15 MONITORING

Midas Gold will design and implement additional environmental monitoring programs that meet the requirements of the Forest Service, other Federal agencies, and Idaho agencies with regulatory oversight of the Project, beyond those currently in place and being utilized by Midas Gold. These programs will be implemented, maintained, and adjusted as the Project moves through the various phases of construction, mining, ore processing, and closure and reclamation activities. Midas Gold expects that post-closure monitoring will continue for 5 years after the completion of final reclamation. In line with its transparency commitment noted in Section 2, Midas Gold intends to develop a process with Tribes, local communities and NGOs whereby such monitoring information is readily available in a timely manner to interested parties.

15.1 OBJECTIVES & PROTOCOL

Monitoring will establish the effects of Project activities and the efficiency of environmental management and mitigation measures. Monitoring will provide input to Midas Gold and governmental regulatory agencies regarding Project performance. The information gained during monitoring will be used as the basis for designing additional or altering existing mitigation measures, if necessary.

The general objectives for site environmental monitoring are as follows:

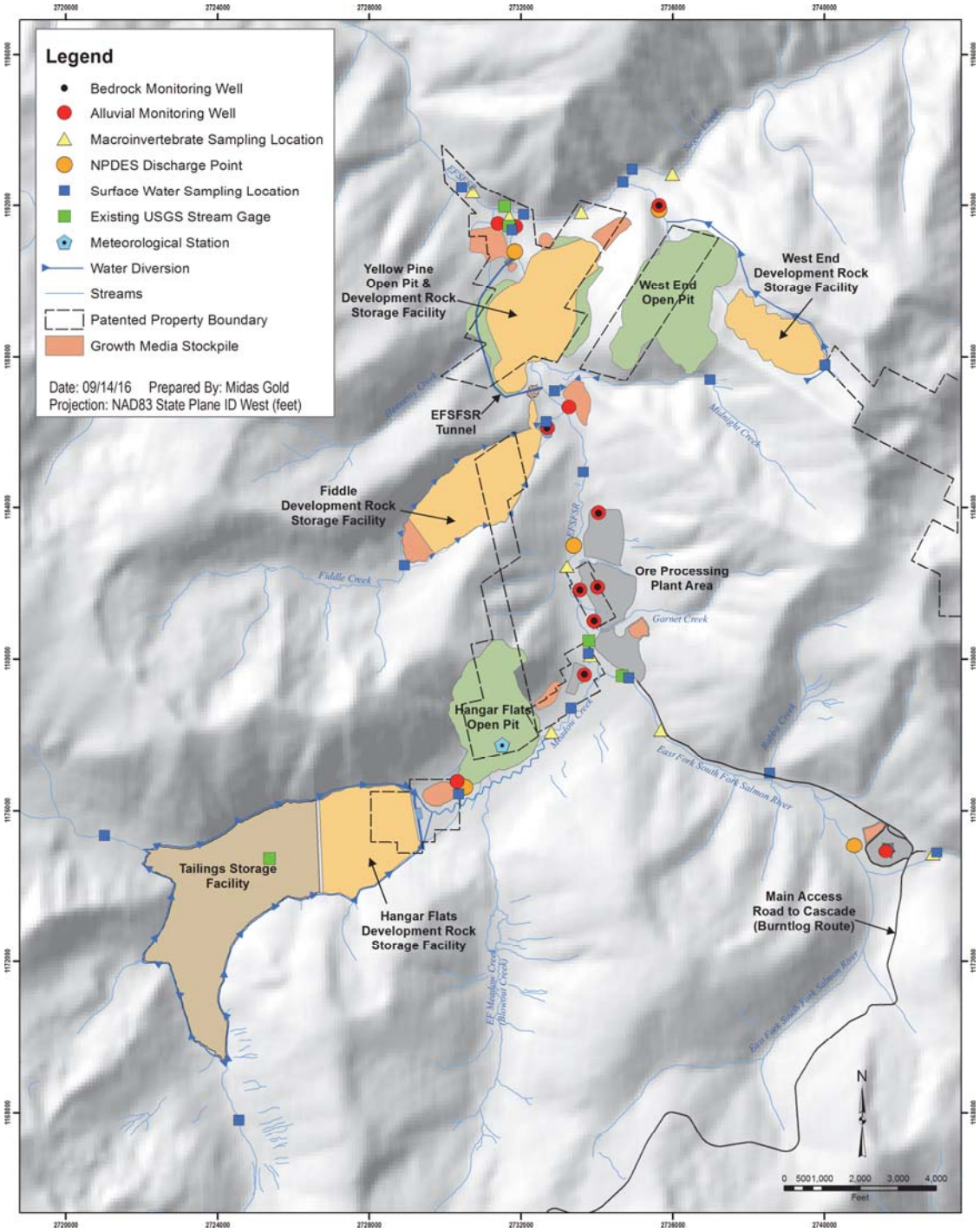
- Confirm compliance with approved PRO, as well as with other federal and state laws, regulations, and permit conditions;
- Provide data and information to calibrate and validate baseline and background modeling applications;
- Provide data and information that can provide for early detection of potential problems;
- Provide data and information that can be used to formulate direct corrective actions should they become necessary; and,
- Provide data to measure the effectiveness of defined environmental performance mitigation standards.

