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#### INTERNATIONAL CYANIDE MANAGEMENT CODE GOLD MINING OPERATION RECERTIFICATION AUDIT BARRICK GOLDEN SUNLIGHT MINE, MONTANA

#### SUMMARY AUDIT REPORT

Submitted to:

International Cyanide Management Institute 888 16th Street N.W, Suite 303 Washington, D.C. 20006

and

Barrick Gold of North America Inc. HC66 Box 1250 Crescent Valley Nevada, 89821-1250

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February 6, 2015 0174419



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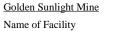
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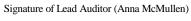


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Name of Project: Golden Sunlight Mine

<u>Project Owner / Operator:</u> Barrick

Name of Responsible Manager: Dan Banghart

Address and Contact Information: 453 Mt. Hwy 2 East, Whitehall, Montana USA 59759

dbanghart@barrick.com

<u>Audit Dates</u>: July 29 - 31, 2014

#### **Location and History**

The Golden Sunlight Mine (GSM) is an open pit gold mine in Jefferson County, Montana located on the eastern flank of a fault-bounded mountain range known as Bull Mountain. GSM is operated by Barrick's Golden Sunlight Mines, Inc. It is located approximately six miles northeast of Whitehall, Montana in portions of Sections 17, 19, 20, 28, 29, 30, 32 and 33 of Township 2 North, Range 3 West, Section 6 of Township 1 North, Range 3 West, and Sections 24 and 25 of Township 2 North, Range 4 West. GSM has operated since 1981 under a Hard Rock Mine Operating Permit (No.00065) issued jointly by the Montana Department of State Lands (DSL), since reorganized into Department of Environmental Quality (DEQ), and the U.S. Bureau of Land Management (BLM), and is presently operating under Amendment 014 to the original permit. The mill was shut down in April 2009 and reopened in January 2011 to process ore from the East Area pit. Proven and probable mineral reserves as of 31 December 2010 was 539,000 ounces of gold.

GSM is mined by conventional open-pit methods. Open pit mining at GSM typically removes between 60,000 to 90,000 tons of material per day using conventional drill, blast, load and haul mining techniques. Approximately 2,400,000 tons of ore are hauled to the mill for processing each year. The GSM open pit is located just east of a major hydrologic divide that is coincident with a topographic ridge oriented north-south along the lower portion of the Bull Mountains. The active mine area encompasses both sides of the divide. The active and inactive /abandoned mine areas at GSM cover approximately 5,071 acres.

The ore treatment plant uses conventional carbon-in-pulp technology as well as Sand Tailing Retreatment (STR), designed to recover gold that would otherwise be lost in the process. The STR process is detailed below in an extract from the GSM Operating Reclamation Plan dated May 27, 2011.

'Gold is extracted from ore at GSM using a variety of physical and chemical processes. Ore is first crushed and ground, then gold is extracted using an agitated leach cyanide process.

Initial processing includes a crushing circuit consisting of primary, secondary, and tertiary crushing. Modifications to the original crushing circuit were required for mining of the East Area Pit and were completed in January 2011. Primary crusher product is screened and the fine fraction is conveyed directly to the mill feed fine ore stockpile. The coarse fraction is conveyed directly to the secondary crusher. A chute installed between conveyors 2 and 3 directs conveyor 2 discharge to conveyor 3. The chute is equipped with a material diverter interlocked with a metal detector on conveyor 2. When a tramp metal object is detected in the coarse ore stream,

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the material diverter will open and close at a preset time interval to allow the metal to be discharged to a barricaded area located at ground level below conveyor 2. The secondary crusher system loop, consisting of conveyors 4, 5, 6 and 7 and the secondary screening plant, will stop if a chute within the loop plugs or a conveyor is operating below normal speeds. The modified system includes interlocks to immediately stop conveyors 1 and 3 when a chute plugs within the system. Several components from the previous crushing system were dismantled and removed including the existing conveyor 2 tower, discharge stacker, the conveyor 3 feeders, and an underground concrete galley.

Crushing involves reducing rock particle size using gyratory and cone crushers to minus ¾-inch. Wet grinding in rod and ball mills further reduces rock size to 65 percent passing 100 mesh (150 microns or ~ 0.0058 inch). Grind circuit product is thickened with thickener and overflow is pumped to Carbon Columns where gold is adsorbed onto carbon.

Ground ore slurry is mixed with sodium cyanide, lime, and compressed air in eleven 400,000-gallon leach tanks equipped with agitators to keep the solids in suspension. The leaching process places gold into solution as a gold-cyanide compound. Hydrocyclones separate the slime and sand fractions of the leach tailing in the wash circuit. The sand fraction goes to the Sand Tailing Retreatment (STR) circuit.

The STR circuit separates the gold-bearing sulfides from the sand portion of the tailing by gravity concentration in spiral-shaped launders. The pyrite-rich concentrate is ground in a ball mill to 80 percent passing 400 mesh (37 microns or ~ 0.001 inch) to expose gold encapsulated in pyrite to further cyanide leaching. The ground slurry is subjected to a pyrite leach stage. Pyrite leach tailing is pumped back to the main leach circuit. The pyrite leach tailing product reports to the cyanide recovery and destruction circuit then to the tailing stream for disposal in the tailing impoundment.

The slime fraction from the washing circuit is sent to a thickener that produces two product streams consisting of a clear overflow stream and an underflow stream which contains all of the slime solids. Both streams are treated by carbon adsorption for gold recovery as the next step in the process. Carbon adsorption occurs in carbon-in-pulp tanks, and carbon columns charged with activated carbon made from burnt coconut shells. The carbon-in-pulp tailing product reports to the cyanide recovery and destruction circuit then to the tailing stream for disposal in the tailing impoundment.

