INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

Cyanide Production Summary Audit Report

For the International Cyanide Management Code

TaeKwang Industrial Co., Ltd.
Petrochemical Plant #3

30 June 2023

Production Summary Audit Report

Operation General Information

Name of Production Facility :	TaeKwang Industrial Co., Ltd. Petrochemical Plant #3
Name of Facility Owner :	TaeKwang Industrial Co., Ltd.
Name of Facility Operator :	TaeKwang Industrial Co., Ltd.
Name of Responsible Manager :	Mr. TaeHoon Kim / System Team Leader
Address :	68 Bugok-ro, Nam-gu,
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Operation Location Detail and Description

TaeKwang Industrial Co., Ltd. has plant in Petrochemical Complex in Ulsan Metropolitan City an industrial city located in southern part of South Korea. The sodium cyanide plant of TaeKwang Industrial Co., Ltd. was constructed during 1996 and started production at April 1997. The production capacity of solid sodium cyanide is about 63,000 ton per year. The briquette type solid sodium cyanide is produced from sodium hydroxide and hydrogen cyanide. The hydrogen cyanide is produced as by-product from acrylonitrile plant operated within same plant. The solid sodium cyanide is packaged into wooden box or steel drum and exported to gold minings located in overseas area.

TaeKwang Industrial Co., Ltd. was initially ICMC certified during April 2008 and recertified during May 2011, May 2014, June 2017 and July 2020. Almost 3 years were elapsed since the last ICMC recertification, so fifth recertification audit is needed during this time. The recertification audit was performed during June 2023. There was no accident and incident related to environment, health and safety in TaeKwang Industrial Co., Ltd.'s operations of sodium cyanide production, packaging and dispatch since July 2020 when they ICMC recertified until now June 2023.

Auditor's Finding

This operation is

X in full compliance
☐ in substantial compliance
☐ not in compliance

with the International Cyanide Management Code.

Compliance Statement

This operation has not experienced any compliance issues or significant cyanide incidents during the previous three-year audit cycle.

Auditor Information

Audit Company :	**QMS Consulting Co., Ltd.**
Lead Auditor :	**Mr. BongWon Kim**
Lead Auditor E-mail :	**kbw1999@naver.com**
Dates of Audit :	**19, 20 and 23 June 2023**

Auditor Attestation

I attest that I meet the criteria for knowledge, experience, and conflict of interest for a Cyanide Code Certification Audit Lead Auditor, 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 Certification Auditors.
I attest that this Summary Audit Report accurately describes the findings of the certification audit. I further attest that the certification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Cyanide Production Verification Protocol and using standard and accepted practices for health, safety, and environmental audits.

TaeKwang Industrial Co., Ltd. **Petrochemical Plant #3**		**30 June 2023**
Name of Production Facility	**Lead Auditor Signature**	**Date**

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Principles and Standards of Practice

Principle 1 | OPERATIONS

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

Standard of Practice 1.1

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

The operation is

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 1.1

The sodium cyanide plant of TaeKwang Industrial Co., Ltd. was constructed during 1996 and started operation at April 1997. Before the construction, facility and piping material were tested by suppliers. The construction company implemented test and inspection according to quality plan and submit the results to technical team and supervising agency. Technical team and supervising agency reviewed the result reports and concluded that facilities were established according to drawing and specification.

Since the last recertification audit during July 2020, there are several facility changes including recovery system set-up in packaging area and new scrubber installation to reduce air emission. Those facility changes were controlled under the change control procedure. For those facility changes, change control committees were opened. The change control committee checked quality, environmental and safety issues and finally the changes were approved by technical team leader and plant manager. After the facility changes, technical team inspected the changed facility, revised operation manual, trained operators and maintained inspection reports and training records.

The cyanide process has received the PSM (Process Safety Management) inspection by KOSHA (Korea Occupational Safety & Health Agency) and Ministry of Labor every four year according to Korea legal requirement. According to the inspection reports from KOSHA, TaeKwang Industrial Co., Ltd. continued operation within established parameters and protection against cyanide exposure and release. The materials used for construction are compatible with hydrogen cyanide, liquid sodium cyanide and other reagents. The materials such as pipe, valve, flange etc. were used during facility changes. Those materials were inspected by maintenance team with drawing and only conforming materials were used during those change works.