The Project will operate under federal and state permits and other approvals that will require practices and procedures that reduce or avoid environmental impacts and to reclaim disturbed areas.

The monitoring measures and practices addressed in the following subsections have been used successfully by Midas Gold (during their exploration work) and by numerous mining companies at mining operations in Idaho and throughout other parts of the western United States. As stated in Section 2.5 of this PRO, Midas Gold is committed to an open and transparent approach to disclosure of its progress and practices and will provide regular reporting and annual sustainability tracking to the public and other interested parties.

As mining and processing permits and other approvals are obtained, Midas Gold will incorporate appropriate new or revised environmental mitigation and monitoring measures into its future operations at the site. Midas Gold anticipates that environmental monitoring measures will be part of the environmental permits and other approvals that are expected for mining and ore processing at the Project (see Figure 15-1).

Figure 15-1, Monitoring Locations



15.2 CLIMATE & AIR QUALITY

Midas Gold has collected climate and air quality data as part of its baseline and background monitoring program. The location of the existing meteorological tower and air quality sensors used for the baseline and background monitoring is shown on Figure 15-1.

Information monitored included the following:

- Temperature;
- Solar radiation;
- Relative humidity;
- Precipitation;
- Barometric pressure;
- Wind speed and direction; and,
- Particulate matter ($PM_{2.5}$ and PM_{10}).

Because the existing meteorological tower and sensors are located in the area of the planned Hangar Flats Pit, Midas Gold will re-locate this monitoring tower and associated instrumentation prior to construction to a new location to be coordinated with the Forest Service and IDEQ (see Figure 15-1**)**.

Meteorological monitoring will be conducted at the Project site during initial site restoration, construction, operations and closure/reclamation in accordance with requirements of any air quality permit to be obtained from the IDEQ.

15.3 SURFACE WATER

Midas Gold has collected more than three years of baseline surface water information within and surrounding the Project area as part of its baseline and background-monitoring program. This information supplements US Geological Survey and other baseline data collected intermittently in the Project area over the past 40 years.

Midas Gold plans to continue surface water monitoring as part of Project construction, operations and closure/reclamation in order to assess whether water quality is being impacted and, if so, to undertake mitigating measures. This program will include the following components:

- Monitoring locations;
- Monitoring frequency;
- Water sample collection procedures;
- Laboratory analyses;
- Verification of data records and transmittal of samples; and,
- Data management and reporting.

15.3.1 Surface Water Monitoring Locations

As part of its operational monitoring program, Midas Gold will monitor surface water at sites located upstream and downstream of the planned operations, at key points within the area of planned operations, and at sites where major tributary influences occur (see Figure 15-1 for full Project build out

conceptual monitoring locations). Many of these sites have been monitored for several years and helped in evaluating the background surface water chemistry conditions of the site.

Midas Gold may add or shift monitoring points to correspond with requirements of NPDES permit for the Project. This NPDES monitoring is yet to be determined, but the surface water-monitoring program will likely be amended when a NPDES permit is issued for the Project. Final monitoring locations will be identified and selected in final NPDES permit and incorporated into the final PRO.

15.3.2 Surface Water Monitoring Frequency

Midas Gold will continue to monitor surface water quarterly, and monitoring will include field parameters (water temperature, pH, electrical conductivity and dissolved oxygen) and other water quality parameters set forth in Table 15-1.

The parameters listed in Table 15-1 were selected to characterize general water quality and aid in the evaluation of potential metals loading. Midas Gold, with approval of applicable regulatory agencies, will review the analytical results on a regular basis and determine if analyzed parameters and the frequency of monitoring may be changed in the future based on analytical results and sampling objectives. Following completion of baseline water quality monitoring, a determination will be made as to appropriate constituent and frequency needs for surface and ground water quality monitoring and analysis and incorporated into the final PRO.

