



CHILTON Engineering and Surveying Ltd.

24 August 1988

Mr. Tom Gallagher
Nevada Department of Water Resources
201 S. Fall Street
Carson City, Nevada 89710

Subject: Abandonment Documentation
Observation Well 2
FMG Jerritt Canyon Project

Dear Mr. Gallagher:

Enclosed please find our abandonment report on Jerritt Canyon's Observation Well #2. I think you will find this to have been carried out in full compliance with your department's requirements.

If you have any questions, please feel free to contact me.

Sincerely,

CHILTON ENGINEERING & SURVEYING


Greg Frank

GF/emw

Enclosure

ABANDONMENT REPORT

Well: Observation Well 2

Location: Freeport-McMoRan Gold Company
Jerritt Canyon Millsite
Mountain City Star Route
Elko, Nevada 89801

Site: SW/NW/NE Sec. 33 T41N, R54E
Elko County, Nevada

Drill Hole: 1260' T.D.
Drilled by Elsing Drilling, August, 1980
SWL = 100' +
See attached geologic summary.
Bentonite, water drilling fluid.

Well Casing: +2' to 100' depth: 4" T&C Galvanized blank casing.
100' to 1255' depth: 4" mill slotted T&C Galvanized; 1/8" slots.
Sanitary seal: 0-100' depth, cement grout.
Gravel Pack: 3/8" minus

Reason For Abandonment: The observation well was not proximal to an existing water well, and was not being used. This area was being covered by an embankment that was part of the Jerritt tailings pond expansion project.

Abandonment Date: 8-19, 8-20-88

Supervised By: Gregory B. Frank, Engineering Geologist, Kennedy/Jenks/Chilton Engineering.
Dale C. Veden, Hackworth Drilling Company, Elko, Nevada.
Contractor No. 020582
Well Drilling Lisc. No. 1166

Procedure: Injection of cement grout from bottom of well upwards via tremie pipe and Maaco grout pump. A crane was utilized to support the 2" tremie pipe.

Grout Mix: Sand-cement mix. (9-sack cement/cu.yd.).
5 cement truck trips between 08:30 and 17:30; average 2+ cu. yd. per trip.
Approximately 8.5 cu.yd. grout injected for abandonment.
Nominal well volume = 4 cu. yd.
Grout settled approximately 4' overnight and was topped off again on 8-21-88.
Final grouting filled casing to ground-surface level. Casing top cut-off.

Authority: NRS 534.110 Part 14 pursuant to discussions between FMG representatives and Mr. Tom Gallagher of the Nevada Department of Water Resources.

GEOLOGIC LOG(1)
OBSERVATION WELL 2

<u>DEPTH BELOW SURFACE</u>	<u>LITHOLOGY</u>	<u>REMARKS</u>
0-71	Medium brown silty SAND, little fine gravel, trace clay.	Boring advanced by Ingersoll-Rand Drillmaster using a 7-7/8-inch tricone button bed; air and foam to 230 feet, bentonite from 230 to 1260 feet.
71-80	Medium brown SAND, some silt, little gravel, trace clay.	
80-95	Medium brown sandy SILT, little clay, trace gravel.	
95-110	Medium brown SAND, little silt and gravel, trace clay.	
110-127	Medium brown SILT, some sand, little clay.	Water production 10± gpm.
127-192	Medium brown SAND, little silt and gravel, trace clay.	
192-235	Medium brown silty SAND, little clay, trace gravel.	Caving problems.
235-241	Medium brown sandy GRAVEL, little silt.	
241-279	Medium brown silty SAND, little clay, trace gravel.	
279-285	Medium brown sandy GRAVEL, little silt.	
285-325	Medium brown clayey SILT, little sand, trace gravel.	
325-343	Medium brown sandy GRAVEL, little silt.	
343-381	Medium brown silty SAND, little clay, trace gravel.	
381-386	Medium brown sandy GRAVEL, little silt.	
386-463	Medium brown sandy SILT, little clay, trace gravel.	

GEOLOGIC LOG(1)
OBSERVATION WELL 2
(continued)

<u>DEPTH BELOW SURFACE</u>	<u>LITHOLOGY</u>	<u>REMARKS</u>
463-473	Medium brown sandy GRAVEL, little silt.	
473-509	Medium brown clayey SILT, little sand.	
509-587	Interbedded clayey SILT and sandy GRAVEL.	
587-611	Medium brown clayey SILT, little sand.	
611-654	Medium brown gravelly SAND, little silt, trace clay.	
654-677	Medium brown clayey SILT, little sand.	
677-935	Interlayered sandy GRAVEL and silty SAND, little clay, with cobbles.	
935-954	Medium brown silty CLAY, little sand, trace gravel.	
954-1029	Interlayered sandy GRAVEL and silty SAND, little clay, with cobbles.	
1029-1053	Medium brown silty CLAY, little sand.	
1053-1064	Medium brown gravelly SAND, little silt.	
1064-1145	Medium brown clayey SILT, little sand, trace gravel.	
1145-1180	Medium brown sand, some silt, little gravel, trace clay.	
1180-1239	Medium brown silty CLAY, little sand.	

GEOLOGIC LOG (1)
OBSERVATION WELL 2
(continued)

<u>DEPTH BELOW SURFACE</u>	<u>LITHOLOGY</u>	<u>REMARKS</u>
1239-1250	Interbedded sandy GRAVEL and silty SAND, little clay, with cobbles and boulders.	
1250-1260	BEDROCK, quartzite.	Not supported by geophysical log, probably sandy GRAVEL, with cobbles and boulders. JWP&A, 1983.

1) Log modified from JWP&A, 1982A.