution Control Facilities); and 4.13, Ponds, Impoundments, Banks, Dams, and Embankments of the M&RP renewal (see pages 3-17 through 3-39, and 4-63 through 4-64). Information obtained to date indicates that mine water discharge is directly related to the number of active faces rather than to the total mined area. Consequently, a significant increase in mine water discharge is not expected unless the number of working faces is increased.

Item 817.123
- 817.126 Subsidence Control

Response See response to Item 784.20 above.

Specific Response Items

Item 1-RS Page 6, January 13, 1986 submittal. The applicant must commit to conducting all proposed new monitoring (i.e. station S11-1) according to the recently adopted water quality monitoring guidelines parepared by the Division. Additionally, the applicant must commit to a date when monitoring will commence.

Response Several years of water quality monitoring in the permit and adjacent area have shown the water quality to be rather consistent and is quite predictable, including the effect of seasonal variations. The water quality is directly related to the adjacent geologic formations which is, in turn, associated with elevation. To monitor in compliance with all of the proposed monitoring guidelines is needlessly expensive and will not produce any significant or useful new information.

The applicant, therefore, re-proposes to expand the approved monitoring plan to include one new station to be identified as Station S11-1.

The request that "the applicant must commit to conducting all proposed new monitoring . . . according to the recently adopted water quality monitoring guidelines" is unacceptable. Since the proposed guidelines have not been properly adopted, which requires acceptance by the Board, they are still subject to change. Rather than adopt a proposed program, the applicant considers it more prudent to expand an approved program. The mandate that the applicant must commit to all of the new proposed guidelines suggests an accepted status of regulation which is contrary to our understanding of the purpose of guidelines.

The applicant will commence monitoring at the first accessible season after this plan is approved.

Item 2-RS The monitoring plan for the proposed lease area must be developed more specifically. An adequate monitoring plan can only be developed following a determination of the existing geologic conditions at the site. The information requested in the Division's February 4th, 1986 letter (additionally reiterated in this document) concerning the geologic structure, strike and dip of the affected formations, and projected subsidence area must be completed and included in the rationale used to determine representative monitoring locations. The applicant must propose monitoring locations based upon this information. Following the determination of the above information, the Division will be available to assist in the selection of representative sampling points. Additionally, all sources of water with an associated water right in the area of projected subsidence must be included in the plan.

Response Based on the information provided in response to Item 1-RS, it is the applicant's opinion that the monitoring program as proposed is sufficient as a beginning. Should the sample analyses indicate unexpected problems, the data base can then be expanded to isolate and identify the relevant factors.

The relationship of the proposed monitoring point to the geologic structure is discussed in the response to Items 6-DD and 7-DD. Unfortunately, the monitoring location must, as a first consideration, be located at the best available source of supply, with the geologic considerations being secondary. Use of a secondary location, which may be more desirable geologically, usually results in a source with seasonal flow. The applicant's approach is, therefore, to find a supply with a flow sufficient to give seasonal variation and then relate the geologic conditions to this source. The proposed site S11-1 has only been tenatively located in the major spring area within the proposed extension. The applicant will contact the Division prior to identifying the specific spring source to be used to determine if the Division wishes to participate in the final selection. The applicant will

also assist the Division in obtaining additional samples from the extension area if the Division wishes to confirm the rationale of this document.

There are no specific water rights associated with sources in the expansion area.

Item 3-RS Response to DOGM comment 784.14(b)(3), March 10, 1986 submittal from Skyline. The applicant must compile and submit all data collected in the lease and adjacent areas. This should include baseline data collected for the original M&RP submittal (referencing by specific volume, page and/or plate is acceptable), and all data collected since the submittal of the original M&RP. The applicant must summarize this data, draw conclusions based upon that summary, and include a discussion addressing the requirements of UMC 783.15, 783.16, and 78.14(c).

Response Baseline data available at the time of submittal of the original M&RP may be found in Volume A-1, VHA Hydrology of that document. Data subsequently collected are submitted quarterly to the Division. The M&RP renewal contains a summary of the water quality data in Sections 2.3, Groundwater Hydrology; and 2.4, Surface Water Hydrology (see pages 2-58 through 2-118). If copies of these data are not available at the Division, additional copies will be provided upon request. Discussions of the requirements of UMC 783.15, 783.16 and 784.14(c) are referenced previously in this submittal.

