INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Code Compliance Audit

Summary Transportation Audit Report

Vehrad Transport & Haulage
Ghana

17th – 20th March 2008
Name of Cyanide Transportation Facility: Vehrad Tema Yard

Name of Facility Owner: Vehrad Transport & Haulage Company Ltd

Name of Facility Operator: Vehrad Transport & Haulage Company Ltd

Name of Responsible Manager: Ghassan Husseini, Manager: Cyanide Operations

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Location detail and description of operation:

Vehrad Transport and Haulage Ltd are contracted by AGR CSBP to transport solid cyanide (briquettes) by road from Tema and Takoradi harbours to their customer mines in Ghana and Mali. Vehrad’s main operations base is their Tema yard, located in the Tema heavy industrial area, approximately 2 kms from the Tema harbour, within the greater Accra region.

Cyanide is received at the ports of Tema and Takoradi by sea in containers, which each hold 20 one-ton boxes of solid briquette cyanide. The containers are offloaded at the ports by Meridan Port Services Stevedores (MPS) and stored at their facility, if necessary. (An appropriate due diligence exercise has been conducted on MPS facilities.) The next stage depends upon the final destination of the cyanide: Cyanide destined for further transport and use in Ghana or transit consignments to Mali and Burkina Faso. The process for each option varies slightly.

Consignments for Ghana

Containers are delivered from the Quay to the MPS Container Depot where they are stacked and stored separately. Control and monitoring of the containers is undertaken by MPS who subscribe to the IMDG Code. Vehrad’s responsibilities commence once they take the containers from the MPS storage area. AGR have undertaken a due diligence exercise on the port operations and confirm that they meet the principles of the ICMC.
The AngloGold Ashanti Port Unit clears the consignment which includes the Ghana Environmental Protection Agency (EPA) licence. Vehrad’s vehicles collect the containers with the documentation and manage them under a Transport Management Plan (jointly agreed between AngloGold Ashanti (AGA), Vehrad and Wesfarmers/CSBP Chemicals).

**Consignments for Mali**

Containers are delivered from the Quay to the MPS Container Depot where they are stacked and stored separately. Control and monitoring of the containers is undertaken by MPS who subscribe to the IMDG Code. Vehrad’s responsibilities commence once they take the containers from the MPS storage area. AGR have undertaken a due diligence exercise on the port operations and confirm that they meet the principles of the ICMC. Vehrad clears the consignment which includes the Ghana Environmental Protection Agency (EPA) licence. Vehrad’s vehicles collect the containers with the documentation and manage them under a Transport Management Plan (jointly agreed between AngloGold Ashanti (AGA), Vehrad and AGR/CSBP Chemicals).

The containers of cyanide, in all cases, are then transported in escorted convoy to the mine sites in Ghana and Mali. Each truck has a driver, who is accompanied by a safety officer. The safety officer manages communications between the trucks, the escort vehicles and the convoy manager, and monitors the driver. The convoy includes a convoy manager, assistant convoy manager, a cyanide first aid-competent nurse, a mechanic, cyanide emergency response equipment for spills and releases and medical equipment to treat cyanide exposures (splashes, skin exposures, inhalations and ingestions). Where indicated by risk assessments, the convoys may also include an armed police escort.
Eagle Environmental
Vehrad Transport & Haulage

Transportation Summary Audit Report 17-20 March 2008

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
E-mail: arend@eagleenv.co.za

Names and Signatures of Other Auditor:
Name Bruno Hounkpati Signature Date 23/06/08

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 Date 28/06/08

Signature notarized/certified

Vehrad Transport & Haulage Signature Lead Auditor 21st June 2008

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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 □ not in compliance with Transport Practice 1.1

Basis for this Finding/Deficiencies Identified:
Vehrad has a procedure which requires that a risk assessment be undertaken for every route before the route is approved. Where alternative routes exist, the route with the lowest overall risk rating is chosen. After approval, a detailed route hazard map is drawn up. The route hazard maps include details on population densities, road hazards, physical conditions requiring slower speeds or more careful driving, and weather conditions which might influence safety.

All cyanide deliveries are undertaken in convoys which are led by convoy managers (with safety officers accompanying each driver) who use hazard maps and update them as new hazards are encountered. Poorly developed infrastructures means that there are limited options for routes and thus mitigating measures are constantly being applied to minimise risk of accident and injury during the convoy’s travels. The Convoy Manager and the Journey Planner will discuss the proposed route and the latest information on road conditions and potential hazards. Information on road and physical conditions during a delivery is noted and incorporated in the planning of the next trip. Convoys that travel outside of developed areas are escorted by armed police officers. In view of limited local facilities available, the convoys include their own safety officers, medics, and mechanics and emergency equipment for medical treatment and clean up. External responders are not permitted to participate in emergencies unless briefed by the convoy medic.

Stakeholders and interested and affected parties are consulted prior to route finalization and these include the municipal assemblies, fire and police services, hospitals, the Ghana Environmental Protection Agency (EPA), and local communities.

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 □ not in compliance with Transport Practice 1.2

Vehrad Transport & Haulage Signature Lead Auditor 21st June 2008
Basis for this Finding/Deficiencies Identified:
The Vehrad Recruitment Policy lays down minimum requirements for cyanide delivery drivers which include being at least 25 years of age, holding a valid driver's licence, no criminal record, at least Middle School Leaving Certificate or Junior Secondary School Certificate and can demonstrate that they are literate and numerate. External training is provided in defensive driving and extensive background checks are undertaken on previous work history. Drivers are not directly involved in cyanide handling as the accompanying trained Emergency Response Team handles any incidents that may occur during the convoy. The driver's function is to withdraw and keep onlookers away.