RESTORE THE SITE

Table 15-1, Surface Water Analytical Parameters

Surface Water Parameter	Sampling Frequency	Most Restrictive Limit			Best-Fit Method		Data Quality Indicators[1]		
		Strictest Regulatory Criteria	Units	Limiting Program(s)	Method Reporting Limit[1]	Method Number	Duplicate Samples RPD	LCS Percent Recovered	Matrix Spike Percent Recovered
Analytical Constituents									
Alkalinity	Quarterly	> 20	mg/L as $CaCO_3$	USEPA Freshwater Aquatic Life Criteria[2]	9	SM[3] 2320 B	20	90 - 110	NA
Aluminum	Quarterly	0.05	mg/L	USEPA Secondary Drinking Water Standards[4]	0.002	USEPA[5] 6020A	20	85 - 120	75 - 125
Ammonia	Quarterly	NA	mg/L as NH_3	Not Applicable	0.01	USEPA 350.1	20	90 - 110	90 - 110
Antimony	Quarterly	0.0056	mg/L	Idaho Domestic Water Supply Use[6]	0.00005	USEPA 6020A	20	91 - 112	75 - 125
Arsenic	Quarterly	0.01	mg/L	Idaho Domestic Water Supply Use/USEPA Drinking Water MCL[7]	0.0005	USEPA 6020A	20	89 - 112	75 - 125
Arsenic III	Quarterly	NA	mg/L	Not Applicable	0.00002	USEPA 1632	35	70 - 130	30 - 170
Barium	Quarterly	2	mg/L	USEPA Drinking Water MCL	0.00005	USEPA 6020A	20	92 - 111	75 - 125
Beryllium	Quarterly	0.004	mg/L	USEPA Drinking Water MCL	0.00002	USEPA 6020A	20	80 - 120	75 - 125
Bicarbonate	Quarterly	NA	mg/L as $CaCO_3$	Not Applicable	9	SM 2320 B	20	90 - 110	NA
Boron	Quarterly	120	mg/L	Wildlife Benchmark for Consumption of Surface Water[8]	0.010	USEPA 6010C	20	91 - 112	75 - 125
Cadmium	Quarterly	0.00025	mg/L	USEPA Freshwater Aquatic Life Criteria	0.00002	USEPA 6020A	20	92 - 111	75 - 125
Calcium	Quarterly	NA	mg/L	Not Applicable	0.004	USEPA 6010C	20	85 - 116	75 - 125
Carbonate	Quarterly	NA	mg/L as $CaCO_3$	Not Applicable	9	SM 2320 B	20	90 - 110	NA
Chloride	Quarterly	230	mg/L	USEPA Freshwater Aquatic Life Criteria	0.2	USEPA 300.0	20	90 - 110	90 - 110
Chromium, Total	Quarterly	0.1	mg/L	USEPA Drinking Water MCL	0.0002	USEPA 6020A	20	88 - 113	75 - 125
Chromium III	Conditional[9]	0.074	mg/L	Idaho Criteria for Aquatic Life[10]/USEPA Aquatic Life Criteria	0.001	USEPA 218.6	ND	ND	ND
Chromium VI	Conditional	0.011	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.001	USEPA 218.6	ND	ND	ND
Cobalt	Quarterly	NA	mg/L	Not Applicable	0.00002	USEPA 6020A	20	87 - 114	75 - 125
Copper	Quarterly	0.009	mg/L	USEPA Freshwater Aquatic Life Criteria	0.0001	USEPA 6020A	20	89 - 113	75 - 125
Cyanide, Free	Conditional	0.2	mg/L	USEPA Drinking Water MCL	0.02	USEPA 9014	20	86 - 118	70 - 125
Cyanide, Total	Quarterly	0.0052	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.005	SM 4500 CN-E	20	84 - 115	23 - 148
Cyanide, Weak Acid Dissociable	Conditional	0.0052	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.005	SM 4500 CN I	20	70 - 141	64 - 136
Hardness	Quarterly	NA	mg/L	Not Applicable	9	SM 2320 B	20	NA	NA
Iron	Quarterly	0.3	mg/L	USEPA Secondary Drinking Water Standards	0.001	USEPA 6010C	20	92 - 111	75 - 125
Fluoride	Quarterly	2.0	mg/L	USEPA Secondary Drinking Water Standards	0.2	USEPA 300.0	20	90 - 110	90 - 110
Lead	Quarterly	0.0025	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.00002	USEPA 6020A	20	90 - 112	75 - 125
Magnesium	Quarterly	NA	mg/L	Not Applicable	0.002	USEPA 6010C	20	86 - 115	75 - 125
Manganese	Quarterly	0.05	mg/L	USEPA Secondary Drinking Water Standards	0.0006	USEPA 6010C	20	92 - 112	75 - 125
Mercury	Quarterly	0.000012	mg/L	Idaho Criteria for Aquatic Life	0.000001	USEPA 1631E	24	77 - 123	71 - 125
Methyl Mercury	Quarterly	NA	mg/L	Not Applicable	0.0000001	USEPA 1630	35	67 - 133	65 - 135
Molybdenum	Quarterly	0.6	mg/L	Wildlife Benchmark for Consumption of Surface Water	0.00005	USEPA 6020A	20	80 - 120	75 - 125
Nickel	Quarterly	0.052	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.0002	USEPA 6020A	20	89 - 113	75 - 125
Nitrates	Conditional	10	mg/L as N	USEPA Drinking Water MCL	0.2	USEPA 300.0	ND	ND	ND
Nitrates and Nitrites	Quarterly	NA	mg/L as N	Not Applicable	0.05	USEPA 353.2	20	90 - 110	89 - 114
Nitrites	Conditional	1	mg/L as N	USEPA Drinking Water MCL	0.2	USEPA 300.0	ND	ND	ND
Nitrogen, Total	Quarterly	NA	mg/L as N	Not Applicable	0.2	USEPA 351.4 and USEPA 353.2	20	72 - 129	53 - 160

