

공증인 유봉묵 사무소

(전화) 268-4410 (팩스) 268-4407

[제43호서식]



Registered No. 2008-1168

NOTARIAL CERTIFICATE

Bong-Mook Yoo the Notary Public
Ulsan District Prosecutor's Office

583-6, Ok-Dong, Nam-Gu,
Ulsan, Korea



SUMMARY AUDIT REPORT

Name of Cyanide Production Facility : TAEKWANG Ind., Co., Ltd.
PETROCHEM #3 Plant

Name of Facility Owner : TAEKWANG Ind., Co., Ltd.

Name of Facility Operator : YONG HAK, SHIN

Name of Responsible Manager : Mr. Jang-Su Seo

Address : 88 Bukokdong, Namgu

State/Province : Ulsan city

Country : South Korea

Telephone : 82-52-259-9691

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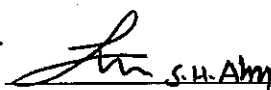
Description of operation :

The PETROCHEM #3 plant of TAEKWANG Ind. Co., Ltd. ("TAEKWANG") is located at the Ulsan Petrochemical Industry Complex. The whole area covered by TAEKWANG is 89,570 m², with its cyanide production facilities (inclusive of subsidiary facilities) accounting for 7,000 m². The cyanide factory includes all facilities related to production, storage, and consignment. The cyanide produced by TAEKWANG is sodium cyanide used for gold mining. This sodium cyanide is produced using the hydrogen cyanide (HCN) generated from the acrylonitrile process as raw material. The product is available in briquette form. TAEKWANG employs total 118 staff in its production facility. The utilities used at the TAEKWANG plant, i.e. electricity, water, etc., are being provided by the petrochemical support center. TAEKWANG established and maintained safety and environmental policy and procedures with the reflection of Korean laws such as Industrial safety & health Act & Environmental Act. Those are strictly controlled by the relevant supervisory authority because the plant is located at the petrochemical industry complex.

TAEKWANG Inc. Co., Ltd.

PETROCHEM # 3 Plant

Name of Facility


S.H. Ahn

Team Leader



Team Member

12 March 2008

Date

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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 production 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 : BSI Korea

Audit Team Leader : S H Ahn E-mail : sangho.ahn@bsi-global.com

Audit Team Member : C S Chang E-mail : cheolsoon.jang@bsi-global.com

Names and Signatures of Other Auditors: n/a

Date(s) of Audit : 05~06 Dec. 2007

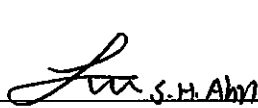
I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management 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 Production Operations and using standard and accepted practices for health, safety and environmental audits.

TAEKWANG Inc. Co., Ltd.

PETROCHEM # 3 Plant

Name of Facility


S.H. Ahn

Team Leader


C.S. Chang

Team Member

12 March 2008

Date

SUMMARY AUDIT REPORT

1. OPERATIONS: Design, construct and operate cyanide production facilities to prevent release of cyanide.

Production Practice 1.1: Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.

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

Summarize the basis for this Finding/Deficiencies Identified:

The plant was constructed during 1996 and operated at April 1997. Before the construction, facility & piping material were tested by competent suppliers. The construction company implemented test and inspection according to quality plan and submit the results to technical team & supervising agency. Technical team & supervising agency reviewed the result reports and concluded that facilities were established according to drawing & specification. The cyanide process has receive the PSM(Process Safety Management) inspection by KOSHA (Korea Safety & Health Agency) & labor agency every year by Korea legal requirement. According to the inspection reports from KOSHA, TAEKWANG Ind. Co., Ltd. continued operation within established parameters and protection against cyanide exposure and release. Inspection records related to QA/QC & inspection were maintained. And also the materials used for construction are compatible with hydrogen cyanide, liquid NaCN and other reagents.

ESD(Emergency Shut Down) system and automatic interlock system were established to shut down production system and prevent release due to power outage or equipment failures.

To prevent cyanide seepage to subsurface, all cyanide process facilities including condensation, reaction, centrifuge, drier, packaging, storage and pipeline were established and controlled on concrete. Level gauge and alarm system were applied to cyanide process and storage vessels to prevent overfilling & overflow. Secondary containment and dikes were installed enough to contain spilled cyanide & cyanide solution. And also cyanide solution pipelines were covered by outer piping to prevent spillage of cyanide solution.

Production Practice 1.2: Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.

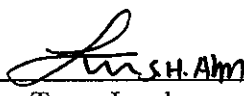
The operation is in full compliance with
 in substantial compliance with Production Practice 1.2
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

TAEKWANG Inc. Co., Ltd.