Emergency shut down system and automatic interlock system were established to control the shut-down of 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 installed to cyanide process and storage vessels to prevent overfilling and overflow. Secondary containment and dikes were installed enough to contain spilled cyanide solution. And also pipelines were covered by outer piping to prevent spillage of cyanide solution.

The cyanide product was filled in wooden box or steel drum. And those wooden box or steel drum were maintained in warehouse to prevent exposure of moisture. The cyanide products were stored in warehouse in which ventilation fans were installed and operated to prevent the build-up of hydrogen. cyanide gas and cyanide dust. The storage house is secured from public access. Public can not enter the warehouse without special acceptance. The packaging area and storage house were monitored by

CCTV. The cyanide product storage warehouse is located outside the process areas. Only the cyanide product stored in the warehouse. Another chemicals and materials can not be stored around the cyanide product storage warehouse. So, the cyanide products were separated from incompatible materials.

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

The operation is
X in full compliance with
☐ in substantial compliance with **Standard of Practice 1.2**
☐ not in compliance with

The production team has established and maintained process operation manual in which standard practices such as operational criteria for pressure, temperature and flow were defined. And also they have maintained start-up and shut down manual and packaging procedure. The maintenance team and safety team have maintained maintenance procedure and emergency response manual to assure safe and sound process operation.
They also have established and maintained emergency response plans to control the non-standard operating situations and possible emergency cases such as spillage, hydrogen cyanide leakage, fire, explosion and human cyanide exposure. They have tested the emergency response plans periodically.
They established and maintained change control procedure in which identification and control of change as the review of any process change or modification by change control committee including safety and environmental personnel, sign-off by team leaders and plant manager and implementation of proposed changes and modifications.
Maintenance team have established and implemented preventive maintenance program for the facilities
of cyanide production and handling according to maintenance procedure and facility significance grade
control procedure.
Main process parameters as flow rate, temperature and level were monitored by DCS (Distributed Control System) and monitoring equipment was calibrated according to calibration procedure. During the calibration, the maintenance team have checked and followed the calibration method and period defined in the manual from manufacture of instrument.
The prevention of unauthorized and unregulated discharge of cyanide solution and cyanide-contaminated water and detail control of waste water were defined in waste control procedure. The cyanide waste water shall be treated in waste water treatment facility and prevented unauthorized and unregulated discharge. According to the waste control procedure, the cyanide solution and cyanide contaminated water collected in secondary containment in the event of emergency as process trouble and heavy rain shall be treated in waste water treatment facility.
The solid waste was collected and dispatched to qualified sub-contractor according to waste control procedure. The cyanide contaminated solid waste was incinerated by waste sub-contractor. The waste control procedure also defined the management and disposal of cyanide contaminated solid waste including collection, segregation, dispatch to qualified waste sub-contractor, on-site check of waste sub-contractor and recording the results of cyanide contaminated waste disposal.
The cyanide products were packaged according to product packaging procedure in which the IMDG (International Maritime Dangerous Goods) code requirements were reflected. The label warning the toxic chemical storage was attached outside the product packaging wooden box and steel drum.

Standard of Practice 1.3
Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

	X in full compliance with	
The operation is	☐ in substantial compliance with	**Standard of Practice 1.3**
	☐ not in compliance with	

The main facilities including reactor, tank, valve and pipeline were inspected periodically according to self-inspection procedure. And also detail inspections were implemented by special inspection contractors every five years. The secondary containments, pipeline, pumps and valves were checked by production team every day and safety team every week to find out deterioration and leakage from facilities and equipment. The solid cyanide product was packaged in wooden box and steel drum. Containers were used for the transportation of cyanide product from their plant to gold mining sites. They are not responsible for the integrity of containers. Transporters and shipping companies are responsible for the integrity of containers.
The inspection frequency for reactor, tanks and pipeline was determined and defined in self-inspection procedure, maintenance procedure and facility significance grade control procedure. Recently there was no severe incident and accident related to equipment failure. The current frequency of preventive maintenance and inspection were properly established and sufficient to prevent failure, incident and accident.
Inspection results including inspection date, inspector and deficiency were recorded. And also corrective actions for identified deficiency were implemented according to corrective and preventive action procedure.