Surface Water Parameter	Sampling Frequency	Most Restrictive Limit			Best-Fit Method		Data Quality Indicators[1]		
		Strictest Regulatory Criteria	Units	Limiting Program(s)	Method Reporting Limit[1]	Method Number	Duplicate Samples RPD	LCS Percent Recovered	Matrix Spike Percent Recovered
Phosphorous	Quarterly	NA	mg/L as P	Not Applicable	0.02	USEPA 6010C	20	80 - 120	75 - 125
Potassium	Quarterly	NA	mg/L	Not Applicable	0.1	USEPA 6010C	20	89 - 114	75 - 125
Selenium	Quarterly	0.005	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.001	USEPA 6020A	2	87 - 115	75 - 125
Silver	Quarterly	0.0032	mg/L	USEPA Freshwater Aquatic Life Criteria	0.00002	USEPA 6020A	20	80 - 120	75 - 125
Sodium	Quarterly	NA	mg/L	Not Applicable	0.2	USEPA 6010C	20	80 - 120	75 - 125
Solids, Total Dissolved (TDS)	Quarterly	500	mg/L	USEPA Secondary Drinking Water Standards	5	SM 2540 C	10	90 - 108	NA
Solids, Total Suspended (TSS)	Quarterly	NA	mg/L	Not Applicable	5	USEPA 160.2	10	85 - 111	NA
Sulfate	Quarterly	250	mg/L	USEPA Secondary Drinking Water Standards	0.2	USEPA 300.0	20	90 - 110	90 - 110
Thallium	Quarterly	0.00024	mg/L	Idaho Domestic Water Supply Use	0.00002	USEPA 6020A	2	91 - 108	75 - 125
Vanadium	Quarterly	0.835	mg/L	Wildlife Benchmark for Consumption of Surface Water	0.0002	USEPA 6020A	2	87 - 113	75 - 125
Zinc	Quarterly	0.120	mg/L	Idaho Criteria for Aquatic Life/USEPA Aquatic Life Criteria	0.0005	USEPA 6020A	20	86 - 119	75 - 125
Onsite Measurements									
Color	Quarterly	15	(PT-CO)	USEPA Secondary Drinking Water Standards	5	USEPA 110.2	NA	NA	NA
Dissolved Oxygen	Quarterly	> 6	mg/L	Idaho Criteria for Aquatic Life Use Designations[11]	NA	USEPA 360.1	NA	NA	NA
pH	Quarterly	≥ 6.5 and ≤ 9.0	units	Idaho Criteria for Aquatic Life Use Designations	NA	USEPA 150.1	NA	NA	NA
Specific conductivity	Quarterly	NA	µS/cm	Not Applicable	NA	USEPA 120.1	NA	NA	NA
Temperature	Quarterly	< 13	degree C	Idaho Criteria for Aquatic Life Use Designations	NA	USEPA 170.1	NA	NA	NA
Turbidity	Quarterly	Background + 50	NTU	Idaho Criteria for Aquatic Life Use Designations	NA	USEPA 180.1	NA	NA	NA

Notes:

(1) The method reporting limits and data quality indicators as developed in-house and reported by the contract laboratory, ALS, in Kelso, Washington

(2) USEPA National Recommended Water Quality Criteria for Aquatic Life, http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm

(3) Method numbers preceded by "SM" indicate Standard Methods. 2005. Standard Methods for the Evaluation of Water and Wastewater. 21st Edition.