The final processing step is removal of gold from the carbon in pressure stripping vessels. Gold removed from the carbon is returned to solution for electrowinning onto steel wool cathodes. The goldladen steel wool is smelted and poured into bars which assay about 75 percent gold, 8 percent silver, and 13 percent other metal impurities. GSM uses sloped floors, sumps, concrete barriers, and secondary and tertiary containment to contain solution within the plant site area. Spill response, containment, and reporting procedures are provided in the SPCC Plan and the GSM Solid and Hazardous Waste Plan (2009).

After the gold is recovered from the ore, the concentration of cyanide in the tailing slurry remains over 200 mg/l. A sulfur dioxide (SO2)/Air cyanide destruction plant was constructed at GSM in 1997 and 1998. Ammonium bisulfite is used as the source of SO2. The plant consists of a combination of two unit operations. One unit utilizes a single high-compression thickener to recover a portion of the process solution for reuse in the milling circuits. The other unit takes thickener underflow and reduces cyanide concentration to less than 15 ppm before sending the final slurry to the tailing disposal facility.

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The thickening step includes mixing of tailing pond reclaim water (external reclaim water) with final mill tailing, and thickening the resulting slurry in a single 40-foot diameter thickener. Water removed in the thickening process (overflow solution) contains 50 to 60 percent of the cyanide formerly contained in the whole mill tailing. Thickened overflow solution is pumped to an external reclaim storage tank. From there, it is pumped to the internal reclaim tank and is used as mill make-up water. Thickened underflow slurry is pumped to the SO2/air reaction vessel. Water with high cyanide concentrations is stored in a steel tank located within the spill containment area. Tailing pond water is pumped directly to the mill.

One of the 40-foot diameter by 45-foot high leach tanks (Tank 5b) was converted for use as the cyanide destruction reaction vessel. Slurry entering the reaction vessel is diluted from 58 to 65% solids to between 45 and 50% solids using low cyanide reclaim water pumped back from the tailing disposal facility. Liquid ammonium bisulfite is added directly to the tank. Air enters the bottom of the tank through stainless steel sparger lines. A 10,000 gallon tank and delivery system supplies the ammonium bisulfite and two 300 Hp Cooper centrifugal compressors supply air. Milk-of-lime is added as necessary to control the reaction pH at 8.5. The slurry is then agitated to provide gas dispersion. In the mixing slurry, cyanide is oxidized via a catalyzed reaction involving the cyanide ion, SO2, oxygen (O2) from air and copper (Cu) as the catalyst. Copper sulfate is added to provide catalyst copper when ore copper concentrations are inadequate to achieve the reaction. Reaction by-products include non-hazardous gypsum, water, copper dioxide, sodium cyanate, and ammonia.

The SO2/Air circuit began operation in July 1998 and has normally reduced the concentration of cyanide in the tailing slurry to less than 5 mg/l'.

There are two tailing impoundments at GSM. Tailing Impoundment No. 1 is no longer being used and has been reclaimed. Tailing Impoundment No. 2 is active.

There is no perennial or intermittent stream flow out of the active mine area. However, the active mine area contains numerous incised drainage features that may exhibit ephemeral surface water flow in response to intense rainfall events. These events are generally infrequent and of short duration such that some drainage features may experience short-term runoff several times a year, and others may flow only once every several years. Since the ephemeral drainages at GSM are above the regional groundwater system, storm water rapidly infiltrates into the subsurface within the channel margins and provides a source of groundwater recharge.

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Auditors:	Anna M	cMullen,	Lead Auditor	
	Brent B	ailey, PE	, CEA, Gold Mining Technical Expert	t
The operation is	s		in full compliance with in substantial compliance with All not in compliance with	Code Principles
	de; and the		as found to be in Full Compliance wit tion has not experienced compliance	
Audit Company:		ERM-V	Vest, Inc.	
Audit Team Lead	der:	Anna M	IcMullen	
E-mail:		anna.mc	emullen@erm.com	
Code Verificatio  I attest that this attest that the veryanide Manage	n Auditor Summary erification ement Coc lth, safety	Audit R audit water	report accurately describes the finding as conducted in a professional manneration Protocol for Gold Mine Operation ironmental audits.	gs of the verification audit. I further er in accordance with the International
Name of Lead A	uditor		Signature	Date
<b>Name and Sign</b> Brent C. Bailey	·	f Other 2	Auditors: Brest C. Bailey	October 3, 2014
Name of Auditor	r		Signature	Date
Golden Sunlight Mir Name of Facility	<u>ne</u>		Signature of Lead Auditor (Anna McMulle	July 29 - 31, 2014 en) Audit Date





	1. PRODUCTION: Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner			
Standard of Practice 1.1:		Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.		
	$\boxtimes$	in full compliance with		
The operation is		in substantial compliance with Standard of Practice 1.1		
		not in compliance with		
from manufacturers emp	loying ar	eration is in full compliance with Standard of Practice 1.1; purchase cyanide opropriate practices and procedures to limit exposure of their workforce to cyanide to the environment.		
full compliance by the ICMI in 20		ne Cyanco plant in Winnemucca, Nevada. This Cyanco plant was recertified in 13. The contract between Barrick Gold of North America and Cyanco, which o only provide cyanide manufactured at an ICMI-certified plant.		
2. TRANSPORTATIO	N: Prote	ect communities and the environment during cyanide transport		
Standard of Practice 2.1:		Establish clear lines or responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.		
	$\boxtimes$	in full compliance with		
The operation is		in substantial compliance with Standard of Practice 2.1		
		not in compliance with		
	y, securit	eration is in full compliance with Standard of Practice 2.1; establish clear lines by release prevention, training and emergency response in written agreements ansporters.		
Barrick has contracts with Cyano GSM. Contract Amendment No. Itransport, unloading, safety, secur		to to provide cyanide to all of its North American operations, including the designates Cyanco as the responsible party for packaging, labelling, storage, ty, and emergency response in accordance with the Code. Specific clauses in compliance by Cyanco's subcontractors with the Code and that the are  Code-certified.		

