



State of Utah

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Governor

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Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

FILE COPY

DWQ-2019-001123 BLJ

February 6, 2019

Mr. Kevin Hamatake
Barrick Resources (USA) Inc.
310 South Main St., Suite 1150
Salt Lake City, UT 84101

Subject: Issuance of Ground Water Discharge Permit UGW450002
Mercur Mine Reclamation Project
Tooele County, Utah

Dear Mr. Hamatake:

The 30-day Public Comment period closed on January 7, 2019 for the issuance of Ground Water Discharge Permit UGW450002 for the Mercur Mine Reclamation Project, and no public comments were received. The final Ground Water Discharge Permit and Statement of Basis are enclosed. An invoice is also enclosed for \$2,000 based on the legislative mandated rate of \$100/hr. for 20 hours of staff time preparing the permit.

If you have any questions or comments about the permit, please contact Wynn John at wjohn@utah.gov or (801) 536-4355.

Sincerely,

Erica Brown Gaddis, PhD
Director

EBG/DJH/WWJ/blj

Cc: Bryan Slade, Tooele County Health Department, via e-mail

Enclosures (3): 1. UGW450002 Permit 2019 (DWQ-2019-001124)
2. UGW450002 SOB 2019 (DWQ-2019-001125)
3. Invoice

DWQ-2019-001123

STATE OF UTAH
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY
P.O. BOX 144870
SALT LAKE CITY, UTAH 84114-4870

**Ground Water Discharge
Permit
Permit No.
UGW450002**

In compliance with the provision of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated (UCA) 1953, the Act, as amended,

**Barrick Resources (USA) Inc.
Mercur Mine Reclamation Project
310 South Main Street, Suite 1150
Salt Lake City, Utah 84101**

is granted a Ground Water Discharge Permit for the Mercur Mine Reclamation Project located at latitude 40° 20' 00" North, longitude 112° 12' 30" West in accordance with conditions set forth herein.

This renewed Ground Water Discharge Permit amends and supersedes all other Ground Water Discharge permits issued previously for this facility.

Specifically, this Ground Water Quality Discharge Permit incorporates all provisions of UGW450001 and references Stipulation and Consent Order GW-90-030A.

This permit renewal shall become effective on February 15, 2019.

This permit and the authorization to operate shall expire on February 14, 2024.



Erica Brown Gaddis, PhD
Director
Utah Division of Water Quality

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I. SPECIFIC CONDITIONS

A. Ground Water Classification

Based on ground water data submitted by the Permittee, ground water at the Mercur site is generally defined as Class II Drinking Water Quality with the exception of the aquifers near monitoring wells MW-9 at Valley Fill Leach Area 2 (VFL2) and MW-17 at the tailings impoundment that are defined as Class 1A Pristine Ground Water.

B. Background Ground Water Quality

Background for Monitoring Wells – Based on the chemical characteristics of samples taken from monitoring wells MW-1, MW-2, MW-9, MW-10, MW-11, MW-13, MW-15, MW-16, MW-17, MW-18 and MW-19, background ground water quality is defined in Table 1.

C. Ground Water Protection Levels

1. Protection Levels for Existing Wells – Ground water quality at monitoring wells MW-1, MW-2, MW-9, MW-10, MW-11, MW-13, MW-15, MW-16, MW-17, MW-18 and MW-19 shall not exceed the ground water protection levels defined in Table 1.
2. Compliance Determination Method – Compliance with ground water protection levels shall be evaluated in eleven compliance monitoring wells. If future monitoring data indicate an exceedance of protection levels, compliance status will be determined in accordance with Utah Administrative Code (UAC) R317-6-6.16 including, if necessary, reference to methods described in the EPA Guidance documents entitled “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance”, dated March 2009 (EPA 530-R-09-007). Subsequent updates of this document shall be utilized as available and appropriate.

D. Valley Fill Leach Area No. 3 (VFL3) Post-Closure Requirements

1. No Discharge Technology – the Valley Fill Leach Area No. 3 facility, as constructed, incorporates no-discharge technology through the use of a composite liner consisting of a synthetic flexible membrane/clay/synthetic flexible membrane liner system. The reclamation cover design meets best available technology (BAT). Barrick will monitor the head of the neutralized wastewater through the term of the permit.
2. Spill Containment – Barrick shall design, maintain and construct all pipelines from the Valley Fill Leach Area 3 facility that shall:

TABLE 1
Ground Water Background Concentrations and Protection Levels for Wells MW-1, MW-2, and MW-9

Parameter	Method Detection Limit (mg/L)	Ground Water Quality Standard (mg/L)	MW-1		Protection Level (mg/L)	MW-2		Protection Level (mg/L)	MW-9		Protection Level (mg/L)
			Background Level (mg/L)			Background Level (mg/L)			Background Level (mg/L)		
			Mean	stddev	Mean	stddev	Mean	stddev	Mean	stddev	
pH (units)	n/a	6.5-8.5	8.08	n/a	6.5-8.5	7.98	n/a	6.5-8.5	7.40	n/a	6.5-8.5
Arsenic	0.01	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.005 ^b
Barium	0.01	2.0	0.064	0.039	0.5 ^b	0.037	0.047	0.5 ^b	0.016	0.011	0.5 ^b
Cadmium	0.002	0.005	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c
Chromium	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01 ^b
Copper	0.01	1.3	0.041	n/a	0.33 ^b	0.041	n/a	0.33 ^b	ND	n/a	0.13 ^b
Lead	0.005	0.015	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c
Mercury	0.0002	0.002	ND	n/a	0.0005 ^b	ND	n/a	0.0005 ^b	ND	n/a	0.0002 ^c
Nickel	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01
Selenium	0.002	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.005
Silver	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01
Thallium	0.001	0.002	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c
Zinc	0.01	5.0	0.051	n/a	1.25 ^b	0.031	n/a	1.25 ^b	0.020	n/a	0.5 ^b
Cyanide-free	0.002	0.2	ND	n/a	0.05 ^b	ND	n/a	0.05 ^b	ND	n/a	0.02 ^b
Fluoride	0.1	4.0	1.94	0.15	2.43 ^a	0.96	0.11	1.20 ^a	0.71	0.06	1.0 ^b
Nitrate-N	0.02	10.0	0.049	0.128	2.5 ^b	0.055	0.195	2.5 ^b	0.15	n/a	1.0 ^b
Nitrite-N	0.005	1.0	0.011	n/a	0.25 ^b	0.012	n/a	0.25 ^b	0.006	n/a	0.1 ^b
Sulfate	5.0	n/a	60.5	42.7	Monitoring only	199.2	22.4	Monitoring only	87	22	Monitoring only
TDS	5.0	3000	516	19	645 ^a	905	108	1131 ^a	469	54	586 ^a

