

**YUKON WATER BOARD**

Pursuant to the *Waters Act* and *Regulation*, the Yukon Water Board, hereinafter referred to as the Board, hereby grants to

Deloitte & Touche Inc.  
(in its capacity as Interim Receiver of Anvil Range Mining Corporation)  
Suite 1900, 79 Wellington Street West  
Toronto, Ontario M5K 1B9

hereinafter called the Licensee, the right to use water and deposit a waste subject to the restrictions and conditions contained in the *Waters Act* and *Regulation* made hereunder and subject to and in accordance with the conditions specified in this licence.

**Licence Number:** QZ03-059

**Water Management Area:** 02 Yukon

**Licence Type:** A

**Nature of Undertaking:** Quartz Mining

**Water Sources:** Rose Creek, Vangorda Creek, Little Creek Dam Pond, Faro Pit, Zone II Pit, Vangorda Pit, Grum Pit, Grum/Vangorda Freshwater Supply Pond.

**Tributaries of:** Pelly River

**Minimum Latitude:** 62° 14' 00" N

**Maximum Latitude:** 62° 29' 30" N

**Minimum Longitude:** 133° 07' 30" W

**Maximum Longitude:** 133° 32' 45" W

**Purpose:** To divert and alter a flow of water, store water, modify the bed and banks of a watercourse and deposit a waste.

**Effective Date of Licence:** The date that the signature of the Minister of the Executive Council Office is affixed.

**Expiry Date of Licence:** February 28, 2009

Dated this \_\_\_ day  
of March, 2004.

YUKON WATER BOARD

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Vice-chairperson

Approved this \_\_\_ day  
of \_\_\_\_\_, 2004

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Minister, Executive Council Office

**PART A - GENERAL CONDITIONS**Definitions

- 1 a) "Act" means the *Waters Act* and any amendments thereto.
- b) "Application" collectively means Water Use Application QZ03-059 and any additional submissions and/or revisions submitted to the Board by the Licensee up to the date of the Board's decision to issue this licence.
- c) "Board" means the Yukon Water Board.
- d) "Inspector" means any person designated as an Inspector under the Act.
- e) "Regulation" means the *Waters Regulation*.
- f) "Waste" means any substance defined in Section 2 of the Act.
- g) "Dam Safety Guidelines" means the Dam Safety Guidelines issued by the Canadian Dam Association (1999) or its most recent revision.

Representations, Warranties and Undertakings

2. The Board has relied on the representations, warranties and undertakings provided by the Licensee in the material filed in the Application. Such representations, warranties and undertakings are considered by the Board to be a part of the licence, but shall be subject to, and may be modified by, the conditions of the licence.
3. Where there is a discrepancy between the Application and the conditions of this licence, the conditions of this licence shall prevail.

Other Uses

4. If, subsequent to the issuing of this licence, the Licensee uses water and/or deposits waste in one or more ways not authorized in this licence, and the combined effect of those uses and/or deposits of wastes, as determined by an Inspector:
  - a) has no potential for significant adverse environmental effects;
  - b) does not interfere with existing rights of other water users or waste depositors; and
  - c) satisfies the criteria set out in column 2 of Schedule 7 of the *Regulation*,then no amendment to this licence will be required for that use of water and/or deposit of waste.

Other Laws

5. No condition of this licence limits the application of any other federal, territorial, first nation or municipal legislation.
6. All work authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

Correspondence

7. Where any direction, notice, order, or report under this licence is required to be in writing, it shall be given:
  - a) To the Licensee, if delivered, faxed or mailed by registered mail to the following address:

Deloitte & Touche Inc.  
(in its capacity as interim receiver for Anvil Range Mining Corporation)  
Suite 1900, 79 Wellington Street West  
Toronto, Ontario M5K 1B9  
Fax: (416) 601-6390

and shall be deemed to have been given to the Licensee on the day it was delivered or faxed, or seven days after the day it was mailed, as the case may be.

- b) To the Board, if delivered, faxed or sent by registered mail to the following address:

Yukon Water Board  
Suite 106, 419 Range Road  
Whitehorse, Yukon Y1A 3V1  
Fax: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or seven days after the day it was mailed, as the case may be.