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Standard of Practice 2.2:		Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 2.2	
		not in compliance with	
		ration is in full compliance with Standard of Practice 2.2; require that cyanide emergency response plans and capabilities and employ adequate measures	
contract with Cyanco recertified by the ICMI on C	quires the October 1	Cyanco, who in turn contracts with the transporter, TransWood. GSM's at all subcontractors must be certified by the ICMI. TransWood was first 1, 2006 recertified on February 2, 2010, and recertified a second time July 12, aco as the originator and TransWood as the only transporter.	
3. HANDLING AND S storage	TORAG	E: Protect workers and the environment during cyanide handling and	
Standard of Practice 3.1:		Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 3.1	
		not in compliance with	
unloading, storage and	mixing	ration is in full compliance with Standard of Practice 3.1; design and construct facilities consistent with sound accepted engineering practices, quality es, spill prevention, and spill containment measures.	
cyanide producers recommenspected the facilities in 2 evaluated the facilities and	nendation 2009 and d judged t ent acces	ring cyanide at GSM have been designed and constructed in accordance with as and accepted engineering practices. An independent professional engineer judged them to be appropriately designed. The cyanide producer, Cyanco, has them appropriate for accepting cyanide shipment. The unloading area is s by workers and is located within the larger mine site with fencing, gates, and	
approximately 2.25 miles	to the sou	roximately 6 miles to the west of the mine. The nearest ranch is ath. The nearest perennial watercourses are the Jefferson River approximately or River approximately 3 miles to the east.	

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GSM only receives liquid cyanide. Liquid cyanide is unloaded on concrete and asphalt surfaces that minimize seepage. Any leakage on the unloading pad is directed to secondary containment with a sump that reports to the cyanide destruct circuit. To prevent overflows from the cyanide storage tanks, GSM has installed a high-level alarm on the two interconnected tanks that is connected to the control panel inside the plant and to an audible alarm. The two cyanide storage tanks are installed on solid concrete pedestals within the concrete and asphalt secondary containment, thus providing a competent barrier to leakage. The cyanide storage tanks are located outside the plant with natural ventilation and away from acids, oxidizers and other incompatible materials.

Operate unloading, storage and mixing facilities using inspections,

		preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.
	$\boxtimes$	in full compliance with
The operation is		in substantial compliance with Standard of Practice 3.2
		not in compliance with
storage and mixing facilities	ies using	eration is in full compliance with Standard of Practice 3.2; operate unloading inspections, preventative maintenance and contingency plans to prevent or spond to worker exposures.
As part of the transporter end of the offload. Both offloading. GSM does not GSM's 120 plan describ procedure prescribes the starting making and breaking offload to confirm that	's offload GSM and of have to bes measured steps for steps for steps for co procedure	and therefore does not have to address reuse, rinsing, or disposal of containers of procedure, the tanker truck is inspected for secure valves and residues at the distransporter procedures address the operation of valves and couplings during to address handling or stacking of containers because no containers are used the ures for timely cleanup of reagent grade spills or leaks. GSM's offloading safe offloading, including PPE and observation by a combination of an operator innections, and video camera observation at other times. The auditors observed the were being implemented.  Anide process solutions and waste streams to protect human health and
Standard of Practice 4.1:		Implement management and operating systems designed to protect human health and the environment utilizing contingency planning and inspection and preventive maintenance procedures.
	$\boxtimes$	in full compliance with
The operation is		in substantial compliance with Standard of Practice 4.1
		not in compliance with
Basis for Audit Finding	g: The op	eration is in full compliance with Standard of Practice 4.1; implement

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**Standard of Practice 3.2:** 

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management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.

The cyanide facilities at GSM include the mill, the tailings pipelines, Tailings Impoundment #2, the East, West, and Old Seepage Basins, and the Tailings Impoundment #1 Pumpback System. Tailings Impoundment #1 has been closed since 1995. GSM has developed a robust Health & Safety Management System (HSMS) and Environmental Management System (EMS), which are based on the ISO 14001 and OSHAS 18000 models involving the Plan, Do, Check and Act cycle. GSM have developed and implemented operator manuals; SOPs; and training, monitoring and inspection programs for the safe and environmentally sound operation of the cyanide facilities.

GSM has developed a Management of Change procedure and provided examples of its use, including sign off by environmental staff. Three of the operating plans and one SOP contain contingency measures for the mill, tailings impoundment, cyanide emergencies, and seepage basins. GSM inspects the tanks, pipelines, valves, pumps, and secondary containments at the mill on a regular basis, from daily to monthly depending on the equipment or item.

GSM inspects the tailings pipelines, impoundment, seepage basins, leak detection systems, and pumpback wells on a daily basis, with more in depth inspections every 6 to 8 weeks and an annual inspection by the engineer on record. Inspections are dated and named, and contain descriptions of deficiencies; corrective actions are tracked through the preventative maintenance program. The inspection frequencies are sufficient to assure properly functioning systems. The preventative maintenance program consists of both scheduled (proactive) and unscheduled (corrective) activities. The preventative maintenance program is based on an evaluation of critical equipment, including a compilation of redundant equipment, spare equipment, and/or spare parts. GSM maintains a backup generator for the seepage basins at the tailings impoundments and another backup generator for lighting at the mill. These generators undergo monthly inspections along with regular testing and maintenance to ensure their ongoing operation. The mill is designed with check valves and backflow preventers such that all solution movement stops quickly in the event of a power outage. The tailings pipeline from the mill to the impoundment would drain by gravity during a power outage, and its volume is small compared to the available capacity of the impoundment.

		thereby limiting concentrations of cyaniae in militallings.		
	$\boxtimes$	in full compliance with		
The operation is		in substantial compliance with	Standard of Practice 4.2	
		not in compliance with		
		eration is in full compliance with Standard of Practice 4.2; introduce		

