

# Barrick Gold Corporation, Cortez Gold Mine, Nevada, USA

#### Submitted to:

Barrick Cortez HC66 Box 1250 Crescent Valley Nevada USA 89821-1250



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Report Number.

10514150169.500/A.1

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### 1.0 SUMMARY AUDIT REPORT FOR GOLD MINING OPERATIONS

Name of Mine:

Cortez Gold Mine

Name of Mine Owner:

**Barrick Gold Corporation** 

Name of Mine Operator:

Cortez Gold Mine

Name of Responsible Manager:

Joseph Dick, Cortez Gold Mine

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### 2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

#### 2.1 Mine Location

The Cortez gold mine is located 78 kilometres southwest of Elko, Lander County, Nevada and approximately 30 air-miles southeast of Battle Mountain, Nevada. More specifically, the mine is within Sections 28, 29, 30, 31, 32, and 33, Township 28 North, Range 47 East, and Sections 4, 5, and 6, Township 27 North, Range 47 East, Mount Diablo Baseline and Meridian. The Cortez Pipeline property is 11 kilometres northwest and the Cortez Pediment property (which includes the Cortez Hills deposit) is 4 kilometres southeast of the original Cortez milling complex. The Pipeline and South Pipeline deposits are mined by conventional open-pit methods. The Cortez property covers approximately 2,800 square kilometres on one of the world's most highly prospective mineral trends. (See Figure 1.)

Cortez Gold Mine Name of Facility Signature of Lead Auditor



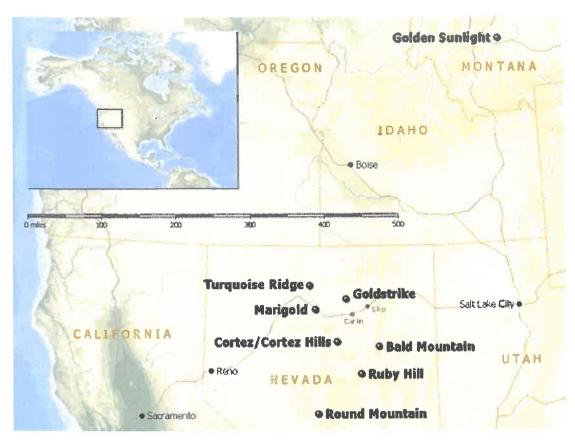


Figure 1: Regional Location Map (from Barrick website)

## 2.2 Background

Cortez employs three different metallurgical processes to recover gold. Lower-grade oxide ore is heap leached, while higher-grade non-refractory ore is treated in a conventional mill using cyanidation and a carbon-in-leach ("CIL") process. In addition, minor amounts of refractory ore is stockpiled and transported off-site for processing. Heap leached ore is hauled directly to leach pads for gold recovery. Carbonaceous mill ore is mined intermittently during the mining of the Pipeline/South Pipeline deposits. The Cortez Hills underground mine is accessed by twin declines portaled in the old Cortez Gold F canyon pit. The breccia ore zone employs underhand cut and fill mining methods with cemented rock fill as backfill. The top cut of the underground mine will eventually be the bottom bench of the Cortez Hills open pit.

In 2009 Cortez's production totalled 518,000 ounces of gold at total cash costs of \$510 per ounce. The Company's proven and probable mineral reserves as of December 31, 2009 are estimated at 14.1 million ounces of gold.

The orebody extends beneath the pre-mining water table. Therefore, dewatering of the host rock and alluvium must be performed in advance of mining. The pit is currently dewatered at rates of approximately 22,000 to 27,000 gallons per minute (gpm), with a peak permitted rate of 34,500 gpm, by a system of eleven deep bedrock wells, with an average depth of 950 feet. These wells discharge to a collection pipeline system that connects to the Pipeline Infiltration Project infiltration-sites where water percolates into unsaturated alluvium subject to Water Pollution Control Permits. Water quality monitoring has confirmed that the dewatering circuit is separate and distinct from the cyanide processing circuit.

The Cortez Mine Pipeline project consists of an open pit with associated dewatering system, waste rock dumps, two heap leach facilities, two carbon-in-column (CIC) facilities, a carbon-in-leach (CIL) facility

Cortez Gold Mine Name of Facility Signature of Lead Auditor



(Mill #2), refinery and a tailings impoundment. The heap leach and tailings disposal facilities are located in two areas known as Area 28 and 30.

Area 28 facilities consist of a CIC facility, pregnant solution pond, reclaim/barren solution pond, a stormwater event pond, and ancillary support facilities to process heap solutions. The Area 28 heap leach facilities have been constructed in association with the tailings impoundment and provide the embankments for the impoundment. The Area 28 tailings impoundment consists of rotating spigot discharge locations and a decant pond area. Cortez uses a ferrous sulfate cyanide detoxification treatment system to keep the spigot discharge below 50 milligrams per liter WAD cyanide. The Area 28 heap leach and tailings facilities are managed as a single process water unit with the decant water pipeline from the tailings decant pond receiving cyanide addition and being applied to the heap leach as barren solution. In addition, the tailings internal underdrain system collects and manages solution from the consolidating tailings and reports to the heap leach process ponds. Area 30 facilities consist of an additional heap leach facility, two pregnant ponds, a barren pond, a stormwater event pond, and a CIC recovery facility.

