

Appendix B : Field Observations and Water Quality Data

Location		Field Observations					Field Parameters					General Paramaters				
	Station	WP	Date	Time	Sampled (y/n)	Description	Field pH	Field EC uS/cm	ORP mV	Temperature 'C	Flow L/s	Conductivity uS/cm	Hardness (as CaCO3) mg/L	pH pH	Total Suspended Solids mg/L	Total Dissolved Solids mg/L
Waste Rock Influenced Area	14-WR-003	1	6/14/2014	18:58	Y	2 m wide dispersed shallow flow from base of WR pile, clear water, not turbid, flows over crush rock to PCP	8.14	2990	225	4.5	1.5	3210	686	7.97	12.2	1860
	14-DC-07	14	6/15/2014	18:38	N	v.small, slow trickle seep from under road. Water very murky/cloudy. Cloudy with TSS, dusty. Scum bubbles and dust coating on top of puddle.	8.06	2860	260	3.4	--	--	--	--	--	--
	14-DC-08	15	6/15/2014	18:49	Y	can hear flow from under toe of road, steady and strong flow, small seep. Spills into pool between 2 black pipes, water clear, bottom of pool dusty, very hard to filter, dusty.	8.18	2020	245	2.6	0.75	1720	314	7.91	3.7	912
	14-DC-14	20	6/16/2014	13:21	N	trickle from under toe of road. Passes under black pipe onto tundra. Muddy small grassy puddles. Very slow flow. Dusty	8.17	846	280	4.3	--	--	--	--	--	--
	14-DC-15	21	6/16/2014	13:35	N	small trickle slightly east of 14-DC-14. Very slow flow, dusty, muddy tundra pools. Data point between rocks.	8.4	795	267	0.8	--	--	--	--	--	--
	14-DC-16	22	6/16/2014	13:40	N	small seep, disperses into shallow large tundra puddle. Clear water, dust settled in bottom, muddy area, adjacent to sump	8.3	728	258	3.9	--	--	--	--	--	--
	14-DC-17	23	6/16/2014	13:51	Y	small trickle, several seep exits onto tundra near sump. Water not entirely captured by sump. Very dispersed pools, very muddy and rocky. Tundra is very squishy.	8.33	695	259	2	0.5	683	183	7.91	4.2	387
Doris-Windy Road	14-DW-01	2	6/15/2014	9:56	N	small, slow flow seep, located adjacted to old borehole with pool over hole. Seeps onto tundra grass from under road. Flow 0.1 L/s -0.250 L/s (vis est).	7.94	688	267	3.3	0.1	--	--	--	--	--
	14-DW-02	3	6/15/2014	10:10	N	snow melt to west, flows across tundra, gooks slightly under toe of road. Data point downstream of where water interacts with rock. Flow 1 l/s	7.7	607	293	1.9	1	--	--	--	--	--
	14-DW-03	4	6/15/2014	10:20	N	seep flow from west side of road to east. Snow pack is melting on west side. Dispersed flow into various tundra pools. 0.5 L/s. Grassy tundra pools.	7.9	654	302	2.1	0.5	--	--	--	--	--
	14-DW-04	5	6/15/2014	10:33	N	Seep from under road to NW, slow flow (trickle) 0.1 L/s, clear water, muddy tundra bottom pool	7.57	355	306	2.9	0.1	--	--	--	--	--
	14-DW-05	6	6/15/2014	10:52	Y	large seep flowing from under road. Source could be tundra water (pool) up hill/road to east. Seep flow is deep, 20-30cm. Spills onto tundra, runs down into windy lake.	7.97	176.5	253	1.8	5	152	60.7	7.6	<3	152
Doris North Areas	14-DC-06	13	6/15/2014	18:03	Y	high volume flow from under helipad. ~10L/s. Disperses over tundra to eventually flow to Doris Lake.	8.17	277	201	3.1	10	236	87.7	8.07	5.4	135
	14-DC-09	16	6/16/2014	8:48	N	very small slow trickle from under airstrip. Organic matter in the water, grassy pool with rock interaction, dusty grass, east side of strip	7.64	330	280	2.5	--	--	--	--	--	--
	14-DC-10	17	6/16/2014	9:01	N	tundra water (snow melt) with rock/water interaction. Appears to have movement, but cannot determine if seeping from under road (does not appear to be). Slow if any flow. Scum of dust on top of pool. Grassy pool with orgaic matter floating in it.	7.54	280	261	5.1	--	--	--	--	--	--
	14-DC-11	18	6/16/2014	9:39	Y	good flow, 0.5 L/s at sample point. Seep from between rocks from under road. Clear water, OM and grassy pool.	7.87	182.9	268	5.5	0.5	176	70.5	7.77	<3	122