Introduce management and operating systems to minimize cyanide use,

management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

GSM has developed a SOP for recovery circuit operators to guide adjustments to the cyanide addition rate, as some the rates of other respective for the recovery circuit operators to guide adjustments to the cyanide addition rate, as

GSM has developed a SOP for recovery circuit operators to guide adjustments to the cyanide addition rate, as well as the rates of other reagents. GSM has recently been processing ores from other mine sites in the area with a variety of grades and these ores are evaluated prior to processing. GSM adjusts cyanide addition rates and pH manually with operator checks three times per shift at four locations in the mill. Operator log sheets verified that

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Standard of Practice 4.2:

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the manual system was implemented. Evaluations are primarily assays and 48-hour bottle rolls where cyanide consumption in pounds per ton (lbs./ton) is calculated along with grind time and size. Processing of materials consists of blending with ores from GSM. As long as an ore type falls within the general operating parameters then no changes are required. The daily target fluctuates as determined by measurements from the leach tanks and adjustment are made. Determining and establishing cyanide application rates is a continuous process based on variations in ore types and the desire for optimum gold recovery with minimal reagent use. There are continuous, on-going studies to optimize (minimize) cyanide usage.

Implement a comprehensive water management program to protect against

Standard of Practice 4.3:

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**Environmental Resources Management** 

		unintentional releases.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 4.3
		not in compliance with	
		pperation is in full compliance wit program to protect against uninte	h Standard of Practice 4.3; implement a entional releases.
appropriate cyanide facili tailings deposition, precip The model does not inclu- negligible at GSM. There probabilistic because it is	ties (main itation, e de freeze are no di based on ons. GSM	rally the Tailings Impoundment #2) vaporation, seepage, undiverted re- thaw and power outages because scharges to surface water to be in a stochastic 100-year projection of has run the water balance model.	and probabilistic. The model contains the and the appropriate factors, including: un-on, pumpback water, and reclaim water. the model's developers judged them to be cluded in the model. The model is of precipitation that includes annual I for the most extreme event possible, the
daily basis. The engineer channel for the tailings ar with more than the requir weather data at an on-site	of record ea is insp ed 3-feet station a	also inspects the Tailings Impour ected routinely after significant ra of freeboard, as shown in monthly	t, West, and Old Seepage reclaim basins on a adment #2 annually. The run-on diversion ainfall. Tailings Impoundment #2 is operated y water balance summaries. GSM collects of the third that the cessary.
Standard of Practice 4.4:		Implement measures to protect adverse effects of cyanide process	et birds, other wildlife and livestock from ss solutions.
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 4.4
		not in compliance with	
Basis for Audit Finding:	The ope	ration is in full compliance with S	Standard of Practice 4.4; implement measures
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to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

GSM has restricted wildlife access to the tailing impoundment area and the reclaim basin area with an 8-foot high wildlife fence. GSM has installed a cyanide destruct circuit at the mill to maintain WAD cyanide concentrations below 50 mg/l in the tailings slurry and decant pool. GSM provided data in graphical and tabular form that demonstrated an average WAD cyanide concentration of 8.2 mg/l from 2011 to 2014 in Tailings Impoundment #2. GSM's measures have been effective in preventing wildlife mortalities and no mortalities have occurred from 2011 to 2014. GSM does not have a heap leach, and therefore the issue of overspray is inapplicable. GSM is a zero discharge facility. Furthermore there was no situation during the recertification period that actually resulted in a discharge occurring. GSM has also demonstrated with sampling and results that WAD cyanide concentrations in open waters do not exceed 50 mg/l.

Standard of Practice 4.5:		Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 4.5	
		not in compliance with	
		eration is in full compliance with Standard of Practice 4.5; implement a t program to protect against unintentional releases.	
ephemeral washes at the three quarters of a mile mixing zone because the via groundwater seepag downstream of the pote concentrations <0.005 mg/l, then the free cyan DEQ are 0.022 and 0.00 staff, the potential indirections.	e site and to the southere is no see from the form the mg/l (i.e., reduced) tide concerns to the form of the concerns to the form of the f	arge to surface water. Cyanide facilities are operated to not discharge to the the nearest perennial surface water (Jefferson Slough) is found approximately thwest of the tailings impoundment area. There is no established surface water urface water discharge. GSM has a potential indirect discharge to surface water tailings impoundment area. GSM monitors two surface water stations ect discharge. Data for 2011 through 1 <sup>st</sup> Qtr. 2014 show total cyanide non-detects). Given that the total cyanide concentrations are less than 0.022 ntrations must also be less than 0.022 mg/l. The aquatic life standards set by the or acute and chronic levels of total cyanide, respectively. According to GSM reges have never resulted in total cyanide concentrations above the detection wastream stations, with the occasional exception of laboratory error.	
Standard of Practice 4.6:		Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 4.6	
		not in compliance with	
Basis for Audit Findin	g: The ope	eration is in full compliance with Standard of Practice 4.6; implement measures	
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designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

GSM has implemented measures to protect the designated beneficial uses of drinking water and livestock use for groundwater downgradient of the operation. Measures to prevent and manage potential seepage include impermeable surfaces at the mill; secondary containment for pipelines; geomembrane-liner for the active Tailings Impoundment #2; geomembrane-lined reclaim and overflow ponds; and pumpback well systems for the closed unlined Tailings Impoundment #1 and the reclaim/overflow ponds. GSM has met the numerical standard of 0.2 mg/l for total cyanide established by the DEQ at the point of compliance (POC) wells downgradient of the tailings area. The 2012 and 2013 annual reports submitted to regulators and associated data spreadsheets showed total cyanide concentrations less than the 0.2 mg/l standard at the two points of compliance wells for the tailings area. GSM has operated three pumpback systems around the unlined Tailings Impoundment #1 since seepage impacts were noted in 1983. GSM has operated a smaller pumpback system downgradient of the reclaim and overflow ponds for Tailings Impoundment #2 since the mid-1990s. These pumpback well systems are part of a groundwater mixing zone permitted by the DEQ. Based on analytical data submitted to regulators, these pumpback systems have performed as intended to preserve beneficial uses of groundwater downgradient of the points of compliance.

