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FILE ACT/015/025, #2

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ENGINEERS
GEOLOGISTS

Spoke with Mel Coonrod 1/9/85 about this. He said Co-Op will be sending the "list" of this + map in as an official MRP submittal. I advised him to hold off until after he received DOGM's forthcoming tech. deficiency letter

MB 1/9/85

January 3, 1985

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DIVISION OF
OIL, GAS & MINING

Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple, Suite 350
Triad #3
Salt Lake City, Utah 84180-1203

Attention: Mary Boucek

SUBJECT: Interim Report on the Ground Water Hydrology Study for the Co-op Mine, Bear Creek Permit Area, Emery County, Utah.

Gentlemen:

The following interim report is presented for the purpose of summarizing the present status of the ground water study program outlined in our correspondence to your office, concerning Chapter 7 requirements and dated September 11, 1984 and October 25, 1984.

The following outline addresses UMC Section 783.15 and UMC Section 817.13. Following our discussion of the requirements of each of these paragraphs we include a brief outline of our future scope of work based on the results of our information gathered to date.

UMC 783.15

a.1 Ground water, perched or static, has not been encountered by our subsurface investigations to date. Two additional exploratory holes, WM-A and WM-B, have been drilled subsequent to those included with the October 25, correspondence. These holes have been drilled at the locations indicated in our most recent correspondence to you on this subject dated October 29, 1984. Neither of these exploratory holes encountered water.

a.2 These cannot be assessed to date for reasons given in paragraph a.1 above.

a.3 This item cannot be assesed at this time for reasons given in paragraph a.1 above.

a.4 To date 6 water samples have been analyzed for 13 parameters each for the purpose of obtaining water quality base-line data and for correlation purposes. Three have been obtained from subsurface sources (roof seeps and sumps) within the Bear Creek Mine and three have been obtained from

sources outside the mine and within the permit area. No water samples have been obtained from any of the nine drill holes drilled to date.

b. This paragraph cannot be addressed at this time due to the lack of encounter of ground water to date.

Section UMC 817.13

Exploration holes drilled for the intent of determining the ground water occurrences for the purpose of this study which encounter ground water shall be cased with two-inch diameter PVC pipe, slotted at the appropriate depth(s) and backfilled within the annular space with free-draining sand or gravel backfill to no more than three feet from the ground surface. The top three feet will have the annular space filled with cement grout to affect a permanent water-tight seal at the ground surface. The PVC casing will be fitted with a threaded coupling at its top, which will be glued on. The threaded coupling will allow use of a threaded cap for protection from surface contamination, between sampling intervals, of the ground water encountered. Drill holes treated as per the preceeding will be regarded as temporary ground water monitoring wells. On completion of their use for this purpose, the protruding PVC will be cut off flush with the ground surface and the inside of the casing backfilled with sand or gravel backfill up to three feet from the surface. The top three feet of the PVC will then be filled with cement grout to affect a permanent seal.

Ground water monitoring holes inclined above horizontal will be cased with slotted PVC at a diameter as near to the drill-hole size as feasible since granular backfill cannot be placed. Surface sealing of the annular space between the PVC and the drill-hole wall will be with a fast setting cement grout or resin to hold the PVC casing in place and to effect a surface water seal if required by site conditions.

SUMMARY OF INVESTIGATIONS COMPLETED AND MODIFICATIONS TO ORIGINAL PROPOSED SCOPE OF WORK:

Our initial hypothesis stated that: the ground water regime in the permit area is predominantly fault controlled and that the ground water table and/or major aquifers lie appreciably below or outside areas affected or which will be affected by present or future, planned mining activities.

The results of the exploratory drilling to date have substantiated this hypothesis to a limited extent. However, additional data is needed. Three drill holes are currently planned at locations shown on the attached map of the site. Two of these, WM-C and WM-D, represent relocations of these two sites originally located on our previous correspondence to your office dated October 29, 1984. The third, to be referred to as WM-E, will be located at the portal area of the Bear Creek Mine. We expect the total lineal footage of these three drill-holes, combined, to be in the area of 400-500 feet. Co-op is currently negotiating with several local drilling companies for

drilling of these holes. Additional holes will not be added until the results of these test holes are analyzed.

Additional sampling and water quality analyses of roof-seeps within the mine is planned, particularly the fault area, located several hundred feet within the portal area.