All the heap leach and tailings facilities have been constructed with composite HDPE geomembrane and compacted low permeability soil liners. The process water ponds all are constructed with double HDPE geomembrane liners and leak collection and recovery systems. The Mill #2 facility employs a CIL process, storage tanks, thickeners, refinery, mercury scrubber, secondary containment systems, associated appurtenances, and all sumps, pumps and piping necessary to interconnect the components. The Mill #2 facility also includes the Plant Spill Pond (PSP) for spill control. Loaded carbon from the two CIC units is hauled to the Mill #2 facilities for processing. Although the bulk of the processing is done on-site, a relatively small amount of carbonaceous ore is shipped off-site for processing at Barrick's Goldstrike Mine. The operations are designed, permitted and operated as zero-discharge facilities. Approximately 700 workers are employed at the Cortez mine.

Cortez has three cyanide unloading and storage tank areas: (1) Mill Building; (2) Area 28 Leach; and (3) Area 30 Leach. The Mill cyanide storage tank is 15 feet in diameter and 20 feet high; the Area 28 cyanide tank is 12 feet diameter by 20 feet high; and Area 30 has two cyanide storage tanks each 12 feet by 20 feet. The unloading and storage areas are located away from public access and no surface water bodies are nearby. The storage tank areas and the cyanide unload areas are designed and constructed to contain and recover any leakage from the tanks and the tanker trucks.

Cortez receives liquid sodium cyanide in specially engineered tanker trucks from Cyanco located in Winnemucca, Nevada. Sodium cyanide is delivered by TransWood. Both Cyanco and TransWood are signatories to the Code and have been certified as compliant with the Code by third-party auditors.

Cortez stores and manages sodium cyanide in engineered tanks, pipelines and lined ponds that have had appropriate quality control and quality assurance. Cortez workers are trained in cyanide hazards and first aid, first response, emergency response, and specific operational task training. Cortez facilities are fenced to preclude wildlife and livestock from entering cyanide process areas. Cortez conducts daily, weekly, and monthly inspections to ensure that facilities are functioning as designed and to monitor process solutions. Preventive maintenance programs are in place to assure the continuous operations. Cortez has approved closure and reclamation plans along with financial assurance to complete the appropriate management of cyanide solutions and solids, and the decontamination of cyanide pipelines and equipment.

Cortez has a comprehensive environmental monitoring program to evaluate the performance of the ore processing facilities and containments. The monitoring program includes daily monitoring of pond leak collection systems, quarterly sampling and analysis of groundwater and surface water, and quarterly sampling and analysis of tailings supernatant ponds. Wildlife monitoring is conducted per shift by the operators during facility inspections.

Cortez has an emergency response team that is trained to respond to on-site fires, chemical spills, and worker exposures to cyanide. Cortez works with local community emergency services to assure that adequate resources are available to address both off-site and on-site emergencies.

Cortez Gold Mine Name of Facility Signature of Lead Auditor





# SUMMARY AUDIT REPORT Auditors Findings

	☑ in full compliance with	
		The International
Cortez Gold Mine is:	in substantial compliance with	Cyanide Management  Code
	not in compliance with	•
Audit Company:	Golder Associates	
Audit Team Leader:	Sophie Wheeler, Lead Auditor	
	Ivon Aguinaga, Technical Specialist	
Email:	swheeler@golder.com	

#### **Dates of Audit**

The Recertification Audit was undertaken over four days between October 11 and October 14, 2010.

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Gold Mine Operations and using standard and accepted practices for health, safety and environmental audits.

Cortez Gold Mine

Name of Facility

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Signature of Lead Auditor

the above named sign this document at 33 Queen Street, Maidenhead, Berks. U.K.

I Certify that I was present and saw

his day of lly way 20!

Notary Public

Cortez Gold Mine Name of Facility

February 2011 Report No. 10514150169.500/A.1 Signature of Lead Auditor

a Jungal

2 February 2010

Date



#### PRINCIPLE 1 - PRODUCTION

# Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that Operate in a Safe and Environmentally Protective Manner

Production 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	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Production Practice 1.1
	not in compliance with	
The operation is		Production Practice 1.1

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 1.1. Cortez has committed to only purchase cyanide from producers that are compliant with the Code. Cyanco, located in Winnemucca Nevada, has been the cyanide producer and supplier for Cortez since January 1, 2009. The contract with Cyanco states they shall comply with the Code requirements. DuPont was the cyanide producer and supplier for Cortez from the date of the Initial Certification Audit until December 31, 2008. The contract with DuPont specifically identified the Code requirements as a provision. Cyanco and DuPont are signatories to the Code and have been recertified as complaint under the Code.

Cortez Gold Mine Name of Facility Signature of Lead Auditor

2 February 2011 Date



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#### PRINCIPLE 2 – TRANSPORTATION

### Protect Communities and the Environment during Cyanide Transport

Transport Practice 2.1:	Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Transport Practice 2.1
	☐ not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 2.1. Since in January 2009, Cyanco has been the liquid cyanide supplier to Cortez and TransWood has been the transporter. Prior to January 2009, DuPont, located in Carlin, Nevada was the cyanide producer and supplier and the liquid cyanide was delivered by Sentinel. Cyanco, DuPont, TransWood and Sentinel are signatory to the Code and have been certified as compliant with the Code with clear lines of responsibility for safety, security, release prevention, training, and emergency response.