Non-Compliance

8. In the event that the Licensee fails to comply with any condition of this licence, the Board may, subject to the *Act*, cancel the licence.

Deleterious Substances

9. Subject to the conditions of this licence, deleterious substances shall be used, transported, stored and disposed of in such a manner that they are not deposited in, or allowed to be deposited in, any waters.

Term of Licence

10. The term of this licence is from the effective date to February 28, 2009.

Reports

11. All monitoring data, reports, plans, studies, study results, designs or manuals required by this licence shall be submitted to the Board in an unbound printed form that is reproducible by standard photocopier and shall be accompanied by 5 copies.
12. All monitoring data, reports, plans, designs or manuals shall also be submitted in digital form, using an IBM compatible format that is readable using commonly available software.

Annual Reports

13. Annual reports shall be submitted to the Board by the Licensee. The reports shall cover the period from January 1 to December 31 of each year and shall be submitted to the Board on or before February 28 of the following year.
14. Annual reports shall include the information required by this licence and by the *Regulation*, including, but not necessarily limited to:
  - a) summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from base line conditions or from previous years' data; and
  - b) a detailed record of any major maintenance work carried out or planned to be carried out that could have an impact on water.

Monthly Reports

15. Unless otherwise specified in this licence, the Licensee shall forward to the Board a copy of all data collected as part of the monitoring programs of this licence no more than 30 days after the conclusion of the month in which that data was collected.

Contingency Plans

16. No later than 30 days after the effective date of this licence, the Licensee shall submit contingency plans to the Board. The Licensee shall keep the plans current and shall submit any revisions to the Board within 10 days of the revision. The contingency plans shall include measures to address:
  - a) fuel spills;
  - b) pipeline breaks;

- c) loss of electrical power;
  - d) pump failure;
  - e) loss of road access to the site; and
  - f) loss of communications to the site.
17. The Licensee shall immediately contact the 24-hour Yukon Spill Report telephone number (867) 667-7244 and implement the most recent spill contingency plan that has been filed with the Board, should a spill or an unauthorized discharge occur. A detailed written report on any such event, including but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be delivered to the Board not later than 10 days after its occurrence.
18. As part of the contingency plans, the Licensee shall submit a communication plan that addresses how communities and downstream water users will be notified of accidents, malfunctions and spills at the site.

#### Hazardous Materials Storage

19. A complete inventory of chemicals, fuels, oils, lubricants and other hazardous materials relating to the water uses authorized by this licence shall be maintained by the Licensee.
20. Hazardous materials, except for those required to operate and maintain equipment relating to the water uses authorized by this licence, shall be stored or transferred a minimum of 30 metres from any watercourse.

### **PART B - OPERATING CONDITIONS**

21. Subject to the terms of this licence, the Licensee is hereby authorized to:
- a) divert the flow of Rose Creek, Vangorda Creek, Little Creek, Faro Creek and Guardhouse Creek; and
  - b) obtain water at a maximum rate of 65,465 m<sup>3</sup>/day from Rose Creek, including the Faro Main Pit and the Faro Zone II Pit; and
  - c) obtain water at a maximum rate of 19,930 m<sup>3</sup>/day from Vangorda Creek, including the Vangorda Pit, the Grum Pit, the Grum/Vangorda freshwater supply pond, and the Little Creek Dam Pond; and
  - d) deposit Waste into Rose Creek and Vangorda Creek,

all as described in the Application, and subject to the terms and conditions of this licence. Where there is a discrepancy between the Application and this licence, the terms of this licence shall prevail.

22. Except as authorized by this licence, no Waste shall enter any watercourse as a result of any operation carried out by the Licensee.
23. Water shall be pumped from the Faro Main Pit if the water level in the pit is at or above elevation 1178.35 metres (mine datum).
24. Water shall be pumped from the Faro Zone II Pit if the water level in the pit is at or above 50.00 metres below ground level, as determined by the Licensee. The Licensee shall provide a description of the datum for ground level in the first annual report and this datum shall be used for all measurements relating to this clause.
25. Water shall be pumped from the Vangorda Pit if the water level in the pit is at or above elevation 1092.00 metres above sea level.
26. Water shall be pumped from the Little Creek Dam Pond as necessary to maintain the water level no less than 1 metre below the invert of the overflow structure.