- a. Protection Level based on 1.X times the mean background concentration, where X = 0.25.
- b. Protection Level based on 0.X times the Ground Water Quality Standard, where X = 0.25 except for MW-9 and MW-17 where X = 0.10 if non-detects predominant in background.
- c. Protection Level was set at the method detection limit.
- d. Protection Level based on the mean plus 2 standard deviations.
- n/a Not applicable because the background data set was greater than 50% non-detect; therefore standard deviation not applicable.
- ND Non-detect; analytical result below the method detection limit.
- stddev Standard deviation

TABLE 1 (cont)
Ground Water Background Concentrations and Protection Levels for Wells MW-10, MW-11, and MW-13

Parameter	Method Detection Limit (mg/L)	Ground Water Quality Standard (mg/L)	MW-10			MW-11			MW-13		
			Background Level (mg/L)		Protection Level (mg/L)	Background Level (mg/L)		Protection Level (mg/L)	Background Level (mg/L)		Protection Level (mg/L)
			Mean	stddev		Mean	stddev		Mean	stddev	
pH (units)	n/a	6.5-8.5	7.55	n/a	6.5-8.5	7.83	n/a	6.5-8.5	7.45	n/a	6.5-8.5
Arsenic	01	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b
Barium	0.01	2.0	0.041	0.037	0.5 ^b	0.041	0.037	0.5 ^b	0.076	0.032	0.5 ^b
Cadmium	0.002	0.005	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c
Chromium	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b
Copper	0.01	1.3	0.0441	n/a	0.325 ^b	0.032	n/a	0.325 ^b	ND	n/a	0.325 ^b
Lead	0.005	0.015	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c
Mercury	0.0002	0.002	ND	n/a	0.0005 ^b	ND	n/a	0.0005 ^b	ND	n/a	0.0005 ^b
Nickel	0.01	0.1	0.026	0.025	0.076 ^d	0.011	0.021	0.053 ^{d a}	ND	n/a	0.025 ^b
Selenium	0.002	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b
Silver	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b
Thallium	0.001	0.002	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c
Zinc	0.01	5.0	0.118	0.045	1.25 ^b	0.039	0.030	1.25 ^b	0.025	n/a	1.25 ^b
Cyanide-free	0.002	0.2	ND	n/a	0.05 ^b	ND	n/a	0.05 ^b	ND	n/a	0.05 ^b
Fluoride	0.1	4.0	0.787	0.167	1.12 ^d	0.671	0.076	1.0 ^b	0.500	0.089	1.0 ^b
Nitrate-N	0.02	10.0	0.074	0.114	2.5 ^b	0.952	0.535n/a	2.5 ^b	0.197	n/a	2.5 ^b
Nitrite-N	0.005	1.0	0.009	0.005	0.25 ^b	0.012	0.007	0.25 ^b	0.007	0.005	0.25 ^b
Sulfate	5.0	n/a	339	50	Monitoring only	126	39	Monitoring only	308	28	Monitoring only
TDS	5.0	3000	1106	76	1383 ^a	618	37	773 ^a	2124	220	2655 ^{d*}

- a Protection Level based on 1.X times the mean background concentration, where X = 0.25.
- b Protection Level based on 0.X times the Ground Water Quality Standard, where X = 0.25 except for MW-9 and MW-17 where X = 0.10 if non-detects predominant in background.
- c Protection Level was set at the method detection limit.
- d Protection Level based on the mean plus 2 standard deviations.
- n/a Not applicable because the background data set was greater than 50% ND; therefore standard deviation not applicable.
- ND Non-detect; analytical result below the method detection limit.
- stddev Standard deviation

TABLE 1 (cont)
Ground Water Background Concentrations and Protection Levels for Wells MW-15, MW-16, and MW-17

Parameter	Method Detection Limit (mg/L)	Ground Water Quality Standard (mg/L)	MW-15			MW-16			MW-17		
			Background Level (mg/L)		Protection Level (mg/L)	Background Level (mg/L)		Protection Level (mg/L)	Background Level (mg/L)		Protection Level (mg/L)
			Mean	stddev		Mean	stddev		Mean	stddev	
pH (units)	n/a	6.5-8.5	7.70	n/a	6.5-8.5	7.44	n/a	6.5-8.5	7.82	n/a	6.5-8.5
Arsenic	0.01	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.01 ^c
Barium	0.01	2.0	0.070	0.019	0.5 ^b	0.053	0.007	0.5 ^b	0.038	0.046	0.5 ^b
Cadmium	0.002	0.005	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c
Chromium	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01 ^b
Copper	0.01	1.3	ND	n/a	0.33 ^b	ND	n/a	0.33 ^b	ND	n/a	0.13 ^b
Lead	0.005	0.015	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c
Mercury	0.0002	0.002	ND	n/a	0.0005 ^b	ND	n/a	0.0005 ^b	ND	n/a	0.0002 ^c
Nickel	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01 ^{bc}
Selenium	0.002	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b	ND	n/a	0.005 ^b
Silver	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b	ND	n/a	0.01 ^{bc}
Thallium	0.001	0.002	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c	ND	n/a	0.001 ^c
Zinc	0.01	5.0	0.019	n/a	1.25 ^b	0.024	n/a	1.25 ^b	0.078	n/a	0.5 ^b
Cyanide-free	0.002	0.2	ND	n/a	0.05 ^b	ND	n/a	0.05 ^b	ND	n/a	0.02 ^b
Fluoride	0.1	4.0	0.31	0.07	1.0 ^b	0.26	0.08	1.0 ^b	0.15	0.02	0.10 ^b
Nitrate-N	0.02	10.0	0.110	0.223	2.5 ^b	1.11	0.46	2.5 ^b	0.47	0.33	2.5 ^b
Nitrite-N	0.005	1.0	0.009	0.006	0.25 ^b	0.011	0.005	0.25 ^b	0.007	n/a	0.1 ^b
Sulfate	5.0	n/a	235	22	Monitoring only	306	28	Monitoring only	34	11	Monitoring only
TDS	5.0	3000	995	54	1244 ^a	883	62	1104 ^a	345	30	431 ^a