A series of excavations or shallow holes are also intended to be located in several locations of concentrated overhead roof-seeps and in several of the permanently dry roof areas of the Bear Creek Mine to determine the site specific lithologies and their possible effect on these roof seepage conditions.

Radioactive isotype analyses of water obtained from several roof-seep areas are also being considered to determine the approximate duration of the underground containment of the ground water which is currently emerging as roof-seepage.

Enclosed also are seven copies of the revised geologic map of the Bear Creek permit area, labeled as Plate 3.4-1.

Please contact us if there are any questions or comments concerning the above.

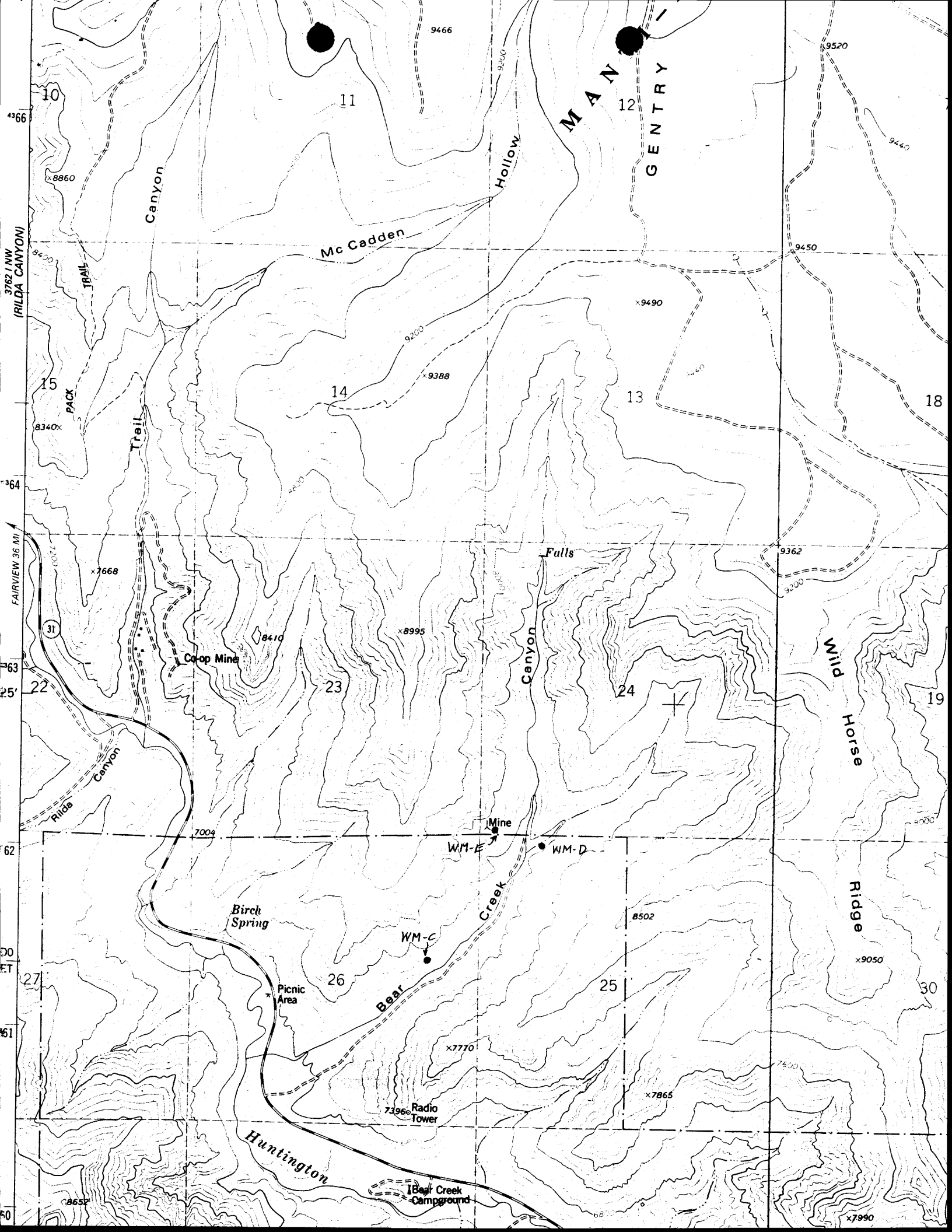
Sincerely Yours,

R&M CONSULTANTS, INC.

Lamonte Sorenson
Senior Engineering Geologist

LS/ljp

Att.



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