(4) USEPA National Primary Drinking Water Regulations, Secondary Standards, http://water.epa.gov/drink/contaminants/index.cfm

(5) Method numbers preceded by "USEPA" indicate a USEPA method. An index to these methods, and appropriate links to each, can be found at: http://www.epa.gov/region1/info/testmethods/pdfs/testmeth.pdf

(6) IDAPA 58.01.02 Section 210, Numeric Criteria for Toxic Substances for Waters Designated for Domestic Water Supply Use, http://adminrules.idaho.gov/rules/2012/58/0102.pdf

(7) USEPA National Primary Drinking Water Regulations, http://water.epa.gov/drink/contaminants/index.cfm

(8) Opresko, D.M., B.E. Sample and G.W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN, ES/ER/TM-86/R3.

(9) "Conditional" indicates that a speciation analysis will only be conducted if total species analysis indicates that analyte concentration meets or exceeds strictest regulatory criteria

(10) IDAPA 58.01.02 Section 210, Numeric Criteria for Toxic Substances for Waters Designated for Aquatic Life - General (pH), Cold Water (dissolved oxygen and turbidity), Salmonid Spawning (temperature), http://adminrules.idaho.gov/rules/2012/58/0102.pdf

(11) IDAPA 58.01.02 Section 250, Surface Water Quality Criteria for Aquatic Life Use Designations, http://adminrules.idaho.gov/rules/2012/58/0102.pdf

(12) RPD = relative percent different. LCS = laboratory control sample. ND = no data. NA = not applicable. MCL = maximum contaminant level.

15.3.3 Surface Water Sample Collection Procedures

Surface water field procedures consist of:

- Stream-flow (discharge) measurements;
- Documentation of site conditions;
- Measurements of field water quality parameters; and,
- Collection of water quality samples for laboratory analysis.

Unless otherwise dictated by field conditions or permits, the watershed will be sampled from the most down-stream site to the most up-gradient site to limit the potential for sample contamination and avoid biasing sample collection due to in-stream disturbances caused by sampling activities.

In the event of a substantial precipitation event during collection efforts, sampling for that characterization event may be suspended until the effect of the precipitation, in particular increased stream flow and turbidity (sediment load) has decreased. However, opportunistic samples may be collected to characterize the effects of the precipitation event.

15.3.3.1 Surface Water Discharge Measurements

Discharge measurements will be performed in accordance with the procedures described in the United States Geological Survey (USGS) National Handbook of Recommended Methods for Water Data Acquisition to the extent practicable. Depending on the stream channel characteristics and stream flow rate, the velocity-area method, a portable flume, a volumetric method, or some combination of these methods, will be used to obtain discharge measurements.

15.3.3.2 Surface Water Quality Sampling

Surface water quality samples will be obtained in accordance with the approved Quality Assurance Project Plan (**QAPP**) from baseline data collection and EPA's Field Method Compendium FMC-SWSS-001 Surface Water Sampling. When a water quality sample is collected, site location and conditions, weather conditions, field personnel, and sampling time and date will be recorded. Field water quality parameters (water temperature, pH, conductivity and dissolved oxygen, will be measured. Water quality samples will be gathered in clean collection containers that have been supplied by the EPA and IDEQ certified laboratory where samples will be shipped. In order to ensure the integrity of the information it provides under its commitment to transparency, Midas Gold will package and ship samples to the laboratory under chain-of-custody procedures to ensure the integrity of the data provided.

15.3.4 Laboratory Analyses

Samples will be analyzed at the selected certified laboratory for the parameters set forth in Table 15-1.

15.3.5 Verification of Data Records and Transmittal of Samples

At the conclusion of each monitoring and/or sampling event, the Midas Gold field technician will review the data sheet to ensure completion of appropriate data. Upon determination that the data sheet is complete, the technician will initial or sign the sheet to verify completion.

Samples will be delivered to an EPA and IDEQ certified offsite laboratory within appropriate holding times. A record of the delivery and data collection will be provided to the laboratory and a copy of a "chain of custody" form will be retained by Midas Gold. Upon receipt of the analytical data from the

offsite laboratory, Midas Gold will examine the data to determine if they are complete, conduct quality control and quality assurance procedures, and check for compliance with regulatory standards. These records will be appropriately filed onsite.

15.3.6 Data Management and Reporting

Midas Gold will retain records and results of surface water monitoring onsite. An electronic database will be established to manage the analytical data and prepare reports. Midas Gold will provide the quarterly water quality results to the IDEQ and the Forest Service, or as permits dictate. In order to meet its commitment to transparency noted in Section 2, Midas Gold may also elect to post its monitoring data on a publicly accessible website, if it has not already been requested to do so by one of the regulators.

Midas Gold plans to continue onsite surface water monitoring for at least five years following the completion of final closure and reclamation, and in accordance with applicable requirements of the NPDES permit for the Project. Depending on the results of the monitoring, Midas Gold may decide to continue all or some portion of the surface water monitoring program, and will discuss the need for longer term monitoring with the IDEQ and the Forest Service.