- a Protection Level based on 1.X times the mean background concentration, where X = 0.25.
- b Protection Level based on 0.X times the Ground Water Quality Standard, where X = 0.25 except for MW-9 and MW-17 where X = 0.10 if non-detects predominant in background.
- c Protection Level was set at the method detection limit.
- d Protection Level based on the mean plus 2 standard deviations.
- n/a Not applicable because the background data set was greater than 50% non-detect; therefore standard deviation not applicable.
- ND Non-detect; analytical result below the method detection limit.
- stddev Standard deviation

TABLE 1 (cont)
Ground Water Background Concentrations and Protection Levels for Wells MW-18 and MW-19

Parameter	Method Detection Limit (mg/L)	Ground Water Quality Standard (mg/L)	MW-18		MW-19			
			Background Level (mg/L)		Protection Level (mg/L)	Background Level (mg/L)		Protection Level (mg/L)
			Mean	stddev		Mean	stddev	
pH (units)	n/a	6.5-8.5	7.37	n/a	6.5-8.5	7.42	n/a	6.5-8.5
Arsenic	0.01	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b
Barium	0.01	2.0	0.066	0.058	0.5 ^b	0.027	0.011	0.5 ^b
Cadmium	0.002	0.005	ND	n/a	0.002 ^c	ND	n/a	0.002 ^c
Chromium	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b
Copper	0.01	1.3	ND	n/a	0.33 ^b	ND	n/a	0.325 ^b
Lead	0.005	0.015	ND	n/a	0.005 ^c	ND	n/a	0.005 ^c
Mercury	0.0002	0.002	ND	n/a	0.0005 ^b	ND	n/a	0.0005 ^b
Nickel	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b
Selenium	0.002	0.05	ND	n/a	0.013 ^b	ND	n/a	0.013 ^b
Silver	0.01	0.1	ND	n/a	0.025 ^b	ND	n/a	0.025 ^b
Thallium	0.001	0.002	<0.01	n/a	0.001 ^b	ND	n/a	0.001 ^c
Zinc	0.01	5.0	0.058	n/a	1.25 ^b	0.013	0.024	1.25 ^b
Cyanide-free	0.002	0.2	ND	n/a	0.05 ^b	ND	n/a	0.05 ^b
Fluoride	0.1	4.0	0.17	0.07	1.0 ^b	1.10	0.03	1.38 ^a
Nitrate-N	0.02	10.0	0.52	0.19	2.5 ^b	0.034	0.047	2.5 ^b
Nitrite-N	0.005	1.0	0.006	n/a	0.25 ^b	0.006	n/a	0.25 ^b
Sulfate	5.0	n/a	183	13	Monitoring only	276	10	Monitoring only
TDS	5.0	3000	654	78	818 ^a	901	50	1128 ^a

- a Protection Level based on 1.X times the mean background concentration, where X = 0.25.
- b Protection Level based on 0.X times the Ground Water Quality Standard, where X = 0.25 except for MW-9 and MW-17 where X = 0.10 if non-detects predominant in background.
- c Protection Level was set at the method detection limit.
- d Protection Level based on the mean plus 2 standard deviations.
- n/a Not applicable because the background data set was greater than 50% non-detect; therefore standard deviation not applicable.
- ND Non-detect; analytical result below the method detection limit.
- Stddev Standard deviation

- a. Minimize, to the extent possible, any spills or leakage from the pipeline from coming into contact with the ground surface or ground water.
 - b. Convey, to the extent possible all spills or leakage to the East Bay, Valley Fill Leach No. 3 or other containment mechanisms approved by the Director. Affected structures include any associated pipeage, valves, pumps or other ancillary equipment.
3. Valley Fill Leach No. 3 Permanent Closure Plan – The Approved Final Closure Plan is an enforceable appendix to this permit and is designated as Appendix B.

E. Valley Fill Leach Area No. 2 Post-Closure Compliance Requirements

1. Ground Water Monitoring – Barrick is required to continue ground water quality monitoring of existing monitoring well MW-9 at VFL2 on a semiannual basis in accordance with the post-closure monitoring plan, attached as Appendix C to this permit. Ground water sampling must include all the chemical parameters, methods, and procedures required by the QA/QC plan contained in Appendix A to this permit. Barrick shall submit the results of semiannual monitoring to the Director in accordance with the compliance monitoring schedule in Table 2.
2. Post Closure Monitoring – The approved plans and specifications for the recontouring and covering of Valley Fill Leach No. 2 approved on May 30, 1995 by the Director- is subject to the following conditions:
 - a. Barrick will maintain the vegetated cover in accordance with the approved Final Closure Plan and compliance schedule for post-closure monitoring attached as Appendix C, and methods and standards approved by the Division of Oil, Gas and Mining (DOG M).
 - b. Barrick intends to grout the leakage collection pipe closed, and reclaim the leakage collection system area. Barrick completed the required 5-year post-closure monitoring the leakage collection system in April 2001 and installed drillouts through the liner to provide free draining infiltrated water. Barrick demonstrated that post-closure monitoring results met previous modeled predictions for the system. The Valley Fill Leach No. 2 leakage collection system shall not be removed without the written consent of the Director.

F. Reservation Canyon Tailings Wastewater Treatment Discharge

1. Authorized Discharge – During the term of this permit the Permittee is authorized to store, detain and recover storm water runoff from the area immediately surrounding and naturally draining into and from the tailings impoundment and to receive draindown quantities of water pumped from Valley Fill Leach Area 3. If spills of unauthorized chemicals, fuels or other materials enter the tailings impoundment the Permittee shall notify the Director within 24 hours and provide written notification within 5 business days, in accordance with the requirements of Part II.I. Incidental seepage emanating from the reclaim cell and the saddle seep area formerly collected in the saddle seepage pond in Manning Canyon will be piped to VFL2.
2. East Bay – The lined facility has a capacity of approximately 70 million gallons. The pond is designed and authorized to receive wastewater from the tailings impoundment and Valley Fill Leach Area 3 drain down in order to accelerate dewatering and drying of the tailings surface during final closure and reclamation of the facility. Barrick will eliminate the East Bay through water treatment and will discharge the treated water in accordance with work plans developed by Barrick and approved by the Director. Treated waters from the East Bay will be discharged to the Golden Gate basin under this permit as approved by the Director. Once the treated East Bay water has been drained to the Golden Gate Basin, the East Bay basin will be backfilled and regraded in accordance with the approved final design plans and specifications for final reclamation of the East Bay and the tailings impoundment.
3. Lined Chimney Drain Ponds – A regular inspection shall be made of the fluid levels in the chimney drain storage pond and overflow pond. If at any time the fluid levels exceed 1/3 the capacity of either of these ponds, as determined by visual observation, the fluids contained therein shall be pumped into a tank and transported to the East Bay. Alternatively, if analytical results show that water quality meets groundwater quality standards water may be discharged to the Golden Gate Basin. Removal of the water from the chimney drain storage pond shall continue until the ponds are as empty as practicable.
4. Spill Containment – Barrick shall utilize best management practices intended to prevent and contain spills from occurring from any of the following structures:
 - a. Pipelines between Valley Fill Leach Area No. 3 and the tailings impoundment.
 - b. Tailings impoundment.