Location		Anions and Nutrients										Dissolved Trace Elements						
	Station	Acidity (as CaCO3) mg/L	Alkalinity Total (as CaCO3) mg/L	Ammonia Total (as N) mg/L	Bromide (Br) mg/L	Chloride (Cl) mg/L	Fluoride (F) mg/L	Nitrate (as N) mg/L	Nitrite (as N) mg/L	Phosphorus (P)- Total mg/L	Sulfate (SO4) mg/L	Aluminum (Al)- Dissolved mg/L	Antimony (Sb)- Dissolved mg/L	Arsenic (As)- Dissolved mg/L	Barium (Ba)- Dissolved mg/L	Beryllium (Be)- Dissolved mg/L	Bismuth (Bi)- Dissolved mg/L	Boron (B)- Dissolved mg/L
Waste Rock Influenced Area	14-WR-003	6.9	87.4	21.1	1.3	877	<0.4	54.6	0.095	0.0149	88	0.0113	0.00031	0.00178	0.0224	<0.0002	<0.001	0.339
	14-DC-07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-08	2.3	76.2	2.48	1.45	493	<0.2	5.08	0.034	0.0076	42.7	0.0165	0.00029	0.00136	0.0214	<0.0001	<0.0005	0.152
	14-DC-14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-17	1.5	57	2.02	0.331	158	0.051	5.22	0.0399	0.017	23.5	0.0117	0.00027	0.00084	0.01	<0.0001	<0.0005	0.08
Doris-Windy Road	14-DW-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-05	1.1	34.3	0.0391	<0.05	26.1	0.038	0.237	0.0059	0.0145	2.67	0.0301	<0.0001	0.00026	0.0078	<0.0001	<0.0005	0.013
Doris North Areas	14-DC-06	1	84.3	0.0411	0.063	18.9	0.041	0.422	0.0061	0.0137	15.4	0.0146	<0.0001	0.00072	0.00466	<0.0001	<0.0005	0.039
	14-DC-09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-11	1.6	67.9	0.0093	<0.05	18	0.033	0.0087	<0.001	0.0095	3.69	0.008	<0.0001	0.00019	0.00363	<0.0001	<0.0005	0.01

Location							Dissolved Trace Elements								
	Station	Cadmium (Cd)- Dissolved mg/L	Calcium (Ca)- Dissolved mg/L	Chromium (Cr)- Dissolved mg/L	Cobalt (Co)- Dissolved mg/L	Copper (Cu)- Dissolved mg/L	Iron (Fe)- Dissolved mg/L	Lead (Pb)- Dissolved mg/L	Lithium (Li)- Dissolved mg/L	Magnesium (Mg)-Dissolved mg/L	Manganese (Mn)-Dissolved mg/L	Mercury (Hg)- Dissolved mg/L	Molybdenum (Mo)-Dissolved mg/L	Nickel (Ni)- Dissolved mg/L	Phosphorus (P)- Dissolved mg/L
Waste Rock Influenced Area	14-WR-003	0.000046	221	<0.0002	0.00111	0.00512	<0.01	<0.0001	0.0347	32.5	0.1	<0.00001	0.00338	0.0013	<0.05
	14-DC-07	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-08	0.000022	81.4	<0.0001	0.00051	0.00494	0.084	<0.00005	0.00887	26.8	0.056	<0.00001	0.00379	0.00112	<0.05
	14-DC-14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-17	0.000012	59.7	<0.0001	0.00023	0.00575	<0.01	<0.00005	0.00448	8.17	0.0238	<0.00001	0.00138	0.00074	<0.05
Doris-Windy Road	14-DW-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-05	<0.00001	18.3	0.00025	0.00019	0.00233	0.153	<0.00005	0.00265	3.66	0.0366	<0.00001	0.000447	0.00202	<0.05
Doris North Areas	14-DC-06	<0.00001	26.8	<0.0001	0.00023	0.00663	0.049	<0.00005	0.0015	5.06	0.0447	<0.00001	0.000641	0.00095	<0.05
	14-DC-09	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-10	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-11	<0.00001	20.7	0.00014	<0.0001	0.00206	0.057	<0.00005	0.00162	4.59	0.00846	<0.00001	0.000099	0.00075	<0.05