Standard of Practice 4.7	<i>;</i>	Provide spill prevention or copipelines.	ontainment measures for process tanks and
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 4.7
		not in compliance with	

**Basis for Audit Finding:** The operation is in full compliance with Standard of Practice 4.7; Provide spill prevention or containment measures for process tanks and pipelines.

GSM has provided secondary containments for all cyanide-related tanks, and these containments are in good condition. Secondary containments for the reagent-grade tanks, leach tanks, and horizontal tank are outside the mill building and consist of concrete walls and concrete or asphalt floors with liner underneath. Secondary containments for all other process tanks are inside the mill building and consist of concrete walls, curbs, and floors. Each of the two drop towers along the slurry pipeline has concrete secondary containment and concrete overflow containment. All process tanks are mounted on solid concrete pedestals; the drop towers are mounted on the solid concrete floor of the secondary containment. GSM has no cyanide-related tanks without secondary containment. GSM contracted with a professional engineer to survey the secondary containments at the mill and draw conclusions regarding capacity. All containments and enclosures provided more than 110% capacity of the largest tank within the enclosure. The drop tower containments on the tailings slurry line are likely undersized, but any overflow would follow natural topography to the Tailings Impoundment #2 and GSM has procedures for cleaning up any such spills. Any solutions, whether cyanide or precipitation, in secondary containments at the mill report to sumps with automatic pumps, which in turn send the solutions either back to the tanks, the drop towers, or to the cyanide destruct circuit. Any solutions in the drop tower secondary containments are returned to the slurry pipeline. Remaining tailings solids, if any, are manually removed and disposed at the Tailings Impoundment #2. GSM has provided secondary containment for all cyanide related pipelines. All process pipelines at the mill run over concrete floors which drain to sumps. The tailings slurry pipeline has pipe-in-pipe containment. The tailings reclaim pipeline, depending on the reach, has pipe-in-pipe containment, or a gravelfilled wrap-around liner, or a concrete conduit. GSM does not have any cyanide pipelines near or crossing

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perennial surface water. All tanks and pipelines were observed to consist of materials compatible with cyanide, such as stainless steel and HDPE. Standard of Practice 4.8: Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.  $\boxtimes$ in full compliance with The operation is **Standard of Practice 4.8** in substantial compliance with not in compliance with Basis for Audit Finding: The operation is in full compliance with Standard of Practice 4.8; implement quality control/quality assurance (QC/QA) procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications. GSM has implemented QC/QA programs for the mill, tailings pipelines, Tailings Impoundment #2, and the tailings reclaim and overflow ponds. The QC/QA programs addressed earthworks, including borrow characterization, stripping of unsuitable materials, materials placement, materials compaction, and compaction testing. GSM has retained the QC/QA documentation for the Tailings Impoundment #2 and the associated reclaim and overflow ponds. However, GSM has not retained documentation for the mill and the tailings pipelines and therefore has prepared alternative demonstrations. GSM has either employed or contracted with registered professional engineers to direct the QC/QA programs, or to provide the alternative demonstrations. For the mill, GSM obtained three letters from professional engineers addressing that prudent design and construction practices were employed. For the tailings pipelines (slurry and reclaim), GSM obtained a letter from the professional engineer that directed the design and construction stating that the pipelines were built, operated, and maintained as intended. Modifications to the cyanide facilities that were constructed after the Initial Certification Audit and reviewed during the 2014 Recertification Audit include an expansion raise to Tailings Storage Facility No. 2 during 2011-12. Additionally another Tailings Dam Expansion (Raise) was under construction during the 2014 Recertification Audit. GSM has completed QC/QA programs to document construction and modification of all tailings impoundment facilities. Standard of Practice 4.9: Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.  $\bowtie$ in full compliance with The operation is in substantial compliance with Standard of Practice 4.9 not in compliance with Basis for Audit Finding: The operation is in full compliance with Standard of Practice 4.9; implement

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monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

GSM has developed plans and procedures for monitoring wildlife, surface water, and groundwater. These plans





and procedures were prepared by qualified GSM environmental staff and hydrogeological consultants. The Surface and Groundwater Sampling Analysis Plan (updated June 2014) contains requirements for sampling locations, frequencies, field procedures, and laboratory methods. GSM completes a field sheet for each sample that annotates the weather and site conditions at the time of sampling. GSM monitors for discharges to groundwater in approximately 200 wells downgradient of the site. GSM monitors for indirect discharges to surface water (via groundwater seepage) at three locations downgradient. GSM does not monitor for discharges to surface water because there are no direct discharges to surface water. Notwithstanding the fact that the concentrations of WAD cyanide in the Tailings Impoundment #2 and reclaim ponds are below 50 mg/l, GSM monitors for wildlife mortalities on a daily basis. GSM monitors groundwater quarterly, surface water semiannually, and ponds and impoundments quarterly.

5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities Standard of Practice 5.1: Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.  $\boxtimes$ in full compliance with The operation is in substantial compliance with Standard of Practice 5.1 not in compliance with Basis for Audit Finding: The operation is in full compliance with Standard of Practice 5.1; plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock. The Operating and Reclamation Plan for the GSM (updated Feb 2013) describes the decommissioning of cyanide facilities at the Mill and Support Areas and at the Tailings Impoundment No. 2. Decommissioning activities in general consist of disposition of final solutions, decontamination of components, and disposal, sale, or recycling of decontaminated components. The plan contains text regarding the sequencing and duration of decommissioning activities. GSM augmented this text with an internal schedule located in the Barrick Cost Barrick Reclamation Cost Estimate (BRCE) model showing the decommissioning activities in more detail. The DEQ annually reviews this plan and requires update of selected items as necessary. The DEQ also requires the update and complete reissue of the plan every five years. Standard of Practice 5.2: Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.  $\boxtimes$ in full compliance with The operation is in substantial compliance with Standard of Practice 5.2 not in compliance with **Basis for Audit Finding:** The operation is in full compliance with Standard of Practice 5.2; establish an

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assurance mechanism capable of fully funding cyanide related decommissioning activities.