- c. The lined chimney drain storage pond, overflow pond, and the East Bay.
- d. Pipelines conveying tailings waters constructed during the term of this permit. The practices shall conform to the following criteria:
 - 1) Minimize, to the extent possible, spills of untreated tailings wastewater, leakage or overflow from contact with unlined ground surfaces, ground water or surface water runoff conveyance systems (e.g., ditches, streams).
 - 2) Convey, to the extent possible, all spills or leakage to the tailings impoundment East bay, or new containment mechanisms or treatment facilities approved by the Director.
- 5. Cover design and placement will be in accordance with the final closure plan document and according to the design and methods approved in the 1999 Construction Permit approved by the Division of Water Quality.
- 6. Incidental Flow Management – Incidental flows are currently managed in the East Bay. Incidental flows from mine draindown will be treated for arsenic and nitrate reduction and discharged to the Golden Gate Basin, as approved in writing by the Director.

G. Compliance Monitoring Requirements

- 1. Quality Assurance Project Plan – All water quality monitoring to be conducted under this permit shall be in accordance with the general requirements, hereunder, and the specific requirements of quality Assurance Project Plan, dated June 2012, amended and attached as Appendix A to this permit.
- 2. Compliance Monitoring Wells – The Permittee has installed six monitoring wells at the tailings impoundment, four wells at Valley Fill Leach Area No. 3, and one well at Valley Fill Leach Area No. 2. All eleven wells will be used as compliance monitoring points through the life of the permit unless modified by the Director. Barrick shall maintain its current ground water monitoring well network in compliance with the requirements of this permit. The locations of these wells are described below.
 - a. Compliance Monitoring Well MW-1-NE/4 of SE/4 of NE/4 of Section 5, T 6 S, R 3 W, 150 ft. west, 1470 ft. south of NE corner.
 - b. Compliance Monitoring Well MW-2 - NE/4 of SE/4 of NE/4 of Section 5, T 6 S, R 3 W, 170 ft. west, 1670 ft. south of NE corner.
 - c. Compliance Monitoring Well MW-9 – SE/4 of SE/4 of Section 5, T 5

- S, R 3 W, 4400 ft. west, 100 ft. north of SW corner.
- d. Compliance Monitoring Well MW-10 – SW/4 of SW/4 of SW/4 of Section 32, T 5 S, R 3 W, 50 ft. north, 810 ft. west of SW corner.
 - e. Compliance Monitoring Well MW-11 – NW/4 of SW/4 of SW/4 of Section 32, T 5 S, R 3 W, 700 ft. north, 310 ft. east of SW corner.
 - f. Compliance Monitoring Well MW-13 – NW/4 of NW/4 of NW/4 of Section 5, T 6 S, R 3 W, 740 ft. east, 480 ft. south of NW corner.
 - g. Compliance Monitoring Well MW-15 – SE/4 of SW/4 of SE/4 of Section 32, T 5 S, R 3 W, 1750 ft. west, 140 ft. north of SE corner.
 - h. Compliance Monitoring Well MW-16 – NE/4 of NE/4 of NE/4 of Section 5, T 6 S, R 3 W, 410 ft. west, 40 ft. south of NE corner.
 - i. Compliance Monitoring Well MW-17 – State plane coordinates 728,844.51 N, 1,807,822.13 W.
 - j. Compliance Monitoring Well MW-18 – State plane coordinates 729,671.55 N, 1,806,786.28 W.
 - k. Compliance Monitoring Well MW-19 – NE/4 of NW/4 of NW/4 of Section 5, T 6 S, R 3 W, 240 ft. south, 700 ft. east of NW corner.
3. Future Modification of the Monitoring Well Network – if at any time the Director determines the monitoring well network to be inadequate, Barrick shall submit within 30 days of receipt of notification, a response letter to the Director, and if necessary, a plan and compliance schedule to modify the monitoring well network. Any required monitoring well construction shall conform to the criteria found in the EPA RCRA Ground Water Monitoring Technical Enforcement Guidance Document, 1986 OSWER-9950.1. Subsequent updates to this document shall be utilized as available and appropriate.
 4. Compliance Monitoring Period – Monitoring commenced upon the completion of the monitoring systems required by this permit, and shall continue through the life of the permit.
 5. Protection of Monitoring Well Network – All compliance monitoring wells must be protected from damage due to surface vehicular traffic or other dangers or contamination due to surface spills. They shall be maintained in full operational condition for the life of this permit, unless otherwise authorized by the Director. Any well that becomes damaged beyond repair or is rendered unusable for any reason will be replaced by the Permittee within 90 days or as authorized by the Director.

