

SUMMARY AUDIT REPORT

for the June 2012
International Cyanide Management Code Recertification Audit



Prepared for:

Kinross Gold Corporation
Kettle River Operations

Submitted to:

International Cyanide Management Institute
1200 "G" Street NW, Suite 800
Washington, D.C. 20005

FINAL

November 25, 2012



ENVIRON International
605 1st Avenue, Suite 300
Seattle, Washington 98104
www.vironcorp.com

SUMMARY AUDIT REPORT

Name of Mine: Kettle River Operations

Name of Mine Owner: Kinross Gold Corporation

Name of Mine Operator: Kinross Gold Corporation, Kettle River Operations

Name of Responsible Manager: Mark Ioli, General Manager

Address: 363 Fish Hatchery Road
Republic,
Washington 99166
USA

Telephone: 509 775-3157

Fax: 509 775-3447

E-mail: mark.iloni@kinross.com

Location detail and description of operation:

Kinross's Kettle River Operations (KRO) is a wholly owned subsidiary of Kinross Gold Corporation, and is located near the Canadian border in northeastern Washington State. The KRO mill, mineral extraction plant, and tailings management facility was previously owned by Echo Bay Mining Company, and was purchased by Kinross in 2003. The mill was operated from late 2003 to 2006, when it was temporarily shut down. In 2006, Kinross purchased the Buckhorn gold deposit, approximately 76 kilometers by road from the KRO mill. The mill was refurbished and gold production resumed in October, 2008. The mill is currently processing ore from the Buckhorn deposit, as well as the occasional custom processing of ore from other mine operators.

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Auditors' Finding

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance

with the *International Cyanide Management Code*.

Over the last three years KRO has experienced no significant cyanide incidents but, due to a *force majeure* disruption in their certified supply chain, KRO did use a non-certified transporter for the shipment of one container of cyanide. KRO's certified supply chain was reinstated as soon as permitted. This event was investigated in detail and is discussed at length under Standard of Practice 2.

Audit Company: **ENVIRON International**
 605 1st Avenue, Suite 300
 Seattle, Washington 98104
 USA

Audit Team Leader: John Lambert
 e-mail: jlambert@environcorp.com

Names and Signatures of Other Auditors

Glenn Mills



Date(s) of Audit: June 4 – June 10, 2012

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 Detailed 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 Gold Mine Operations* and using standard and accepted practices for health, safety and environmental audits.

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Signature of Lead Auditor

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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.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 1.1

Discuss the basis for this Finding/Deficiencies Identified:

KRO currently purchases cyanide exclusively from E.I. DuPont de Nemours and Company (DuPont) under Schedule F (January 2010) of a 2008 basic contract designed to serve multiple Kinross mine sites. This constitutes a master services agreement (MSA), under which KRO issues individual purchase orders (POs). The draft MSA had been reviewed in the December 2008 certification audit, and KRO had agreed to insert the ICMC requirements clause in each PO until such time as the MSA went into effect. DuPont's Memphis, TN production facility is currently certified to the ICMC, as indicated on the ICMI website (http://www.cyanidecode.org/signatory_producer_eidupont.php).

It was noted that in 2010, KRO conducted an internal review of the cyanide POs to DuPont. Review results indicated that the ICMC requirements clause had been inadvertently dropped in August 2010 due to a mistaken assumption that MSA approval was imminent. Fifteen additional POs were issued to DuPont before the error was noted and the language reinstated. Current standard practice is to invoke ICMC compliance requirements as a clause on the PO, even though the same language is now also included in Schedule F of the contract.

In May of 2010, DuPont experienced a stoppage in its Memphis production facility due to severe flooding, and invoked the *force majeure* clause in the governing contract. KRO identified an alternate ICMC-certified production source (Cyanco, Winnemucca, NV) and issued a PO for one intermodal container of cyanide briquettes (20 1-ton nylon supersacks, overpacked in polyethylene-lined plywood crates). Review of the ICMI website indicated that Cyanco is also currently certified to the ICMC.

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The PO to Cyanco did not include any specific clause invoking ICMC requirements. However, as corrective measures prior to the submittal of this report, KRO prepared a standard operating procedure (SOP) that describes the specific actions to be taken in the event an alternate and potentially non-certified supply chain must be used; the SOP requires completion of a documented "good faith" attempt to locate a fully certified alternate supply chain, as well as inclusion of specific contractual requirements for ICMC compliance in the PO or contract, where certified sources are determined to be available. Copies of the SOP and associated training records for affected purchasing staff were reviewed by the audit team and determined to be acceptable.

2. TRANSPORTATION Protect communities and the environment during cyanide transport.

Standards of 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.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 2.1.

Discuss the basis for the Finding/Deficiencies Identified:

The standard contractual language of the MSA assigns all transportation responsibilities to DuPont, less unloading responsibilities, which are assigned to KRO. The terms of the MSA are consistent with the terms of the POs to DuPont that were examined in the initial certification audit.

As previously noted, DuPont experienced a production stopped in 2010, and invoked the *force majeure* clause in the governing contract. KRO purchased a single intermodal container of cyanide briquettes under a PO to Cyanco. The PO to Cyanco did not include any specific clause invoking ICMC requirements, nor did Cyanco assume responsibilities for transportation and delivery. It is understood that the regular ICMC-certified carriers used under the DuPont contract (Sentinel Transport and RSB Logistics) are contractually committed to delivering only DuPont cyanide. A commercial carrier with standard US Department of Transportation (DOT) hazardous material carrier certifications was therefore selected by KRO's usual freight forwarding service, and used for delivery of the intermodal container. Records review indicates that the container was received without incident. Use of the commercial carrier was first noted in an internal

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audit of KRO conducted by Kinross in early May of 2012 and was immediately reported to the ICMC per the terms of Kinross's signatory agreement.

With this single exception, there have been no changes to the primary supply chain since the 2008 certification audit. DuPont has certified its entire US supply chain (see <http://www.cyanidecode.org/pdf/DuPontRailBargeSupplyChainSumm.pdf>), which is comprised of the same transportation links as were in effect in 2008; DuPont also provided Kinross an updated supply chain description for KRO in 2012 that confirms the following:

- dry cyanide briquettes are loaded into hopper railcars at the DuPont Sodium Cyanide Operations' Memphis, TN production facility;
- railcars are transported by the Canadian National Railway to the Memphis rail transfer yard;
- Union Pacific Railroad transports the railcars to DuPont's Carlin, NV transfer and distribution terminal;
- cyanide is transferred to DuPont "Flo-Bin" delivery containers at the Carlin facility; and
- Flo-Bins are loaded onto flatbed trailers and transported to KRO by Sentinel Transportation or RSB Logistic (both of which are separately certified to the ICMC; see http://www.cyanidecode.org/signatory_transporter_rsb.php and http://www.cyanidecode.org/signatory_transporter_sentineltransp.php).

Prior to the submittal of this report, at the audit team's request KRO prepared a new SOP that documents the specific actions to be taken in the event an alternate and potentially non-certified supply chain must be used. This SOP requires completion of a documented "good faith" attempt to locate a fully certified alternate supply chain, as well as inclusion of specific contractual requirements for ICMC compliance in the PO or contract, where certified sources and transporters are determined to be available. Copies of the SOP and associated training records for affected purchasing staff were reviewed by the audit team and determined to be acceptable.

In the audit team's judgment, even though a non-certified transporter was used in the noted instance, a determination of full compliance is warranted for the following reasons:

- Disruption of normal supply was temporary, and was the result of highly unusual circumstances (i.e., severe flooding at DuPont's Memphis, TN plant);

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- KRO made a good-faith effort to procure cyanide from an ICMC-certified source in response to conditions that were beyond their ability to influence;
- The usual ICMC-certified transportation alternatives were not available due to their contractual relationships to DuPont (i.e., Sentinel Transport and RSB Logistic were authorized to only transport DuPont cyanide);
- Only one intermodal container of cyanide was involved, and was transported by a licensed carrier with DOT hazardous material carrier qualifications;
- The shipment was received without incident;
- Kinross Corporate reported the incident to ICMC when they first learned of it as part of a regularly scheduled internal audit process; and
- KRO has since developed an SOP providing guidance on preferentially maintaining fully ICMC-certified supply chains if disruptions should occur in future, and has trained affected purchasing staff.