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

Standard of Practice 2.1
Develop and implement procedures to protect plant personnel from exposure to cyanide.

	X in full compliance with	
The operation is	☐ in substantial compliance with	**Standard of Practice 2.1**
	☐ not in compliance with	

Since initial certification during 2008, TaeKwang Industrial Co., Ltd. have established and implemented safety and health control procedure and PPE control procedure. Employee, visitor and contractor were protected from exposure of cyanide during normal, abnormal and emergency operation, maintenance and overhaul activities according to safety and health control procedure and PPE control procedure.
They have maintained hydrogen cyanide monitoring devices in process, storage tank and packaging areas. The hydrogen cyanide monitoring devices have alarm set points to limit 3 ppm on an instantaneous base to comply with legal requirements. Response actions if those limits exceeded are defined in emergency response plan and process work instruction as employee evacuation, ventilation,

failure detection and corrective actions.
And also each team have developed and maintained work instructions including detail control and handling method of sodium cyanide and hydrogen cyanide for processes including raw material control, production, packing and shipping.
They have developed and maintained work permit procedure for out-sourced repair works and maintenance works. In the work permit procedure, the detail steps of decontamination of equipment which has been contact with cyanide prior to repair works and maintenance were defined. Training for precaution and handling of cyanide have been implemented before repair and maintenance works and PPE wearing are mandatory for workers according to work permit procedure.
Employee have participated safety committee to develop health and safety procedures. The safety committees were opened every three months and results were recorded and maintained by safety team. According to the safety committee records, employees have participated voluntarily to developing health and safety procedures.
TaeKwang Industrial Co., Ltd. identified areas and activities where worker may be exposed to cyanide. Such areas as hydrogen cyanide condensation process, storage tank area, reaction process and sodium cyanide packaging area and activities as site patrol, maintenance and overhaul works identified as potential worker exposure to cyanide. Around those areas, they maintained warning panels informing toxic chemical presence and requiring PPEs. And according to PPE control procedure, employee, visitors and sub-contractors are required to use PPEs such as mask, goggle, company clothing etc. And they have maintained administrative controls as applying buddy system for their employees and work permit system for external contractors for those activities in above areas. Working environment was inspected by external agency twice per year for such items as the concentration of hydrogen cyanide and sodium cyanide dust. The inspection results of hydrogen cyanide and sodium cyanide dust were usually complied with ICMC and Korea legal requirement. They also used monitoring device to detect the leakage of hydrogen cyanide. The production team and safety team have set the alarm levels for fixed and portable hydrogen cyanide monitoring devices. There were some cases of triggers of alarm and the causes were decided as monitoring device troubles not actual leakage of hydrogen cyanide. The maintenance team completed corrective actions as check monitoring devices, repairs and exchange the monitoring devices. The fixed monitoring equipment and portable detectors for hydrogen cyanide were calibrated every year. They maintained buddy system for dangerous works as patrol, maintenance and repair works. During those works, employee and contractor use mobile phone and radio to request assistant for the case of emergency situation.
Employee receives health check every year. The health check includes respiratory fit testing as vital capacity check for employees required to wear respirator under normal or emergency conditions.
According to health check results, fitness of employee to perform their tasks were determined and follow up action implemented. Employee, contractor and visitor shall wear clothing provided by safety team and exchanged clothing when they are leaving cyanide process according to safety and health control procedure. Warning signs of cyanide presence and wearing of PPEs were attached to storage tank areas and process areas. Blue color mark was applied to piping for hydrogen cyanide. There were PPE cabinets in control room of production team, maintenance shop and product packaging area. And also suitable PPEs such as mask and goggle were maintained and provided to employees, contractors and visitors. Personnel including employees, contractors and visitors were prohibited smoking, eating, drinking in potential cyanide contamination areas such as process area and packaging area etc. The notice panels to inform above issues were maintained in control room, process area and packaging area.