6. Barrick shall notify and request approval from the Director in writing of any planned well abandonment or modification. Well abandonment shall comply with State Engineer regulations.
7. Ground Water Quality Monitoring Requirements
 - a. Ground Water Level Measurements – Ground water level measurements shall be made in each monitoring well prior to any collection of ground water samples. These measurements will be made from a permanent single reference point clearly demarcated on the top of the well or surface casing. Measurements will be made to the nearest 0.01 foot.
 - b. Ground Water Monitoring Frequency – Groundwater measurements and analysis shall be conducted on a semiannual basis for all eleven monitoring wells. Semi-annual monitoring will be conducted during the first and third quarters during odd numbered years and during the second and fourth quarters during even numbered years. Monitoring will be reported to the Director as per the requirements stipulated in Part I.I.1.
 - c. Ground Water Quality Sampling – grab samples of ground water from all compliance monitoring wells will be collected for chemical analysis, in conformance with the quality Assurance Project Plan that has been approved by the Director, Part I.J.1.
 - 1) Analysis by Certified laboratories – analysis of any ground water sample shall be performed by laboratories certified by the State Health Laboratory.
 - 2) Ground Water Analytical Methods – methods used to analyze ground water samples must comply with the following:
 - a) All methods cited in UAC R317-6-6.3.L, and
 - b) Have detection limits which are less than or equal to the ground water protection levels found in Part I.C, Table 1. In the case of cadmium, cyanide (total) and nickel, the detection limits shall be less than or equal to 0.002 milligrams per liter (mg/L), 0.02 mg/L, and 0.015 mg/L, respectively.
 - 3) Analysis Parameters – the following analyses shall be conducted on all ground water samples collected:
 - a) Field parameters – pH, temperature, and specific

conductance.

b) Laboratory Parameters –

- (i) Major Anions and Cations: including chloride, sulfate, carbonate, bicarbonate, sodium, potassium, magnesium, and calcium.
- (ii) Protection Level Parameters – found in Table 1 of Part I.C, above.
- (iii) Weak Acid Dissociable Cyanide
- (iv) Cyanide Amenable to Chlorination
- (v) Cyanide Degradation Products including: ammonia, nitrate and nitrite.

H. Non-Compliance Status

1. Probable Out of Compliance Based on Exceedance of Ground Water Protection Limits

Barrick shall evaluate the results of each round of ground water sampling and analysis to determine any exceedance of the ground water protection levels found in Table 1. Upon determination by Barrick that the data indicate a ground water protection level may have been exceeded at any downgradient compliance monitoring well, Barrick shall:

- a. Immediately resample the monitoring wells(s) found to be in probable out-of-compliance for protection level parameters that have been exceeded. Submit the analytical results thereof, and notify the Director of the probable out-of-compliance status within 30 days of the determination of probable out-of-compliance.
- b. Immediately implement an accelerated schedule of monthly ground water sampling and analysis, consistent with the requirements of Section 5.0 in Appendix A. This monthly sampling will continue for at least two additional months for a total of three samples including the original compliance sample or until the compliance status can be determined by the Director. Reports of the results of this sampling will be submitted to the Director as soon as they are available, but not later than 30 days from each date of sampling.

2. Out of Compliance Status Based on Confirmed Exceedance of Permit Ground Water Protection Limits.

- a. Out of Compliance Status shall be defined as follows:

- 1) For parameters that have been defined as detectable in the background and for which protection levels have been established based on 1.25 times the mean background concentration, out of compliance shall be determined by the use of control charts for intra-well comparisons in accordance with and EPA Guidance documents entitled “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance”, dated March 2009 (EPA 530-R-09-007). Any other compliance monitoring or statistical method used by Barrick must receive prior approval from the Director.
 - 2) For parameters that have been defined as detectable in the background and for which protection levels have been established based on 0.25 times the ground water quality standard, out of compliance shall be defined as 3 consecutive samples exceeding the protection level and the mean background concentration by two standard deviations.
 - 3) For parameters that have background data sets between 50-85% non-detectable analyses, out-of-compliance shall be defined as 3 consecutive samples from a compliance monitoring point exceeding the established protection level.
 - 4) For parameters that have been defined non-detectable in the background and for which protection limits have been determined based on 0.25 times the ground water quality standard or the limit of detection out-of-compliance shall be defined as 3 consecutive samples from a compliance monitoring point exceeding the established protection limit.
- b. Notification and Accelerated Monitoring – upon determination by the Permittee or the Director, in accordance with UAC R317-6-6.17, that an out-of compliance status exists, the Permittee shall:
- 1) Verbally notify the Director of the out-of compliance status or acknowledge Director notice that such a status exists within 24 hours of determination.
 - 2) Provide an assessment of the extent of the ground water contamination and any potential dispersion.
 - 3) Evaluate potential remedial actions to restore and maintain ground water quality standards such that protection levels will not be exceeded at the compliance monitoring wells.

I. Reporting Requirements

1. Ground Water Monitoring Report:

- a. Schedule – The sampling and analysis required in Part I.G.7, above, shall be reported according to the schedule in Table 2, below.

Table 2: Compliance Monitoring Report Schedule

Semi-Annual Period	Report Due On
First	July 15
Second	January 15

b. Sampling and Analysis Report – will include:

- 1) Field Data Sheets – or copies thereof, including the field measurements, required in Part I G.7.a, above, and other pertinent field data, such as: well name/number, date and time, names of sampling crew, type of sampling pump or bail, measured casing volume, volume of water purged before sampling.
- 2) Results of Ground Water Analysis – including date sampled, date received, ion balance; and the results of analysis for each parameter, including: value or concentration, units of measurement, reporting limit (minimum detection limit for the examination), analytical method, and the date of the analysis.
- 3) Ground Water Level Measurements – water level measurements from ground water monitoring wells will be reported in both measured depth to ground water and ground water elevation above mean sea level.

J. Compliance Schedule

1. Quality Assurance Project Plan – The water quality sampling, handling and analysis plan, Appendix A of the permit, shall be updated and/or modified as required by the Director. The revised plan will be submitted for Director approval, within 45 days following receipt of notice from the Director, that updates or revisions to the plan are required. The revised document will replace the current Appendix A and is hereby incorporated by reference.
2. Final Tailings Impoundment Closure Plan – Final closure of the tailings impoundment shall constitute completion of dewatering of the tailings draindown and removal of the east bay, regrading of the east bay to blend with surrounding topography, and completion of the final engineered cover

placement on the east bay. At the completion of closure activities, a construction quality assurance as- built report will be submitted within 180 days for approval of the Director.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling.
Samples taken in compliance with the monitoring requirements established under Part I shall be representative of the monitored activity.
- B. Analytical Procedures.
Water sample analysis must be conducted according to test procedures specified under UAC R317-6-6.3.L, unless other test procedures have been specified in this permit or otherwise approved by the Director.
- C. Penalties for Tampering.
The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Reporting of Monitoring Results.
Monitoring results obtained during each reporting period specified in the permit, shall be submitted to the Director, Utah Division of Water Quality at the following address no later than the 15th day of the month following the completed reporting period:
- Utah Division of Water Quality
PO Box 144870
Salt Lake City, UT 84114-4870
Attention: Ground Water Protection Section
- Electronic reporting:
<https://deq.utah.gov/ProgramsServices/services/submissions/index.htm>
- E. Compliance Schedules.
Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee.
If the Permittee monitors any pollutant more frequently than required by this permit, using approved test procedures as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted. Such increased frequency shall also be indicated.
- G. Records Contents.
Records of monitoring information shall include:

1. The date, exact location, and time of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;
3. The date(s) and time(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and,
6. The results of such analyses.