Given these justifying factors, the audit team believes this full compliance determination is consistent with relevant guidance provided in ICMI's *Guidance for Recertification Audits* (see <http://www.cyanidecode.org/pdf/GuidanceforRecertificationAudits.pdf>).

2.2 Require that cyanide transporters implement appropriate emergency response plans and capabilities, and employ adequate measures for cyanide management.

The operation is: in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 2.2.

Discuss the basis for the Finding/Deficiencies Identified:

There have been no changes to the primary supply chain since the original 2008 certification audit. DuPont's MSA clearly assigns DuPont responsibilities for maintaining a fully certified supply chain and delivery to the KRO mill site, which is consistent with the requirements of the previous POs. DuPont upgraded its initial due-diligence audit-based certifications for its supply chain to a consignor's certification for its US supply chain in August of 2010 (see <http://www.cyanidecode.org/pdf/DuPontRailBargeSupplyChainSumm.pdf>). DuPont's preferred carriers (RSB Logistic Inc. and Sentinel Transportation, LLC) are also separately certified (see http://www.cyanidecode.org/signatory_transporter_rsb.php and http://www.cyanidecode.org/signatory_transporter_sentineltransp.php), and are the same carriers that were identified in the initial certification audit in 2008.

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As noted in Section 1.1, DuPont experienced a stoppage in its Memphis production facility in May 2010 and invoked the *force majeure* clause in the governing contract. KRO identified Cyanco as an alternate ICMC-certified production source, but the scope of the PO to Cyanco did not include any specific responsibilities for delivery. It is understood that DuPont's regular carriers were contractually prohibited from delivering cyanide from other sources. A carrier with standard US Department of Transportation (DOT) hazardous material carrier certifications was therefore selected by KRO's freight forwarding service, and used for delivery of the intermodal container. Records review indicates that the container was received without incident.

Prior to the submittal of this report, KRO prepared a new SOP that describes the specific actions to be taken in the event an alternate and potentially non-certified supply chain must be used. The SOP requires completion of a documented good faith attempt to locate a fully certified alternate supply chain, as well as inclusion of specific contractual requirements for ICMC compliance in the PO or contract, where certified sources of cyanide and transportation services are determined to be available. Copies of the SOP and associated training records for affected purchasing staff were reviewed by the audit team and determined to be acceptable.

A sample of chain of custody records (bills of lading) for 2009, 2010, and 2011 indicates that all truck deliveries of DuPont cyanide originate at DuPont's terminal in Carlin, NV; similar records for the one Cyanco shipment originated in Cyanco's Winnemucca, NV production facility. Upstream chain of custody records for DuPont cyanide are not provided to KRO. However, review of the ICMI website indicates that DuPont's US railway supply chain and DuPont's regular truck transporters (Sentinel Transportation and RSB Logistic) are currently certified to the ICMC. As previously noted, since the 2008 audit, only one container of cyanide has been delivered to the site by a non-certified transporter.

In the audit team's judgment, with respect to the use of a non-ICMC certified transport for one delivery, given the justification outlined in Section 2.1 above a determination of full compliance is warranted, and is consistent with the guidance provided in the ICMI *Guidance for Recertification Audits* (see <http://www.cyanidecode.org/pdf/GuidanceforRecertificationAudits.pdf>).

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3. HANDLING AND STORAGE Protect workers and the environment during cyanide handling and storage.

Standards of Practice

3.1 Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 3.1.

Discuss the basis for this Finding/Deficiencies Identified:

There has been no substantial change to the mixing and storage facility since the 2008 certification audit. The area is well away from the nearest surface water, and several miles away from the nearest habitation. Containment is provided by collated concrete and/or double-wall steel/high-density polyethylene (HDPE) pipelines. Housekeeping in the mixing and storage impoundment areas was generally very good. The containment improvements [i.e., the below-grade pipe-in-pipe line connecting the mixing containment to the carbon-in leach (CIL) containment] required by the initial certification audit were also inspected and found to be in good order. The mixing tank has an electronic tank-level indicator and high-level alarm; SOPs for the mixing process are in effect that guide the mixing and transfer process. Mixing operations are conducted by a two-man team; in addition, remote video cameras permit the plant operators to monitor all mixing activities. A representative mixing event was observed via the remote video monitoring function in the control room. The Morrison-Maerlie, Inc. (Morrison-Maerlie) independent engineering report that was the basis for the initial full compliance assessment remains on file. Records review and discussion with KRO staff indicate that KRO had fabricated a temporary steel hopper and bag cutter arrangement designed to fit snugly inside the rectangular fitting on the top of the mixing tank that had been designed for use with Flo-bins; this removable hopper arrangement is retained in an equipment laydown area, and had been used in the mixing of the one intermodal container-load of cyanide delivered in nylon supersacks/plywood overpacks, as discussed under Standards of Practice 1 and 2. The hopper/cutter assembly was physically inspected and appeared to be well-designed and in good repair. KRO had also developed an SOP ("Cyanco Cyanide Mix") to specifically address the mixing of cyanide in this alternate delivery form.

Except for the one usage of cyanide in supersack/plywood overpack delivery form noted in 1.1, all cyanide is delivered in heavy steel Flo-Bins owned by the cyanide producer and stored in a secure roofed open-front warehouse. Empty Flo-Bins are stored immediately adjacent to the warehouse pending return to DuPont. Full flow-bins are

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stored within a separate, securely fenced and gated, and walled-off warehouse bay reserved specifically for cyanide storage. Per the storage instructions developed for warehousing staff, the only other material permitted to be stored in adjacent bays in this particular warehouse is copper sulfate.

3.2 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.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 3.2.

Discuss the basis for this Finding/Deficiencies Identified:

All Flo-Bins are owned by DuPont, and are dedicated to cyanide service; no other uses are permitted. Bin tops remain sealed, and slide valves are pinned after release of cyanide to the mixing tank. Slide valves are closed and pinned, and the empty bins are stored in the open in a secure yard area adjacent to the cyanide storage warehouse, pending return to DuPont. Flo-Bin interiors are not permitted be rinsed. KRO staff are permitted only to wash off the externals of a bin after the slide valve has been pinned in the closed position; washwater is collected in a sump reporting to the mix tank.

Discussions with KRO staff and review of the environmental management conditions of the New Product Review Form prepared for the Cyanco cyanide indicate that the packaging residues generated from the use of the one container of Cyanco cyanide were collected and sent to a licensed hazardous waste landfill.

KRO continues to manage the mixing process in accordance with the same basic SOP ("Standard Operating Procedures: Mixing Cyanide") observed in the 2008 audit. A representative mix was observed remotely using the video monitoring system; SOP requirements were met in the mix, although it was noted that post mix deck/FloBin washdown was accomplished without full raingear. KRO subsequently updated the SOP to require full raingear and retrained affected staff, prior to the submittal of this report. The updated SOP and training records were provided for the audit team's review and were determined to be acceptable.

Apart from the one instance noted under Standard of Practices 1 and 2, there has been no change from the delivery practices observed in 2008. Cyanide is delivered in heavy-gauge carbon steel Flo-Bins; since 2008, there has been at least one instance in which a Flo-Bin was received with a broken or corroded seam or weld that spilled a very small quantity of granules. However, the delivery form is normally robust. Flo-Bin handling is address via SOP ("Unloading Cyanide"), which specifically prohibits the stacking of Flo-

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Bins greater than two high. The "Standard Operating Procedures: Mixing Cyanide" SOP contains specific direction for the cleanup of any spills incurred in the mixing process. After removal of empty Flo-Bins, any dry granule residues are carefully dry-brushed into the mix tank. After pinning in the closed position, the area around the slide valve is washed down, along with any remaining residues in the area of the slide valve fitting; wastewater reports to the sump within the mixing and storage tank containments, and is ultimately routed back to the mix tank. KRO requires a two-man team for each mix, plus remote monitoring by video camera.