The cyanide supply contract with Cyanco specifies that Cortez takes ownership of the cyanide at the time the liquid cyanide is delivered into the cyanide storage tanks at the mine site. The contract specifies that Cortez and Cyanco agree to comply with the 'Principles and Standards of Practice' of the Code. The cyanide supply contract with DuPont also specified that the operation took ownership of the cyanide at the time of delivery in the tank. Prior to January 1, 2009 DuPont was, under contract, solely responsible for the production and transport of sodium cyanide to the delivery point at Cortez.

Transport Practice 2.2:	Require that cyanide transporters response plans and capabilities at cyanide management	
	☑ in full compliance with	
The operation is	in substantial compliance with	Transport Practice 2.2
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 2.2. Commencing in January 2009, TransWood has been the sole cyanide transporter. No interim storage facilities are used by either Cyanco or TransWood and TransWood is the sole transporter allowed by Cyanco to transport cyanide from their facility to Cortez. TransWood is a signatory to the Code and is currently recertified by the ICMI. The date of recertification was January 20, 2010.

During the time period from the Initial Certification Audit until December 31, 2008, DuPont was responsible for the production and transport of cyanide to the delivery point at Cortez. The supply chain from the DuPont production facility in Memphis Tennessee to Cortez includes rail transportation to Carlin, Nevada as solid sodium cyanide, followed by truck transportation of liquid sodium cyanide to the mine. The DuPont supply chain from the manufacturing facility in Memphis, Tennessee was not certified under the Code but through a formal due diligence of the rail transport completed and documented in audit report 'DuPont Management of Sodium Cyanide Transportation via Rail Memphis, TN Plant to Carlin, NV Packaging Terminal via Union Pacific Railroad and Canadian National Railway' by Management System Solutions, Inc. (December, 2006).

Cortez Gold Mine Name of Facility Signature of Lead Auditor





Based on the results of this review, DuPont was in full compliance with ICMI cyanide transportation audit requirements and had considered to the extent practical, the security, safety, training and emergency response aspects of the rail carriers. Sentinel is currently and was a signatory to the Code during the time period they were transporting cyanide to Cortez.

Cortez Gold Mine Name of Facility

Signature of Lead Auditor





#### PRINCIPLE 3 - HANDLING AND STORAGE

# Protect Workers and the Environment during Cyanide Handling and Storage

Otorage		
Handling and Storage Practice 3.1:	with sound, accepted enginee	storage and mixing facilities consistent ring practices, quality control/quality ention and spill containment measures.
	⊠ in full compliance with	
The operation is	in substantial compliance with	Handling and Storage Practice 3.1
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 3.1. Cortez has three cyanide unloading and storage tank areas: Mill Building (Mill); Area 28 Leach (Area 28); and Area 30 Leach (Area 30). The design and construction of the cyanide unload and storage facilities have been completed appropriately as documented in final design and construction drawings as prepared and stamped by Nevada registered Professional Engineers. The three cyanide unload pads are constructed with cast-in-place reinforced concrete with curbed or walled containments. The Mill storage tank containment has a collection sump and pump that returns collected solutions back into the Mill Building.

The Area 28 and Area 30 containments drain to adjacent ponds. The cyanide unload areas are designed and constructed to contain and recover leakage from the tanker trucks. These unload pads are adequate barriers to prevent seepage to the subsurface. Cortez has an inspection and preventative maintenance program for identification and patching of cracks. The containments were all reviewed for integrity and appeared to be in good condition.

The unloading and storage areas are located away from public access and no surface water bodies are nearby. The Process areas are within the fenced complex of the Cortez operations. Cortez provides site security personnel and video surveillance that evaluate the site to prevent unauthorized access. All cyanide storage areas have full time video surveillance capability. Cortez uses only liquid cyanide stored in fully enclosed steel tanks. The Cortez cyanide storage tanks have level indicators and high level alarms that prevent overfilling. There are no unsecured valves that would allow direct access to the liquid cyanide. The cyanide storage tanks at Cortez are all located outside with adequate ventilation. Cortez has isolated the cyanide unload and storage tanks away from incompatible chemicals such as acids and oxidizers. The Mill Building is the only area where acids are used and the acid storage is located on the opposite side of the building. No smoking or eating is allowed the cyanide storage areas.

Cortez Gold Mine Name of Facility Signature of Lead Auditor

Date



Handling and Storage Practice 3.2:	Operate unloading, storage and mixing facilities using inspection preventative maintenance and contingency plans to prevent or control and respond to worker exposures.	
The operation is	in substantial compliance with	Handling and Storage Practice 3.2
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 3.2.

Cyanide is delivered to Cortez as a liquid in tankers. The liquid is transferred from the tanker to a storage tank and there are no empty cyanide containers that require disposal. Cortez has developed and implemented the 'Offloading Cyanide' Standard Operating Procedure (SOP) and the 'Cyanide Offloading Check Off sheet that cover the responsibilities for the transporter and the site personnel. In addition, the 'Cyanco Sodium Cyanide Delivery' SOP includes detailed information on the operation of valves and couplings. Cortez requires appropriate PPE for the delivery driver prior to any activity and video observation by an operator during the offload operations. Offloading does not occur until the control room operator has established verbal contact by radio, has observed compliance with the PPE requirements, truck parking and chocking, and confirmed the tank level. The Cortez operators are trained in the transporter PPE requirements and offload procedures (including connection and disconnection, and emergency shutdown locations); and they are trained in emergency response procedures, i.e., initiation of an emergency response action and locations of PPE, locations of cyanide antidote, and oxygen.

