INTERNATIONAL CYANIDE MANAGEMENT CODE

PRODUCTION SUMMARY AUDIT REPORT

OF

Tongsuh Petrochemical Co., Ltd.

WRITTENED BY

DNV Business Assurance Korea

January 31, 2011

SUMMARY AUDIT REPORT

Name of Cyanide Production Facility:	Tongsuh Petrochemical Co., Ltd. Ulsan Plant
Name of Facility Owner:	Tongsuh Petrochemical Co., Ltd.
Name of Facility Operator :	Keun-Soo Park
Name of Responsible Manager :	Chang-su Han
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Description of operation :

Tongsuh Petrochemical Corp., Ltd. (hereinafter called "Tongsuh" or the "Company") has its plant within the petrochemical complex in Ulsan, an industrial city situated in the southeastern part of Korea. The industrial complex is the country's largest in scale, and Tongsuh makes up part of its area. The Tongsuh Ulsan plant includes cyanide production facilities as well as their auxiliary facilities. The cyanide manufactured there is a solid sodium cyanide (NaCN) product, and is packaged into boxes or drums. The briquette-type sodium cyanide is produced from caustic soda while the hydrogen cyanide is made from the Company's flagship Acrylonitrile product. The majority of the products are shipped to gold mines overseas. Production of the sodium cyanide is carried out by 16 crewmembers, who, on average, have 15 years of experience on the job. Abiding by the corporate management credo "We contribute to the livelihood of mankind," Tongsuh considers safety and environmental conservation to be the highest priority for its management, and is committed to observing the Korean safety and environmental laws and regulations that are on par with the relevant international standards. Basically, safety and environmental management conducted at the Company monitors all processes from production to sales to consumption and finally, to disposal. Its safety and environmental monitoring extends to product use and transport. Tongsuh didn't have remarkable operational changes and any cyanide incidents during three-year Audit cycle.

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Name of Facility	**Signature of Lead Auditor**	**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 : DNV Business Assurance Korea

Audit Team Leader : Myung-Soo Jeong E-mail : Myung.Soo.Jeong@dnv.com

Names and Signatures of Other Auditors: n/a

Date(s) of Audit : May 4th & 8-9th Nov. 2010

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.

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

Production Practice1.1: 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	Production Practice 1.1

Summarize the basis for this Finding/Deficiencies Identified:
According to our review of Tongsuh's design drawings and related documents (the "Design Documents"), its cyanide production facilities and structures have been designed and built to the accepted quality control/quality assurance procedures. All facilities have been constructed with using concrete. All cyanide storage tanks have over-fill protection. There is spill containment for tanks and spill prevention and/or containment for pipelines in accordance with Korean laws for petrochemical safety and environmental protection.
The Design Documents were submitted prior to the plant's construction and were reviewed and approved by legally qualified individuals and experts. They were also reviewed by the Company's own staff before the start of construction. The Design Documents thus reviewed and approved clearly state that the proposed materials are suitable for a petrochemical plant construction project. We confirmed that all of the control systems at their DCS (distributed control system) room were operating normally. Tongsuh has interlocks on its process equipment and that there were experienced crew members on duty 24/7/365, monitoring against possible mechanical error. In May 2010, Tongsuh obtained a P (the highest) grade in the PSM (process safety management) inspection that is performed by KOSHA (Korea Occupational Safety & Health Agency), a government agency, on all Korean petrochemical plants of a certain size. The inspection is mandatory and is performed regularly. With Tongsuh's highest grade in the PSM inspection, the Korean government guarantees the Company's safety management in their cyanide production facilities.

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.	X in full compliance with □ in substantial compliance with □ not in compliance with	Production Practice 1.2

Summarize the basis for this Finding/Deficiencies Identified:

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Tongsuh's facilities have been operated in conformance with its operation instruction which is written and proper to safety and environment according to its basic design. Facility operation has been controlled and monitored by DCS(Distributed Control System). In addition, Emergency Response Instruction was established to response unintended spill. Production facilities have been checked by a person with DCS responsibility. In case of any facility changes, pre-evaluation/measurement according to Tongsuh's Change Management Instruction has been made before operation. Measuring equipment within company has been monitored and calibrated periodically and Tongsuh's facility control department has monitored according to Tongsuh's Change Management Instruction. Tongsuh has designed and operated to prevent environmental pollution caused by cyanide spill. Final products have been kept in a proper and secure storage area.