**PART C - EFFLUENT QUALITY STANDARDS**

27. No waste discharge shall exceed the following limits:

Suspended Solids	not greater than 15mg/L
pH	not less than 6.5 pH units
Colour	not greater than 20 Pt-Co units
Turbidity	not greater than 15 NTU
Ammonia (as N)	1.30 mg/L
Antimony (Sb)	0.10 mg/L
Arsenic (As)	0.05 mg/L
Barium (Ba)	1.00 mg/L
Cadmium (Cd)	0.02 mg/L
Copper (Cu)	0.20 mg/L
Cyanide (as CN)	0.05 mg/L
Lead (Pb)	0.20 mg/L
Mercury (Hg)	0.005 mg/L
Molybdenum (Mo)	0.50 mg/L
Nickel (Ni)	0.50 mg/L
Selenium (Se)	0.05 mg/L
Silver (Ag)	0.10 mg/L
Zinc (Zn)	0.50 mg/L

28. No Waste shall contain floating solids.

29. No visible, or floating, oils or grease shall be present in any waste discharge.
30. All waste discharges shall pass a 100% 96-hour LC<sub>50</sub> bioassay using Rainbow Trout.
31. The effluent quality standards specified in this licence shall be met at all points of entry into all receiving waters, including, but not limited to, monitoring locations X5, X13, V2 and V25BSP.

#### **PART D – MODIFICATION AND CONSTRUCTION**

32. Where minor modifications are required to be made to existing facilities and structures authorized by this licence, the Licensee shall submit plans, specifications and construction schedules for any such modifications no less than 90 days prior to the start of the construction work.
33. All dams and diversions shall be designed to withstand the 1:475 year return period earthquake.
34. All designs shall be sealed by a Professional Engineer licensed to practice in Yukon.
35. At least 10 days prior to the proposed date of commencement of construction of minor modifications, the Licensee shall submit to the Board a written notification, together with a detailed construction schedule and the name and contact number(s) of the construction superintendent.
36. Where site conditions require minor modifications to the designs submitted to the Board, the Licensee shall notify the Board, in advance, of the details of the modifications or variations from final detailed designs, specifications and quality assurance/quality control procedures previously submitted to the Board. The notice shall include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.
37. As-constructed (record) drawings and construction reports, including quality assurance and quality control documentation, for all structures and facilities shall be submitted to the Board within ninety days of the completion of construction. Each submission shall be sealed by a Professional Engineer licensed to practice in Yukon.

#### **PART E – CARE AND MAINTENANCE**

38. Throughout the term of this licence, the Licensee shall maintain all works in good order.
39. The Vangorda Creek Diversion shall have a capacity to carry a 1:100 year design flow.
40. The Rose Creek Diversion shall have a capacity to carry a 1:500 year design flow.

41. The spillways on the Intermediate Dam and the Cross Valley Dam shall have a capacity to carry a 1:500 year design flow of Rose Creek.
42. The overflow structure on the Rose Creek Diversion Dam shall be maintained to ensure that peak flows can freely pass through it.
43. All waste rock dumps shall be maintained in accordance with sound engineering practices and in a way that minimizes the potential for acid generation.
44. A footbridge may be maintained across Rose Creek in the vicinity of monitoring station X14 for the purposes of obtaining flow measurements. The bridge shall not have footings or pilings in the creek.
45. As an interim measure, and subject to clause 5 of this licence, pending completion of a terrestrial effects study a salt lick shall be maintained in the vicinity of the Emergency Tailings Area to discourage wildlife from entering the tailings area.