Cortez Gold Mine Name of Facility

Signature of Lead Auditor





#### **PRINCIPLE 4 – OPERATIONS**

# Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Operations Practice 4.1:	ractice 4.1: Implement management and operating systems designed to human health and the environment utilizing contingency plan inspection and preventative maintenance procedures.	
	☑ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.1
	not in compliance with	
Summarise the basis for	this Finding/Deficiencies Identified:	

The operation is Full Compliance with Standard of Practice 4.1. Cortez has developed a series of SOPs that define the policies, procedures and responsibilities for compliance with the Code. SOPs have been prepared for all cyanide related management tasks. Cortez also has Operating Plans describing the full operation of the process and the reagent facilities. In addition, the Cortez Pipeline Operations Water Pollution Control Permit Operating Plan NEV93109 specifies the procedures, operating plans and regulatory requirements for cyanide process solution management. Cortez has prepared a Process Fluid and Tailings Management Plan section as part of its Operating Plan that covers the operational water management strategies including Emergency or Unusual Operating conditions. Cortez has established inspection frequency on a daily shift and monthly basis. Inspections include: cyanide tanks, secondary containments, leak detection and collection systems, pipelines, pumps, valves, ponds, tailings storage facilities and leach pad areas. Inspection documentation includes information on the performance of the pad and pond leak detection and review of the pond levels. These inspections are sufficient to assure and document that cyanide facilities are functioning with the design parameters. The inspection documentation includes the name of the inspector, date and observed deficiencies. The Cortez preventive maintenance program is designed to assure the continuous and safe operation of the equipment for cyanide management. The elements necessary for cyanide safety (e.g., HCN monitors, pH probes, tank level alarms, backup generators, pumps, generators and others) are included in the preventive maintenance program. There are

emergency power generator	ors to operate critical functions during power o	utages.
Operations Practice 4.2:	Introduce management and operating systems to minimise cyanide use thereby limiting concentrations of cyanide in mill tailings.	
	⊠ in full compliance with	
The operation is	in substantial compliance with	<b>Operations Practice 4.2</b>
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is Full Compliance with Standard of Practice 4.2. Cortez evaluates cyanide consumption rates through the CIL circuit every 4 hours during operation. Cyanide concentrations are determined by titration methods. Cyanide is added in the grind surge tank at a specific target rate to achieve a free cyanide value of less than 35 ppm at the tailings outflow from CIL tank #8 (the last tank in the circuit). Differing ore types are evaluated prior to processing, usually at least one year ahead of processing to assess consumption rates. In general, all of the Cortez ores are similar in chemistry and as long as the new ore type falls within the general operating parameters then no changes in general operating philosophy is required. Cortez targets a cyanide concentration rate of 0.3 to 0.5 pounds per ton (lbs/ton) sodium cyanide in the grind surge tank. Cortez has evaluated the use of inline automated cyanide titrations and use of ion probes for flow density

Cortez Gold Mine Name of Facility Signature of Lead Abditor





and manual measurements of cyanide and determined that it is effective in adequately characterizing the conditions and controlling the cyanide addition. Cortez has implemented a strategy to control its cyanide addition and minimize the quantity of cyanide detoxification requirements.

Operations Practice 4.3:	Implement a comprehensive water against unintentional releases.	r management programme to protect
The operation is	in substantial compliance with	Operations Practice 4.3
	not in compliance with	
Summarise the basis for t	his Finding/Deficiencies Identified:	
water balance that tracks w Area 28 and Area 30 facili- calibrated to actual site con of the precipitation and ore the 100-year, 24-hour storn sufficiently conservative crit heap leach application rat reasonable manner using malance for calibration and	rater flow throughout the entire site incluties and associated pond network. The iditions and set up to evaluate "what if" moisture content. The model is set up in event; and the rapid melt of the maxiteria to prevent the potential for overtoges and tailings slurry discharge rates nonthly time steps. Cortez measures properties are evaluation. The Cortez water balan	Cortez has developed a comprehensive luding the Pipeline Tailings Impoundment, he water balance is a probabilistic model scenarios including probabilistic analysis to evaluate: the 24-hour draindown event; kimum snow accumulation. This provides pping. The water balance considers both a for the tailings disposal facilities in a recipitation for incorporation into the water lice covers all appropriate aspects of the daily measurement of water levels in the
Operations Practice 4.4:	Implement measures to protect bi adverse effects of cyanide process	irds, other wildlife and livestock from solutions.
	☑ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.4
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The operation is Full Compliance with Standard of Practice 4.4. Cortez has implemented several different measures to restrict access by wildlife and livestock to open solutions containing cyanide. These measures consist of 1) a perimeter fence around the entire project area; 2) netting on heap leach solution conveyance ditches; 3) bird ball floating covers on all process ponds; 4) six foot high chain link fencing around the process areas; and 5) cyanide destruction of the tailing slurry discharge to keep WAD cyanide concentrations below 50 mg/L in the spigot discharge and decant pond area. Cortez applies leach solutions in a manner designed to prevent ponding, overspray, and runoff. Cortez has developed SOPs to address potential ponding on the heap leach pads, solution off the heap liners, and ramp drainage.