15.4 GROUNDWATER

Midas Gold has collected alluvial and bedrock groundwater information within and surrounding the Project area as part of its baseline and background monitoring program since September 2012.

Midas Gold plans to continue bedrock and alluvial groundwater monitoring as part of Project construction, operations and closure/reclamation. This program will include the following components:

- Monitoring locations;
- Monitoring frequency, collection and analytical parameters;
- Verification of data records and transmittal of samples; and,
- Data management and reporting.

Details of the Midas Gold ground water monitoring program for the Project follow.

15.4.1 Groundwater Well Monitoring Locations

As part of its operational monitoring program, Midas Gold will continue to monitor alluvium and bedrock groundwater wells at sites located upstream and downstream of the planned operations, as well as at key points within the area of planned operations. This will include the installation of groundwater wells downgradient of the Hangar Flats DRSF/TSF and around the planned mine pits to further characterize and monitor groundwater conditions around these sites (see Figure 15-1).

Monitoring wells will include both bedrock and alluvial wells installed to varying depths, but to depths that penetrate the water-bearing zone. On the surface, the PVC pipe of each well will be enclosed in steel casing with a locking cap or lid to prevent damage or the accidental contamination of the well; the steel casing will be generally set in a concrete pad (approximately three square feet). Mine workers and contactors will be instructed to not disturb any groundwater monitoring wells.

15.4.2 Groundwater Well Monitoring Frequency, Collection and Analytical Parameters

In order to avoid, manage and/or mitigate negative impacts on groundwater, Midas Gold will monitor groundwater wells on a semi-annual basis (or as permits dictate) for water levels and field parameters

(temperature, pH and electrical conductivity), and groundwater samples will be taken, shipped to an EPA- or IDEQ-certified laboratory, and analyzed for the parameters in Table 15-2.

Following completion of baseline water quality monitoring, Midas Gold in cooperation with regulatory agencies will determine appropriate constituent and frequency needs for ground water quality monitoring and analysis; monitoring changes will be incorporated into the final PRO.

Water level elevation readings will be taken with an electronic well probe or a transducer, and measurements will be recorded from the top of the PVC casing. Readings will be recorded on field log sheets and on an electronic database. If wells are dry at the time of sampling, that condition will be noted on the log sheets. The height of each monitoring well casing will be measured to adjust for the actual water surface elevation. Monitor wells equipped with transducers will use electronic data-loggers for data collection. Data loggers will be downloaded by technicians on a routine, scheduled basis.

Table 15-2, Groundwater Analytical Parameters

Groundwater Parameter	Most Restrictive Limit			Best-Fit Method		Sample Preparation	
	Strictest Regulatory Criteria	Units	Limiting Program(s) (Groundwater)	Method Reporting Limit[1]	Method No.	Un-filtered (i.e., total fraction)	Filtered to 0.45 (i.e., dissolved fraction)
Metals and Metalloids							
Aluminum	200	µg/L	Idaho GW Quality Rule (secondary)	2	6020A	+	+
Antimony	6	µg/L	Idaho GW Quality Rule	0.05	6020A	+	+
Arsenic	10	µg/L	USEPA Drinking Water MCL[2]	0.5	6020A	+	+
Arsenic III	none	µg/L	Not Applicable	0.4	1632A	+	not sampled
Barium	2000	µg/L	Idaho GW Quality Rule	0.5	6020A	+	+
Beryllium	4	µg/L	Idaho GW Quality Rule	0.02	6020A	+	+
Boron	none	µg/L	Not Applicable	10	6010C	+	+
Cadmium	5	µg/L	Idaho GW Quality Rule	0.02	6020A	+	+
Calcium	none	µg/L	Not Applicable	50	6010C	+	+
Chromium (Total)	100	µg/L	Idaho GW Quality Rule	0.2	6020A	+	+
Cobalt	none	µg/L	--	0.02	6020A	+	+
Copper	1300	µg/L	Idaho GW Quality Rule	0.1	6020A	+	+
Iron	300	µg/L	Idaho GW Quality Rule (secondary)	10	6010C	+	+
Lead	15	µg/L	Idaho GW Quality Rule	0.02	6020A	+	+
Magnesium	none	µg/L	Not Applicable	2	6010C	+	+
Manganese	50	µg/L	Idaho GW Quality Rule (secondary)	0.6	6010C	+	+
Mercury	2000	ng/L	Idaho GW Quality Rule	1	1631E	+	+
Molybdenum	none	µg/L	Not Applicable	0.05	6020A	+	+
Nickel	none	µg/L	Not Applicable	0.2	6020A	+	+
Phosphorous[3]	none	mg/L (Phosphates as P)	Not Applicable	20	6010C	+	+
Potassium	none	µg/L	Not Applicable	100	6010C	+	+
Selenium[3]	50	µg/L	Idaho GW Quality Rule	1	6020A	+	+
Silver	100	µg/L	Idaho GW Quality Rule (secondary)	0.02	6020A	+	+
Sodium	none	µg/L	Not Applicable	200	6010C	+	+
Thallium	2	µg/L	Idaho GW Quality Rule	0.02	6020A	+	+
Vanadium	none	µg/L	Not Applicable	0.2	6020A	+	+

Groundwater Parameter	Most Restrictive Limit			Best-Fit Method		Sample Preparation	
	Strictest Regulatory Criteria	Units	Limiting Program(s) (Groundwater)	Method Reporting Limit(1)	Method No.	Un-filtered (i.e., total fraction)	Filtered to 0.45 (i.e., dissolved fraction)
Zinc	5000	µg/L	Idaho GW Quality Rule (secondary)	0.5	6020A	+	+
Inorganics							
Chloride	250	mg/L	Idaho GW Quality Rule (secondary)	0.4	300.0	+	not sampled
Fluoride	4.0	mg/L	Idaho GW Quality Rule	0.4	300.0	+	not sampled
Sulfate	250	mg/L	Idaho GW Quality Rule (secondary)	0.2	300.0	+	not sampled
Nitrogen (TKN)	none	mg/L as N	Not Applicable	0.4	351.4	+	not sampled
Ammonia	none	mg/L as NH_3	Not Applicable	0.05	350.1	+	not sampled
NO_2+NO_3	10	mg/L as N	Idaho GW Quality Rule	0.05	353.2	+	not sampled
Total Nitrogen	none	mg/L as N	Not Applicable	0.4	351.4/353.2	+	not sampled
Alkalinity	none	mg/L as $CaCO_3$	Not Applicable	90	SM 2320 B	+	not sampled
Carbonate, bicarbonate	none	mg/L as $CaCO_3$	Not Applicable	90	SM 2320 B	+	not sampled
Hardness	none	mg/L	Not Applicable	0.4	6010C/SM 2340B	+	not sampled
Methyl Mercury	none	ng/L	Not Applicable	0.1	1630	+	not sampled
Cyanide	0.2	mg/L	Idaho GW Quality Rule	0.0047	4500E	+	not sampled
Physical and Biological							
TDS	500	mg/L	Idaho GW Quality Rule (secondary)	10	SM 2540 C	+	not sampled
Onsite Measurements							
pH	6.5-8.5	Units	Idaho GW Quality Rule (secondary)	0.1	150.1	+	not sampled
Temperature	none	Deg C	Not Applicable	none specified	170.1	+	not sampled
Conductivity	none	µS/cm	Not Applicable	none specified	120.1	+	not sampled
Dissolved Oxygen	none	mg/L	Not Applicable	0.05	360.1	+	not sampled
Turbidity	none	NTU	Not Applicable	0	180.1	+	not sampled

Notes:

(1) The current method reporting limits are defined by the contract laboratory, ALS in Kelso, Washington

(2) USEPA National Primary Drinking Water Regulations, MCL = Maximum Contaminant Level

(3) Phosphorus and Selenium are not metals but are included with the metals and metalloids due to similar analytical methods.

15.4.3 Verification of Data Records and Transmittal of Groundwater Samples

At the conclusion of each monitoring and/or sampling event, the Midas Gold field technician will review the data sheet to ensure completion of appropriate data. Upon determination that the data sheet is complete, the technician will initial or sign the sheet to verify completion.

Samples will be delivered to an EPA or IDEQ certified offsite laboratory within appropriate holding times in order to ensure the integrity of the data provided. A record of the delivery and data collection will be provided to the laboratory and a copy of a "chain of custody" form will be retained by Midas Gold. Upon receipt of the analytical data from the offsite laboratory, Midas Gold will examine the data to determine if they are complete, conduct quality control and quality assurance procedures, and check for compliance with regulatory standards. These records will be appropriately filed onsite.

15.4.4 Groundwater Data Management and Reporting

Midas Gold will retain records and results of groundwater monitoring onsite. An electronic database will be established to manage the analytical data and prepare reports. Midas Gold will provide the semi-annual groundwater quality results to the Forest Service and IDEQ. In accordance with its commitment to transparency, Midas Gold may also elect to post its monitoring data on a publicly accessible website, if it has not already been requested to do so by one of the regulators.

Midas Gold will review the groundwater analytical results on a yearly basis and determine if analyzed parameters and the frequency of monitoring may be reduced or expanded in the future based on analytical results and sampling objectives. Any revisions in the program will be approved by the Forest Service and IDEQ prior to implementation.

