

***INTERNATIONAL CYANIDE
MANAGEMENT INSTITUTE***

Cyanide Code Compliance Audit

Summary Transportation Audit Report

***Ma'Aden Gold & Base Metals
Jeddah, Kingdom of Saudi Arabia
Cyanide Transportation
Saudi Arabia Supply Chain***

16th – 19th June 2014



Name of Cyanide Consignor : Ma'Aden Gold & Base Metals

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Description of operation:

Ma'Aden

Ma'aden Gold & Base Metals (MGBM) Co is a subsidiary Company of Saudi Arabia Mining Company (MA'ADEN) which was formed on 23 March 1997 and is a Saudi joint stock company for the purpose of facilitating the development of Saudi Arabia's mineral resources. Ma'aden Gold is focusing on its active gold mining business which has grown in recent years to include the operation of five gold mines: Mahd Ad Dahab, As Suq, Sukhaybrat, Bulghah, and Al Amar. In addition, Ma'aden is currently developing new gold projects in central Saudi Arabia (Ad Duwayhi, Mansourah, Masarraah, Ar Rjum), which are currently under development.

ICMI Consignor Signatory

Ma'aden Gold and Base Metals Co. became a signatory consignor for the transportation of cyanide in 2014. MGBM has therefore overall responsibility for the transport of cyanide from Rabigh, King Abdullah Port (KAP) to the MGBM mine sites listed on the International Cyanide Management Institute (ICMI) website.

Cyanide Supply Chains

The Saudi Arabian Supply Chain includes the handling of the cyanide containers from the ship to the quay (National Container Terminal Company Ltd and National Port Services Ltd), clearance and customs (Professional Industrial Chemicals Company - "ProChemie"), transport from the port to the mines (Globe Logistics and as sub-contractor of ProChemie), which MGBM functioning as the coordinator and client and with ultimate supply chain responsibility. The adjoining Supply Chains are the AGR West Australian Supply Chain from the AGR Kwinana production facility to Freemantle



(recertified 13 June 2013) and the AGR Ocean Supply Chain from Freemantle to KAP (29 September 2014).

The Due Diligence Review of King Abdullah Port was conducted by AGR on 18 March 2014, accompanied by representatives of the Port, MGBM, ProChemie and the MSC shipping line. The Review states, "...In AGR's opinion the King Abdullah Port is a suitable port to handle shipments of sodium cyanide...." The Report was reviewed by this audit's Transport Auditor and Lead Auditor and found to meet the requirements of a Cyanide Code due diligence exercise.

MGBM Transport Contract

MGBM has a contractual agreement with Professional Industrial Chemicals Co. (ProChemie) to:-

- order and supply solid cyanide from Australian Gold Reagents Co. (AGR) in Australia;
- oversee security and handling at ports of entry including customs clearance; and,
- transport sodium cyanide in MSC freight containers from port to MGBM mine site compliant to requirements that meets the ICMI transporting Code.

MGBM responsibilities under the agreement (as far as the transport operations are concerned):-

- Gaining compliance to the ICMI as a Transport signatory;
- Evaluation and selection of transporting routes, assisted by AGR (producer) and transporter (Globe) from sea port to mine sites;
- Developing and maintaining a Cyanide Transport Management Plan (CTMP);
- Unloading at mine sites;
- Assisting ProChemie and Globe in task specific and safety training for transportation and handling between sea port and mine sites;
- Security from sea port to mine site (assisted by ProChemie and Globe); and
- Emergency response throughout transport from sea port to mine site.