Cortez Gold Mine Name of Facility Signature of Lead Auditor





Operations Practice 4.5:	Implement measures to protect fish and discharges of cyanide process solutions	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.5
	not in compliance with	
Summarise the basis for t	his Finding/Deficiencies Identified:	
to surface waters and does operates with zero discharg systems and leak detection	iance with Standard of Practice 4.5. Cortez do not have any indirect discharge of cyanide see of process solutions. The facility conducts systems to evaluate the integrity of these system data presented in the monitoring reports.	solutions to surface waters. Cortez monitoring of the seepage collection
Operations Practice 4.6:	Implement measures designed to manag to protect the beneficial uses of groundw	
	☑ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.6
	not in compliance with	

The operation is Full Compliance with Standard of Practice 4.6. Cortez has implemented solution management and seepage control systems to protect groundwater below and downgradient of the operation. The cyanide facilities are designed for zero discharge to both surface water and groundwater in accordance with Nevada Department of Environmental Protection (NDEP) regulations and Department of Interior Bureau of Land Management (BLM) Cyanide Management Policy and have all been constructed with impermeable containment systems or liners to prevent seepage. The tailings impoundment is a fully lined facility with a liner system comprising of smooth, 60-mil HDPE synthetic primary liner placed over a minimum of 24 inches of clayey, second liner material. Area 28 heap leach facility has a liner system consisting of a 60-mil HDPE synthetic primary liner placed over a 12-inch thick low hydraulic conductivity soil layer secondary liner. The Area 30 heap leach facility is constructed of either 60-mil or 80-mil HDPE liner placed over 12-inch thick Low hydraulic conductivity soil layer. All ponds for the heap leach facilities are double-lined. All pipes, tanks, and other facilities in the Mill area that convey process fluids containing cyanide are located within containment Sumps within containment areas collect any spilled solution for return to the process. environmental monitoring data indicates that the operation has no detectable WAD cyanide (<0.01 mg/L) in the groundwater at compliance points or downgradient of the operation. Review of the monitoring data for 2008 - 2010 indicated that Cortez operations are protective of the beneficial uses of groundwater.

Summarise the basis for this Finding/Deficiencies Identified:

Cortez Gold Mine Name of Facility

Signature of Lead Auditor

Golder

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Operations Practice 4.7:	Provide spill prevention or containn pipelines.	nent measures for process tanks and
	⊠ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.7
	not in compliance with	
Summarise the basis for t	his Finding/Deficiencies Identified:	
systems for the cyanide off The Mill cyanide storage to feet high. Procedures requise 110 percent storage casecondary curbed concrete has two cyanide storage talbarren pond for tertiary containment measures to carea that convey process flowers.	fload areas, the associated storage tank ank secondary containment system continuous ire maintaining the tank level at 96 percerpacity in the secondary containment. It containment with tertiary containment which that are located on a concrete curb a containment. Cortez has constructed collect leaks and prevent releases. All pickids containing chemical reagents are located, and HDPE lined steel which are contained.	Cortez has spill prevention and control is, and CIL and CIC tank process areas. Is sists of concrete walls, approximately 7 ent capacity and provide assurance there. The Area 28 cyanide tank is within a being the lined Reclaim Pond. Area 30 and a drainage channel is provided to the all pipelines with spill prevention and pes, tanks, and other features in the Mill pocated within containment areas. Cortez impatible materials for the conveyance of
Operations Practice 4.8:	Implement quality control/quality a cyanide facilities are constructed standards and specifications.	ssurance procedures to confirm that according to accepted engineering
	☑ in full compliance with	
The operation is	in substantial compliance with	Operations Practice 4.8
	not in compliance with	
Summarise the basis for t	this Finding/Deficiencies Identified:	

The operation is Full Compliance with Standard of Practice 4.8. Quality control/quality assurance (QC/QA) programs were required during construction of cyanide facilities including the cyanide storage facilities, pipelines, conveyance ditches, process ponds, heap leach facilities and tailings impoundments. The QC/QA documents indicate that construction was completed according to engineering standards and specifications. Cortez has retained qualified engineering personnel to review and provide construction verification documentation. The QC/QA reports are stamped by Professional Engineers licensed in the State of Nevada. These QC/QA documents have also been reviewed and approved by the NDEP. Cortez maintains copies of all QC/QA documentation in the Environmental Department.

Cortez Gold Mine Name of Facility Signature of Lead Auditor





Operations Practice 4.9:	<ol> <li>Implement monitoring programs to evaluate the effects of cyanid wildlife, surface and groundwater quality.</li> </ol>		
	⊠ in full compliance with		
The operation is	in substantial compliance with	<b>Operations Practice 4.9</b>	
	not in compliance with		
Company and a three breath four	this Finding/Deficionaise Identified:		

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in Full Compliance with Standard of Practice 4.9. Cortez has developed environmental monitoring programs to evaluate the performance of the cyanide management systems on wildlife and process solution and groundwater quality. The environmental monitoring programs have been prepared and implemented by qualified professionals and include all appropriate sampling and analysis documentation. These procedures have been reviewed and approved by NDEP. Cortez conducts monitoring at frequencies adequate to characterize the groundwater, seepage collection systems, leak detection systems, wildlife, and process solutions. Cortez does not discharge cyanide process waters to surface water. Cortez provides wildlife mortality training to all employees with an annual refresher. Each employee is responsible for filing a report should they encounter wildlife mortality.

Cortez Gold Mine Name of Facility

Signature of Lead Auditor

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#### PRINCIPLE 5 - DECOMMISSIONING

Protect Communities and the Environment from Cyanide through Development and Implementation of Decommissioning Plans for Cyanide Facilities.