Item 4-RS Response to DOGM comment 784.14(b)(2), March 10, 1986 submittal from Skyline. The applicant has not clearly answered the question. Chart 1 depicts the past correlation between the mine water produced and the production of coal in tons/month. The analysis needs to be taken a step further and the applicant must discuss what conclusions can be extrapolated from the data and how the inclusion of the new lease will affect the mine water produced (i.e., production per month versus expected mine water discharged). The sedimentation system at the minesite is currently operating near full capacity and is not designed to handle significant amounts of expected mine water.

Response In Attachment "A" to our March 12, 1986 letter, several conclusions were made. These conclusions were: (1) There is a reasonably good correlation between the amount of mine water discharged and the amount of coal mined; (2) We expect this trend to continue; (3) We have found no evidence that would indicate that our mine dewatering is affecting any surface springs, seeps or creeks; (4) The formation producing water in the mine is the Blackhawk. The Blackhawk Formation covers hundreds of square miles, and our mine is involved in a very small percentage of total formation area. The effect that we may have on the aquifer in total is probably negligible, except over a long geological period of time; (5) Migration of water through the aquifer is extremely slow to the extent that the water should be considered "perched or trapped waters"; (6) Most inflow water tends to stop within 100-200 feet

of the face. A few bolt holes have continued to flow up to 1-2 GPM for an extended period of time; (7) With the slow migration of water through this lenticular sandstone, we expect that it will be thousands of years before any change to the surface hydrology occurs, and that due to the long time period, the change will not be measurable; (8) We are enjoying a positive streamflow effect in Eccles Creek from our dewatering; and (9) Data gathered to date shows no surface effects due to underground mining and, furthermore, mine water discharge is augmenting flow to Eccles Creek, enhancing fisheries and supplementing water for downstream beneficial use. These are a few examples of conclusions made in Attachment "A".

The inclusion of the new lease is expected to only affect the amount of total water produced over time. It will not have an affect on increasing daily or monthly discharges, since the new lease does not affect daily or monthly production. The new lease affects life of mine production.

Since it is expected that the new lease will affect total life of mine production, there should be no adverse affect on the daily or monthly mine water discharge. If total mine water discharge volumes do approach total capacity of the sedimentation pond, several alternatives are available, such as (1) Increase the size of the sedimentation pond; (2) Treat the water in underground sumps and discharge it directly to Eccles Creek; (3) Investigate possibility of less than 24 hour retention, etc. To date we have always been able to adequately treat the mine discharge water and meet NPDES discharge standards.

Item 5-RS — Attachment A, March 10, 1986 submittal, paragraph 2. A copy of Ground Water in Eccles Canyon (Roy P. Full) was not included in the submittal. The Division requests that this report be submitted.

Response — A copy of the Roy P. Full correspondence is attached.

Item 6-DD — List the type of mining that will take place on the new lease and all coal seams to be mined, and the thickness of each coal seam. Provide an isopach map of the overburden and portray each geologic unit down to and including the formation below the lowest coal seam to be mined. If mining will occur in the same seams currently mined, provide specific references to where this information can be found in the approved M&RP.

Response — Mining will be conducted in the Lower O'Connor A seam as stated in our January 9, 1986 submittal (pages 4-5). That submittal also included overburden information. Attached is an overburden ispach map and a generalized stratigraphic column portraying each geologic unit.

Item 7-DD Identify all aquifers on and adjacent to the lease area and establish their association to springs and streams. Evaluate groundwater flow patterns.

Response The spring and seep map included in earlier submittals shows all streams, springs, and seeps. Their relationship to aquifers cannot be well established due to the absence of surface exposures of rock strata. The overall hydrology of this area is similar to that of our existing lease areas and is described in our current M&RP update, Volume 1, Sections 2.3 and 2.4.

Item 8-DD Determine potential subsidence impacts showing areas, structures and renewable resources in the zone of subsidence and evaluate potential effects to those features.

Response The area of subsidence is the longwall mining area (which is shown on the mining map previously submitted), plus the angle of draw. There are no structures within the potential subsidence area. The renewable resources within the potential subsidence area are seeps and springs, and native vegetation. The extent of these renewable resources were shown on: (1) The seep and spring location map; and (2) The vegetative type map, both of which were previously submitted to you.

Springs, seeps and aquifers may be affected by subsidence. We do not anticipate any adverse affect on the natural vegetation. It is difficult to predict impacts on renewable resources that are impacted by undermining. Mitigation measures will be contingent upon the findings of the approved subsidence monitoring program, which is described in detail in our M&RP renewal submittal in Volume 3, Section 4.17.5.