Standard of Practice 2.2
Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

The operation is

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 2.2

TaeKwang Industrial Co., Ltd. have maintained emergency response plan development procedure. According to the procedure, they have developed and maintained detail emergency response plans including emergency response plans for leakage of toxic gas, spillage of sodium cyanide and humane exposure. First aid equipment such as water shower and eye-wash stations, air guns and fire extinguishers were maintained in process and packaging areas. First aid kits such as saline water, oxygen mask and resuscitator were maintained in cabinets installed in safety team office, process control room and product packaging areas. They purchased nithiodote type antidote and maintained in JungAng Hospital in Ulsan City.
Safety team have inspected the first aid equipment and kits by monthly basis and replaced the equipment and kits not effective any more according to safety and health control procedure. They maintained the MSDS, first aid procedure, emergency plans and cyanide handling method written in Korean in relevant areas. 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. They have established and implemented basic safety procedure to control the entrance and leaving from process area. According to the procedure, employee, contractor and visitor shall exchange clothing before leaving the process. They have employed nurse and maintained first aid kits in plant. They nominated JungAng Hospital in Ulsan city and informed about potential need to treat employee exposed to cyanide. The JungAng Hospital understands TaeKwang Industrial Co., Ltd. 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. They established and maintained incident evaluation procedure in which detail investigation and evaluation for cyanide exposure incidents were defined. Since the last recertification audit during 2020 until now June 2023, cyanide exposure incident has not been occurred in the plant.

Principle 3 | MONITORING

Ensure that process controls are protective of the environment.

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

The operation is

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 3.1

TaeKwang Industrial Co., Ltd. has analyzed weekly base the cyanide concentration of upgradient surface water and soil and downgradient the outlet of rainwater discharged. Recently the cyanide was not detected in surface water, soil at plant site and discharged rainwater.
Waste water from process was treated in waste water treatment facility and then discharged to Yongyeon final waste water treatment facility operated by Ulsan Metropolitan City. Monitoring results of discharged from in-house waste water treatment facility showed the cyanide concentration range was 0.02 mg/l to 0.10 mg/l WAD cyanide during 2020 to 2023 and comply with ICMC

requirement and Korea legal requirements. The discharged water is mixed and diluted in Yongyeon final waste water treatment facility, so the cyanide concentration is far below the 0.022mg/l. TaeKwang Industrial Co., Ltd. do not need to monitor the free cyanide concentration in mixing zone, because the final waste water treatment facility has been operated by Ulsan Metropolitan City.
TaeKwang Industrial Co., Ltd. do not discharge to surface water as all cyanide process were covered by dike and spilled cyanide, chemical and rain water were collected and dispatched to waste water treatment facility in the plant. The secondary waste water tank was installed to collect rain water poured into process areas. The capacity of secondary waste water tank is enough to collect initial rain water poured into cyanide process areas.
In Ulsan Metropolitan City, there is no designated beneficial use of ground water, no regulatory requirement of compliance and no actual beneficial use of the ground water. So they do not monitor the quality of ground water. Only they have conducted the monitoring of land contamination to preserve land and soil. The result of recent test was that the cyanide was not detected.
TaeKwang Industrial Co., Ltd. limits the hydrogen cyanide gas emissions to protect the health of employees and local community. According to Korea national legal requirement, the criteria were determined as maximum 4.0 ppm for hydrogen cyanide gas and 6.0 ppm for cyanide dust. The test result of hydrogen cyanide concentration was 0.05~1.04 ppm and cyanide dust was 0.54~1.60 ppm during 2020 to until June 2023. So the monitoring results were complying with the Korean legal requirements.
The environmental monitoring frequencies were adequate to identify changes in a timely manner.
With the analysis of monitoring results, they can identify the process change, incident and implement required corrective action.

Principle 4 | TRAINING

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

Standard of Practice 4.1
Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.

	X in full compliance with	
The operation is	☐ in substantial compliance with	**Standard of Practice 4.1**
.	☐ not in compliance with	