Decommissioning Practice 5.1:	Plan and implement procedures for ef facilities to protect human health, wild	ffective decommissioning of cyanide llife and livestock.
The operation is	in substantial compliance with	<b>Decommissioning Practice 5.1</b>
	not in compliance with	
Summarise the basis for the	his Finding/Deficiencies Identified:	
Cortez has prepared Closu decommission the cyanide tailings facilities including commitments for managem solids with covers, collection including tanks, pumps and	upliance with Standard of Practice 5.1.  ure Plans as well as an internal Life of facilities including: process ponds, process a reclamation schedule. The plans then the facilities of cyanide solutions, evaporation of and control of seepage, and rinsing and liners. Cortez is required by regulations a Plan and the corresponding reclamation	ssing facilities, heap leach facilities and include general descriptions of the fall process solution, encapsulation of disposal of piping and other equipment and their permit requirements to review
Decommissioning Practice 5.2:	Establish an assurance mechanism related decommissioning activities.	n capable of fully funding cyanide
	⊠ in full compliance with	
The operation is	in substantial compliance with	<b>Decommissioning Practice 5.2</b>
	not in compliance with	
Summarise the basis for t	his Finding/Deficiencies Identified:	
Cortez has developed a co-	npliance with Standard of Practice 5.2. st estimate for the funding of third party in BLM completes the work. The cost esti	implementation of the decommissioning imate has been reviewed and approved

by the Nevada State and BLM. The total reclamation and closure estimate is approximately \$87.53M for the entire Cortez Gold operation. Cortez has established an approved surety bond to cover the estimated costs for cyanide related decommissioning activities. The surety bond has been issued to the BLM by Safeco.

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### PRINCIPLE 6 - WORKER SAFETY

# Protect Workers' Health and Safety from Exposure to Cyanide

Worker Safety Practice 6.1:	Identify potential cyanide exposure necessary to eliminated, reduce and c	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Worker Safety Practice 6.1
	☐ not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

The site is in Full Compliance with Standard of Practice 6.1 requiring that the site identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

Cortez has procedures, Standard Operating Procedures (SOPs) and critical task procedures that describe the management and operation of the cyanide facilities. These plans and procedures cover the safe operation of the entire cyanide management facilities and cover decontamination prior to maintenance work. These procedures are detailed in the evidence observed section. The documents describe Personal Protective Equipment (PPE) requirements, operator responsibilities, and procedures for using and handling cyanide.

The procedures detail the risks involved with each task and describe safe work practices and require prework inspections. Task specific personal protective equipment requirements are stated in each standard operating procedure.

A 'pre-work inspection checklist' is used by all workers and contractors prior to all procedures being carried out. Workers are provided with 'Field Level Risk Assessment cards' that are used to prompt risk evaluation and to identify the risks that may be associated with any task or condition in the plant and are required as part of the SOPs.

Procedures to review proposed process and operational changes and modification for their potential impact are controlled under 'Cortez's Management of Change Procedure' which ensures that the safety aspects of proposed process and procedural changes address worker safety. Worker input is sought and implemented while developing or modifying safe work procedures, through the use of continuous improvement forms and safety meetings.

Cortez Gold Mine Name of Facility Signature of Lead Auditor





Worker Safety Practice 6.2:	Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.		
	☑ in full compliance with		
The operation is	in substantial compliance with	Worker Safety Practice 6.2	
	not in compliance with		

#### Summarise the basis for this Finding/Deficiencies Identified:

Cortez 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.

The 'Managing Cyanide Levels and pH in Solution' procedure states that all process solutions contain cyanide and that 'We need to maintain a pH over 10 and under 11.5'.

The operation uses both fixed and portable HCN monitors to ensure that worker exposure to HCN gas is limited. These alarm when the concentration reaches 4 ppm with a visible light and at 10 ppm there is a visible light and audible evacuation horn. Both levels trigger alarms on the control screen in the control room.

Areas of potential exposure to 4.7 ppm of HCN have been identified and are signed. Safe working procedures have been developed to minimise the risk to workers from HCN gas. The operation also undertakes bi-annual 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 are located at the doors of the Mill Building, Area 28 and Area 30 CICs stating that "All process solution contains cyanide". Other areas of the facility, such as the cyanide off-load areas, include signs identifying the presence of cyanide and state "No Eating, No Drinking, No Smoking, and No Tobacco Products."

Emergency showers and eye wash stations are located at locations around the plant where there is a risk of cyanide exposure. These are checked regularly as planned maintenance.

Fire extinguishers are located throughout the facility and are inspected monthly by Cortez staff. The fire extinguishers are serviced and inspected on an annual basis by the external company DC State Fire.

Pipes carrying cyanide are marked and the direction of flow is indicated with arrows on the pipes.

Procedures are in place to investigate cyanide exposures, and to modify procedures in the light of any findings from the investigations.

Cortez Gold Mine Name of Facility Signature of Lead Auditor





Worker Safety Practice 6.3:		Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.		
	☑ in full compliance with			
The operation is	in substantial compliance with	Worker Safety Practice 6.3		
	not in compliance with			
Summarise the basis	for this Finding/Deficiencies Identified:			

Cortez is in Full Compliance with Standard of Practice 6.3 which requires that the operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has cyanide antidote kits and other equipment required for treating potential victims of cyanide exposures at suitable locations in the operation.

First aid equipment (including cyanide antidotes) is regularly inspected to ensure it will function correctly and remains within it useful life.

The operation has specific written plans for dealing with cyanide exposures.

The operation has appropriately trained First Responders and all workers who work with cyanide have received cyanide training which includes first aid training.