4. OPERATIONS Manage cyanide process solutions and waste streams to protect human health and the environment.

Standards of Practice

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

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.1.

Discuss the basis for the Finding/Deficiencies Identified:

With a few additions/modifications, KRO has operated under the same basic set of operating plans and SOPs that were observed to be in place in the 2008 certification audit. All cyanide facilities observed in 2008 are still in use; these include:

- a secure cyanide storage warehouse for storage of Flo-Bins prior to mixing;
- a mixing and storage facility (a.k.a. reagent building)
- the grinding mill (which uses reclaim water);
- the thickener circuit;
- the carbon-in-leach (CIL) plant;
- a carbon washing and stripping circuit;
- a cyanide detoxification circuit;
- the Tailings Storage Facility (TSF);
- tailings distribution pipelines;
- TSF wick drains, underdrains, seepage collection/pumpback (reclaim) system, including a reclaim barge; and
- associated storage tanks, containment structures, pumps, pipelines and stormwater diversion structures.

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A number of cyanide facility changes and improvements have occurred since the 2008 audit:

- KRO recently commissioned a concentrate leach (ConLeach) facility just upgradient from the CIL area.
- KRO completed the Phase V-A raise of the TSF; over the next several years two final raises (V-B and V-C) are planned that will bring the TSF to its final design height.
- KRO is also now using evaporators as another tool to manage reclaim pond levels.
- The external reclaim pond constructed downgradient of the tailings embankment observed in the 2008 audit has not yet been commissioned; alternative uses for the pond are under evaluation. It is understood that a final decision will require additional test work in 2013.

Operating plans and SOPs associated with the management of cyanide facilities continue to be maintained on the KRO internet; primary planning documents include:

- Operation and Maintenance Manual for the Mill and Tailings Impoundment;
- Kettle River Tailings Dam Phase V Operation and Maintenance Plan;
- Kettle River Tailings Dam Phase V Emergency Action Plan;
- Operating Instructions for the INCO SO₂/Air Cyanide Destruction Process;
- KRO Integrated Contingency Plan (November 2011)
- KRO Emergency Response Plan (November 2011)
- KRO Hazardous Materials Contingency Plan (May 2012)
- KRO Monitoring Plan;
- KRO Stormwater Pollution Prevention Plan; and
- KRO Waste Disposal & Spill Reporting Procedures

Since the 2008 audit, KRO has also improved management system controls over the development issue, and update of SOPs. They have developed a master SOP ("Creating, Revising, and Reviewing SOPs") and now require completion of a SOP Generation / Revision Request Form prior to issuing or updating an SOP. A master SOP list is also maintained; review of the master list and a sample of SOP documents indicates that procedural controls have been established for cyanide facilities and/or process changes introduced since the 2008 audit (e.g., ConLeach plant operation, use of evaporators on the reclaim pond) as well as special-case needs (e.g., mixing of cyanide in supersack/plywood overpack delivery form).

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The Operation and Maintenance Manual for the Mill and Tailings Impoundment, along with SOPs for tailings deposition, “turbo mist” evaporator operation, tailings pond inspection, and maintaining the water balance are employed to maintain the required freeboard in the tailings impoundment, to ensure WAD cyanide levels in the TSF pond <40 mg/l, and to ensure the continued physical integrity of the impoundment.

KRO operators (and security staff) continue to perform daily inspections of the TSF to assess the general condition of the liner, tailings distribution and reclaim pipelines, evaporator operation, the available freeboard in the impoundment, and underdrain flowrate. At the audit team’s request, the TSF inspection SOP was updated to require surveyed markings on the pond liner to facilitate a more accurate estimate of freeboard; the updated SOP and associated training records were reviewed and determined to be acceptable. An external engineering firm (AMEC) has also been contracted to conduct comprehensive annual reviews.

Inspection documentation requirements are identical to those that were in effect in the 2008 certification audit. Daily inspections are typically documented on Mill Daily Operations Inspection Sheets and the Tailings Pond Log Sheets, hard copies of which are retained in the Mill Manager’s office. Planned general are inspections performed by the Mill Manager, General Manager, Environmental Manager, and Safety Manager, recorded on Planned General Inspection Report forms, and retained in the KRO intranet.

The Maintenance Department performs weekly preventive maintenance (PM) inspections of the mill and mineral processing facilities. On a daily basis, operator inspections of process facilities are performed in accordance with the Preventative Maintenance Check List SOP. Corrective actions required by inspections typically result in a PM work order, which documents the individual requesting the PM action, date requested, a discussion of the work required, and status. Work orders are entered into the JD Edwards PM system and record copies of specific actions can be generated as required. The system is also designed to respond to specific work order requests on a prioritized basis; it is understood that cyanide-related issues are assigned the highest priority for action

KRO continues to implement the Management of Change SOP first evaluated in the 2008 certification audit, which establishes guidelines for conducting environmental and safety reviews of proposed process changes. A companion SOP (“Management of Change Communication’s”) has been developed that specifically addresses the communication of the change to the workforce. In addition, changes involving capital expenditures >\$US 50,000 require implementation of a corporate Authorization for Expenditure (AFE) process, which also requires evaluation of the potential environmental and health and safety impacts associated with a proposed change.

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The only significant process changes to occur in the years since the initial certification audit was the Phase V-A raise to the TSF in 2009, and the addition of the ConLeach facility in 2011-2012. AFE and Management of Change: Process Modification Request documents were reviewed for both projects.

The cyanide management contingency procedures for non-standard operating or upset conditions observed in 2008 are still in effect. KRO has also recently (May 2012) developed a comprehensive Hazardous Materials Contingency Plan that addresses the minimization of hazards to human health and the environment from all potential cyanide spills (solid briquettes and high or low-strength process solution) and tailings, as well as to improve coordinator of KRO-specific plans with the plans maintained by local emergency planning organizations. The KRO Emergency Response Plan is focused on internal procedures for responding to cyanide leak, spill, or release; power outages and pump failures; potential failures of cyanide treatment, destruction or recovery systems; the potential overtopping of the TSF or secondary containments in cases of extreme precipitation conditions; releases during unloading and mixing; and releases from piping systems.

As noted in the 2008 audit, the Operation and Maintenance Manual for the Mill and Tailings Impoundment is designed to require mill and processing plant shutdown if TSF permit requirements (i.e., no discharge, WAD cyanide < 40 mg/l) are in any danger of being violated. The Kettle River Tailings Dam, Phase V Emergency Action Plan addresses action to be taken (including contacts with downstream residents) in the unlikely event the TSF was believed to be in danger of failing.

The KRO Integrated Contingency Plan provides procedures for hazardous material spill response, tailings dam emergency responses related to extreme precipitation, seismic events, unusual increases in TSF seepage, areas with significant erosional damage, or any other issue that could compromise the structural integrity of the embankment. In addition, the Tailings Deposition SOP directs operators to immediately notify the Mill Manager for appropriate action in repose to a potential structural issue.

At the audit team's request, the TSF inspection SOP was updated to require surveyed markings on the pond liner to facilitate a more accurate estimate of freeboard; the updated SOP and associated training records were reviewed and determined to be acceptable. An external engineering firm (AMEC) has also been contracted to conduct comprehensive annual reviews. It should also be noted that the TSF was also subject to an independent technical review by Kinross in June 2010; this review involved Kinross Corporate and KRO representatives, as well as representatives from the design engineering firm (AMEC), an independent engineering consultant (LSB Consulting services), and the construction QA/QC contractor for the Phase V-A construction (Morrison-Maierlie).

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The audit team noted that several of the primary drain valves in the CIL area did not have blank flanges fitted and in some cases were leaking solution. Blank flanges were installed on the noted valves prior to submittal of this report; completion of repairs was confirmed by review of photographs.

