0023

ENGINEERS & CONTRACTORS

ROBERTS & SCHAEFER Company ... CHICAGO

Rt to Tan
Our Copy.

WESTERN OFFICE:
140 WEST 2100 SOUTH
SALT LAKE CITY, UTAH 84115
(801) 487-7825

ACT/015/018

April 12, 1979

Mr. Karl D. Gurr
Utah Power & Light Company
Mining & Exploration Dept.
P.O. Box 899
Salt Lake City, Utah 84110

Dear Mr. Gurr:

We are transmitting to you eight copies of the Engineer's Report of the hydrologic and hydraulic design of the sedimentation ponds at the Wilberg Mine which was revised April 10, 1979. Original copies of the report were first transmitted to you March 7,1979. We are also transmitting eight prints and one sepia of the Project Map and the Disturbed Area Collection System drawings listed in Appendix G of the report.

The revisions made to the report and the drawings were requested by Mr. Don Dewey of UP&L at meetings held in our office on April 2nd and April 6, 1979. Copies of the minutes of these meetings have been enclosed for your reference.

If you have any further questions or comments, don't hesitate to call.

Yours very truly,
ROBERTS & SCHAEFER COMPANY

Samuel Musser

Samuel Musser

SM/dmb
7704
cc: D. Dewey w/meeting notes
J. Thomas w/meeting notes
D. Jense w/meeting notes

RECEIVED
APR 1979
STATE OF UTAH
Division of Oil, Gas & Mining

RECEIVED
APR 18 1979
MINING AND EXPLORATION

FORM 102

ROBERTS & SCHAEFER Company

ENGINEERS AND BUILDERS

INTER-OFFICE MEMORANDUM

TO

Bernie Bernstrom

DATE

April 11, 1979

Ref: Notes of meeting (April 6, 1979) with UP&L for final review of the drainage plan discussed in the April 2, 1979 meeting. Also discussed slope stability and drop inlet structure in the right fork.

Attendees:

Don Dewey	Utah Power & Light Company
Jack Thomas	Utah Power & Light Company
Bernie Bernstrom	Roberts & Schaefer Company
Vivian Butt	Roberts & Schaefer Company
Samuel Musser	Roberts & Schaefer Company

Revised modified drainage plans were presented as red markings on prints of the design drawings. A summary of the changes are as follows:

a. Upper storage yard - drainage already installed, no revisions.

b. Upper parking lot - slot drains and ditch eliminated. Surface sloped 2% to the east instead of south. Upper storage yard drainage discharges onto surface of upper parking lot. Run-off enters catch basin at southeast corner.

c. Lower parking lot - slot drains eliminated. Bladed ditch around perimeter catches undisturbed runoff and conveys it to 72" bypass culvert. Parking surface sloped 0.5% to center and 2% along the center to the entrance of the lot. Disturbed runoff enters catch basin at this point and is directed to sedimentation ponds.

RECEIVED APR 13 1979 STATE OF UTAH Division of Oil, Gas & Mining

RECEIVED APR 1979 STATE OF UTAH Division of Oil, Gas & Mining

d. Lower service yards - ditches eiliminated along top of slopes. Surfaces ~~regarded~~ regraded to direct runoff to catch points so that a minimum of runoff would flow down side slopes. Piping system remains intact.

e. Service road - asphalt berm separating disturbed road runoff and undisturbed side hill runoff eliminated. Instead entire transverse road section sloped 2% away from undisturbed ditch. Runoff from road permitted to run down disturbed side slopes except where accumulations could occur. Here catch basins would be provided and the runoff would be piped to sedimentation ponds.

It was pointed out, by R & S, that the ditches carrying undisturbed water along the service road west of the upper parking lot and east of the service yards as well as the ditch carrying disturbed water in the silo service yard should be lined where their excavation was not in rock. This is required because velocities in these ditches exceeds recommended values for earth lined ditches. This is the case for the 10-year as well as the 50-year storm. It was R & S's opinion that the State would require at least the undisturbed ditches to be lined. Jack Thomas argued for not lining any ditches because of the difficulty in cleaning them and his experience of lining disintegrating. He said, don't show a lining. Let the State tell us we need one. Don Dewey agreed.

R & S proposed using precast concrete parking chucks around the perimiter of the lower parking lot to keep vehicles out of the undisturbed ditch. We suggested the State might require some similar measure. UP&L said to not show them on the drawings until the State required them.

In other matters UP&L said they wanted minimum 6" asphalt surface everywhere including the service yard ramp and the service road because their front end loader would punch through anything thinner. Also, the truck turn-around ramp was to be widened as much as possible to the north to allow for more clearance for the haul trucks. The service road at the entrance of the upper parking lot was also to be flattened to about 6% providing a more gradual transition into the lot. This was to be done by steepening the slope above and below the lot entrance.

Next the information obtained from Dames and Moore concerning the right fork water problems were discussed. It was noted that Dames & Moore had determined that 1 : 1 cut slope was unstable and would continue to be regardless of what was done with the drop-inlet structure. When it is saturated the slope has a tendency to shift to a 1½ : 1 slope.

RECEIVED
APR 13 1979
STATE OF UTAH
Division of Oil, Gas & Mining

It was Dames and Moore's opinion that this slope could be adequately stabilized by providing a fill material sloped at $1\frac{1}{2}$: 1 along the toe of the existing cut. The recommended gradation and configuration would be available Monday.

The inlet structure could prove unstable for two reasons (1) fill material around the pipe and under the foundations could be lost due to migration of fine material into larger rock voids and cause the structure to settle (the chance of this, however, has been minimized by the placement of the clay liner in the channel leading to the inlet structure and the fact that the 72" culvert pipe rests within 6" of rock below the inlet), and (2) the slope of the material from the top of the inlet structure to the toe of the cut in the parking lot is unstable. Earth material could slide away from the wall of the inlet structure. The wall would then have lost its support against hydrostactic pressure. If the wall cannot stand the loss of this material from behind, the entire slope should be revised to $1\frac{1}{2}$: 1.

We told UP&L that we were checking on the capacity of the wall without the material behind it. After some discussion UP&L decided to implement the recommendation to install the fill around the toe of the cut slope. The possibility of any liability to UP&L arising out of the inlet structure in its present condition seemed remote to Don Dewey and he said not to do anything further with that at the present time.

Samuel Musser

SM/dmb
7704

RECEIVED
APR 13 1979
STATE OF UTAH
Division of Oil, Gas
& Mining

FORM 102

ROBERTS & SCHAEFER Company

ENGINEERS AND BUILDERS

INTER-OFFICE MEMORANDUM

TO DATE

April 10, 1979

To: B. Bernstrom

Subject: Meeting Notes. UP&L on subject of Modified Drainage Plan at the Wilberg Mine. (The Drainage Plan & Report was submitted to UP&L on March 7, 1979.

Date: April 2, 1979

Attendees:	Don Dewey	Utah Power & Light Co.
	Jack Thomas	Utah Power & Light Co.
	Bernie Bernstrom	Roberts & Schaefer
	Vivian Butt	Roberts & Schaefer
	Samuel Musser	Roberts & Schaefer

Don Dewey wanted us to review with him the disturbed area storm water collection system. He felt that our design was in excess of the minimum requirements the State would impose. He wanted us to find ways to cut costs back so that there would be no more expense than was originally awarded to W.W. Clyde. He felt the drainage method to use was to let runoff flow over the surface and down the slopes under the action of gravity until it reached the sedimentation ponds. In this way we could eliminate most, if not all, piping and ditches.

R & S pointed out that the design storm would produce 25-30 cfs in the upper reaches of the drainage area which would cause substantial erosive damage if allowed to flow overland, down the sideslopes to the ponds. We also pointed out that, while this runoff could flow over paved areas such as parking lots without damage, it could cause inconvenience and maintenance problems both during and after storms and a lot of silt could be left on the parking areas.

RECEIVED APR 4 1979 STATE OF UTAH Division of Oil, Gas & Mining

Don Dewey said he could see two major areas of concern: (1) that the drainage plan be approved by the State, and (2) that no major catastrophes occur during the design storm. He said beyond that we could use the paved roads and parking areas for overland flow channels and not be concerned with the inconvenience caused by water and sediment accumulations. Jack Thomas pointed out that these areas would be easier to keep clean than the ditches that would have to be cleaned out by hand.

Don Dewey asked if these proposed changes would be approved by the State. We answered that we did not know if the specific changes he was proposing would be approved by the State and the Forest Service or not. The plan we had prepared was approved by the State before final design.

The question came up why some ditches had to be lined. We answered that where velocities in earth ditches exceeded 5 fps, erosion in earth ditches would occur. O.S.M. regulations required erosion protection.

Roberts & Schaefer suggested that we mark-up drawings of the proposed changes for UP&L. to review and approve before final changes are made on the drawings.

SM/dmb
7704

Samuel Musser