Midas Gold plans to continue onsite groundwater monitoring for five years following the completion of final closure and reclamation. Depending on the results of the monitoring, Midas Gold may decide to continue all or some portion of the groundwater water monitoring program, and will discuss the need for any longer term monitoring with the IDEQ and the Forest Service.

15.5 FISHERIES

Midas Gold recognizes that fisheries represent one of the most significant natural resources in the Project area and has committed to their protection and enhancement. Midas Gold will continue to monitor aquatic parameters, on an annual basis (or as permits dictate) for habitat conditions (including as applicable PACFISH INFISH Biological Opinion (PIBO), Cobble embeddedness, Free Matrix, and McNell Core Sampling), fish surveys, and macroinvertebrates at locations shown on Figure 15-1. Readings will be recorded on field log sheets and on an electronic database.

Midas Gold will review the aquatics monitoring results on an annual basis and determine if analyzed parameters and the frequency of monitoring may be reduced or expanded in the future based on survey results and monitoring objectives. Any revisions in the program will be discussed with the Idaho Department of Fish and Game (**IDFG**), National Oceanic and Atmospheric Administration (**NOAA**) National Marine Fisheries Service (**NMFS**), and the Forest Service prior to implementation.

Midas Gold plans to continue onsite aquatic monitoring for five years following the completion of final closure and reclamation. Depending on the results of the monitoring, Midas Gold may decide to continue all or some portion of the monitoring program, and will discuss the need for any longer term monitoring with the IDFG, NOAA-NMFS, and the Forest Service. In line with its commitment to

transparency, Midas Gold may also elect to post its monitoring data on a publicly accessible website, if it has not already been requested to do so by one of the regulators.

15.6 WILDLIFE

In order to ensure the effectiveness of its wildlife protection measures, Midas Gold will internally monitor the TSF on a weekly basis for the presence and mortality of birds, mammals, reptiles, and amphibians. Sightings of aforementioned wildlife, along with any wildlife mortalities, will be recorded in a log while walking or driving the perimeter of the tailings facility. Internal weekly results will be summarized in a quarterly report. Maintaining a routine record will assist Midas Gold in evaluating wildlife presence at the TSF and any resulting mortalities. Monitoring will begin with the introduction of water or tailings slurry into the TSF. After a year of monitoring, Midas Gold will evaluate the monitoring program, specifically the frequency of such monitoring.

In line with its commitment to transparency, Midas Gold may also elect to post its monitoring data on a publicly accessible website, if it has not already been requested to do so by one of the regulators. This would be done to increase public transparency in the implementation of mitigation policies and guidance.

15.7 RECLAMATION SUCCESS

Midas Gold will monitor for reclamation success in order to demonstrate that it has met its objective of a net benefit from the implementation and completion of the Project.

Following concurrent reclamation and then site closure, Midas Gold will conduct site maintenance, site inspections, and any other necessary monitoring for the period of reclamation responsibility.

Midas Gold will monitor reclamation success annually for a minimum of five years (or as permits dictate) following implementation and completion of revegetation activities or until reclamation success has been achieved. Midas Gold will report on its reclamation progress annually, in a publicly available sustainability report, in line with its commitment to transparency detailed in Section 2.

Midas Gold will evaluate vegetation cover and species composition. Adjacent undisturbed vegetation communities and vegetation reference areas may be established to serve as a means of comparing project revegetation with natural vegetation. The reference area will be selected from representative pre-project development plant communities adjacent to the disturbed areas.

Vegetation cover will be estimated using a canopy cover measured by the point or line intercept method. In addition, as part of the determination for successful revegetation of disturbed areas, the following guidelines will be considered:

- Successful establishment of the desired species;
- Evidence of vegetative reproduction processes;
- Evidence of overall site stability; and,
- Indication that revegetation cover of reclaimed sites is trending toward and/or matching the vegetation cover found in the adjacent reference area(s).

This evaluation process will allow agencies to ascertain the adherence to measurable performance standards at the Project.

15.8 MONITORING DURING NON-OPERATIONS PERIODS

No periods of temporary or seasonal closure are planned; however, in the event of a temporary cessation of activities, Midas Gold will notify the Forest Service, IDEQ, IDL, and Valley County within 30 days of the temporary curtailment, or as permits require.

During any temporary cessation or period of non-operation, Midas Gold will continue environmental monitoring on defined schedules, as outlined in appropriate approvals and permits. Environmental reports will be submitted in a timely manner. Regardless of the operating status of the Project, appropriate monitoring will be continued until compliance with permanent closure requirements is attained, unless modified by the appropriate regulatory authorities.