H. Retention of Records.

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

I. Twenty-Four Hour Notice of Noncompliance Reporting.

1. The Permittee shall verbally report any non-compliance with permit conditions or limits as soon as possible, but no later than twenty-four (24) hours from the time the Permittee first became aware of the circumstances or determined otherwise. The Verbal report shall be made to the Utah Department of Environmental Quality 24 hour number, (801) 536-4123, or to the Division of Water Quality Ground Water Protection Section at (801) 536-4300, during normal business hours (Monday thru Friday 8:00 am – 5:00 pm Mountain Time).
2. A written submission of any noncompliance with permit conditions or limits shall be provided to the Director within five (5) days of the time that the Permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance;
 - b. The period of noncompliance, including dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

e. When applicable, either an estimation of the quantity of material discharged to ground water, the tailings facility or an estimation of the quantity of material released outside containment structures.

3. Written reports shall be submitted to the addresses in Part II.D, Reporting of Monitoring Results.

J. Other Noncompliance Reporting.

Instances of noncompliance not required to be reported within 24 hours, shall be reported at the time that monitoring reports for Part II. D are submitted.

K. Inspection and Entry.

The Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the Permittee's premises at reasonable time where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and ,
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply.

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

B. Penalties for Violations of Permit Conditions.

The Act provides that any person who violates a permit condition implementing provisions of the act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under Section 19-5-115(2) of the Act a second time shall be punished by a fine not exceeding \$50,000 per day. Nothing in this permit shall be construed to relieve the Permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate.

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance.

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Affirmative Defense.

In the event that a compliance action is initiated against the Permittee for violation of permit conditions relating to best available technology or discharge minimization technology, the Permittee may affirmatively defend against that action by demonstrating the following:

1. The Permittee submitted notification according to Part I.H.2.b.1 and Part II.I.1 and 2;

2. The failure was not intentional or caused by the Permittee's negligence, either in action or in failure to act;
3. The Permittee has taken adequate measures to meet permit conditions in a timely manner or has submitted to the Director, for the Director's approval, an adequate plan and schedule for meeting permit conditions; and
4. The provisions of UCA 19-5-107 have not been violated.

IV. GENERAL REQUIREMENTS

- A. Planned Changes
The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when the alteration or addition could significantly change the nature of the facility or increase the quantity of pollutants discharged.
- B. Anticipated Noncompliance.
The Permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Spill Reporting.
The Permittee shall immediately report as per UCA 19-5-114 of the Utah Water Quality Act any accidental release from Valley Fill Leach Area 2, Valley Fill Leach Area No. 3, the tailings impoundment or associated facilities which is not totally contained by a collection system. This report shall be made to the phone numbers given in Part II.I.2 of this permit. A written report will be required within 5 business days of the occurrence and should address the requirements of UCA 19-5-114 and Part II.I.2 and 3 of this permit.
- D. Permit Actions.
This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- E. Duty to Reapply.
If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a permit renewal or extension. The application should be submitted at least 180 days before the expiration date of this permit.
- F. Duty to Provide Information.
The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- G. Other Information.
When the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

H. Signatory Requirements.

All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed as follows:
 - a. For a corporation: by a responsible corporate officer or by a duly authorized representative of that person;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to Authorization. If an authorization under Part IV.H.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.H.2 must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

I. Penalties for Falsification of Reports.

The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation or both.

J. Availability of Reports.

Except for data determined to be confidential by the Permittee, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Director. As required by the Act, permit applications, permits, effluent data, and ground water quality data shall be considered confidential.

K. Property Rights.

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability.

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers.

This permit may be automatically transferred to a new Permittee if:

1. The current Permittee notifies the Director at least 30 days in advance of the proposed transfer date;
2. The notice includes a written agreement between the existing and new Permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
3. The Director does not notify the existing Permittee and the proposed new Permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement as described in Part IV.M.2, above.

N. State Laws.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, penalties established pursuant to any applicable state law or regulation under authority preserved by Section 19-5-117 of the Act.

O. Reopener Provisions.

This permit may be reopened and modified pursuant to R317-6-6.6.B or R317-6-6.10.C to include the appropriate limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. If new ground water standards are adopted by the board, the permit may be reopened and modified to extend the terms of the permit or to include pollutants covered by new standards. The Permittee may apply for a variance under the conditions outlined in R317-6-6.4.D
2. Changes have been determined in background ground water quality.

**APPENDIX
A**

**WATER QUALITY MONITORING
QUALITY ASSURANCE PROJECT**

PLAN October 30, 2017

[On
File]

**APPENDIX
B**

**VALLEY FILL LEACH AREA No.
3**

CLOSURE

PLAN October

30, 2017 [On File]

APPENDIX C
VALLEY FILL LEACH AREA No. 2

CLOSURE PLAN

October 30, 2017

[On File]

APPENDIX D
RESERVATION CANYON TAILINGS
IMPOUNDMENT SITE
CHARACTERIZATION AND FINAL
CLOSURE DESIGN

JULY 30,
1999

[On File]

GROUND WATER QUALITY DISCHARGE PERMIT UGW450002

STATEMENT OF BASIS

Barrick Mercur Reclamation Project
Tooele County, UT

January 2019

Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules¹ (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water². As defined by the Ground Water Rules, such facilities include mining operations.³ The Ground Water Rules are based on an anti-degradation strategy for ground water protection as opposed to non-degradation; therefore, discharge of contaminants to ground water may be allowed provided that current and future beneficial uses of the ground water are not impaired and the other requirements of Rule 317-6-6.4.A are met.⁴ Following this strategy, ground water is divided into classes based on its quality⁵; and higher-quality ground water is given greater protection⁶ due to the greater potential for beneficial uses.

DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the stored material, facility operations, maintenance, best available technology⁷ (BAT) and the hydrogeologic and climatic conditions of the site, to ensure that the operation would not contaminate ground water.