The DEQ prepares the regulatory cost estimate and then negotiates with GSM regarding the final costs. The regulatory cost estimate is based on third-party implementation includes decommissioning of cyanide facilities. The DEQ recalculates the closure costs every five years. GSM maintains two bonds for the full closure amount, as approved by the DEQ. GSM also prepares internal closure cost estimates annually that include decommissioning of cyanide facilities, but compliance with this Standard of Practice is fully satisfied by the regulatory cost estimate and bond.

#### 6. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide

		•	•	
Standard of Practice 6.1:		Identify potential cyanide exp necessary to eliminate, reduce a	posure scenarios and take measures nd control them.	as
	$\boxtimes$	in full compliance with		
The operation is		in substantial compliance with	Standard of Practice 6.1	
		not in compliance with		
		operation is in full compliance with ke measure as necessary to elimina	n Standard of Practice 6.1; identify potentiate, reduce and control them.	al
the management and oper cyanide management faci required Personal Protecti operator responsibilities, must be completed when	ration of the littles and ive Equipand processome of the modificat	the cyanide facilities. These SOPs I cover decontamination prior to moment (PPE), cyanide hazards and edures for using and handling cyar these activities are undertaken. Protion for their potential impact on w	that involve exposure to cyanide as well a cover the safe operation of the entire naintenance work. The documents describe cyanide decontamination procedures, nide. In addition there are checklists that occdures to review proposed process and work health and safety are controlled under	e
undertakes a Field Level l undertake team based risk understand the task, look the operator can do to pre	Risk Associated what control or c	essment (FLRA) on a safety partice nent on a Pre Task Plan. These risk can go wrong, how it would affect control the event. Workers provide	assessments. Prior to their shift each operation card. Prior to a specific task teams assessments require the employees to them, how likely it is to happen and what input into the development of health and procedures at safety meetings which can be	S
GSM has written and rece treat cyanide exposed vice			ls regarding the potential requirement to	
Standard of Practice 6.2:		-	acilities to protect worker health and safectiveness of health and safety measures.	fety
		in full compliance with		
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The operation is	Ш	in substantial compliance with	Standard of Practice 6.2	
		not in compliance with		
<b>Basis for Audit Finding:</b> GSM is in Full Compliance with Standard of Practice 6.2 requiring that the site operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.				
Target pH levels are set by the Mill Superintendent depending on the ore characteristics – but generally it fluctuates between 11 and 11.5. In addition the operation has identified areas and activities where potential worker exposure to 4.7 ppm of HCN may exist. These areas are signed. Both fixed and portable HCN monitors are used to ensure that worker exposure to HCN gas is limited. Fixed monitors have been placed in strategic locations throughout the mill to protect workers from exposure to instantaneous HCN gas levels. The operation also undertakes weekly HCN Surveys to assess operator's exposure to HCN. The fixed HCN monitors are full span calibrated every month in accordance with the manufacturer's recommendations. Portable HCN monitors are equipped with a docking station that maintains the electrical charge, performs monthly calibrations, and registers a continuous, digital maintenance record. Every time the monitor is docked the high and low level alarms are tested. Signs indicating the presence of cyanide are provided in all areas where cyanide is used and stored including the off-loading area, the process tanks and pipes. Signs are located at the doors of the Mill Buildings stating that, 'All process solution contains cyanide'. Pipes carrying cyanide are marked and the direction of flow is indicated with arrows on the pipes.				
These are checked regular	ly. Fire e	extinguishers are located througho	ant where there is a risk of cyanide exposing the facility and are inspected monthly annual basis by the external company A&	by
the risk to workers from H	ICN gas.		procedures have been developed to mining gate cyanide exposures, and to modify	mize
Standard of Practice 6.3:		Develop and implement emer respond to worker exposure to c	gency response plans and procedure yanide.	es to
		in full compliance with		
The operation is		in substantial compliance with	Standard of Practice 6.3	
		not in compliance with		
			d of Practice 6.3 which requires that the ocedures to respond to worker exposure t	<b>:</b> 0
		rgency Response Plan to respond from HCN and appropriate PPE	to cyanide exposures. This Plan details for rescue.	
The operation has appropri	riately tra	ined First Responders and all wor	rkers have received basic cyanide awaren	ness
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training which includes first aid training for cyanide exposure. Cyanide antidote kits and other equipment such as oxygen, water and resuscitators are available at suitable locations throughout the operation for treating potential victims of cyanide exposures. This equipment is regularly inspected to ensure it will function correctly and remains within its useful life. GSM has an ambulance to transport patients to one of three clinics. GSM is also able to call on one of two life flight helicopters able to transport patients to the appropriate clinic. Communication in the event of an incident is either by means of radio or landline telephones.

Numerous tabletop and mock drills are held every year, debriefings are documented, and the lessons learned are incorporated into the annual updated of the Cyanide Emergency Response Plan.

meorporated into the aimit	ar update	d of the Cyanide Emergency Response Fran.	
7. EMERGENCY RES emergency response		Protect communities and the environment through the development of es and capabilities	
Standard of Practice 7.1:		Prepare detailed emergency response plans for potential cyanide releases.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 7.1	
		not in compliance with	
		in Full Compliance with Standard of Practice 7.1 which requires that the cy response plans for potential cyanide releases.	
transportation incidents. T	he cyanio	siders all reasonably foreseeable cyanide failure scenarios, including on-site de supplier and transporter take primary responsibility for any accidents e point of unloading at the operation.	
		ed for evacuating potentially affected communities. It specifies procedures forment, antidotes, and measures to control cyanide releases.	
Plan, EMS Chemical Spill includes the Command Sta	and Con aff Roles	at to do in the First 2 Hours of an Incident, the Cyanide Emergency Response trol Plan and Contact List for Internal and External Stakeholders. It also and Responsibilities document which provides details on who is responsible order to evacuate potentially affected communities.	
Standard of Practice 7.2:		Involve site personnel and stakeholders in the planning process.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 7.2	
		not in compliance with	
		in Full Compliance with Standard of Practice 7.2, which requires that the d stakeholders in the planning process.	

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GSM has involved the workforce and stakeholders such as Whitehall Ambulance, Whitehall Fire Department, Boulder Ambulance, Boulder Fire Department, Basin Ambulance, Pony/Harrison Quick Response Unit, Jefferson County Sheriff, and Whitehall Fire Department in emergency response planning. Local emergency responders have been involved in the emergency planning process.

GSM consults and communicates with stakeholders to ensure the emergency response plan is kept current.

Standard of Practice 7.3:		Designate appropriate personnel and commit necessary equipment and resources for emergency response.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 7.3	
		not in compliance with	
		in Full Compliance with Standard of Practice 7.3 which requires d commit necessary equipment and resources for emergency response.	
Incident Command Staff have explicit authority to the GSM Cyanide Trainin operators, Mill Maintenar procedures and 24-hour capecific duties and responsand available emergency	Roles and commit the g Policy ace, and Tontact info asibilities response	aff as well as equipment and other resources for emergency responding Responsibilities document details the emergency response coording the resources necessary. All responders are appropriately trained a which requires training for all staff including emergency responding employees. The Emergency Response Binder includes caronation for the coordinators and response team members along of the coordinators and team members. The binder also includes a equipment. The Emergency Equipment Readiness Inspection Polents for emergency response equipment to ensure its availability.	inators who s required by ers from Mill ill-out with the a list of PPE
Jefferson County LEPC a	nd CTAC	cilities are aware of their roles in emergency situations as GSM at a meetings. GSM also involves outside responders entities and state of their involvement in Emergency Response.	
Standard of Practice 7.4:		Develop procedures for internal and external emergency not reporting.	ification and
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 7.4	
		not in compliance with	
		in Full Compliance with Standard of Practice 7.4 which requires the external emergency notification and reporting.	hat the site
		Plan provides details on procedures for notifying management, o es. The 120 Plan - What to do in the First 2 Hours of an Incident	
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immediate steps to be followed.

• The Cyanide Emergency Response Plan and Incident Command Staff Roles and Responsibilities documents provide details for contacting internal GSM management, external emergency services including the local law enforcement departments such as Jefferson County Sheriff and Jefferson County Local Emergency Planning Committee who would coordinate with the local community. Other contacts include local ambulance services, clinic, hospitals, State Emergency Response Commission, Montana Disaster and Emergency Services), State Government agencies (e.g. DEQ) and Federal Agencies (e.g. Mine Safety and Health Association (MSHA), CHEMTREC, BLM)

The CERP and Incident Command Staff Roles and Responsibilities documents provide details for contacting the County Sheriff's office who in turn would contact potentially affected communities. The Staff Roles document also provides contact numbers and contact duties for a Media coordinator.

Standard of Practice 7.5:		Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 7.5
		not in compliance with	
Basis for Audit Findin	g: GSM is	s in Full Compliance with Standard	d of Practice 7.5 which requires that the site

incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The EMS Chemical Spill and Control Plan details specific remediation measures required for solid and liquid cyanide releases. These measures included detailed work procedures for neutralization with a solution of sodium hypochlorite, clean up requirements, sampling and analysis requirements and ultimate disposal.

The EMS Chemical Spill and Control Plan states that GSM has determined the number of properties that could be affected if the drinking water supply was affected by a cyanide release. They have contacted their local bottled water supplier (Thompson Distribution) to warn them that in the event of such an emergency they would ask them to provide bottled drinking water to the local community.

The EMS Chemical Spill and Control Plan SOP states the neutralizing chemical sodium hypochlorite or other neutralizing chemicals are not to be used if they have the potential to travel to surface water.

The Surface and Groundwater Sampling Analysis Plan is a guide to the standard sampling protocols (sampling and purging methods, parameters, type of containers, preservation, frequency etc.) used at the site. The document presents sampling methods and techniques that are recommended for meeting regulatory requirements for proper water sampling procedure.

<u>Standard of Practice 7.6</u>: Periodically evaluate response procedures and capabilities and revise them as needed.

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	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice	7.6
		not in compliance with	
		te is in Full Compliance with Standard of Practice 7.6, whice procedures and capabilities and revise them as needed.	ch requires that the
GSM updates the Cyanic June 2014.	de Emerg	gency Response Plan at regular intervals, at least annually.	It was last updated in
-	nual upda	Ils are held every year, debriefings are documented and the ated of the Cyanide Emergency Response Plan. A mock dril a HCN exposure.	
8. TRAINING: Train environmentally p		rs and emergency response personnel to manage cyanid e manner	e in a safe and
Standard of Practice 8.1	<u>!</u> :	Train workers to understand the hazards associated with	h cyanide use.
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice	8.1
		not in compliance with	
		s in Full Compliance with Standard of Practice 8.1 which razards associated with cyanide use.	equires that the site
include - Industrial Uses Equipment; Poisoning S	s; Physica ymptoms	yanide safety as part of GSM's Basic Cyanide Awareness I al and Chemical Characteristics; Safe handling; Personnel P s; First Aid for Over Exposure; Emergency Response. Refre anually. All training records are entered into the training ma	rotective eshers in cyanide
Standard of Practice 8.2:		Train appropriate personnel to operate the facility according procedures that protect human health, the community ar	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice	8.2
		not in compliance with	
Basis for Audit Finding	g: GSM i	s in Full Compliance with Standard of Practice 8.2 which r	equires that the site
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train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community, and the environment.