#### **PART F – STUDIES AND PLANS**

46. All studies shall be carried out by persons qualified to do so by education and/or experience.
47. All further work proposed in the studies or plans that are submitted as a requirement of Part F of this licence shall be carried out according to the schedule identified in those studies or plans. However, should the Board notify the Licensee prior to the date of commencement of the study or plan that a public hearing will be held to review the study or plan, then the Licensee shall not proceed with the study or plan until such time as the public hearing has been convened and the Board has concluded deliberations.
48. The reference conditions for the purposes of studies and plans required by Part F of this licence shall be the period of 1999-2002 for areas downstream of the tailings impoundment and the period of 1998-2000 elsewhere. Studies and plans submitted to the Board shall describe how these reference conditions have been used.

#### Terrestrial Effects Study

49. A terrestrial effects study, as described in the application, shall be carried out. The completed study shall be submitted to the Board by December 31, 2005.

#### Town of Faro Water Supply Study

50. A study shall be carried out to determine the relationship between water flowing in Vangorda Creek and water obtained from the Town of Faro water supply wells, and to assess the potential for contamination from Vangorda Creek to enter the wells. The

results of the study shall be submitted to the Board as part of the annual report for the year 2005.

#### Water Treatment Sludge Management Study

51. A water treatment sludge management plan shall be prepared and submitted to the Board by June 30, 2004.

#### Grum Pit Water Management Plan

52. A water management plan for the Grum Pit shall be prepared and submitted to the Board by June 30, 2004.

#### Aquatic Life Sampling and Testing Program

53. A plan for an aquatic life sampling and testing program shall be developed and submitted to the Board by April 30, 2004. The plan shall detail the proposed program including sampling locations, study species, study parameters and protocols. Sampling for fish presence and metals in fish tissue shall be a component of the plan.

#### Adaptive Management Plan

54. An adaptive management plan for the facilities authorized by this licence shall be prepared and submitted to the Board by June 30, 2004. The plan shall identify the indicators and triggers for action, the measures of statistically significant changes to be tracked, the monitoring locations and parameters, the sampling frequencies, the methods to be used to analyze and evaluate the data, and the actions to be taken.

#### Comprehensive Risk Assessment

55. The Comprehensive Risk Assessment (“CRA”), April 2002 submitted as part of the application shall be implemented. The CRA shall be updated annually and submitted to the Board as part of the annual report.

#### Rose Creek Tailings Facility Water Management Plan

56. A water management plan for the Rose Creek Tailings Facility shall be prepared and submitted to the Board by March 31, 2005. The plan shall include an evaluation of tailings oxidation and alternative water discharge scenarios.

#### Plan for the Management of Oxide Fines

57. A long term plan for the management of oxide fines shall be prepared and submitted to the Board by July 30, 2004 or no later than 90 days prior to the proposed implementation date, whichever comes first.

Final Closure and Reclamation Plan

58. A final closure and reclamation plan for the facilities authorized by this licence shall be prepared and submitted to the Board by December 31, 2006. The plan shall be premised on the following:
- a) all decommissioned tailings-related facilities and structures shall be designed to withstand the Maximum Credible Earthquake (MCE) and the Probable Maximum Flood (PMF);
  - b) long term physical stability of all watercourses and tailings deposits shall be ensured, with minimal post-operational maintenance; and
  - c) the long term water quality in Rose Creek downstream of the tailings facilities shall comply with the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*, prepared by the Canadian Council of the Ministers of the Environment, 1999, updated 2001.

**PART G - MONITORING AND SURVEILLANCE**

59. The Licensee shall comply with the water quality monitoring program contained in Schedule A. All data collected in accordance with Schedule A shall be submitted to the Board as part of the monthly report.
60. In addition to the monitoring described in Schedule A, Part IV, water samples shall be collected in spring and fall ("SF") at observed surface seeps at the toe of rock dumps not included in the list in Schedule A, Part IV. The samples shall be tested/measured for ICP-T, ICP-D, Other and Flow, all as defined in the Schedule A, Part II.
61. The Licensee shall conduct four LC<sub>50</sub> bioassays per year, per station, from water collected at monitoring stations X5, X13, V2 and V25BSP.
62. As a component of the first annual report, the Licensee shall submit UTM coordinates for the monitoring stations listed in Schedule A, Part I.
63. All sampling and analysis shall be conducted in accordance with the current edition of *Standard Methods for the Examination of Water and Waste Water*, prepared and published jointly by the American Water Works Association and the Water Pollution Control Federation.