Basis for Permit Renewal

This Permit is being renewed in accordance with R317-6-6.8 which states that a permit may be terminated or a renewal denied if any one of the four items below applies:

- A. Noncompliance by the permittee with any condition of the Permit where the permittee has failed to take appropriate action in a timely manner to remedy the Permit violation;
- B. The permittee's failure in the application or during the Permit approval process to disclose fully all significant relevant facts at any time;
- C. A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

¹ Utah Admin. Code Rule 317-6

² https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP_PermitInfo.pdf

³ Utah Admin Code Rule 317-6-6.1A

⁴ Preamble to the Ground Water Quality Protection Regulations of the State of Utah, sec. 2.1, August, 1989

⁵ Utah Admin. Code Rule 317-6-3

⁶ Utah Admin. Code Rule 317-6-4

⁷ Utah Admin. Code Rule 317-6-1(1.3)

D. The permittee requests termination of the Permit.

Basis for Modification and Permit Issuance

Under Rule 317-6-6.4A, DWQ may issue a ground water discharge permit if:

- 1) The applicant demonstrates that the applicable class TDS limits, ground water quality standards protection levels and permit limits established under R317-6-6.4E will be met;
- 2) The monitoring plan, sampling and reporting requirements are adequate to determine compliance with applicable requirements;
- 3) The applicant is using best available technology to minimize the discharge of any pollutant; and
- 4) There is no impairment of present and future beneficial uses of ground water.

Background

PERMIT HISTORY

Barrick Mercur Mine (**Figure 1**) operated gold mining and processing facilities at Mercur from 1982 through 1998. During this period ground water quality discharge permit UGW450001 was issued for Valley Fill Leach Area 3 (VFL3) and UGW450002 was issued for the Reservation Canyon Tailings Impoundment. Also during that period, the Division issued Stipulation and Consent Order Docket No. GW90-03-A to resolve operational issues associated with Valley Fill Leach Area 2 (VFL2). The mine entered full closure status in April 1998.

Permit UGW450001 expired in December 1999. The Consent Order for VFL2 remained in effect during the model demonstration period through 2001. In light of the closure status of the mine and the inter-relationships of the facilities discussed above, consolidating the Consent Order stipulations and both groundwater permits into a single enforceable regulatory tool in 2000 was deemed appropriate. This approach incorporated the applicable terms and conditions of Permit UGW450001 into Permit UGW450002. The permit also referenced the terms and conditions of the Consent Order for VFL2. Permit UGW450001 was terminated in 2000 with the effective permit modification date of Permit UGW450002.

The Permittee maintained a record of compliance with the conditions of permit UGW450001, including the VFL2 Consent Order, through the previous permit term prior to incorporation into UGW450002 in August 2000. The Permittee has also maintained a record of compliance with the conditions of UGW450002 both prior and subsequent to the incorporation of UGW450001 and the VFL2 Consent Order into UGW450002 in August 2000. No adverse effects to ground water, the environment or public health are known to have occurred due to the operation of VFL3, VFL2, or the tailings

impoundment during this period.

Barrick will continue to transfer neutralized VFL3 draindown water and tailings impoundment incidental seepage to the East Bay (a lined facility integral to the Reservation Canyon Tailings Impoundment) through the end of the closure period as needed until such time that treatment of the East Bay water has met the approved goals and objectives for discharge to an onsite location under Permit UGW450002. Barrick has completed the cessation of operations and reclamation of VFL3 associated with this permit as well as the complete closure of VFL2.

Permit UGW450001 was incorporated into UGW450002 on the basis that: 1) all ground water protection levels have been and will continue to be met; 2) the sampling, monitoring and reporting procedures are deemed adequate to determine compliance with the applicable requirements; 3) there is no expected impairment of present or future beneficial uses of ground water; and 4) final closure of VFL3 will be completed under the provisions of UGW450002.

DESCRIPTION OF FACILITIES (Figure 2)

Valley Fill Leach Area No. 2 - This facility is located in the NE $\frac{1}{4}$ of Section 8, Township 6 South, Range 3 West, and the SE $\frac{1}{4}$ of Section 5, Township 6 South, Range 3 West in the saddle between Manning and Mercur Canyons in the southern Oquirrh Mountain range of Tooele County. Barrick Mercur Mine operated VFL2 for the extraction of gold using cyanide solutions. This facility was closed in July 1993, was neutralized in September 1994, and covered by November 1995. The facility remains subject to the conditions of Stipulation and Consent Order GW90-03-A now contained in Permit UGW450002. Those conditions remaining are ground water monitoring and dewatering of the leach pad. The facility is limited to one cell approximately 1,200 feet long and 500 feet wide. During 1998, an infiltration manhole was installed through the cover to accommodate the infiltration of incidental area flows and seepage. Final cover placement on VFL2 was completed in September 1995. Barrick intends to grout the leakage collection pipe closed, and reclaim the leakage collection system area. Barrick completed the 5-year post-closure monitoring of the leakage collection system in April 2001 and demonstrated that post-closure monitoring results met previous modeled predictions for the system and drilled out the VF2 liner. Residual waters have been modeled to be *de minimis* with respect to probable impacts to ground water quality at the property boundary.

Valley Fill Leach Area 3 - This facility is located in the SW $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 32, Township 5 South., Range 3 West, and the NW $\frac{1}{4}$ of Section 5, Township 6 South, Range 3 West, in Mercur Canyon in the southern Oquirrh Mountain range of Tooele County. Barrick Mercur Mine operated VFL3 for the extraction of gold using cyanide solutions from January 1991 through 1997. The facility is now reclaimed and awaiting final, permanent closure. The facility is limited to one cell approximately 1,700 feet long and 750 feet wide. At the end of the facility's life, it contained approximately 5 million tons of spent heap leach ore with an average depth of 150 feet. The heap was neutralized during 1997 and covered during 1998. In 1997, a vertical solution dewatering well was

put in place to pump in concert with the pumping cistern the remaining fluids from this leach area and transport via pumping and piping to the East Bay lined cell within the Reservation Canyon Tailing Impoundment. After the free draining fluids in VFL3 achieve model-predicted flow rates, the wells will be removed and final closure will be complete. Residual waters have been modeled to be *de minimis* with respect to probable impacts to ground water quality at the property boundary.