ProChemie responsibilities under the agreement (as far as transport operations are concerned):-

- Assist MGBM in gaining compliance to the ICMI as a Transport signatory;
- Implement requirements of the Cyanide Transport Management Plan (CTMP);
- Storage, unloading, handling and security of containers at sea port;
- Selecting and managing a transporter company to transport freight containers from KAP port to MGBM mine sites in compliance with ICMI Code rules;
- Developing and assisting the Globe Logistics company in task specific procedures as required in this CTMP and ICMI Code as well as safety training for transportation and handling between sea port and mine sites;
- Reporting any security issues that may arise from sea port to mine site (assisted by Globe) to MGBM;



- Reporting and assisting in Emergency response throughout transportation from sea port to mine site, where needed; and,
- Recordkeeping of training and checklists as required in the ICMI Code rules and the Cyanide Transport Management Plan (CTMP).

Globe Logistics responsibilities under the agreement (as far as transport operations are concerned):-

- Assist MGBM in gaining compliance to the ICMI as a Transport signatory;
- Implementing requirements of the Cyanide Transport Management Plan;
- Supplying a fleet of well-maintained trucks and trailers to transport cyanide;
- Supplying licensed drivers who are trained and competent in cyanide awareness;
- Having a commitment to complete required documentation as required in the CTMP;
- Reporting any security issues that may arise from sea port to mine site to MGBM; and
- Reporting and assisting in Emergency response throughout transportation from sea port to mine site, to MGBM.



Auditor's Finding

This operation is

X in full compliance

in substantial compliance *(see below)

not in compliance

with the International Cyanide Management Code.

* For cyanide transportation operations seeking Code certification, the Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

Audit Company: Eagle Environmental

Audit Team Leader: Arend Hoogervorst

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Names and Signature of Transport Auditor:

Name Lynton Brown


Signature

3rd December 2014
Date

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 Transportation Operations and using standard and accepted practices for health, safety and environmental audits.

Signed



Arend Hoogervorst

Lead Auditor

3rd DECEMBER 2014
Date

1. TRANSPORT: *Transport cyanide in a manner that minimizes the potential for accidents and releases.*

Transport Practice 1.1: Select cyanide transport routes to minimize the potential for accidents and releases.

X in full compliance with

The operation is in substantial compliance with **Transport Practice 1.1**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

There is no rail system in Saudi Arabia and road transport is the only transport option. The route options to the mines are limited. The selection of routes to the mines is a combined decision taken by Ma'aden Gold and Base Metals Company (MGBM) and the transporter. The route risk assessments for Mahad Mine, Sukhaybarat Mine, Bulgah Mine, As Suc Mine, and Al Amar Mine are drawn up by Ma'Aden with inputs from the contract procurer (ProChemie), the transporter (Globe Logistics) and the producer (Australian Gold Reagents). Route surveys and route risk assessments are included in the Transport Management Plan. Route surveys and route risk assessments include details on population densities, infrastructure road conditions, sandstorms, and weather conditions which might influence safety.

All cyanide deliveries are undertaken in convoys. Route surveys and route risk assessments are used and updated in the convoy reports as new hazards are encountered. MGBM is working with communities, other stakeholders and government agencies as a mining signatory and as a transport signatory. Representatives of the mines are working with communities both adjoining the mines and on the cyanide transport routes. Information on cyanide and the convoys has been forwarded to the Red Crescent and the Civil Defence authorities through the appropriate channels. Evidence of community consultations and discussions with local hospitals at Al Amar was sighted and a meeting held with the government HCIS (Higher Commission of Industrial Security) resulted in a request for a presentation on the ICMI and cyanide. Liaison and communication continues.

Transport Practice 1.2: Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.

X in full compliance with

The operation is in substantial compliance with **Transport Practice 1.2**
 not in compliance with



Basis for this Finding/Deficiencies Identified:

The transport company, Globe, employs only licenced drivers and Saudi Arabia requires a licence for those driving trucks. The cyanide producer, AGR, has provided cyanide awareness training at Globe Transport for drivers, management and supervisory staff. MGBM has prepared a Cyanide Transport Management Plan (CTMP) which includes specific roles and responsibilities for contractor, Pro-Chemie and sub-contractor, Globe Transport, regarding compliance with the Cyanide Code relating to cyanide transport.