Biological and Sediment Monitoring Program

64. The Licensee shall comply with the monitoring program contained in Schedule B. All data collected in accordance with Schedule B shall be submitted to the Board as part of the annual report.

Water Treatment Plant Performance Evaluation

65. As a component of the annual report, the Licensee shall submit a performance evaluation report for all water treatment plants. The evaluation shall be carried out by an independent specialist with training and experience relevant to the types of treatment plants being operated. At a minimum, the evaluation shall include:
- a) an analysis of the plants' performance in terms of treatment efficiency, capacity, and compliance; and
  - b) a review of daily operators' logs; and
  - c) any recommended remedial actions.

Physical Inspections and Monitoring

66. An annual inspection of all earthworks shall be carried out by a Professional Engineer licensed to practice in Yukon. A report on the inspections shall be submitted as a part of the annual report. The report shall document the inspection locations and methodologies, the results of the inspection, all problems identified, remedial measures recommended, and remedial measures implemented. The status of implementation of any recommended remedial measures shall be included in the report. The earthworks to be inspected shall include but not be limited to:
- a) Intermediate Dam;
  - b) Cross Valley Dam;
  - c) Rose Creek Diversion Canal including containment dyke and backslope;
  - d) North Fork Rock Drain including the crest and slopes of the haul road in the vicinity and the crest and slopes of adjacent rock dumps;
  - e) Faro Creek Diversion Channel;
  - f) Vangorda Creek Diversion Flume including the rock and soil slopes above the flume;
  - g) Vangorda Rock Dump;
  - h) Grum Rock Dump;
  - i) Grum Interceptor Ditch/Sheep Pad Pond;
  - j) Little Creek Dam;
  - k) Grum/Vangorda Water Treatment Plant Freshwater Supply Pond; and
  - l) Grum/Vangorda Water Treatment Plant Clarification Pond.

67. The monitoring schedule and locations for readings of geotechnical performance monitoring instrumentation shall follow the recommendations of a Professional Engineer licensed to practice in Yukon. The Licensee shall maintain, repair or install additional instrumentation as recommended by the Professional Engineer.
68. Monitoring data collected for the Rose Creek Diversion Canal shall be collected no less than twice annually, in the spring and in the fall, and shall be analyzed by a Professional Engineer licensed to practice in Yukon. The results of the analysis shall be submitted as a component of the annual report. At a minimum, the data shall be analyzed to determine:
  - a) Thermal regime and degradation of permafrost;
  - b) Stability of the excavated canal wall;
  - c) Settlement and stability of the canal dyke;
  - d) Areas and rates of seepage from the canal;
  - e) Performance of any waste piles adjacent to the canal; and
  - f) Other areas of concern.
69. Glaciation in the Rose Creek Diversion Canal shall be monitored monthly during the winter season to assess and document the ice build up. Any corrective or preventative measures to address ice build up shall be documented and reported as a component of the annual report.
70. A comprehensive dam safety review for all water retaining structures shall be carried out in the summer of 2007. The review shall be completed and reported to the Board as part of the annual report for that year. The review shall be conducted in accordance with the *Dam Safety Guidelines*.
71. Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year in relation to dam safety shall be included in the annual report.