Reservation Canyon Tailing Impoundment (incl. East Bay) - The tailings impoundment is located in Reservation Canyon in the southern Oquirrh Mountain range on the Tooele/Utah County line in Section 5 of Township 6 South, Range 3 West Salt Lake Base and Meridian. Barrick Mercur Mine operated the tailings impoundment for the disposal of waste material from the beneficiation and processing of gold from its gold milling operation. The tailings facility consists of a saddle dam, main dam, upstream levee, internal East Bay lined cell, approximately 27 million tons of deposited mill tailings, and all drains and external containment ponds associated with the main dam and saddle dam. The tailings treatment system is no longer in use as the milling operations have been dismantled and removed.

No new facilities are proposed.

Ground Water Quality

Ground Water Classification. Based on the total dissolved solids data from eleven monitoring wells at the site the ground water is defined as both Class IA Pristine Ground Water and Class II Drinking Water Quality Ground Water. The average total dissolved solids values from the wells range from 345 mg/l to 2,124 mg/l.

Background Concentrations - When greater than 50% of the background samples for a particular constituent were detectable, background was determined by estimating the mean and standard deviation of all background samples.

Protection Levels - Class IA ground water is protected as pristine ground water and Class II ground water is protected for use as drinking water or other similar beneficial use by the Ground Water Quality Protection Rules, UAC R317-6. Protection Levels are determined based on the criteria of UAC R317-6.4 taking into account naturally occurring degradation in accordance with UAC R317-6-6.10.

No substantial modification to the Compliance Schedule is proposed in this permit renewal.

Groundwater Monitoring - The Permittee has installed eleven monitoring wells at the site. Dry wells are not used as compliance monitoring points under this permit. Wells MW-1, MW-2, MW-9, MW-10, MW-11, MW-13, MW-15, MW-16, MW-17, MW-18, and MW-19 will be used as compliance monitoring wells. These wells will be monitored for metals, inorganic ions, pH, cyanide, nitrate, nitrite, ammonia and total dissolved solids. Routine monitoring and reporting will be on a semiannual basis.

Closure and Reclamation

Permanent closure and final reclamation of the VFL3 and the Reservation Canyon tailings impoundment was initiated in 1998 as part of a mine-wide closure. Under previous versions of these permits, permanent closure and final reclamation requirements that are protective of ground water were incorporated. These include the following activities that have been implemented.

Tailings Impoundment

1. Placement of perforated drainage pipes with a drain gravel cover in the concrete drainage aprons, encapsulating the gravel drains with filter fabric, and covering of drains with subsoil and top soil.
2. Covering and re-vegetative seeding of the downstream embankments of the Main Buttress and Levee Buttress with a minimum one-foot thick layer of subsoil and a minimum one-foot thick layer of topsoil.
3. Covering and re-vegetative seeding of the area between the Levee Buttress and the Saddle Dam.
4. Design and construction of a storm water diversion channel through the Saddle Dam to permit free drainage of storm water that falls between the Levee Buttress and the Saddle Dam.
5. Re-grading crest height of the Buttress Embankment rock fill onto the tailings beach leaving a normal six-foot high interim rock fill berm above the tailings surface for storm water control and freeboard.
6. Placement of cover system over the tailing surface.
7. Installation of an incidental area flows and seepage pipeline connection to an infiltration manhole in the Valley Fill Leach Area No. 2 facility.
8. Upgrading existing, and construction of additional interim storm water diversion channels.

Valley Fill Leach Area 3

1. Dismantling and removal of process facilities.
2. Implementation of permanent closure and final reclamation by re-grading, re-contouring, shaping, placement of a soil cover system (minimum 3 feet of subsoil and minimum 1 foot of top soil) and re-vegetative seeding of the Valley Fill Leach Area No. 3 facility.

Valley Fill Leach Area 2

1. Dismantling and removal of process facilities.
2. Completion of contouring, shaping, placement of a soil cover system (minimum 3 feet of subsoil and minimum 1 foot of top soil) and re-vegetative seeding of the Valley Fill Leach Area No. 2 facility.

COMPLIANCE SCHEDULE

Compliance Monitoring Wells - Barrick has installed six monitoring wells at the tailings impoundment, four wells at Valley Fill Leach Area No. 3, and one well at Valley Fill Leach Area No. 2. All eleven wells will be used as compliance monitoring points through the life of the permit unless modified by the Director. Barrick will maintain its current ground water monitoring well network in compliance with the requirements of this permit.

All sampling and reporting will comply with the Quality Assurance Project Plan (Appendix A of the permit). Compliance monitoring and reporting will be completed on a semi-annual basis.

No substantial modification to the Compliance Schedule is proposed in this permit renewal.

FIGURES

Figure 1 – Site Location Map

Figure 2 – Facility Map

Figure 1 - Site Location Map

Barrick Mercur Mine Reclamation Project

Legend



Ophir

Mercur (Historical)

Cedar Fort

Google Earth

© 2018 Google

3 mi



Figure 2 - Mercur Mine Facility





STATE OF UTAH

INVOICE

SEND PAYMENT TO:

DEPT OF ENVIRONMENTAL QUALITY
WATER QUALITY
195 N 1950 West 3rd Fl
Salt Lake City UT 84114-4870

Invoice Number:

1970000414

Original Invoice Date:

02-05-19

Amount Due:

\$2,000.00

Due Date:

03-07-19

AMOUNT ENCLOSED _____

Please write INVOICE NO. on front of check
or money order

MAKE CHECKS PAYABLE TO:

UTAH DIVISION OF WATER QUALITY

AR DEPT: BPRO 480:48070

BILL TO: BARRICK MERCUR
310 SOUTH MAIN STREET
SUITE 1150
SALT LAKE CITY UT 84101

Contact : Susan Woeppel 801-536-4354

RETURN THIS PORTION WITH YOUR PAYMENT
RETAIN FOR YOUR RECORDS

STATE OF UTAH



Invoice Number:

1970000414

Original Invoice Date:

02-05-19

Due Date:

03-07-19

Amount Due:

\$2,000.00

Invoice Charges

Line Number	Description	Amount
1	GROUND WATER PERMIT ISSUANCE HOURS - 20 HOURS @ \$100/HR	\$2,000.00
Total Invoice Charges		\$2,000.00

Other Charges

Description	Amount
Other Fee	\$0.00
NSF Fee	\$0.00
Total Other Charges	\$0.00

Payments Applied	\$0.00
Total Amount Due	\$2,000.00

Instructions: