

Table 1 Summary of Monitoring and Records Maintenance Requirements

Sampling						
Category	Sample Type or Location	Frequency	Parameters	External reporting	Required By^h	2005 Notes
Surface Water	SW1, SW1-2, SW2, SW3, SW4, SW5	Quarterly	Full Analysis ^a	yes	EIA&S	SW2 not sampled 2nd qtr.; SW1-2 not sampled 1st or 2nd qtr.; all 6 sampled 3 rd and 4 th quarters
Stream Sediment	SW1, SW1-2, SW2, SW3, SW4, SW6	Annually	Metals ^f	yes	EIA&S	SW1-2 not sampled
Ground Water	MW2, MW3, MW4	Quarterly	Full Analysis ^g	yes	EIA&S; DEMP	MW3 corrupted and never sampled, replaced with MW3B in 4 th quarter. MW4 dry. MW2 and MW5 sampled each quarter.
Air Quality	AQ1, AQ2, AQ4, AQ5, AQ6, AQ7, AQ8	Quarterly	PM ₁₀	yes	EIA&S; DEMP	1st Quarter - Missing AQ1, AQ7, and AQ8; Added AQ9, AQ10, and AQ12. 2 nd and 3rd Quarters - Missing AQ5, AQ7, and AQ8; Added AQ9, AQ10, AQ11, AQ12; 4 th qtr. Missing AQ7, AQ8, added AQ9, AQ10 and AQ11.
Air Quality	Not Specified	Monthly	PM ₁₀	yes	DCMP	
Noise	AQ1, AQ2, AQ4, AQ5, AQ6, AQ7, AQ8	Quarterly	dB(A)	yes	EIA&S	1st Quarter - Missing AQ1, AQ7, and AQ8; Added AQ9, AQ10, and AQ12. 2 nd and 3rd Quarters - Missing AQ5, AQ7, and AQ8; Added AQ9, AQ10, AQ11, AQ12; 4 th qtr. Missing AQ7, AQ8, added AQ9, AQ10 and AQ11.
Noise	AQ1, AQ2, AQ4, AQ5, AQ6, AQ7, AQ8	(Monthly During Construction, and First 6mo of Operations)	dB(A)	yes	DEMP	
Terrestrial Bio. Resource	Entire Site	2yr	Forest Cover	yes	EIA&S; DEMP	Completed 2nd qtr.
Terrestrial Bio. Resource	3 Stations, Forested and Non-forested at Each Location	Annually	Plant Species Richness and IBI	yes	EIA&S; DEMP	Completed 2nd qtr. at four stations
Terrestrial Bio. Resource	3 Stations	Annually	Nematodes Richness and Abundance, IBI	yes	EIA&S; DEMP	Completed 2nd qtr. at four stations
Terrestrial Bio. Resource	3 Stations	Annually	Soil	yes	EIA&S; DEMP	Completed 2nd qtr. at four stations, 6 samples per station
Aquatic Bio. Resources	SW1, SW2, SW3, SW4, SW5	6 mo	Fish (Habitat, Species Counts)	yes	EIA&S	Completed 1st qtr. At 4 stations, SW1 was inaccessible. Completed 4 th qtr, all stations.
Aquatic Bio. Resources	SW1, SW2, SW3, SW4, SW6	6 mo	Macroinvertebrates (Counts and IBI)	yes	EIA&S	Completed 1st qtr. At 4 stations, SW1 was inaccessible. Completed 4 th qtr, all stations.
Socio/econ.	Surrounding Communities	Quarterly	Socioeconomic Conditions	yes	EIA&S	Completed each quarter.
Socio/econ.	Surrounding Communities	Annually	Community Opinion	yes	EIA&S	Completed 3rd qtr.
Waste Rock	Every Borehole	Continuous	Waste Rock Characterization	no	WRMP	Maintained in database and hardcopy records
Weather	Rainwise Weather Station	Daily	Precip., Storm Event Precip., Temperature, Wind Speed, Relative Humidity, Barometric Pressure	yes	TSFMP	Being installed at time of 2005 Audit
Weather	Pan-evap station	Daily	Evaporation	yes	TSFMP	Being installed at time of 2005 Audit
Weather	Solar Energy Station	Daily	Solar Energy	yes	TSFMP	Being installed at time of 2005 Audit
Surface Water	Rio Tzala Gauging Station	> 10cm change	Stage/flow	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Surface Water	Rio Cuilco Gauging Station	2x Day	Stage/flow	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Surface Water	Gauging stations at Riachuelo Quivichil and Quebrada Downstream of Tailings	2x Day	Stage/flow	yes	TSFMP	Pending updates
		Monthly (during wet season)	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates

Table 1 Summary of Monitoring and Records Maintenance Requirements (continued)

Sampling						
Category	Sample Type or Location	Frequency	Parameters	External reporting	Required By ^h	2005 (1st and 2nd Quarters) Notes
Surface Water	Open Pit Runoff/Sump Dewatering	Monthly (Nov-Apr); Daily (May-Oct)	Stage/flow	yes	TSFMP	Pending updates
		Monthly (during wet season)	Primary metals / salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^d	yes	TSFMP	Pending updates
Surface Water	Tailings Impoundment	Annually	Density Profiling	yes	TSFMP	Pending updates
		Daily	Impoundment Elevation	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Surface Water	Underground Mine Dewatering	Monthly	Flow rate	yes	TSFMP	Pending updates
		Monthly	Full Analysis ^c	yes	TSFMP	Pending updates
Surface Water	Waste Rock Facility Seepage	Monthly	Flow rate	yes	TSFMP	Pending updates
		Monthly	Full Analysis ^c	yes	TSFMP	Pending updates
Surface Water	Mill Tailings Slurry	Daily	Flow rate	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Surface Water	Mill Water Recycle	Daily	Flow rate	yes	TSFMP	Pending updates
Ground Water	Supply Well (PSA-1 / MW5)	> 10cm change	Water Level	yes	TSFMP	Pending updates
		Weekly	Pumping rate	yes	TSFMP	Pending updates
		Monthly	Full Analysis ^d	yes	TSFMP	Pending updates
Ground Water	TSF Decant System	Daily	Discharge Flow rate	yes	TSFMP	Pending updates
Ground Water	Well # G11	Monthly	Water Level	yes	TSFMP	Pending updates
		Weekly	Pumping rate	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^d	yes	TSFMP	Pending updates
Ground Water	Wells PW-3, MW PW-5, MW PW-7, MW PW-12	Monthly	Water Level	yes	TSFMP	Pending updates
		Weekly	Pumping rate	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Surface Water	Embankment Toe Seepage	Monthly	Flow rate	yes	TSFMP	Pending updates
		Monthly	Primary Metals / Salts ^c	yes	TSFMP	Pending updates
		Quarterly	Full Analysis ^b	yes	TSFMP	Pending updates
Geotechnical Stability	Embankment Survey Monuments (total for 7)	Monthly	Movement	yes	TSFMP	Pending updates
Geotechnical Stability	Embankment Toe Drain Piezometers (total for 4)	Monthly	Water Level	yes	TSFMP	Pending updates
Geotechnical Stability	Embankment Core or Cutoff Trench Piezometers (total for 10)	Monthly	Water Level	yes	TSFMP	Pending updates
Geotechnical Stability	Embankment Toe Drain Piezometers (total for 1)	Monthly	Water Level	yes	TSFMP	Pending updates
Geotechnical Stability	Embankment Soil Settlement Gauge (total for 15)	Monthly	Water Level	yes	TSFMP	Pending updates

Table 1 Summary of Monitoring and Records Maintenance Requirements (continued)

Record / Report	(Update) Frequency	External Reporting	Required by	2005 (1st and 2nd Quarter) Notes
Mortality and Relocation Reports	As needed	no	Fauna EMP	Mortality reported; no relocation had occurred
Transportation of Haz. Materials Plan	As needed	Submit plan	MWMP; IFC	Has not been written
Employee Training	As needed	no	MWMP; IFC	Maintained
Applicable Guatemalan Laws / Regs.	As needed	no	MWMP	Maintained
Applicable World Bank/IFC and International Guidelines	As needed	no	MWMP; IFC	Maintained
Inventories of Haz. Subs	As needed	no	MWMP; IFC	Maintained
MSDS of All Mat. Used Onsite	As needed	no	MWMP; IFC	Maintained
Inspection Reports and Checklists	As needed	no	MWMP; IFC	To Be Implemented
Records of Type and Amt. of Material Disposed of On and Off Site	As needed	no	MWMP; IFC	Maintained
Records of Emergency Response Drills	As needed	no	MWMP; IFC	No drills have occurred to date
Spill Reports	As needed	no	MWMP; IFC	Maintained
Haz. Material Compliance Audits	3yr	Submit Audit report	MWMP; IFC	Has not occurred, not required yet.
Cyanide Code Compliance Audit	3yr	Submit Audit report	MWMP; ICMI; EIA&S	Intention to become certified at indeterminate date
Incident Documentation	As needed	no	MWMP; IFC	Maintained
Emergency Preparation and Response Plan	As needed	no	MWMP; IFC	Maintained
Site Closure Plan	As needed	no	IFC	Completed end of 2005
IFC Environmental Audit	Annually	Submit Audit report	IFC	(this report)
Erosion and Sediment Control Plan	As needed	no	IFC	Maintained
Rescuing / Relocation of Orchids and Bromeliads	As needed	no	Flora MP	Rescuing occurring, no relocation had occurred at time of audit

^a Full analysis includes total and dissolved metals (Al, Sb, As, Ba, Cd, Ca, Cr(tot), Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Sr, Tl, Sn, Ti, Vn, Zn), other parameters (Alkalinity, NH4+, Cl-, CN(wad), F-, pH, Conductivity, Nitrite/nitrate, SO4-- , Total solids, TSS, COD, oils/grease, residual petroleum hydrocarbons) and Ecotoxicological screening(Protoxkit F, Algaltoxkit F, Rototoxkit F acute, Thamnotoxkit F).

^b Full analysis includes total metals (Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Na, Sn, Zn), and other parameters (NH4+, Ca, K, Cl-, CN(tot), CN(free), CN(wad), Cyanate, F-, Alkalinity, P, pH, Conductivity, Nitrogen, Nitrate/nitrite, SO4-, H2S, TDS, TSS, BOD, COD).

^c Primary Metals/Salts includes total metals (Sb, As, Ca, Cu, Fe, Hg, Mo, Se, Zn) and other parameters (NH4+, Cl-, CN (tot), CN (free), CN (wad), Cyanate, Alkalinity, pH, Conductivity, Nitrogen, Nitrate/Nitrite, SO4-, TDS, TSS).

^d Full Analysis includes items from list "b", EXCEPT Cyanide group.

^e Primary Metals/Salts includes items from list "c", EXCEPT Cyanide group.

^f Metals include Al, Sb, As, Ba, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Sr, Tl, Sn, Ti, Vn, and Zn.

^g Full Analysis includes items from list "a" EXCEPT COD and oils/grease.

^h EIA&S (Estudio de Evaluacion de Impacto Ambiental y Social); DEMP (Draft Environmental Monitoring Plan); DCMF (Dust Control Management Plan), WRMP (Waste Rock Management Plan); TSFMP (Tailings Storage Facility Monitoring Plan); IFC (International Finance Corporation); MWMP (Materials and Waste Management Plan); ICMI (International Cyanide Management Institute)