Cortez has a formal arrangement with Northeastern Nevada Regional Hospital through correspondence dated April 7, 2010. The letter states that the hospital emergency department keeps in stock a cyanide poisoning kit with information and instruction material.

A mock drill took place on November 21, 2009 which involved an incident with cyanide. Drill are performed to test the emergency response procedures developed at the operation, and to incorporate learning's from these drills into revised procedures.

Cortez Gold Mine Name of Facility

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### PRINCIPLE 7 - EMERGENCY RESPONSE

# Protect Communities and the Environment through the Development of Emergency Response Strategies and Capabilities

Emergency Respon	nse su	ategies	and Cap	abilities				
Emergency Response Practice 7.1:	Prepare releases.		emergency	response	plans	for	potential	cyanide
	oxtimes in full	complian	ce with					
The operation is	in sub	stantial co	mpliance with	Emerg	ency R	espo	nse Practio	ce 7.1
	not in	complianc	e with					
Summarise the basis for t	his Findin	g/Deficier	ncies Identifie	ed:				
Cortez is in Full Compliance emergency response plans				ch requires t	hat the	opera	tion prepar	e detailed
The Emergency Response laste transportation incident accidents resulting in a cyar	s. The c	yanide su	pplier and tra	ansporter ta	ke prim	re sce ary r	enarios, inc esponsibilit	luding on- y for any
The plan addresses the potential need for evacuation of both the operation and potentially affected communities. It specifies procedures for the use of specialised first aid equipment, antidotes and measures to control cyanide releases.								
Emergency Response Practice 7.2:	Involve s	ite perso	nnel and stak	eholders in	the pla	nning	g process.	
	$oxed{\boxtimes}$ in full	complian	ce with					
The operation is	☐ in sub	stantial co	mpliance with	Emerg	gency R	Respo	nse Practi	ce 7.2
	☐ not in	complianc	e with					
Summarise the basis for t	his Findin	g/Deficie	ncies Identifie	ed:				
Cortez is in Full Compliand personnel and stakeholders				which requir	es that	the o	operation in	nvolve site
Cortez has involved the w Committee, Crescent Valle emergency response plann	ey Emerge	and stakel ency Medi	nolder such a cal Services	s Lander C and Northe	ounty L ast Nev	.ocal /ada	Emergency Regional I	y Planning Hospital in
Local emergency responde	rs have be	en involve	d in the emerg	gency plannii	ng proce	ess.		
Cortez consults and communication	municates	with stake	eholders to e	nsure the e	emerger	ncy re	esponse pl	an is kept

Cortez Gold Mine Name of Facility

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2 February 2011
Date
Golder
Associates

February 2011 Report No. 10514150169.500/A.1



Emergency Response		l '4		
Practice 7.3:	Designate appropriate personnel and commit necessary equipment and resources for emergency response.			
The operation is	in substantial compliance with	Emergency Response Practice 7.3		
	not in compliance with			
Summarise the basis for t	his Finding/Deficiencies Identified:			
	e with Standard of Practice 7.3 which ressary equipment and resources for eme	equires that the site designate appropriate ergency response.		
Cortez has designated appr	opriate staff equipment and other resou	rces for emergency response.		
Cortez has confirmed that willingness to be involved in		oles in an emergency situation and their		
Emergency Response				
Practice 7.4:	Develop procedures for internal an reporting.	d external emergency notification and		
	☑ in full compliance with			
The operation is	in substantial compliance with	Emergency Response Practice 7.4		
	not in compliance with			
Summarise the basis for t	his Finding/Deficiencies Identified:			

Cortez is in Full Compliance with Standard of Practice 7.4 which requires that the site develop procedures for internal and external emergency notification and reporting.

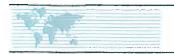
The Emergency Response Plan (ERP) gives details on procedures for notifying management, outside responders and regulatory authorities.

The ERP gives details for contacting law enforcement departments which includes Lander County Sheriff who would be responsible for the Lander County Local Emergency Planning Committee who coordinate with the local landowner (there is only one main landowner in the area surrounding the Cortez).

Cortez Gold Mine Name of Facility

Signature of Lead Auditor





Emergency Response Practice 7.5:	Incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.
	☑ in full compliance with
The operation is	in substantial compliance with Emergency Response Practice 7.5
	not in compliance with
Summarise the basis for t	his Finding/Deficiencies Identified:
Cortez is in Full Complian response plans and remed using cyanide treatment che	ice with Standard of Practice 7.5 which requires that the site incorporate in iation measures monitoring elements that account for the additional hazards of emicals.
measures required for a ra	Materials Spill and Emergency Response Plan specifies specific remediation ange of solid and liquid cyanide releases, including tailings. These measures tedures for neutralisation with a solution of sodium hypochlorite, clean up limits ags.
There are no natural surface vanide release to surface v	ce water bodies on the property or adjacent to the property and treatment of a vaters is not applicable.
	an Water Sampling Guidelines details sampling parameters, containers, chain or vation. The samples would be tested for WAD cyanide.
Emergency Response Practice 7.6:	Periodically evaluate response procedures and capabilities and revise them as needed.
	☑ in full compliance with
The operation is	in substantial compliance with Emergency Response Practice 7.6
	☐ not in compliance with
Summarise the basis for t	his Finding/Deficiencies Identified:

The site is in Full Compliance with Standard of Practice 7.6, which requires that the site periodically evaluate response procedures and capabilities and revise them as needed.