Operators who are involved in unloading, mixing, production and maintenance tasks receive basic cyanide awareness training as well as on the job training in their tasks. The on the-job training includes training in the specific SOPs and is provided by a competent person (supervisor). Components of the SOP include a pre work area inspection, PPE requirements and steps to be followed. The employee is instructed on the proper use of any equipment, risks associated with the tasks and other related safety issues. The employee is required to demonstrate competency in conducting the task prior to working without supervision in an area. Assessment of competency is achieved through dialogue with the supervisor and by observing the employee. The supervisor then signs that they provided the training and the employee signs off that they have been trained. This record is maintained demonstrating the level of training the employee has received. The effectiveness of training is assessed through written tests after the basic cyanide awareness training and Pop Quiz type tests in monthly safety meetings.

Standard of Practice 8.3:		Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 8.3
		not in compliance with	

**Basis for Audit Finding:** GSM is in Full Compliance with Standard of Practice 8.3 which requires that the site train appropriate workers and personnel to respond to exposures and environmental releases of cyanide.

Workers and contractors assigned to a specific area, where cyanide is an integral part of the process, such as unloading, mill operations, and maintenance, are trained on the safe use and handling of cyanide which includes being trained in the appropriate emergency response for worker exposure and environmental releases of cyanide.

All employees are trained in cyanide decontamination and first aid procedures and guidelines outlined in the Cyanide Emergency Response Plan such as the response to a cyanide spill, release, or emergency. Training also includes the use of the cyanide antidote, SCBA, and other PPE necessary to respond to a cyanide emergency. Refresher training in cyanide emergency response is undertaken annually.

EMTs and First Responders participate in Emergency Medical Services Continuing Education Classes given by the safety department. In 2012 and 2013 training occurred twice a month. In 2014 training increased to 3 times a month. These classes include the hazmat emergency response, ambulance inventory, use of SCBAs, first aid, cyanide emergency procedures and treatment of cyanide exposed victims. In 2014 GMS also organized for ERT members to train with the Whitehall Ambulance.

GSM has undertaken a number of training events at the mine from 2011 – 2014 to make those off-site emergency responders familiar to the cyanide emergency response plan. Live mock drills were conducted in 2012, 2013 and 2014. Each drill included a debrief, lessons learned and any actions items identified. The Site Emergency Response Drill Policy details that any training deficiencies noted in the drill will be addressed by additional training. Drills are observed and recorded to make sure that the procedures have been followed. The debriefing allows discussion and input from the EMT's and suggestions may be implemented in the next drill.

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Verbal reminders are given to the EMT's after the drill if they missed something.

9. DIALOGUE: Engag	ge in pub	lic consultation and disclosure.	
Standard of Practice 9.1:		Provide stakeholders the opportunity to communicate issues of concern.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 9.1	
		not in compliance with	
-	-	is in Full Compliance with Standard of Practice 9.1 which requires that opportunity to communicate issues of concern.	
meetings, site visits, par	rticipatir eral publ	ty engagement initiatives including participation at monthly CTAC and in the Jefferson County LEPC and attending other community group lic can voice concerns. GSM is very transparent and provides a very high-nity.	
Standard of Practice 9.2:		Initiate dialogue describing cyanide management procedures and responsively address identified concerns.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with Standard of Practice 9.2	
		not in compliance with	
		in Full Compliance with Standard of Practice 9.2 which requires that the site e management procedures and actively address identified concerns.	
the Local County Commis- town councilor, the State paper, local businesses an gives an outline of work bare a very good way for m	ssioner, the of Monta dany me being und nembers of the second control of the second cont	the in the nearby town of Whitehall. Meeting members/representatives include the Local Economic Development Corporation, the mayor of Whitehall, the madepartment of Fish, Wildlife and Parks (both local and state), the local ember of the public interested. At every meeting the GSM general manager ertaken at the mine and any issues or concerns. Therefore the CTAC meetings of the public and media to be able to raise concerns directly to the mine for dealing with concerns raised as part of their environmental management	

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Standard of Practice 9.3:		Make appropriate operational and environmental information regarding cyanide available to stakeholders.	
	$\boxtimes$	in full compliance with	
The operation is		in substantial compliance with	Standard of Practice 9.3
		not in compliance with	

**Basis for Audit Finding:** GSM is in full compliance with Standard of Practice 9.3 which requires that the site make appropriate operational and environmental information regarding cyanide available to stakeholders.

GSM makes operational and environmental information regarding cyanide available through the Corporate Barrick website, <a href="http://www.barrick.com/">http://www.barrick.com/</a>, site visits and in presentations provided to local community groups. The majority of the local population is literate and so written information is considered adequate.

The Corporate Barrick website contains general information in the format of performance tables that are detailed by region and mine site and include GSM. These include information for the last three years regarding amount of cyanide, used, number of chemically related wildlife mortalities, chemical spills escaping second level containment, and chemical spills escaping mine property and number of regulatory actions.

Conditions within State Regulations and GSM's Operational Permit require reporting of releases to DEQ that would include a summary of any cyanide spills and releases. GSM also is required under Federal law to complete MSHA reports that include details of any cyanide related worker exposure or death. Both MSHA and DEQ reports are available to the public. These reports include:

- Incidents of cyanide exposure resulting in hospitalization or fatality (MSHA);
- http://www.msha.gov/
- Incidents where releases off the mine site required response or remediation (DEQ);
- <a href="http://www.deq.mt.gov/default.mcpx">http://www.deq.mt.gov/default.mcpx</a>
- Incidents where releases on or off the mine site resulted in significant adverse effects to health and to the environment (DEQ; MSHA);
- Incidents where a release on or off the mine site required reporting under applicable regulations, (DEO).

In addition, any accidental spills, releases, or worker exposures would be reported at the monthly CTAC meetings.