SCHEDULE A, PART I  
MONITORING STATIONS

***Faro Mine Site:***

<u>Station</u>	<u>Location</u>
X2	North Fork of Rose Creek at access road
X3	Pumphouse pond
X4	Intermediate pond at spillway
X5	Cross Valley pond surface outflow
X5P	Cross Valley pond at spillway
X11	Cross Valley Dam North Seep
X12	Cross Valley Dam South Seep
Weir 3	Cross Valley Dam Central Seep
X13	Cross Valley Dam Combined Seepage
X14	Rose Creek after mixing downstream of the diversion canal confluence
X22b	Faro Main Pit at Pumping Barge
X23	Old Faro Creek channel near the toe of the main (southwest) rock dumps.
X26	Faro Zone II Pit Pumped Discharge
R1	South Fork Rose Creek upstream of pumphouse pond
R2	Rose Creek downstream of mixing zone
R3	Rose Creek mid length
R4	Rose Creek just above Anvil Creek
R5	Anvil Creek just below the confluence of Rose Creek
R6	Anvil Creek immediately upstream of Rose Creek
Faro Cr	Outlet of Faro Creek Diversion
R7	North Fork of Rose Creek upstream of the confluence with the Faro Creek Diversion
R8	North Fork of Rose Creek, 100 m downstream of confluence with Faro Creek Diversion
R9	North Fork of Rose Creek, adjacent to Zone 2 Rock Dumps
R10	North Fork of Rose Creek, downstream of Zone 2 Rock Dumps and 100 metres downstream of R9
X16	Downstream of Rose Creek Tailings Facility
X17	Downstream of Rose Creek Tailings Facility
X18	Downstream of Rose Creek Tailings Facility
X21-96	Rose Creek Tailings Facility
X24-96	Rose Creek Tailings Facility
X25-96	Rose Creek Tailings Facility
P01-01 to 11	Rose Creek Tailings Facility
TH86-26	Upstream of Rose Creek Tailings Facility
BH1	Zone 2 Rock Dumps
BH2	Zone 2 Rock Dumps
BH4	Zone 2 Rock Dumps
BH12	Northeast Rock Dumps
BH13	Northeast Rock Dumps
BH14	Northeast Rock Dumps
P96-6	Main/Intermediate Rock Dumps
P96-7	Main/Intermediate Rock Dumps

***Faro Mine Site (continued):***

<u>Station</u>	<u>Location</u>
P96-8	Main/Intermediate Rock Dumps
S1	Main/Intermediate Rock Dumps
S2	Main/Intermediate Rock Dumps
S3	Main/Intermediate Rock Dumps
FDU	Faro Creek Diversion, upstream end
FDL	Faro Creek Diversion
FCO	Old Faro Creek, upstream of Faro Valley Dump
A30	Flow to Main Pit from Faro Valley Dump
A25	Main Pit, northwest wall
SP5/6	Internal Surface Flow on Faro Rock Dump
NE1	North Seep to North Fork from Northeast Dumps
NE1	Central Seep to North Fork from Northeast Dumps
NE1	South Seep to North Fork from Northeast Dumps
NF1	Upstream side of rock drain
NF2	Downstream side of rock drain
W5	East Dump
W8	Upper Guardhouse Creek downstream of Northwest Dump
W10	Upper Guardhouse Creek upstream of Northwest Dump
GDHSECK	Guardhouse Creek at Intermediate Pond
IDSEEP	Intermediate Dam toe seep, south side
X7	Seep downstream of emergency tailings area
K8	Tributary of Rose Creek upstream of the site of the freshwater dam
Grum Corner	Tributary of Rose Creek upstream of the site of the freshwater dam
Anvil Cr	Anvil Creek above the confluence with the Pelly River

***Vangorda Mine Site:***

<u>Station</u>	<u>Location</u>
V1	Vangorda Creek upstream of Vangorda Pit
V2	Grum Creek upstream of confluence with Vangorda Creek
V2A	Grum Creek upstream of confluence with Moose Pond
V4	Shrimp Creek upstream of confluence with Vangorda Creek
V5	West Fork of Vangorda Creek at gravel pit
V6A	AEX Creek
VG Main	Main Stem of Vangorda Creek
V8	Lower Vangorda Creek at the footbridge
V14	Grum Rock Dump at North toe seep
V15	Grum Rock Dump at central toe seep
V16	Grum Rock Dump at South toe seep
V17A	Creek from Grum ore transfer pad
V19	Vangorda Pit northwest diversion ditch
V20	Vangorda Pit, northeast diversion ditch
LCD	Little Creek Dam Pond at old pumphouse
V22	Vangorda Pit at pumping barge

***Vangorda Mine Site (continued):***

<u>Station</u>	<u>Location</u>
V23	Grum Pit at Haul Road
V24	Influent to water treatment plant
V25	Effluent from clarification pond
V25BSP	Grum Interceptor Ditch below Sheep Pad Pond
V27	Main Stem of Vangorda Creek upstream of Shrimp Creek
V29	Vangorda Dump drain #2
V30	Vangorda Dump drain #3
V31	Vangorda Dump drain #4
V32	Vangorda Dump drain #5
V33	Vangorda Dump drain #6
V37	Vangorda Rock Dump, GW94-01
V38	Vangorda Rock Dump, GW94-02
V39	Vangorda Rock Dump, GW94-03
V40	Vangorda Rock Dump, GW94-04
P96-9	Grum Rock Dump
P01-01 to 03	Vangorda Rock Dump

SCHEDULE A, PART II  
MONITORING SCHEDULE LEGEND

Frequency:

C = Continuously  
 WD = Weekly when discharging  
 MD = Monthly when discharging  
 M = Monthly  
 SF = Spring and Fall  
 SSF = Spring, Summer and Fall  
 WS = Winter and Summer  
 Q = Quarterly

Parameters:

ICP-T = ICP Total Metals including all metals listed in the effluent quality standards specified in Part C of this licence.

ICP-D = ICP Dissolved Metals including all metals listed in the effluent quality standards specified in Part C of this licence.

Other = field pH, field temperature, field conductivity, total suspended solids, sulphate (SO<sub>4</sub>), ammonia (as N). For groundwater samples, "Other" also includes purge volume, purge rate, purge time and sampling time.

SCHEDULE A, PART III  
MONITORING SCHEDULE  
(FARO MINE SITE)

Station	Parameter				
	ICP-T	ICP-D	Other	Hardness	Flow/Level
X2	M	M	M	M	M
X3	M	M	M	M	-
X4	M	M	M	-	M
X5	WD	WD	WD	WD	WD
X5P	M	M	M	-	M
X11	WS	WS	WS	-	W
X12	WS	WS	WS	-	W
Weir 3	WS	WS	WS	-	W
X13	M	M	M	M	W
X14	WD/M	WD/M	WD/M	WD/M	C
X22B	M	M	M	-	M
X23	M	M	M	-	M
X26	MD	MD	MD	-	M
R1	WS	WS	WS	WS	WS
R3	WS	WS	WS	WS	WS
R4	WS	WS	WS	WS	WS
R5	WS	WS	WS	WS	WS
R6	WS	WS	WS	WS	WS
Faro Cr	M	M	M	-	-
R7	M	M	M	-	C
R8	M	M	M	-	-
R9	M	M	M	-	-
R10	M	M	M	-	-
X16	-	SF	SF	-	SF
X17	-	SF	SF	-	SF
X18	-	SF	SF	-	SF
X21-96	-	SF	SF	-	SF
X24-96	-	SF	SF	-	SF
X25-96	-	SF	SF	-	SF
P01-01to 11	-	SF	SF	-	SF
TH86-26	-	SF	SF	-	SF
BH1	-	SF	SF	-	SF
BH2	-	SF	SF	-	SF
BH4	-	SF	SF	-	SF
BH12	-	SF	SF	-	SF
BH13	-	SF	SF	-	SF
BH14	-	SF	SF	-	SF

Station	Parameter				
	ICP-T	ICP-D	Other	Hardness	Flow/Level
P96-6	-	SF	SF	-	SF
P96-7	-	SF	SF	-	SF
P96-8	-	SF	SF	-	SF
S1	-	SF	SF	-	SF
S2	-	SF	SF	-	SF
S3	-	SF	SF	-	SF
FDU	SF	SF	SF	-	SF
FDL	SF	SF	SF	-	SF
FCO	SF	SF	SF	-	SF
A30	SF	SF	SF	-	SF
A25	SF	SF	SF	-	SF
SP5/6	SF	SF	SF	-	SF
NE1	SF	SF	SF	-	SF
NE2	SF	SF	SF	-	SF
NE3	SF	SF	SF	-	SF
NF1	SF	SF	SF	-	SF
NF2	SF	SF	SF	-	SF
W5	SF	SF	SF	-	SF
W8	SF	SF	SF	-	SF
W10	SF	SF	SF	-	SF
GDHSECK	SF	SF	SF	-	SF
IDSEEP	SF	SF	SF	-	SF
X7	SF	SF	SF	-	SF
K8	M	M	M	M	-
Grum Corner	M	M	M	M	-
Anvil Cr	WS	WS	WS	-	-