The audit team also noted that prior to the audit, PM inspections had picked up a leak in the double wall reclaim water return pipe between the reclaim water tank and the mill; the pipeline was excavated during the audit and repaired prior to the submittal of this report. Repairs included re-bedding the pipeline to provide prior support and replacement of elbow fittings; completion of repairs was verified by review of photographs prior to backfilling.

As noted in the 2008 certification audit, KRO maintains a diesel-powered backup generator for key systems if there is a loss of grid power (understood to be a rare event). If the power should fail, the mill and tailings pumps are shut down. Routine PM actions for the emergency generator set include a 30 minute run test every month. Test data sheets for 2011, 2010, and 2009 were reviewed.

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

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.2.

Discuss the basis for this Finding/Deficiencies Identified:

As noted in the 2008 certification audit, KRO conducted an initial metallurgical review to estimate sodium cyanide consumption for different ore zones mined at its Buckhorn mine, and results of the study set the original sodium cyanide addition rate used in the CIL process. However, it is understood that as mining progressed over the last several years, considerable variability in ore chemistry was encountered that prompted the development of the ConLeach system and refinements to the overall process monitoring approach. Operating parameters are now closely monitored using three operator log sheets that are updated every two hours; these include the Grind Circuit Operators Log, which records run of mine densities, power draw, cycle densities and feed rates, grind characteristics, and other details; the Solution Circuit Operators Log, which records operating levels (including WAD cyanide, where appropriate) for the thickener, pre-aeration tank, two leach tanks, six CIL tanks, and the water treatment system, as well as pump operation and various reagent usage levels; and the Flotation Logsheet, which records pH, flocculants usage, underflow pump rates and other details for the thickener, as well as flotation characteristics at the three flotation cells; feed rates; and pH, cyanide concentrations, dissolved oxygen, and cyanide usage at each of 4 ConLeach tanks.

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Operator logs are reviewed daily, along with ore chemistry information and the WAD cyanide levels observed in the tailings stream. Based on evaluation of these data, adjustments made to maximize gold recovery while maintaining cyanide concentrations out of the detoxification plant/tailings pipeline < 20 mg/l (half the level specified for the reclaim pond in KRO's discharge permit); is understood that the tailings stream WAD value is a prime determinant in process adjustment. With the improvements made in process control and the addition of the ConLeach facility, KRO is capable of processing a very wide range of ore types, and has on occasion performed contract processing of ore from other mine operators.

It should also be noted that cyanide concentration in the post-detoxification tailings stream is a key determinant in balancing the mineral extraction process to maximize recovery while minimizing cyanide usage and maintaining cyanide concentrations in tails at or below half of the permitted value. KRO has conducted additional studies to increase confidence in detox plant effectiveness and the WAD cyanide values measured in the tailings stream and reclaim pond.

4.3 Implement a comprehensive water management program to protect against unintentional releases.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.3.

Discuss the basis for the Finding/Deficiencies Identified:

Water balance methodology has not undergone substantial changes in the years since the 2008 certification audit. To summarize, KRO has developed a comprehensive, Excel-based water balance model which tracks water flow through the mill, processing plant, and TSF. The model is focused on the inputs to and outputs from the TSF, and calculates TSF water elevation and volume on a monthly basis. The TSF is designed as a fully lined zero-discharge facility, so evaporation is the only significant water loss considered in the model.

The Mill Manager compiles data monthly and updates the model by replacing predicted values with the actual values for a given month. The monthly water balance report compares predicted and actual results, and is posted on the intranet portal. It should be noted that Kinross has established a corporate policy that requires each site to manage its water balance such that the variance between planned and actual results is within 30 percent. Kinross corporate reviews the water balance results quarterly.

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4.4 Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.4.

Discuss the basis for the Finding/Deficiencies Identified:

The Tailings Storage Facility (TSF) and the reclaim pond are the only facilities at the KRO Key Mill site where open solutions are stored. Prior to delivery to the TSF, the tailings slurry is treated in the Destruct Plant to reduce residual cyanide to below the regulatory concentration of 40 mg/l WAD cyanide. Nonetheless, a chain link fence topped with barbed wire surrounds the TSF to restrict wildlife access. To ensure that tailings discharge meets permit requirements operators collect samples of discharge from the Destruct Plant every two hours for titration tests and daily samples of the tailings discharge (T1) and reclaim water for internal WAD cyanide analysis. Review of process and analysis data for the past 3 years show that WAD cyanide concentrations were maintained well below 40 mg/L.

KRO operators perform inspections of the TSF each shift. These inspections include monitoring for the presence of wildlife and the status of gates and fencing surrounding the facility. Inspection records covering the past three years report considerable wildlife and birdlife in the proximity of the Mill and TSF. Deer are commonly observed and a number have been reported within the TSF security fence, as a consequence of the entrance gate occasionally being unintentionally left open. However, only one mortality incidence was reported relating to two ducks found dead on the west side of the Tailings Pond. The WDFW initially did not require KRO to keep the birds for autopsy and the cause of death was therefore never confirmed.

4.5 Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.5.

Discuss the basis for the Finding/Deficiencies Identified:

Under the terms of the *State Waste Discharge Permit*, KRO is not authorized to discharge wastewater from the TSF to either surface or ground waters. The TSF is lined with a geomembrane and functions as a zero-discharge facility. All drainage from the Key Mill facility is directed to the site drainage sump where it is pumped to the TSF.

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KRO conducts quarterly sampling of surface water in the North Fork of the San Poil River, located approximately 400 feet downgradient of the TSF. Monitoring results since 2009 show Total cyanide levels were all below the detection limit (<0.01 mg/l).

There are no indirect discharges to surface water. The water collected by the underdrain system beneath the TSF liner is tested for conductivity on a daily basis as an indicator to detect seepage from the TSF. Additionally, KRO collects samples at the underdrain two times each week for WAD cyanide analysis by an outside laboratory and daily for analysis at KRO's laboratory. The results of analysis since 2009 all show WAD cyanide levels below 0.01 mg/L. Groundwater is sampled quarterly at three monitoring wells located along the downgradient toe of the TSF embankment. Total cyanide levels at all wells have remained below the detection limit (<0.01 mg/l) for the past 3 years.

4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.6.

Discuss the basis for the Finding/Deficiencies Identified:

KRO has implemented solution management and seepage control systems to protect groundwater below and downgradient of the operation. The active cyanide facilities at the KRO Key Mill site include the cyanide storage warehouse for storage of steel Flo-bins; reagent building where sodium cyanide in briquette form is mixed and stored in solution form; grinding mill where reclaim water is introduced back into the process; thickener circuit; CIL plant, ConLeach plant; carbon washing and stripping circuit; cyanide detoxification circuit; TSF and reclaim pond and tank; and related tanks, containments, pumps, pipelines. The TSF is a polyethylene lined, zero-discharge facility underlined by an 18-inch thick gravel underdrain system. The tailings distribution and reclaim pipelines are pipe-in-pipe systems to provide secondary containment. All other process facilities are located within concrete secondary containments. In 2008 KRO constructed an external reclaim pond downgradient of the tailings impoundment. This pond was still not fully commissioned at the time of the recertification audit, and alternate uses for the pond (including fresh or treated water) are under evaluation. The pond is constructed with a double LLDPE liner with an interstitial seepage collection system. Any water detected in the interstitial liner is pumped back into the pond.

The Washington Administrative Code for groundwater quality (WAC 173-200) does not explicitly list a numeric standard for cyanide in groundwater. Nonetheless, the Washington State Department of Ecology applies a supplemental document that references WAC 173-200 for the regulation of groundwater quality and establishes the

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numeric standard for cyanide in groundwater as 0.20 mg/l (measured as Free cyanide). All groundwater is protected to the established beneficial use of Drinking Water. Under the operation's State Waste Discharge Permit, the groundwater compliance points at the mill site are a series of three monitoring wells downgradient of the TSF. Groundwater monitoring data for the past 3 years were reviewed and all results reported for Total cyanide during this period were below the detection limit of 0.01 mg/L. Seepage has not caused cyanide concentrations in groundwater to rise above levels protective of beneficial use and no remedial activity is currently required.