PETROCHEM # 3 Plant

Name of Facility


Team Leader


Team Member

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Production Team & Safety Team have established and maintained process operation manual in which standard practices such as operational criteria for pressure, temperature and flow were defined. And also they maintained start-up & shut down manual, preventive maintenance procedure and emergency preparedness to assure safe and sound process operation. And also they established and maintained emergency preparedness plan to control the possible emergency situations such as spillage, HCN leakage, fire & explosion and cyanide exposure. They also tested those emergency preparedness periodically. TAEKWANG established and maintained change control procedure in which identification and control of change were defined. Facility technical team established and implemented preventive maintenance program. Main process parameters as flow rate, temperature and level were monitored by DCS and monitoring equipment was calibrated according to calibration procedure. Cyanide solution and cyanide contaminated water shall be treated in WWT and prevented unauthorized/ unregulated discharge according to waste control procedure. The solid waste were collected and dispatched to qualified sub-contractor according to waste control procedure. The cyanide products were filled and packed in drum and wooden box and stored in warehouse in which ventilation fans were installed and operated to prevent exposure of moisture according to packaging procedure in which the IMDG(International Maritime Dangerous Goods) code reflected. And also public can not enter the warehouse without special acceptance. The warehouse is monitored by CCTV.

Production Practice 1.3: Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

The operation is in full compliance with
 in substantial compliance with Production Practice 1.3
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:


The main facilities including reactor, tank, valve & pipeline were inspected periodically according to self inspection procedure. And also detail inspections were implemented by special inspection contractors every 5 years. The secondary containments and deterioration and leakage were checked and results were recorded daily by production team and safety team. Inspection frequency for reactor, tank etc. was defined from the decision of critical item control rule according to self inspection procedure and maintenance procedure. Inspection results including inspection date, inspector and deficiency were recorded. And also corrective actions for identified deficiency were implemented according to corrective action procedure.


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

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Team Leader

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Team Member Date

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Production Practice 2.1: Develop and implement procedures to protect plant personnel from exposure to cyanide.

The operation is in full compliance with
 in substantial compliance with Production Practice 2.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

TAEKWANG employee, visitor and contractor were protected from exposure of cyanide during normal, abnormal & emergency operation, maintenance and overhaul activities according to safety control procedure and PPE control procedure. And also each team develop & maintain work instructions for processes including raw material control, production, packing & shipping in those work instructions detail control & handling method of cyanide defined.

TAEKWANG Ind. Co., Ltd develop & maintain work permit procedure for out-sourced repair & maintenance works. Training for precaution & handling of cyanide shall be implemented before repair & maintenance works and pre-action & PPE wearing are mandatory for workers according to work permit procedure.

TAEKWANG review operational changes and modifications for their impacts on employee health and safety.

TAEKWANG employee participate safety committee to develop health and safety procedures. Working environment was inspected by sub contractor twice per year for such items as the concentration of hydrogen cyanide, dust & etc. The inspection result of NaCN etc. were usually "non-detected" comply with ICMC and legal requirement. TAEKWANG also use monitoring device to detect the leakage of hydrogen cyanide. The fixed monitoring equipment and portable detectors for hydrogen cyanide were calibrated every year.

Employee, contractor & visitor shall wear clothing provided by TAEKWANG and exchange when they are leaving cyanide process according to safety & health procedure.

TAEKWANG identified areas and activities where workers can be exposed to cyanide and maintained warning signs of cyanide presence. Employee, visitor and contractor were required to wear PPE and prohibited from smoking, eating, drinking in those potential cyanide contamination areas such as process and packaging areas.

TAEKWANG maintained buddy system for dangerous works as patrol, maintenance and repair works. And also during those works, employee and contractor use radio to request assistant for the case of emergency situation.

Employee receives health check every year. And according to health check results, fitness of employee to perform their tasks were determined and follow up action implemented.

Production Practice 2.2: Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

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Team Leader



Team Member

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The operation is in full compliance with Production Practice 2.2
 in substantial compliance with
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

TAEKWANG has developed and maintained self prevention plan in which detail emergency preparedness including cyanide exposure case were defined.

First aid equipment such as low pressure eye wash station, air shower and fire extinguisher were maintained in process and packaging areas. First aid kits such as water, oxygen, resuscitator and antidote were maintained in cabinets installed in process area and office. Safety team inspected the first aid equipment & kits by monthly basis and replaced the equipment & kits not effective any more according to safety procedure. TAEKWANG maintained the MSDS, first aid procedure, emergency plan and cyanide handling method written in Korean in process and control room area. The storage tanks, containers and pipe line containing cyanide were identified by material name, MSDS and warning signal. And cyanide flow directions were identified by arrow mark in pipe line. TAEKWANG implemented control procedure for entrance and leaving from process area. According to that procedure, employee, contractor and visitor shall exchange clothing and pass the air shower before leaving the process.

TAEKWANG employed nurse and maintained first aid kits and ambulance in plant. TAEKWANG nominated Good Morning Hospital in Ulsan city and informed about potential need to treat employee exposed to cyanide. The Good Morning Hospital understand TAEKWANG' situation and nominated staff ready for emergency situation.

Emergency plans of cyanide exposure cases were tested every year and the result and lesson were reflected revised plans. TAEKWANG established and maintained incident evaluation procedure in which detail investigation and evaluation for cyanide exposure incidents were defined.

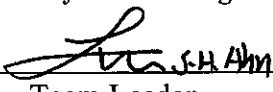
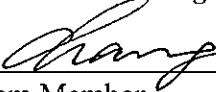
3. MONITORING: Ensure that process controls are protective of the environment.

Production Practice 3.1: Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

The operation is in full compliance with Production Practice 3.1
 in substantial compliance with
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Waste water from was treated in in-house WWT and then discharged to Yongyeon WWT operated by Ulsan Metropolitan City. Monitoring results of final discharged water show the TAEKWANG Inc. Co., Ltd.

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 Name of Facility Team Leader Team Member Date

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training effectiveness has been evaluated once per year by testing and observation. The evaluation results are reflected on training programs.

In addition, all new employees prior to perform their job should be trained on safety and health for 16 hours at the time of joining the company and for 2 hours per month thereafter.

Production Practice 4.2: Train employees to respond to cyanide exposures and releases.

..... X in full compliance with
The operation is. in substantial compliance with Production Practice 4.2
. not in compliance with
. not subject to

Summarize the basis for this Finding/Deficiencies Identified:

All employees are well aware of the emergency response actions against cyanide exposures and releases through repeated education, training and emergency drills. The emergency response plans specify all the employees' duties such as safety representative, first-aid responder or firemen, etc. Related mock situation drills are regularly conducted to ensure that the employees are familiar with their duties and roles. The results of the mock situation drills are evaluated and analyzed. Any and all areas for improvement found are immediately improved. The results of education or training are recorded.

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

Production Practice 5.1: Prepare detailed emergency response plans for potential cyanide releases.

..... X in full compliance with
The operation is. in substantial compliance with Production Practice 5.1
. not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Five emergency response plans and scenarios for potential cyanide releases are developed effectively and revised to improve company's response capabilities. Detail methods to control the release at their source, containment, mitigation and future prevention including cyanide supply shut down, prevention of cyanide spread, collection of spilled cyanide & preventive action were defined in emergency procedure. The emergency plans and scenarios include all the

TAEKWANG Inc. Co., Ltd.

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Team Leader



Team Member

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duty of emergency teams including command center, personnel rescue part, excavation lead part, communication part etc. defined in emergency organization chart.

Detail training such as personnel rescue, lead excavation, control of facility and etc. were required and provided to emergency responders. And also HSE team tested the call-out response and feedback the results to responders. The equipment for emergency response actions is maintained in a ready state through regular check and repair. A list of such equipment is also maintained. Moreover, a cooperative system with outside entities has been established effectively. The outside entities are participated in the mock situation drills and following evaluation and review of effectiveness for emergency response plans.

Production Practice 5.4: Develop procedures for internal and external emergency notification and reporting.

..... X in full compliance with
The operation is. in substantial compliance with Production Practice 5.4
.
 not in compliance with


Summarize the basis for this Finding/Deficiencies Identified:

The emergency communication network is prepared for prompt notification in the emergency response plan. The internal communication system is made up of 2 sub-systems. First, the vertical report system covers the person who discovers an emergency accident such as cyanide release and up the chain of command to the plant manager who serves as the chief emergency response manager. The other is the site alarm system, which simultaneously notifies site personnel. External notifications with affected communities such as nearby companies and plants are implemented by phone & mobile phone as per emergency communication network established.

Production Practice 5.5: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

..... X in full compliance with
The operation is. in substantial compliance with Production Practice 5.5
.
 not in compliance with

TAEKWANG Inc. Co., Ltd.
PETROCHEM # 3 Plant
Name of Facility


Team Leader


Team Member

12 March 2008
Date

등부 2008년 제 1168 호

Registered No. 2008-1168

인 증

Notarial Certificate

위 감사 요약 보고서 _____ 에
기재된 촉탁인 안상호, 동 장철순 _____

MR. J. S. SEO _____
attorney in fact of
MR. S.H, AHN & MR. C. S. CHANG _____

의 대리인 서장수 _____ 은
본직의 면전에서 위 본인이 서명한 _____
것임을 확인하였다.

appeared before me and admitted
said principal's subscription to
the attached "SUMMARY AUDIT _____
REPORT." _____

2008년 03월 28일

이 사무소에서 위 인증한다.

This is hereby attested on this
28 day of Mar. 2008 at this office

울산광역시 남구 옥동 583-6
울산지방검찰청소속
공증인 유봉묵 사무소

Bong-Mook Yoo the Notary Public
Ulsan District Prosecutor's Office
583-6, Ok-Dong, Nam-Gu,
Ulsan, Korea

공증인

유 봉 묵



B. M. Yoo

Signature of the Notary Public

Bong-Mook Yoo

This office has been authorized by the
Minister of Justice, the Republic of
Korea, to act as Notary Public Since,
Feb. 27, 1997 Under Law No. 4745