SCHEDULE A, PART IV  
MONITORING SCHEDULE  
(VANGORDA MINE SITE)

Station	Parameter				
	ICP-T	ICP-D	Other	Hardness	Flow/Level
V1	Q	Q	Q	Q	Q
V2	M	M	M	M	M
V2A	M	M	M	-	M
V4	SSF	SSF	SSF	SSF	-
V5	M	M	M	M	Q
V6A	Q	Q	Q	Q	Q
VGMain	M	M	M	M	-
V8	M	M	M	M	C
V14	SF	SF	SF	-	SF
V15	M	M	M	-	M
V16	SF	SF	SF	-	SF
V17A	SF	SF	SF	-	SF
V19	SF	SF	SF	-	SF
V20	SF	SF	SF	-	SF
LCD	SF	SF	SF	-	M
V22	Q	Q	Q	-	M
V23	Q	Q	Q	-	M
V24	WD	WD	WD	-	WD
V25	WD	WD	WD	-	WD
V25BSP	WD/M	WD/M	WD/M	WD/M	WD/M
V27	SSF	SSF	SSF	SSF	-
V29	-	SF	SF	-	SF
V30	-	SF	SF	-	SF
V31	-	SF	SF	-	SF
V32	-	SF	SF	-	SF
V33	-	SF	SF	-	SF
V37	-	SF	SF	-	SF
V38	-	SF	SF	-	SF
V39	-	SF	SF	-	SF
V40	-	SF	SF	-	SF
P96-9	-	SF	SF	-	SF
P01-01 to 03	-	SF	SF	-	SF

**SCHEDULE B  
BIOLOGICAL AND SEDIMENT MONITORING PROGRAM**

1. Sampling Points:

**Rose Creek:**

- a) R1: Above the confluence of the North Fork and South Fork of Rose Creek.
- b) R2 (same location as X14): In the mixing zone downstream of the intersection of the Rose Creek Diversion Canal.
- c) R3: Rose Creek about one-half way to Anvil Creek.
- d) R4: Rose Creek just above Anvil Creek.
- e) R5: Anvil Creek just below the confluence of Rose Creek.
- f) R6: Anvil Creek immediately upstream of Rose Creek.
- g) R7: North Fork of Rose Creek upstream of the confluence with the Faro Creek diversion.

**Vangorda Creek:**

- a) V1: Vangorda Creek upstream from the mine and Blind Creek Road.
  - b) V5: West Fork of Vangorda Creek upstream of mine access road.
  - c) V8: Vangorda Creek near bridge to Town of Faro water supply.
  - d) V27: Main Stem of Vangorda Creek just upstream of confluence with Shrimp Creek.
2. The Licensee shall collect three replicate samples of benthic invertebrates every second year from each station using an artificial substrate sampler for approximately 5 weeks.
3. Water samples shall be collected and analyzed for total hardness, alkalinity, sulfate, suspended solids, ammonia and for a complete ICP scan of total and dissolved metals that includes copper, iron, lead and zinc.
4. Water samples shall be collected according to standard sampling protocols and field measurements of pH, temperature and conductivity shall be recorded.

5. Flow shall be measured at each location, except that flow may be calculated at one of locations R4, R5 or R6.
6. Sediment samples shall be collected in triplicate, passed through a 100 mesh (0.15 mm) stainless steel sieve. The portion passing through the sieve shall be analysed for all total metals listed in the effluent quality standards of Part C of this licence.
7. Sample collection, identification, enumeration and data interpretation shall be done by independent, qualified personnel.
8. The Licensee shall compile a report of all data collected and shall submit the report to the Board as a component of the annual report.