4.7 Provide spill prevention or containment measures for process tanks and pipelines.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.7.

Discuss the basis for the Finding/Deficiencies Identified:

There have been no modifications to the bermed concrete impoundments for the mixing and storage tanks and CIL tanks that were evaluated and accepted as part of the initial certification audit conducted in 2008. Bermed concrete impoundments were provided for the ConLeach facility, which was constructed and commissioned in 2011-2012. All ConLeach facility process solution tanks are placed on massive concrete foundations. Secondary containment calculations were reviewed for the new ConLeach facility, and found to be in excess of a nominal 110% of the greatest contained tank volume. A collection sump and return system is provided within the ConLeach containment.

Pipelines associated with the new ConLeach facility were provided with pipe in pipe containment measures or were located within concrete impoundments. All other pipeline containment measures evaluated and accepted as part of the initial certification audit are in place and functioning as intended, with one exception. The audit team observed that just prior to the start of the audit, routine PM inspections (i.e., evaluation of inspection ports on the downstream end of the double wall reclaim water return pipe under the roadway between the reclaim water tank and the mil) had picked up a leak between the inner and outer pipeline. The pipeline was excavated during the audit and repaired prior to the submittal of this report. Repairs included re-bedding the pipeline to provide proper support and replacement of failed elbow fittings; completion of repairs was verified by review of photographs prior to backfilling.

As noted in the original certification audit, the North Fork of the San Poil River is the nearest waterway, and is several hundred feet down gradient of the TSF. The tailings

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deposition and reclaim water pipeline are both pipe-in-pipe installations. The cyanide storage and solution tanks, including the new ConLeach tanks, are constructed of carbon steel. The solution/slurry conveyance pipelines are constructed of high-density polyethylene (HDPE), steel, or (ConLeach pipe-in-pipe arrangements only) PVC. These materials are compatible with cyanide and high pH conditions.

4.8 Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.8.

Describe the basis for the Finding/Deficiencies Identified:

The quality assurance/quality control (QA/QC) records originally reviewed in the 2008 certification audit remain on file, as well as the additional external engineering review records that were required to be completed pursuant to 4.8(5) requirements.

In 2011, KRO designed and constructed a new concentrate leach (ConLeach) facility; a design-build contract was negotiated with an experienced mineral processing engineering company (Samuels Engineering, Inc.). The design-build contract was converted to an engineering-procurement-construction management (EPCM) contract, with terms that required submittal of final (QA/QC) record drawings for the project. However, correspondence from Kinross's Chief of Process Services indicates that the EPCM contractor materially defaulted on their contract and despite repeated requests, failed to provide the required record drawings. This necessitated the performance of an external engineering review for the ConLeach facility under the allowances of 4.8(5), which was conducted by Morrison Maerlie in May 2012. The review was conducted in May 2012 by a licensed Professional Engineer. The report from this review has been retained on file with all available backup QA/QC and inspection data from the tank fabricators and other construction contractors.

4.9 Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 4.9.

Describe the basis for the Finding/Deficiencies Identified:

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KRO has prepared and implemented written standard procedures for monitoring activities to evaluate the effects of cyanide use on wildlife, surface water and groundwater quality. The procedures were incorporated into a Monitoring Plan developed by a Senior Environmental Engineer at KRO and accepted by the State of Washington Department of Ecology in 2006. Wildlife monitoring is integrated into the daily inspections performed at the TSF which are reported on a log sheet. Procedures are also in place for reporting, internal and external notification, investigation and corrective or preventative actions taken in the event of wildlife mortalities. The Monitoring Plan provides surface and groundwater monitoring locations and frequencies, water quality profiles for monitoring parameters, monitoring documentation requirements and sampling procedures. The sampling procedures include field logs for documenting sampling conditions, sampling methods, preservation techniques, labeling, shipping instructions and chain of custody procedures

KRO is a zero discharge facility and does not discharge process water. KRO monitors surface water and groundwater quality downgradient of the site, as well as underdrain water quality, to ensure that indirect discharges are not occurring. Cyanide has not been detected in groundwater or surface water downgradient of the site.

In the past three years, one mortality incidence was reported relating to two ducks found dead on the west side of the Tailings Pond. KRO staff indicated that the Washington Department of Fish and Wildlife initially did not require KRO to keep the birds for autopsy but later, after the birds were destroyed, requested an autopsy. The cause of death was therefore never confirmed.

5. DECOMMISSIONING Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.

Standards of Practice

5.1 Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of 5.1.

Describe the basis for the Finding/Deficiencies Identified:

As noted in the December 2008 audit, KRO's Washington State Discharge Permit requires the development, review, and approval of a decommissioning and closure plan

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for the Tailings Management Facility (TMF) and associated facilities (i.e., the mill, CIL plant, concentrated leach plant, and ancillary facilities and infrastructure). The current plan (“Reclamation Plan for the Kettle River Operations Tailings Disposal Facility”) was developed by Golder Associates in 2007 and submitted for agency approval in 2008. KRO has also submitted a request to extend the approval status of this plan, and it is understood that approval is pending. The plan contains conceptual procedures for the decommissioning of the TMF and associated facilities. Additional conceptual procedural and schedule detail is provided in the supporting narrative for the annually updated Asset Retirement Obligation (ARO). Discussions with KRO and Kinross staff indicate that the reclamation plan and ARO [recently retitled as the Kinross Decommissioning Liability (KDL) report] will be harmonized and updated to include more detailed procedures and planning information prior to entering mine closure. The current reclamation plan and the supporting narrative for Kinross’s ARO/KDL process both contain conceptual sequences of activity that can be interpreted as general decommissioning procedures and a preliminary decommissioning and closure schedule that includes all cyanide management facilities.

5.2 Establish an assurance mechanism capable of fully funding cyanide-related decommissioning activities.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 5.2.

Describe the basis for this Finding/Deficiencies Identified:

Current closure cost estimating practices are consistent with those in effect in the 2008 audit; the KDL Report and its supporting narrative reflect third-part closure costs and the technical approach to decommissioning and closure that KRO would use if the mine were to close immediately. Discussions with Kinross management and review of the current KDL annually-generated report indicate that it is based on actual mine infrastructure, and is calculated using best available/most current cost information; the KDL report therefore is a better indicator of the true costs of closure at a given point in time than the decommissioning and closure plan required under the State Waste Discharge Permit. As noted in the 2008 certification audit, KRO is also obliged to establish a bond with the State of Washington Department of Ecology as part of its Waste Discharge Permit requirements. The bond is established as a letter of credit to the Washington State Department of Ecology, and substantially exceeds the value of the annually estimated closure costs for cyanide management facilities presented as part of the ARO/KDL process in 2009, 2010, and 2011.

As was the case in 2008, a corporate “Internal Code for Self-Insurance of Decommissioning and Closure Liabilities” was established specifically to address the

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self-insurance/self-guarantee and financial strength provisions of the ICMC. This internal code presents the mathematical assumptions used to calculate financial reserve requirements, and requires specific Kinross operations, including KRO, to demonstrate that they have sufficient assets to address all aspects of cyanide facility decommissioning. KRO is required to have reasonable ratios of assets to liabilities, and net working capital greater than the sum of all estimated cyanide-related decommissioning costs. This value is defined in the KDL Report, which is subject to annual update and an annual review by an external financial consultant (KMPG). Prior to the submittal of this report, signed reports from KPMG were provided for 2009, 2010, and 2011 that confirmed that KRO had the requisite financial strength to decommission and close all cyanide management facilities, as defined by the ICMC.

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

Standards of Practice

6.1 Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 6.1.