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:
Vehrad makes use of equipment whose specifications are in excess of the weights to be carried. The trailers used have a design capacity of up to 55 tons, whereas the total weights to be carried are approximately 44.6 tons. Maintenance procedures include checks on key parts such as twist locks, brakes and bearings, to reduce the risk of failure. There are monthly vehicle inspections and pre- and post-convoy inspection checklists. Maintenance is undertaken on contract by vehicle manufacturer's agents to design specifications. Vehicles cannot carry more than two containers and containers are pre-loaded to standard weights, which prevents the possibility of overloading. Vehicles are loaded by dock stevedores and unloaded by mine operators.

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:
Vehicles are checked against a pre-convoy checklist before leaving and on return and an external company, Road Safety Limited, conducts a separate external pre-trip safety inspection. Vehicles are maintained according to manufacture’s recommending servicing intervals and procedure 24 guides maintenance processes. The convoy system is used for all deliveries and the staffing of the convoy with convoy manager, senior and junior safety officers, mechanic and convoy medic are organized to handle any situation, both proactively and reactively. Vehrad’s procedure 63 defines the roles and responsibilities of all cyanide related staff on site, in the convoy and identified external responders and authorities. In the case of bad weather, unsafe conditions, or unsafe acts, the procedure also requires the convoy manager to find good, hard standing areas for a safe parking space, park and inform the base controller and await instructions. The convoy system also enables strict controls to be placed on driver hours and a drugs and alcohol program prevents use and abuse during the convoy, backed up by a random testing procedure. Although there are no specific Ghanaian legal requirements for hazardous chemical transport signage, Vehrad uses signage in excess of IMDG Code requirements, including large banners stating “Beware Cyanide Convoy”. 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 and replaced, if necessary by a higher standard than the manufacturer recommends (QA18NS – maximum weight capacity of 25.4 tons).

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:
Vehrad is a road transporter and is not involved in any way in air or sea transport of cyanide.

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

Vehrad Transport & Haulage Signature Lead Auditor 21st June 2008
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Basis for this Finding/Deficiencies Identified:
The convoy is tracked using an ATRAMS satellite tracking system with an emergency SOS facility. Communications are by multiple means: the vehicles are in constant two way radio communication, all key staff carry cell phones (whose SIM cards are switched when crossing international borders) and every convoy also carries a Thuraya satellite phone. Thus there are no communications blackout areas along the routes. A pre-trip checklist requires that all equipment to be thoroughly checked before departure and battery re-charging is planned when overnight stopping points are identified. All cyanide is transported in sealed containers with numerical seals linked to bills of lading. Regular checks and inspections are made to ensure that the seals are not tampered with. During night stops, at least two convoy members remain awake and patrol and check all vehicles. The convoy travels with full bill of lading and transit documentation which includes the appropriate MSDSs.

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:
Vehrad does not provide any interim storage facilities for cyanide as trucks dispatch the cyanide directly from the ports.

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
The Vehrad Emergency Response Plan is based upon the requirements contained in the AGR Transport Management Plans drawn up for the three transport routes to Obuasi, Iduapriem and Morila and contained in procedure 8. Scenarios have been developed based upon those that might be found in the convoy situation, for example, truck breakdown, truck accident (with a spill), truck accident (with a fire – fire on the road and fire at the delivery site), driver injury, security issues, civil disturbance, natural disasters, and medical emergencies. The scenarios addressed include specific consideration of events related to road transport infrastructure and condition thereof and this is the only means of transport used by Vehrad. The Plan and associated documents recognise and include the roles of various responders (Procedure 63) and include health and safety consequences as well as environmental impacts and responses. Scenarios have been developed and link back to route risk assessments which assist in identifying which stakeholders to establish communication with. The Plan considers transport of solid cyanide which may become liquid or gaseous in the case of certain emergency scenarios. Liquid cyanide is never transported.

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 convoy carries with it its own emergency response team who are trained to deal with all health, safety and environmental emergencies associated with cyanide. Roles and responsibilities in these emergencies are spelled out in procedure 63. A full range of emergency equipment, based upon the route risk assessments and hazard maps, is carried by the convoy. Field inspections confirmed the availability of the emergency equipment on the convoy and the checklists and inventories associated with it. Training and refresher schedules have been developed and periodic use is made of mock drills to test team response and ensure that training is appropriate and effective.

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

X in full compliance with

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

Basis for this Finding/Deficiencies Identified:
Procedures 8 and 63 contain full, current contact details for key stakeholders and interested and affected parties who need to be informed in the event of a cyanide emergency. The Transport Management Plan also includes contact details. The responsibilities of incident notification and reporting are identified in procedure 73 and there is a system to ensure that contact numbers are checked and updated at least annually.

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:
In view of the fact that cyanide is transported in convoy through remote areas, the convoy has the capacity to contain and neutralize any spills and releases. The Transport Management Plan (Sections 11-13) includes detailed information on all the various neutralization and clean-up scenarios that may be encountered in emergency incidents. Both the Transport Management Plan and procedure 63 prohibit the use of chemicals to neutralize cyanide in surface waters.

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:
Procedures and Plans are formally reviewed annually. Mock drills are scheduled quarterly and “learnings” from the drills are fed back into revisions of procedures, training programmes and Plans.