TaeKwang Industrial Co., Ltd. have established and implemented safety training procedure. Their training procedure and program were established effectively to meet the legal requirements and international standards including this ICMC code.
According to the safety training procedure and annual training plan, the safety team and each team provide 2 hours safety training to employee in sodium cyanide process, packaging area, maintenance and utility every month for cyanide hazard issues including MSDS, emergency response plan, PPE usage and maintained records as required by Korea Occupational Safety and Health Act.
TaeKwang Industrial Co., Ltd. have established and implemented PPE control procedure and safety training procedure. According to those procedures, they have trained employee related to PPE usage including type of PPEs, what should they wear, where should they wear and when should they wear.
The safety team has implemented the health and safety training for overall employees in the plant. And also each team employees need to receive training related to safety working method and standard

operation procedures by each team leader or supervisors. The responsibility and authority in emergency situation for the case of cyanide release were trained to existing and new employees regularly.
According to safety training procedure, all new employees prior to perform their job shall receive overall 16 hours training including 8 hours on the job training and 8 hours special health and safety training related to cyanide related task, cyanide hazard, cyanide handling and emergency response plans for cyanide leakage and spillage. Since the last recertification audit during 2020 until now June 2023, the training for new employee was implemented and results were recorded. And the refresher training for employee on normal production tasks was reflected and implemented periodically for employee in sodium cyanide process, packaging area, maintenance and utility.
The responsibility, authority and detail control method for each job such as production work, maintenance activities, packing, logistics, transportation and other administration activities are described in the training material and standard operation procedures. Related to the control of main processes in plant, the standard operation procedures were consisted of seven parts applicable to reactor area, crystallizer area, solid area, packaging area, waste water treatment area, unloading area and others. The standard operation procedures were used as training materials for new and existing employees.
The qualification criteria for tutors who conduct training defined clearly in the safety training procedure. The trainings related to environment, health and safety have been provided by each team managers and safety team members qualified according to training procedure.
TaeKwang Industrial Co., Ltd. have evaluated the training effectiveness by written test at every six months according to safety training procedure. And each team leader has conducted daily observation for workers to check whether they perform their works with the compliance of the safety policy and procedures.

Standard of Practice 4.2
Train employees to respond to cyanide exposures and releases.

The operation is
X in full compliance with
☐ in substantial compliance with
☐ not in compliance with
Standard of Practice 4.2

TaeKwang Industrial Co., Ltd. have established and implemented annual safety training plan according to safety training procedure. In the annual safety training plan, the emergency response plan for cyanide release and exposure were included. So according to the safety training procedure and annual training plan, safety team, production team and each relevant team provided training for all employees related to the emergency response procedure and detail emergency response plans for cyanide release and exposure. And they have conducted mock drills of detail emergency response plans for cyanide release and exposure every year. During the mock drill, all workers have participated and understand the emergency response procedure, detail emergency response plans for cyanide release and exposure.
The safety team, production team and each relevant team have maintained all training records including in-house training and external agency training effectively. Attendants, trainers, training topics, training hours and evaluation results were maintained as records.

Principle 5 | EMERGENCY RESPONSE

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

Standard of Practice 5.1
Prepare detailed emergency response plans for potential cyanide releases.

The operation is .

X in full compliance with
☐ in substantial compliance with **Standard of Practice 5.1**
☐ not in compliance with

TaeKwang Industrial Co., Ltd. was initially ICMC certified, they have developed and maintained emergency response manual and several detail emergency response plans to response emergency cases including cyanide release and human exposure. Response process for workers and company were reflected to emergency response manual and plans considering potential cases as catastrophic release of hydrogen cyanide, releases of solid or liquid cyanide during packaging, storage, loading and unloading operations, releases during fires and explosions, pipe and tank ruptures, power outages and equipment failures, overtopping of waste water pond and waste treatment facilities.
Detail methods to control the release, containment, mitigation and future prevention including cyanide supply shut down, prevention of cyanide spread, collection of spilled cyanide and preventive action were defined in emergency response plans.
Communication system and pager system for evacuation were installed in the plant and safety team has checked the monitoring and communication system status regularly.
First aid kits were maintained in the plant. And regular training for the using of first aid kits has been provided to all employees during safety training, emergency response training and mock emergency drill. All equipment and utility was installed to prevent cyanide release from the source. And also leakage detection of hydrogen cyanide and alarm systems were designed and installed effectively. The safety team and production team implemented drill for the emergency plan for containment, mitigation and future prevention cooperatively. They reviewed the result of each drill and update the emergency response plans and relevant standard operation procedures.

Standard of Practice 5.2
Involve site personnel and stakeholders in the planning process.

The operation is .