Describe the basis for the Finding/Deficiencies Identified:

KRO has SOPs located on their intranet portal that address mixing, plant operations, entry into confined spaces and equipment decontamination. Since the 2008 certification audit SOPs have been updated to accommodate procedural changes and new SOPs have been developed and implemented for new facilities, e.g., concentrate leach circuit. New unloading and mixing procedures were developed to handle cyanide delivered in IBC boxes in May 2011.

The use of appropriate personal protective equipment (PPE) is a workplace requirement for employees and contractors. In addition to the required use of hardhat, safety boots and goggles in the workplace there are also requirements detailed in procedures for wearing additional items of personal protection (e.g., rubber gloves and coveralls, half or full face respirators, SCBA) when undertaking specific tasks.

Pre-work inspections are conducted through KRO's "5 Point" program for routine operations, and Pre-Task Plans, Team Level Risk Assessments and work permits for non-routine tasks. Tasks that present a significant risk also specify pre-work inspections; e.g., the cyanide mixing SOP includes pre-work inspections and personal protective equipment (PPE) requirements.

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KRO continues to implement the Management of Change SOP first evaluated in the 2008 certification audit, which establishes guidelines for conducting environmental and safety reviews of proposed process changes. A companion SOP (“Management of Change Communication’s”) has been developed that specifically addresses the communication of the change to the workforce. In addition, changes involving capital expenditures require implementation of a corporate Authorization for Expenditure (AFE) process, which also requires evaluation of the potential environmental and health and safety impacts associated with a proposed change.

Worker input is obtained through worker participation in the 5 Point Safety System, weekly tailgate safety meetings, discussion following task observations, and through Environmental, Health, and Safety (EHS) suggestion boxes located in the mill lunch room and in the administration building. The 5 Point Safety System has been updated since the 2008 certification and now includes an option for reporting near misses. KRO has retained records covering the three years since the initial certification audit.

6.2 Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 6.2.

Describe the basis for the Finding/Deficiencies Identified:

The operation has established set-points and operating tolerances for managing pH in the process to limit the potential for evolution of HCN gas. There are pH probes located on the located at strategic points in the cyanide circuits and samples are regularly collected and tested for pH. Lime is added as required to maintain the solutions in the leach circuits within the target of pH range of between 10.0 and 11.0.

Fixed Sensidyne HCN monitoring units are located in the cyanide mix room, top of the water treatment tank and at the strip area in the mill building. These are the only areas identified by KRO where HCN exposure is considered a potential concern. The units are set to alarm (visual and audible) at 4.7 ppm and 10 ppm HCN. There is also a site evacuation alarm if HCN exceeds 100 ppm. Continuous HCN readings from these monitors are recorded and are accessible as plots in the mill control room. In addition there are two GasAlert Monotox and two ITX multigas portable monitors used by workers when conducting tasks where they may be exposed to HCN or when working in areas where there is a significant potential for HCN gas generation.

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Calibration records for the fixed and portable monitors are tracked and recorded through the PM Expert maintenance tracking program. Records are maintained indefinitely. Review of the manufacturer's manual indicated that the two new GasAlert monitors were on a 180 day calibration schedule rather than the 90 days recommended in the instrument manual when the instrument is used for HCN gas detection. KRO immediately modified the PM schedule for these monitors to a 90 day calibration schedule.

Warning signage is amply posted in areas where cyanide is present. All piping is colour coded to identify contents and the colour coding key is posted in prominent areas of the site. Cyanide facilities are all designated as "No Smoking" areas. There are also prominent no drinking/eating/smoking signs posted at entrances to the mill process area.

MSDS are managed through "3E-Online", a program set up and maintained by an outside service provider. All employees are trained in the use of the system and can access an MSDS through the KRO intranet portal. MSDSs are accessible to all workers through dedicated terminals located in the Mill Lunch Room and Mill Warehouse.

Accident investigations are controlled primarily through the "Accident Investigation" SOP that provides instruction and guidance to ensure that investigations (including those that involve cyanide) are completed thoroughly. There have been two incidents related to cyanide in the past three years; both related to spills, only one of which was reportable.

6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 6.3.

Describe the basis for this Finding/Deficiencies Identified:

Shower/eyewash stations are strategically located around the plant. These are supplemented by eyewash stations provided with eyewash bottles. The amyl nitrite ampoules are kept in dedicated mini-refrigerators located in the Maintenance Shop First Aid, Mill Lunch Room, Bottom Floor Reagent Building, and the Mill Building–Solutions Laboratory. Flynn oxygen/resuscitators are located in the first-aid cabinet near the mill lunchroom and in the first aid room in the maintenance shop. All mill workers are equipped with hand-held radios. The condition of the amyl nitrite, Flynn resuscitators, as well as the working order of the shower/eye-wash stations are checked each shift during mill daily operations inspections.

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Sections 10.1 and 10.2 "Health and Emergency Information" of the Emergency Response Plan specifically address symptoms of cyanide exposure and first-aid for cyanide poisoning. Emergency medical response information is also provided in the Hazardous Material Contingency Plan (HMCP); an appendix to the ERP. Cyanide poisoning first aid procedures are also provided on green wallet sized cards provided to all workers.

All employees are trained in first aid treatment for cyanide exposures during initial and refresher cyanide awareness training. The last training was given in April 2012 by a trainer from Cyanco. Employees are trained as emergency responders with their level of response capability increasing with their operating grade. All operators are trained in use of monitors, alarm systems, SCBA, emergency kit locations, and amyl nitrite application (although only the EMT is permitted to administer).

Because the KRO facility is located only approximately 6 miles from the Ferry County Memorial Hospital, no special transportation arrangements are made, and the site calls 911 for emergency assistance from the Ferry County Fire Department/EMS. The Fire Department/EMS participates in mock drills. Representatives of the Fire Department/EMS attended the 2012 cyanide awareness training provided by Cyanco. KRO has a formalized arrangement with Ferry County Memorial Hospital that the hospital is prepared to receive and treat patients that have been exposed to cyanide.

KRO has discussed cyanide response arrangements with the Ferry County Memorial Hospital, Ferry County Fire department/EMS, County and State Police and other government agencies and in 2008 initiated APELL (Awareness and Preparedness for Emergency at the Local Level) emergency response needs in general. This program integrates the efforts, knowledge and potential resources from the private mining sector with those available by local and regional governments in order to improve efficacy and preparedness for emergencies. Although never fully formalized and the drafted Integration Plan developed was not signed by all parties, the program continues to operate on an informal basis and the various emergency organizations/departments meet regularly through the various venues.

Two mock drills involving cyanide were conducted in the 3 year period since the initial certification audit; one involved an operator exposed to HCN gas in the Reagent Building, the other involved a man down after becoming exposed to HCN gas resulting from a burst reagent line. Both drills involved the participation of the Fire Department/EMS and one was critiqued by a representative of the Ferry County Memorial Hospital trauma department. Although KRO had no formal process for tracking these corrective actions coming out of these drills, discussion with the Senior Mill Forman revealed that recommendations were being implemented. Subsequent to the field component of the recertification audit and on the auditor's recommendation KRO modified the mock drill procedure to formalize tracking of corrective actions to

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completion and sign-off. In addition to the mock drills a table top drill was conducted on that involved a scenario in which a cyanide delivery truck overturned on its way to the mine, releasing cyanide solution into open water. The drill simulated a Site Crisis Management Team response that would involve engagement with APELL emergency responders and the cyanide supplier Cyanco.

7. EMERGENCY RESPONSE Protect communities and the environment through the development of emergency response strategies and capabilities.

Standards of Practice

7.1 Prepare detailed emergency response plans for potential cyanide releases.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.1.

Describe the basis for the Finding/Deficiencies Identified:

KRO has an ERP that provides emergency operating procedures to be followed in the event of any emergency. The Plan includes initial response, PPE requirements, contact information, emergency response duties and responsibilities, and response steps. A significant modification to the ERP since the initial certification audit is the integration of the Crisis Management Plan to meet the new Kinross emergency response communication model. The ERP also now includes as an appendix a *Hazardous Materials Contingency Plan* (HMCP). The HMCP is spill specific and addresses response, clean-up and reporting requirements for all spills or releases into the environment of hazardous materials used by KRO, including cyanide.