Sincerely,

For Glen A. Zumwalt
Vice President/General Manager

KZ:lm

Attachment

COORDINATION MEETING WITH SKYLINE, JANUARY 16, 1986

Kenneth E. May	Utah Division of Oil, Gas and Mining
Richard Holbrook	OSM (303) 844-2896
Charles M. Albrecht	OSM (303) 844-2829
Keith W. Welch	Coastal States Energy (801) 566-7111
Keith W. Zobell	Utah Fuel Company (801) 637-7925
D. Wayne Hedberg	Division of Oil, Gas and Mining
Kevin L. Yocum	Coastal States Energy Co.
William Boley	U.S. Forest Service, Price, 637-2817
Jo Ellis	U.S. Forest Service
Ira W. Hatch	U.S. Forest Service
Vernal Mortensen	Coastal States Energy Co.
Susan Linner	Division of Oil, Gas and Mining
Ron Nafen	OSM (303) 844-2850
Jack Moffett	Bureau of Land Management (524-3094)
Bill Buge'	BLM (524-3094)
Gordon Whitney	BLM (524-3107)
Janice R. Nielsen	DOGM (538-5340)

Attachment

ROY P. FULL
MINING GEOLOGIST
660 TERRACE HILLS DRIVE
SALT LAKE CITY, UTAH 84103
TELEPHONE (801) 364-7077

January 20, 1982

Mr. Loren A. Williams
Coastal States Energy Company
Nine Greenway Plaza
Houston, Texas 77046

RE: Ground water in Eccles Canyon

Dear Loren:

In accordance with our earlier discussions I have reviewed the reports relative to the water development in Eccles Canyon, and have discussed the work with Keith Welsh and Allon Owen. The report of October 1979 by Vaughn Hansen Associates reviews in considerable detail the status of water investigations in the Skyline property up to that time, but more specific information based on additional data was assembled by Coastal States Energy Company for the Office of Surface Mining under the date of February 27, 1981. The latter report more specifically addresses the problem of a potential water source within the Star Point sandstone.

It is not the intent in the following comments to review the complex ground water and aquifer conditions within the Skyline property, but to more specifically give consideration to the movement of water in the Star Point sandstone as it contributes to the wells in Eccles Canyon.

Geologic observations made at numerous points on the Skyline property and within mines in the area show quite conclusively that major movements of underground water are closely associated with faulting and the adjacent zones of fractured rock. This condition is probably most pronounced within the more competent sandstones such as the Star Point.

Monitoring during 1980 of the water level in drill holes extending from Huntington Canyon in the west to Mud Creek in Pleasant Valley on the east has given a substantial amount of data relative to the water table in the Star Point sandstone. Even though the formation in the area is dipping generally to the west at a low angle, the water gradient in the Eccles Canyon drainage suggests a normal movement of the water to the east into the Scofield drainage area.

While it is reasonable to assume that the Star Point sandstone does act as an aquifer, water well tests in Eccles Canyon have shown that the movement of water in the undisturbed sandstone is minor. The

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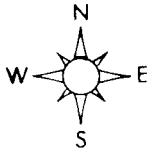
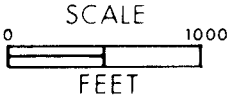
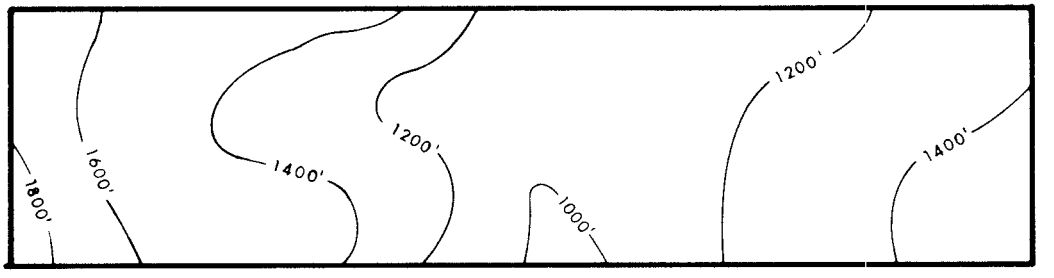
rock is sufficiently cemented to substantially reduce the lateral movement within the formation. This has been demonstrated at hole W13-1 at the Skyline surface plant site and in a recently drilled hole at the loadout site near the mouth of Eccles Canyon where essentially dry holes were drilled. Currently water is being obtained from well W13-2 near the mouth of the South Fork of Eccles Canyon where the sandstones are fractured along the Connelville fault zone. Considering all of the existing records it appears evident that the water currently being pumped in Eccles Canyon is water that would naturally contribute to the flow in Eccles Canyon under uninterrupted conditions.