Transport Practice 1.3: Ensure that transport equipment is suitable for the cyanide shipment.

X in full compliance with

The operation is in substantial compliance with **Transport Practice 1.3**

 not in compliance with

Basis for this Finding/Deficiencies Identified:

The transport company only transports one 20 foot (28 ton max) container of cyanide on a trailer which is designed to carry 2 Containers. No trailers, at any time, will carry more than one container. This is also a requirement in the CTMP under the sections on Convoy Management and General Driver's Rules.

Transport Practice 1.4: Develop and implement a safety program for transport of cyanide.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 1.4**

 not in compliance with

Basis for this Finding/Deficiencies Identified:

A Globe AGR Cyanide Transport Pre-Trip Inspection Check List is completed for all trucks and trailers before the commencement of each cyanide collection and delivery. The CTMP requires the transport company to have a Preventative Maintenance program and Globe Transport's logistics and transport system is certified in terms of ISO 9001. The Globe Transport Procedure titled "Maintenance of Equipment - Trucking Division Jeddah" describes a detailed planned maintenance and breakdown maintenance system and includes documentation covering an inventory of Truck/trailers and vehicles, PMS Record for each vehicle and trailer, Tire Records, Job Cards, Material Requisition Forms, and Maintenance Inspection records.

The CTMP includes a section covering Driving Hours and Fatigue Management which stipulates maximum driving hours, and minimum rest periods, along with reference to

pre-determined stopping points. The CTMP includes a section on the Drugs and Alcohol Policy which requires that all drivers must be in a fit state to work, not under the influence of drugs or alcohol and that convoy leaders must check that drivers are not under doctors prescriptions which could lead to drowsiness. The use of drugs and alcohol is a criminal offence in the Kingdom of Saudi Arabia. Containers are loaded by the manufacturer, AGR, and sealed and cannot shift. Containers are fixed to the flat bed trailers using twist locks which are checked, pre- and post-trip. The CTMP states that ProChemie is responsible to keep checklist records and training records for at least three years and Globe Logistics is to similarly keep GPS records for cyanide convoys and vehicle maintenance records for three years.

Transport Practice 1.5: Follow international standards for transportation of cyanide by sea and air.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 1.5**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

Shipments of cyanide by sea are covered within producer, AGR's Ocean Freight Supply Chain recertification, which includes transportation of solid sodium cyanide by ship from the Fremantle Port, Western Australia, via the Mediterranean Shipping Company (MSC) and Maersk Australia to various interstate or international ports, published on ICMI website on 29 September 2014. No cyanide shipments are undertaken by air.

Transport Practice 1.6: Track cyanide shipments to prevent losses during transport.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 1.6**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

All drivers are equipped with company issued mobile telephones. The Pre Trip Check List requires a test of mobile phones before the vehicles depart. No communication blackout areas have been identified along transport routes to the mine sites. Globe's cyanide transport vehicles are all linked to a GPS tracking system which refreshes every one minute and is monitored at the transporter's offices. One controller is allocated to every ten vehicles. Pro-Chemie has a chain of custody document system to track shipments from arrival at the port to delivery at the mine site. On completion of the journey, these records are filed for a minimum of three years. Pro-Chemie, once the shipments arrive and are cleared, issues the documentation covering the cyanide to be delivered to the various sites, and the safety data sheets to Globe and their drivers. MGBM has prepared a

Cyanide Transport Management Plan which includes specific roles and responsibilities for the contractor, Pro-Chemie and the sub-contractor, Globe Logistics, regarding compliance with the Cyanide Code relating to cyanide transport. The Purchase Order Agreement between MGBM and Pro-Chemie requires compliance with the objectives and principles of the Cyanide Code as it relates to transport and delivery of cyanide.

2. INTERIM STORAGE: Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent releases and exposures.

Transport Practice 2.1: Store cyanide in a manner that minimizes the potential for accidental releases.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 2.1**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

There is no interim storage on the transport route. Containers are cleared and transported from the harbour directly to the mine sites as soon as possible.

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

Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 3.1**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

Responsibility for developing and implementing the Cyanide Transport Emergency Response Plan (CTERP) rests with MGBM. The Cyanide Transport Emergency Response Plan is in place and being implemented. The CTERP was drawn up with specific reference to the route surveys and risk assessments. AGR supplies solid cyanide briquettes and the CTERP considers primarily dry handling of cyanide with some wet handling if accident occurs and spill accesses water. The CTERP identifies six separate scenarios and their appropriate responses. As there is no rail service in Saudi Arabia, the

CTERP only refers to trucking via road. The CTERP only works with a vehicle consisting of a truck and long trailer (standard 40 foot load capacity) with only one 20 foot container ever carried on the trailer. One of the sections in the CTERP covers roles and liaison with the Local Authorities, Traffic Police, Hospitals/Medical Personnel, Fire Departments/Civil Defence and the Regulatory Authority (local environmental authority).

Transport Practice 3.2: Designate appropriate response personnel and commit necessary resources for emergency response.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 3.2**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

The CTERP has a section which includes a description of the key roles of the Convoy leader, driver, MGBM Incident coordinator, Response Teams from Mine Sites, the Transport company and the producer (AGR). An Annexure in the CTERP contains an Emergency Response Equipment List per convoy and an Emergency Response Equipment List per mine and maintenance and inspections of Response Equipment, as required in the main body of the CTERP. The CTERP is new and initial training has been provided. The training section of the CTERP requires that Globe convoy personnel, drivers, and office personnel are trained in Cyanide Awareness, Convoy Procedures and Emergency Procedures annually. MGBM has prepared a Cyanide Transport Management Plan which includes specific roles and responsibilities for the contractor, Pro-Chemie and the sub-contractor, Globe Logistics, regarding compliance with the Cyanide Code relating to cyanide transport and emergency response.

Transport Practice 3.3: Develop procedures for internal and external emergency notification and reporting.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 3.3**
 not in compliance with

Basis for this Finding/Deficiencies Identified:

The CTERP contains a section, Transport Emergency Plan Activation, which includes an internal notification mechanism, and Authority and recourse mobilisation. The section covering the descriptions of key roles, describes key players and the initial and secondary responses. The section goes on to describe in detail, the roles, communication, responsibilities, and PPE of internal and external role players. The CTERP makes the MGBM Emergency Response Specialist responsible for updating the plan, including contact telephone numbers, and informing all plan holders of any changes.

Transport Practice 3.4: Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 3.4**

 not in compliance with

Basis for this Finding/Deficiencies Identified:

The CTERP cross references to the MGBM Cyanide Management Procedure and cyanide emergencies are also covered in the abbreviated Cyanide Emergency Response section within the CTERP. The focus is on dry recovery of all materials and containment and shipping to mines' sites for complete disposal. Neutralisation using hypochlorite is an option to be used in consultation with MGBM and AGR specialists, should spills be affected by liquids. It should be noted that Saudi Arabia is an arid country. However, the CTERP specifically prohibits the addition of cyanide treatment chemicals such as hypochlorite and ferrous sulphate to surface water bodies or a flowing waterway.

Transport Practice 3.5: Periodically evaluate response procedures and capabilities and revise them as needed.

X in full compliance with

The operation is in substantial compliance **with Transport Practice 3.5**

 not in compliance with

Basis for this Finding/Deficiencies Identified:

The CTERP requires that the plan shall be updated as changes take place or at least annually. The Plan is new and has yet to have its first annual review. The Exercises and Drills section of the CTERP specifies the requirement for table top exercises (paperwork and toolbox meetings), Emergency response simulation drills every six months, and a full scale incident scenario with all role players at least once three yearly.