KRO's ERP provides overall response procedures as well as additional responses for specific scenarios including power outages and pump failures; failure of cyanide treatment, destruction or recovery; overtopping of ponds and impoundments; releases during unloading and mixing; pipe, valve and tank ruptures; and offsite releases. KRO has also developed procedures to identify unusual and unlikely conditions which may endanger the dam; initiate remedial actions to prevent or minimize the downstream impacts of a dam failure; and initiate emergency actions to warn downstream residents of impending or actual failure of the dam. The HMCP addresses emergency procedures to follow in the event of tailings dam related emergencies, including extreme runoff or snowmelt, slumping of the embankment, and increased seepage.

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KRO takes title and risk of loss for the cyanide upon completion of delivery of the cyanide shipment into the mill complex cyanide storage area. The transporter and ultimately the supplier (DuPont) have responsibility for addressing an off-site incident. Incidents involving off-site and/or transportation of cyanide to the KRO facility will be called into the DuPont Cyanide Hotline. KRO personnel are available to support emergency responses to offsite incidents that involve cyanide shipments. Technical assistance, disposal options, and media response will be provided by KRO, when practical.

On one occasion during the last three years KRO had to purchase cyanide from an alternate supplier (Cyanco), who did not assume full responsibility for delivery. For one delivery only, a non-ICMC certified transporter was used. However, review of the purchasing and supply records indicates that the transporter was DOT-certified for hazardous materials transport. The shipment was transported and received at KRO without incident.

The KRO ERP describes appropriate actions for cyanide emergencies, including:

- includes initial observer reporting and response procedures;
- communication protocol and emergency response steps;
- first aid procedures and description of cyanide exposure symptoms;
- a mill site evacuation plan in the event of an evacuation alarm; and spill control, reporting and clean-up procedures; and
- specific response actions for various types of emergency situations.

7.2 Involve site personnel and stakeholders in the planning process.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.2.

Describe the basis for the Finding/Deficiencies Identified:

All employees are trained in first aid measures for cyanide exposures and refresher cyanide awareness training which includes emergency response and cyanide first aid is provided annually. In addition, all operators are trained in use of monitors, alarm systems, SCBA, emergency kit locations, and amyl nitrite application (although only EMT certificated persons are permitted to administer amyl nitrite).

KRO has discussed cyanide response arrangements with the Ferry County Memorial Hospital, Ferry County Fire department/EMS, County and State Police and other government agencies, and as a party to the APELL emergency response program initiated in 2008, maintains regular communication with the various emergency response

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organizations/departments and local and regional governments to coordinate emergency response capability and resources in Ferry and Okanagan Counties.

KRO substantially expanded its community relations program in the years since the 2008 certification audit. Review of stakeholder engagement logs for 2009 to date indicates that KRO management personnel have maintained at least quarterly contacts with the Buckhorn Community Advisory Association and have continued to participate in emergency response coordination meetings with community emergency medical response personnel and local law enforcement agencies and volunteer fire departments.

Outside responders are familiar with their roles in KRO's ERP and the Ferry County Fire Department/EMS and Hospital participate in KRO's mock drills. Representatives from the hospital, US Border Patrol, EMS, police and fire departments also recently attended cyanide awareness training given by Cyanco in April 2012.

7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.3.

Describe the basis for the Finding/Deficiencies Identified:

The ERP structure is basically unchanged since 2009. The ERP designates primary and alternative Crisis Management Team members (including coordinators) with the appropriate authority to implement the plan, including any emergency involving cyanide. The ERP also itemizes duties and responsibilities of emergency response positions.

Annual first aid refresher training is provided by an external trainer. EMTs are required to have quarterly On-going Training and Evaluation Program (OTEP) training by a qualified trainer on a quarterly basis. KRO currently has six EMTs, one of which is located at the mill. In addition the Environmental Manager and Environmental Superintendent are HAZMAT trained.

24 hour contact information is included in the ERP, along with the specific duties and responsibilities of the Crisis Management Team (CMT) members. An emergency response equipment list is also provided. Emergency response equipment is checked monthly by Security. This includes fire extinguishers, amyl-nitrite storage, spill kits and ERT cabinets. Fire extinguishers are maintained annually by an external contractor. In addition, each shift, operators check shower/eye wash units, SCBA/oxygen cylinder pressures and amyl nitrite storage seals. Security conducts detailed condition inspections of these items monthly.

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An agency contact list is provided in the ERP. Call out for outside responders is done through dialing 911 for Ferry County Sheriff (Emergency Dispatch). A telephone contact list is also provided in the HMCP. Specific roles of outside responders are not detailed in the ERP as their role in an emergency would be no different than any other emergency call out that they may attend.

KRO has discussed cyanide response arrangements with the Ferry County Memorial Hospital, Ferry County Fire department/EMS, County and State Police and other government agencies. These hospitals and emergency responders are aware of the types of emergencies that may occur including cyanide releases and worker exposure. Outside responders are familiar with their roles in KRO's ERP and the Ferry County Fire Department/EMS and Hospital participate in KRO's mock drills. Representatives from the hospital, US Border Patrol, EMS, police and fire departments also recently attended cyanide awareness training given by Cyanco in 2012.

7.4 Develop procedures for internal and external emergency notification and reporting.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.4.

Describe the basis for the Finding/Deficiencies Identified:

The ERP provide onsite emergency response contact procedures and information for both internal and external responders and stakeholders. The HMCP also provides spill reporting requirements to regulatory agencies. Outside responders are notified through dialing 911 Ferry County Sheriff (emergency dispatch).

Notification of communities and news media is through the Site Crisis Management Team spokesperson. This role is generally taken by the General Manager or delegated to a senior manager or other senior site delegate, supported by the External Relations Advisor. In the event of a major incident Kinross's VP of Communication will provide support. The *Kettle River Tailings Dam Phase V – Emergency Action Plan* lists the names, addresses and contact information of residents located downstream of the dam as well as emergency services in the event that evacuation of the floodplain must be started immediately because a failure is in progress or imminent.

7.5 Incorporate into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals.

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The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.5.

Describe the basis for the Finding/Deficiencies Identified:

The HMCP details procedures to be followed to recover and neutralize cyanide spills and addresses both recovery of solid cyanide briquettes and cyanide solutions. Calcium hypochlorite may not be used to neutralize where cyanide has been released into surface water. The “Cyanide Spill Neutralization using Calcium Hypochlorite” procedure describes the preparation and application of the neutralizing solution for soil decontamination. The HMCP also addresses sample handling and preservation, identification, chain-of custody procedure, method of analysis to be used and cleanup criteria. Excavated soil is to be deposited in the tailings facility. Groundwater and surface water sampling procedures are not described in the HMCP but would follow those detailed in the *KRO Monitoring Plan*. This plan provides detailed procedures on collection of surface water samples, purging and sampling groundwater wells, sample filtration, collection of quality assurance samples, and chain-of-custody. In the event that an alternate water supply is required as a result of an emergency that involves cyanide, KRO has a provision to use bottled water and maintains a stock of drinking water in their warehouse.

7.6 Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 7.6.

Describe the basis for the Finding/Deficiencies Identified:

As discussed in Section 6.3, two Mock drills involving cyanide were conducted in the 3 year period since the initial certification audit. One involved an operator exposed to HCN gas in the Reagent Building, the other involved a man down after becoming exposed to HCN gas resulting from a burst reagent line. Both drills involved the participation of the Fire Department/EMS and one was critiqued by a representative of the Ferry County Memorial Hospital trauma department.

The ERP is considered a living document with revisions made when need is identified. A summary table documenting revisions is provided in the ERP. Eleven revisions were recorded April 2008 and May 2012. The HMCP states that the Plan must be reviewed and evaluated at least once a year or as needed. It was last

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updated in April 2012, when it was separated from the Integrated Contingency Plan and incorporated as an Appendix to the ERP.