Location		Dissolved Trace Elements												
	Station	Potassium (K)- Dissolved mg/L	Selenium (Se)- Dissolved mg/L	Silicon (Si)- Dissolved mg/L	Silver (Ag)- Dissolved mg/L	Sodium (Na)- Dissolved mg/L	Strontium (Sr)- Dissolved mg/L	Sulfur (S)- Dissolved mg/L	Thallium (Tl)- Dissolved mg/L	Tin (Sn)- Dissolved mg/L	Titanium (Ti)- Dissolved mg/L	Uranium (U)- Dissolved mg/L	Vanadium (V)- Dissolved mg/L	Zinc (Zn)- Dissolved mg/L
Waste Rock Influenced Area	14-WR-003	22.3	0.00151	2.07	<0.00002	325	0.693	28.4	0.000028	<0.0002	<0.02	0.000432	0.0021	<0.002
	14-DC-07	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-08	11.9	0.00054	1.31	<0.00001	208	0.288	14.2	0.000021	<0.0001	<0.01	0.000534	<0.001	0.0012
	14-DC-14	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-15	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-16	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-17	5.11	0.00036	1.18	<0.00001	54.8	0.15	7.82	0.000013	<0.0001	<0.01	0.000366	<0.001	0.0011
Doris-Windy Road	14-DW-01	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-02	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-03	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-04	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DW-05	1.95	<0.0001	1.16	<0.00001	6.21	0.0393	1.08	<0.00001	<0.0001	<0.01	0.000043	<0.001	0.0025
Doris North Areas	14-DC-06	1.92	0.00014	1.26	<0.00001	15.7	0.0654	5.29	<0.00001	<0.0001	<0.01	0.000212	<0.001	<0.001
	14-DC-09	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-10	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-11	1.19	<0.0001	1.64	<0.00001	9.03	0.0299	1.39	<0.00001	<0.0001	<0.01	0.000019	<0.001	0.0013