X in full compliance with
☐ in substantial compliance with **Standard of Practice 5.2**
☐ not in compliance with

TaeKwang Industrial Co., Ltd. have developed and maintained emergency response manual and emergency communication channels. The emergency response manual and communication channels considered not only their workforce in the plant but also those related and concerned with the plant. They have prepared and established emergency communication channels to contact nearby plants at the Ulsan Chemical Complex and potentially affected communities. Communities such as local government office, fire agency, broadcasting station, police, Environment Management Agency and hospitals were included and they have communicated information of the risks related to the cyanide production, release and exposure. They engaged in regular consultation and communication with relevant stakeholders.

Standard of Practice 5.3

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

The operation is .

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 5.3

TaeKwang Industrial Co., Ltd. have nominated safety team leader as primary emergency response coordinator, technical team leader as alternative emergency response coordinator and plant manager as total supervisor. In emergency response manual and plans, the emergency response organization was consisted of communication team, personnel rescue team, excavation leading team and facility control team. Detail training such as personnel rescue, lead excavation and facility control were required and provided to emergency responders. And also safety team tested the call-out response and feedback the results to responders. The list of emergency response equipment was defined in emergency response plans and maintained in each relevant team. Emergency rescue equipment such as PPE including toxic gas mask, glove and first aid kit were maintained in each relevant team. And all emergency response equipment inspected and tested regularly by safety team to ensure availability during emergency situation. The role, responsibility and detail communication channel for outside responders and communities such as fire agency, Ulsan Chemical Complex safety manager committee, Ulsan city, nearby companies and hospitals were defined in emergency plans. And also the outside entities have participated in the mock emergency drills.

Standard of Practice 5.4
Develop procedures for internal and external emergency notification and reporting.

The operation is .

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 5.4

TaeKwang Industrial Co., Ltd. have defined the emergency communication channel, communication method and contact information in emergency response manual and plans. In internal communication channel, the contact information as telephone and mobile phone numbers etc. for top management, plant manager, each team leader and safety team members were identified. In external communication channel, regulatory agencies such as Ulsan Municipal Office, Korea Safety and Health Agency, labor office and outside response providers such as fire agency, nearby plants and hospitals were identified. According to emergency simulation test, they identified potentially affected communities as nearby companies and plants. The communication methods and contact information such as telephone, mobile phone etc. for relevant personnel of outside responders and potentially affected communities were identified and reflected to emergency response manual and channel. They informed the possibility of cyanide accident, hazard and risk to nearby companies and plants. During January 2023, they updated the emergency response procedure and emergency response plan including notification of ICMI of any significant cyanide incidents to comply with this requirement.

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

The operation is .

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 5.5

TaeKwang Industrial Co., Ltd. have established emergency response manual and toxic chemical neutralization plan. The remediation methods as neutralization, decontamination, control of contaminated material and supply of alternative drinking water were defined in the manual and plan. According to the toxic chemical neutralization plan, the contaminated soil and debris were washed by water. And the cleaning water was dispatched to waste water treatment facility in their plant. According to the toxic chemical neutralization plan, the remediation of contaminated soil can be conducted by only professional agency approved by government. Since the plant started the production during April 1997, there was no actual soil contamination needed the remediation work by professional agency.
The toxic chemical neutralization plan defined that sodium hypochlorite, ferrous sulfate and hydrogen peroxide shall not be used to treat and neutralize the cyanide released into surface water or that could be expected to enter into surface water.
They also have established the environmental monitoring for emergency release to identify the extent and effect of release, sampling methods, parameter and possible location in the emergency response manual and plans.

Standard of Practice 5.6
Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is .

X in full compliance with
☐ in substantial compliance with
☐ not in compliance with

Standard of Practice 5.6

According to the emergency response manual, after the mock emergency drill and exercise, the emergency response plans shall be reviewed and evaluated its adequacy by safety team, each team manager and plant manager. The mock emergency drill shall be implemented every year.
During October 2022, mock emergency drill was implemented by safety team and production team. During the mock drills conducted by safety team and production team, both cyanide release and cyanide exposure incidents were simulated. The evaluations for the adequacy of emergency response plan, training resource and preparedness for emergency response were conducted with checklist.
According to emergency response manual, emergency response plans shall be evaluated their appropriateness after the actual emergency cases. And also the plan shall be revised as needed. Actual emergency situation requiring the plans has not been occurred since last recertification audit and the plant start operation.