8. TRAINING Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

Standards of Practice

8.1 Train workers to understand the hazards associated with cyanide use.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 8.1.

Describe the basis for the Finding/Deficiencies Identified:

All persons entering the mine site must complete site induction training which includes rules of conduct and hazard awareness (including cyanide). All workers and short term contractors receive basic cyanide hazard recognition and response training when they are first hired or first enter the mill site. Basic contractor training is given by one of KRO's seven Mine Safety and Health Administration (MSHA) certified (surface) trainers. New employees or longer term contractors complete 40-hr MSHA critical task training. This is provided by MSHA certified trainers and includes cyanide hazard recognition and response as part of critical task training for mill operators. In addition, cyanide awareness refresher training is provided annually to all employees that may encounter cyanide in the workplace. In the three years since the initial certification audit this training has been provided by MSHA certified trainers, with exception of training given in April 2012 that was provided by an instructor from Cyanco.

Attendance sheets are retained for all training sessions. Training is also tracked on a spreadsheet maintained by the Safety Clerk. MSHA/Critical task training records (MSHA 5000-23 Forms) are maintained as hard copies in personnel files.

8.2 Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 8.2.

Describe the basis for the Finding/Deficiencies Identified:

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KRO has a formalized program for training new operators to work in the mill. The training program follows the regulatory requirements of MSHA (Public Law 91-173 as amended by Public Law 95-164). In addition to understanding the process as part of operator-specific training, the program details all hazards (physical, electrical, gravitational and chemical) associated with each area of the plant and worker activity. The program identifies the safety and monitoring equipment in-place, warning signage, PPE requirements, and procedures to be followed to minimize risks associated with those hazards. Training requirements associated with the operational procedures applicable to each area/process in the plant that must be completed to the satisfaction of the supervisor, before a worker is allowed to work unsupervised in that area or process. The general and cyanide management SOPs collectively form the basis for the training program.

Basic cyanide awareness training and 40-hr MSHA training is given to short term contractors by a MSHA certified trainers. The annual refresher cyanide hazard awareness training is provided by certified MSHA trainers and in April 2012 by a Cyanco trainer. Training in equipment operation and task specific procedures related to cyanide is provided by the Mill Manager, Lead Mill Operator, or other qualified trainers with knowledge and experience in the specific equipment and operating tasks.

The effectiveness of training is undertaken through a written exam to test a workers understanding of the circuit he is training to work in and through execution of all SOPs for that circuit or plant area to the satisfaction of a trainer prior to being approved to work alone at that grade. KRO also has a task observation program that requires supervisors to conduct a minimum of four task observations per month. If substandard acts, conditions and/or procedures are observed the supervisor makes recommendations and takes appropriate actions to correct them. The program is used to reinforce procedures as well as identify possible procedural issues. This program has been in place since 2009.

Training records are being retained indefinitely. These include cyanide awareness and refresher training, operator task training, task training exam, and MSHA training records. These records include the name of the employee, the trainer, the date of training, and the topics covered. Also retained are the training materials (presentation slides) for the annual refresher training. In addition, training matrices are maintained that summarize worker training and completion dates. Summary training matrices are maintained for cyanide induction and refresher training and for operator task training.

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8.3 Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 8.3.

Describe the basis for the Finding/Deficiencies Identified:

Cyanide unloading, mixing, production and maintenance personnel are trained in emergency response procedures as part of cyanide hazard and awareness training which is part of MSHA training, and during annual cyanide refresher training. During the site audit operators and administrative personnel were randomly asked about response procedures in event of a cyanide release. Their knowledge demonstrated employee familiarity of the emergency response procedures. All workers that may come into contact with cyanide are trained in the use of emergency response equipment including the use of shower/eyewashes to decontaminate, and application of medical oxygen and amyl nitrite. In an emergency, however, amyl nitrite would be administered by an EMT. Mill operators are also trained in the use of SCBA. Training attendance sheets are retained for all training sessions.

Coordinators and response team members are trained through participation in mock drill exercises as well as external training programs. A number of KRO's employees are also community fire fighters. Six KRO employees are EMTs and undertake Ongoing Training and Evaluation Program (OTEP) training quarterly through Inland Northwest Health Services, Spokane, to maintain their EMT status. One EMT is located at the Mill site.

As discussed in Sections 6.3 and 7.6 two Mock drills involving cyanide were conducted in the three year period since the initial certification audit. Following the drills the responses were evaluated from both a training and equipment adequacy perspective and where deficiencies were identified, recommendations for improvement were made. The 2012 drill included critique by a representative of the Ferry County Memorial Hospital trauma department. In addition a table top drill was conducted in April 2012 to test the Site Crisis Management Team response. This scenario which involved an overturned cyanide delivery truck and spill of cyanide into open water tested the engagement with APELL emergency responders and the cyanide supplier Cyanco. Also, in August 2010, fifteen KRO staff completed Crisis Media Training provided by an outside consultant.

KRO has discussed cyanide response arrangements with the Ferry County Memorial Hospital, Ferry County Fire department/EMS, County and State Police and other government agencies. These hospitals and emergency responders are aware of the types of emergencies that may occur including cyanide releases and worker exposure.

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Outside responders are familiar with their roles in KRO's ERP and the Ferry County Fire Department/EMS and Hospital participate in KRO's mock drills. Representatives from the hospital, US Border Patrol, EMS, police and fire departments also recently attended cyanide awareness training given by Cyanco in 2012.

9. DIALOGUE Engage in public consultation and disclosure.

Standards of Practice

9.1 Provide stakeholders the opportunity to communicate issues of concern.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 9.1.

Describe the basis for the Finding/Deficiencies Identified:

KRO has maintained its engagement with the Buckhorn Community Advisory Association, as noted in the original 2008 certification audit, and has continued to participate in emergency response coordination meetings with community emergency medical response personnel, law enforcement agencies, and local volunteer fire departments. However, KRO has substantially expanded its overall community relations program in the years since the 2008 certification audit. A Community/Government Relations management position was created in 2009, and KRO has developed a wide array of other opportunities for stakeholder communications on cyanide usage and other issues. Examples observed from review of contact records include periodic meetings with a many different community and non-governmental organizations. KRO also routinely conducts mill tours, and provides information at local public gatherings (e.g. Earth Day, Conservation Fair, Arbor Day, contractor fairs). KRO has also established policies requiring assessment and response to specific complaints or inquiries.

9.2 Initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 9.2.

Describe the basis for the Finding/Deficiencies Identified:

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As noted under Standard of Practices 9.1, KRO has developed many varied opportunities for stakeholder interaction and information exchange. It should be noted that the Department of Homeland Security (DHS) concerns noted in the 2008 certification audit no longer exist, as DHS no longer considers the facility to be a security risk. Kinross continues to periodically produce a Corporate Social Responsibility Report that is published on the corporate website.

9.3 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation is: ■ in full compliance
 in substantial compliance
 not in compliance...with Standard of Practice 9.3.

Describe the basis for the Finding/Deficiencies Identified:

In the years since the 2008 certification audit, KRPO has developed several different written and/or video-based communications tools that include discussion of cyanide management; these include:

- “A Commitment to Responsible Mining”(CD and trifold brochure – general distribution),
- “Cyanide Use in Modern Mining” (trifold brochure – general distribution), and
- “Responsible Mining and You” (booklet – distributed to all Kinross employees).

Literacy is not an issue in the local community. It should also be noted that in the years since the 2008 audit, there have been no reportable releases, or any other releases resulting in any hospitalizations, requiring response or remediation, or any other adverse effects under this Standard of Practice. KRO’s Integrated Contingency Plan (ICP) still requires reporting of any release to surface water to the Washington State Department of Ecology (WDOE), local authorities, and the US Coast Guard National response Center. WDOE, US EPA, and local authorities also must be notified if the release is above Reportable Quantity limits. Any such releases would also be required to be disclosed in the Regional Data Tables periodically published under the Corporate Responsibility section of the Kinross website.

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