Sincerely yours,

Roy P. Full



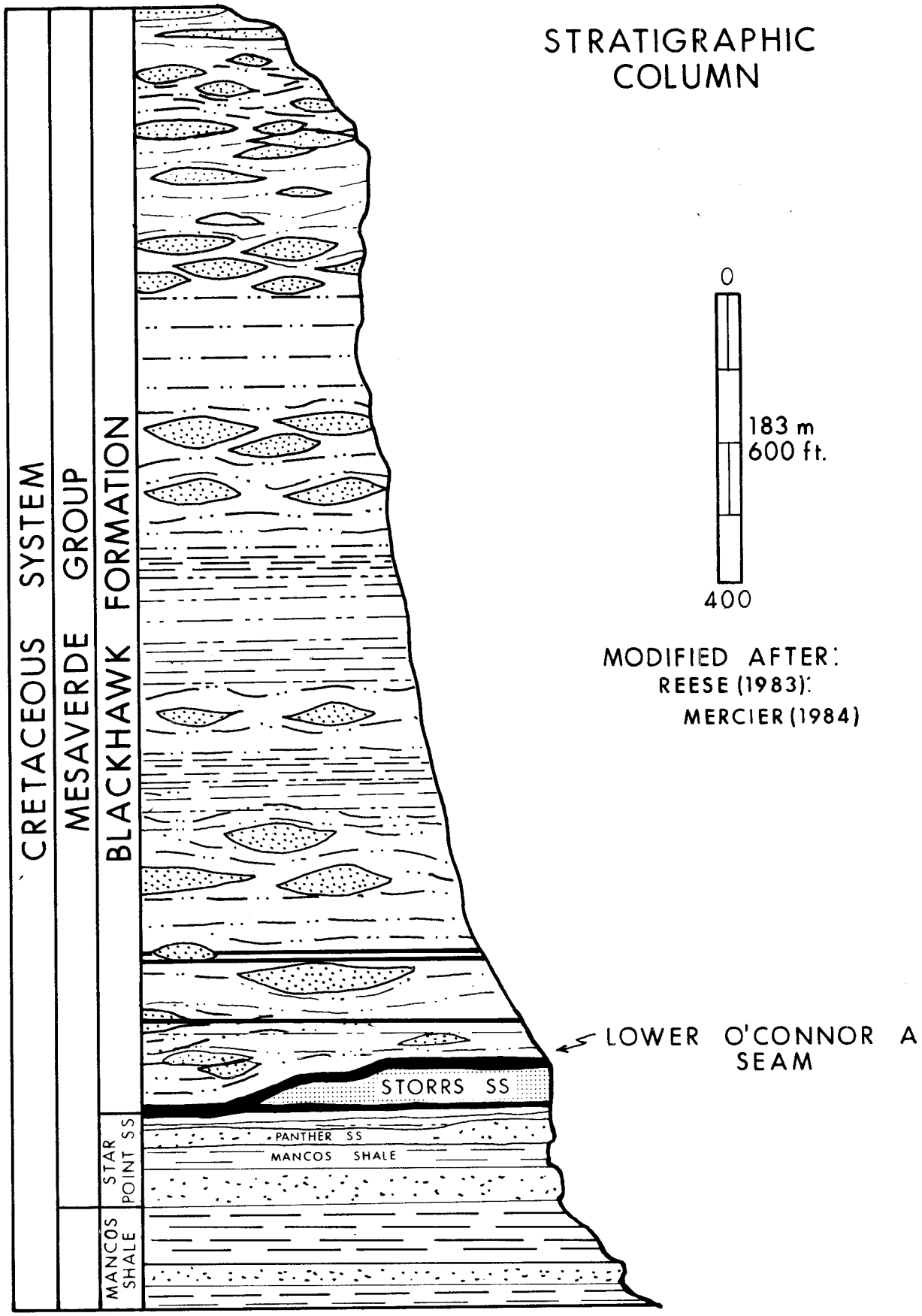




OVERBURDEN ISOPACH MAP

LOWER O'CONNOR A SEAM

SKYLINE LEASE MODIFICATION AREA


STRATIGRAPHIC COLUMN
0
183 m
600 ft.
400
MODIFIED AFTER:
REESE (1983);
MERCIER (1984)
CRETACEOUS SYSTEM
MESAVERDE GROUP
BLACKHAWK FORMATION
STAR POINT SS
MANCOS SHALE
LOWER O'CONNOR A SEAM
STORRS SS
PANTHER SS
MANCOS SHALE