Cortez update the ERP at regular intervals, at least annually. It was last updated in September 2010.

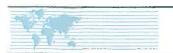
A site wide mock drill took place on November 21, 2009 which involved an incident with a company bus where an estimated 950 gallons of simulated leach grade cyanide solution was spilled around the access point to the bus and passengers. Findings were detailed. Following the drill an 8-hour 'Awareness and Refresher' training course was undertaken to focus on the lessons learnt for example the procedures as to what to do in the case of an emergency.

The mine has a system to review the results of emergency responses and mock emergency drills and updates procedures accordingly. As part of the ERP there is an incident investigation process and critique which details the debriefing post incident and accident investigation procedures.

Cortez Gold Mine Name of Facility

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#### **PRINCIPLE 8 – TRAINING**

# Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner

Training Practice 8.1:	Train workers to understand the hazards associated with cyanide use.		
	☑ in full compliance with		
The operation is	in substantial compliance with	Training Practice 8.1	
	not in compliance with		
Summarise the basis for the	nis Finding/Deficiencies Identified:		
Cortez is in Full Compliand understand the hazards asset	ce with Standard of Practice 8.1 which requinct ociated with cyanide use.	res that the site train workers to	
All site personnel are trained the PowerPoint presentation	in cyanide safety as part of Cortez's 37 hour of called 'Cyanide Training'.	on boarding course which includes	
Annual refresher cyanide tra	ining is given.		
All training record sheets Organisation Development [	are entered into the training section Ora Department.	cle <sup>®</sup> database managed by the	
Training Practice 8.2:	Train appropriate personnel to operate that description and procedures that protect human he environment.	ne facility according to systems ealth, the community and the	
	☑ in full compliance with		
The operation is	in substantial compliance with	Training Practice 8.2	
	not in compliance with		

#### Summarise the basis for this Finding/Deficiencies Identified:

Cortez is in Full Compliance with Standard of Practice 8.2 which requires that the site train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation trains workers to undertake cyanide related tasks safely with respect to themselves, their colleagues, the community and the environment.

The training materials identify the elements necessary for the safe performance of each job, based on the sites safe working procedures. Workers are trained on the equipment and required to demonstrate competency prior to unsupervised assignment to a job.

Appropriately qualified personnel deliver the training, with external specialists engaged as required. Specific task training where cyanide management activities are involved would be given by competent workers or supervisors in these departments. Trainers providing the cyanide awareness courses are MSHA certified trainers.

Workers are trained prior to working with cyanide, with assessment undertaken to ensure they understand the requirements.

Refresher training is undertaken annually.

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The effectiveness of training is assessed through written tests on each training module, and through planned task and crew observations. The annual cyanide awareness training has a group pre-presentation test and group post presentation test. The results of which are evaluated by the Process Trainer and retained on file.

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

#### Summarise the basis for this Finding/Deficiencies Identified:

Cortez 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. The main findings are:

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.

Emergency responders are trained in cyanide decontamination and first aid procedures and participate in mock emergency response drills.

Emergency Response Coordinators and members of the Emergency Response Team (First Responders) are trained on the procedures and guidelines outlined in the ERP 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.

Emergency response mock drills are undertaken regularly, are evaluated and lessons learnt captured and incorporated into the updated procedures.

All training record sheets are entered into the training section of the Oracle® database managed by the Organisation Development Department.

Cortez Gold Mine Name of Facility

Signature of Lead Auditor





#### **PRINCIPLE 9 – DIALOGUE**

<b>Engage in Public C</b>	onsultation and Disclosure		
Dialogue Practice 9.1:	Provide stakeholders the opportunity to communicate issues of concern		
	☑ in full compliance with		
The operation is	in substantial compliance with	Dialogue Practice 9.1	
	not in compliance with		
Summarise the basis for t	his Finding/Deficiencies Identified:		
Cortez is in Full Compliance the opportunity to communic	e with Standard of Practice 9.1 which requires cate issues of concern.	that the site provide stakeholders	
Cortez has a number of con Lander County Local Emer enable them to voice conce	nmunity engagement initiatives including dialog gency Planning Committee (LEPC) and atte rns.	uing, site visits, participating in the nding other community groups to	
Dialogue Practice 9.2:	Initiate dialogue describing cyanide responsively address identified concerns.	management procedures and	
	☑ in full compliance with		
The operation is	in substantial compliance with	Dialogue Practice 9.2	
	not in compliance with		
Summarise the basis for t	his Finding/Deficiencies Identified:		
	ce with Standard of Practice 9.2 which required ment procedures and actively address identifie		
Cortez has a number of cor Lander County Local Eme enable them to voice conce	nmunity engagement initiatives including dialog rgency Planning Committee (LEPC) and atte rns.	guing, site visits, participating in the ending other community groups to	
Dialogue Practice 9.3:	Make appropriate operational and environment of the cyanide available to stakeholders.	onmental information regarding	
	⊠ in full compliance with		

#### Summarise the basis for this Finding/Deficiencies Identified:

Cortez 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.

Cortez makes operational and environmental information regarding cyanide available through its website, 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.

in substantial compliance with

not in compliance with

Information regarding cyanide releases is made available through a number of company and official outlets such as the websites, sustainability report and regulatory authorities.

Cortez Gold Mine Name of Facility

The operation is

Signature of Lead Auditor

2 February 2011

**Dialogue Practice 9.3** 





# Report Signature Page

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