Location		Field Observations					Field Parameters					General Paramaters				
	Station	WP	Date	Time	Sampled (y/n)	Description	Field pH	Field EC uS/cm	ORP mV	Temperature 'C	Flow L/s	Conductivity uS/cm	Hardness (as CaCO3) mg/L	pH pH	Total Suspended Solids mg/L	Total Dissolved Solids mg/L
Doris North Areas	14-DC-13	19	6/16/2014	10:19	N	Slow flow from under road into large tundra grassy pool. Data point take at rocks, clear water, some OM, surrounding grass is dusty.	7.78	256	290	3.7	--	--	--	--	--	--
	14-TLR-18	24	6/16/2014	14:27	N	Snow melt source is uphill behind vent raise pad. Cold, slightly cloudy water, fast flow, 1L/s at each exit (approx 4 exits)	9.02	94.5	250	0.2	4	--	--	--	--	--
	14-TLR-19	25	6/16/2014	14:35	N	snow melt and water from under rocks of vent raise pad. Data point beside rocks, fast cloudy flow onto tundra. Cold. Multiple exits	8.99	104.3	256	0.8	1	--	--	--	--	--
	14-TLR-20	26	6/16/2014	14:45	Y	snow melt, seep from under rocks, can hear water running in vent raise pad. Water is cold/clear. Sampled between rocks, travels down onto tundra headed for doris creek	9.02	105.9	225	0.3	--	105	38	8.12	16.8	82
	14-DC-21	27	6/16/2014	16:38	N	trickle seep through rock of road. Some water slightly uphill coming through iron culvert. Grassy/muddy/crush rock area. Pours down into doris lake. Source is flow from tundra field across road.	7.92	594	256	10.7	--	--	--	--	--	--
	14-DC-22	28	6/17/2014	9:10	N	upper side of upper berm. Pooled snow melt running along top of berm. Not passing through berm, some lateral flow with rock interaction. Pool is cloudy/brown and yellow. Organic matter in water, feces and dust.	8.89	102.8	193	3.9	--	--	--	--	--	--
	14-DC-23	29	6/17/2014	9:28	N	seeping from under berm to uppder side of berm. Snow melt form tundra up hill that hooks under berm and re-emerges. Brown tinted water. Good flow, 1 L/s	8.83	154.8	241	1.3	1	--	--	--	--	--
	14-DC-24	30	6/17/2014	9:47	N	upper side of overburden containment berm. Katsky requested. Water is snow melt from overburden pile. Travels down to berm alongside road. Murky brown water, very dusty. Grassy area.	8.1	243	249	5.3	--	--	--	--	--	--
	14-DC-25	31	6/17/2014	10:00	Y	lower side of overburden containment berm. Water from upperside of berm (DC-24) passes through berm. Travels down along side road to junction of DW road and camp road (near helipad). Water clearer with less sediment and dust as DC-24. Still quite dusty. Sampled from grassy/rocky pool.	8.16	244	241	4.3	--	240	81.1	7.24	19.1	148
	14-DC-26	32	6/17/2014	10:27	N	water from DC-24 and DC-25 runs adjacent to road and under DW road and helipad. Slightly brown tint, highly dispersed flow on tundra.	8.17	256	227	2.3	5	--	--	--	--	--
Reference Points	14-REF-001	34	6/18/2014	9:23	Y	fast flow, bubbly/gurgly stream. Grassy bottom, grassy field. Clean flow, not much OM. Uphill from DW road.	7.07	57.1	226	6	--	53.7	20.8	8.07	<3	58
	14-REF-002	35	6/18/2014	9:35	Y	fast flow, narrow stream. Cold. Grassy bottom and grass surrounding.	7.29	114.3	240	3.2	--	103	31	7.9	<3	74
	14-REF-003	36	6/18/2014	9:51	Y	slow flow, organic matter floating in water, brown-ish tint to water. Grassy tundra stream.	7.45	108.2	228	8.4	--	69.6	25.9	7.99	<3	48

Location		Anions and Nutrients										Dissolved Trace Elements						
	Station	Acidity (as CaCO3) mg/L	Alkalinity Total (as CaCO3) mg/L	Ammonia Total (as N) mg/L	Bromide (Br) mg/L	Chloride (Cl) mg/L	Fluoride (F) mg/L	Nitrate (as N) mg/L	Nitrite (as N) mg/L	Phosphorus (P)- Total mg/L	Sulfate (SO4) mg/L	Aluminum (Al)- Dissolved mg/L	Antimony (Sb)- Dissolved mg/L	Arsenic (As)- Dissolved mg/L	Barium (Ba)- Dissolved mg/L	Beryllium (Be)- Dissolved mg/L	Bismuth (Bi)- Dissolved mg/L	Boron (B)- Dissolved mg/L
Doris North Areas	14-DC-13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-20	<1	38.3	0.047	<0.05	7.82	0.021	0.251	0.0136	0.0253	4.27	0.0684	<0.0001	0.00079	0.000786	<0.0001	<0.0005	0.02
	14-DC-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-25	6.5	73.9	0.008	0.067	25.4	0.04	0.4	0.0032	0.0178	13.8	0.0192	<0.0001	0.00086	0.00469	<0.0001	<0.0005	0.035
	14-DC-26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Reference Points	14-REF-001	3.1	18.5	<0.005	<0.05	3.98	0.049	<0.005	<0.001	0.0115	<0.5	0.0506	<0.0001	0.00014	0.00245	<0.0001	<0.0005	<0.01
	14-REF-002	3.6	21.4	<0.005	<0.05	16.9	0.028	0.0053	<0.001	0.0128	2.92	0.0183	<0.0001	<0.0001	0.00233	<0.0001	<0.0005	<0.01
	14-REF-003	3.1	24.2	<0.005	<0.05	5.88	<0.02	<0.005	<0.001	0.0063	2.11	0.013	<0.0001	<0.0001	0.00196	<0.0001	<0.0005	<0.01

Location		Dissolved Trace Elements													
	Station	Cadmium (Cd)- Dissolved mg/L	Calcium (Ca)- Dissolved mg/L	Chromium (Cr)- Dissolved mg/L	Cobalt (Co)- Dissolved mg/L	Copper (Cu)- Dissolved mg/L	Iron (Fe)- Dissolved mg/L	Lead (Pb)- Dissolved mg/L	Lithium (Li)- Dissolved mg/L	Magnesium (Mg)-Dissolved mg/L	Manganese (Mn)-Dissolved mg/L	Mercury (Hg)- Dissolved mg/L	Molybdenum (Mo)-Dissolved mg/L	Nickel (Ni)- Dissolved mg/L	Phosphorus (P)- Dissolved mg/L
Doris North Areas	14-DC-13	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-18	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-19	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-20	0.000011	11.4	0.00014	0.0001	0.0139	0.043	0.000138	0.0006	2.33	0.00414	<0.00001	0.000234	0.00083	<0.05
	14-DC-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-22	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-24	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-25	<0.00001	24.3	<0.0001	<0.0001	0.008	0.026	<0.00005	0.00126	4.98	0.00738	<0.00001	0.000598	0.00062	<0.05
	14-DC-26	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Reference Points	14-REF-001	<0.00001	4.39	0.0004	<0.0001	0.00137	0.144	<0.00005	0.00208	2.38	0.00051	<0.00001	0.000164	0.00221	<0.05
	14-REF-002	<0.00001	7.31	<0.0001	<0.0001	0.0009	0.04	<0.00005	0.00085	3.11	0.000502	<0.00001	0.00008	0.00101	<0.05
	14-REF-003	0.00002	7.56	<0.0001	<0.0001	0.00121	0.032	<0.00005	<0.0005	1.71	0.00152	<0.00001	<0.00005	<0.0005	<0.05

Location		Dissolved Trace Elements												
	Station	Potassium (K)- Dissolved mg/L	Selenium (Se)- Dissolved mg/L	Silicon (Si)- Dissolved mg/L	Silver (Ag)- Dissolved mg/L	Sodium (Na)- Dissolved mg/L	Strontium (Sr)- Dissolved mg/L	Sulfur (S)- Dissolved mg/L	Thallium (Tl)- Dissolved mg/L	Tin (Sn)- Dissolved mg/L	Titanium (Ti)- Dissolved mg/L	Uranium (U)- Dissolved mg/L	Vanadium (V)- Dissolved mg/L	Zinc (Zn)- Dissolved mg/L
Doris North Areas	14-DC-13	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-18	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-19	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-TLR-20	1.13	0.00016	1.46	<0.00001	5.78	0.0203	1.56	0.00001	<0.0001	<0.01	0.000111	<0.001	<0.001
	14-DC-21	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-22	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-23	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-24	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-DC-25	1.82	0.00012	1.37	<0.00001	18.1	0.0604	4.83	<0.00001	<0.0001	<0.01	0.000259	<0.001	0.0033
	14-DC-26	--	--	--	--	--	--	--	--	--	--	--	--	--
Reference Points	14-REF-001	1.58	<0.0001	1.23	<0.00001	2.74	0.00978	<0.5	<0.00001	<0.0001	<0.01	0.000014	<0.001	0.0046
	14-REF-002	0.9	<0.0001	1.24	<0.00001	8.02	0.0218	1.13	<0.00001	<0.0001	<0.01	<0.00001	<0.001	0.0027
	14-REF-003	0.5	<0.0001	0.699	<0.00001	3.84	0.0116	0.81	<0.00001	<0.0001	<0.01	<0.00001	<0.001	0.0014