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

The operation is: X in full compliance with / □ in substantial compliance with / □ not in compliance with — Production Practice 1.3

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh's Ulsan petrochemical (cyanide) production facilities are subjected to routine inspections given by the government agency because the plant is located inside a national petrochemical industrial complex. As previously mentioned, all petrochemical production facilities in Korea are mandated by law to receive scheduled PSM inspections from KOSHA. Also, their safety and environment-related specialty facilities are subjected to additional, routine inspections to prevent cyanide release and other environmental accidents, as mandated by special laws governing such facilities and operations. Tongsuh complies with the legally mandated inspections as well as carries out its own facility-wide overhaul**,** having experts check on the piping and storage facilities and their safety performance. The cyanide production facilities undergo a monthly facility safety inspection and cleaning as supervised by their shift leader. In addition, the Company's facility management department carries out their scheduled preventive inspection on the facilities. All of these inspection and monitoring implementations are documented, controlled and archived, and are utilized as the basic materials for the Company's facility management.

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

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

The operation is: X in full compliance with / □ in substantial compliance with / □ not in compliance with — Production Practice 2.1

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh has established and is implementing procedures to ensure the safety and health of their workers and to protect them from exposure to cyanide. Tongsuh has established the Change Management Instruction. Workers have opportunities to provide with their input into safety procedures. All monitoring equipment is maintained and calibrated. Tongsuh has a clothing change policy. There are warning signs identifying the presence of cyanide. Tongsuh prohibited eating, drinking and smoking in production area. Tongsuh has carried out routine work environment monitoring as specified in the relevant Korean laws. In addition, its safety manager performs frequent work environment monitoring to make sure the workers are safe from exposure. At various locations throughout the production facilities, a potential release site has been identified and accordingly marked, and an automatic sensor has been installed at each of the sites to detect the release of toxic gases, should such an event occur. Also, all workers and access-granted visitors are required to use personal protective equipment (PPE) when accessing locations where potential exposure to cyanide dust exists. All workers at the facilities receive a mandatory yearly comprehensive check-up and for those who work in specialized fields, additional twice-yearly examination is provided to make sure they remain healthy. In addition, Tongsuh has made and is implementing a safety operation procedure (the "Safety Operation Procedure"), and trains its workers so the work procedures ensure their safety and health. At the production facilities, all work is required to be done in pairs, with 2 workers forming a team. The pair is obligated to carry communication devices to be used in emergencies. All those requirements have been documented and are evaluated periodically. The results are used to improve the procedures concerned.

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Production 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	Production Practice 2.2

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh has developed and is implementing its own emergency response procedures (the Emergency Response Procedures") to cope with unforeseen cyanide release and other accidents. At each strategic point throughout the facilities, a shower and a fire extinguisher are stored, and a properly working and highly usable emergency kit is provided. MSDS and safety information are available in Korean. All of the previously specified equipment is inspected periodically to ensure efficacy and usability. All tanks and pipelines are identified as containing cyanide and the direction of flow is indicated. The Company maintains its cooperative system with external health care facilities to handle emergency cases requiring medical intervention. Tongsuh has decontamination procedures for individuals leaving the plant. The external Ulsan Petrochemical Complex Zone 119 paramedic team stands by 24/7/365, and is able to respond to calls within 10 minutes and transport emergency patients to appropriate medical facilities. Local medical facilities are aware that they may need to treat patients for cyanide exposure and have adequate staff and capabilities. Tongsuh has a procedure to investigate cyanide incidents and accidents. A mock-up drill is conducted routinely according to the Emergency Response Procedures to make sure the facilities take planned actions during emergencies. The drill results are evaluated and analyzed, and are used to further enhance the procedures. All results are archived and controlled.

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.	X in full compliance with □ in substantial compliance with □ not in compliance with	Production Practice 3.1

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh's cyanide production facilities have been designed to be structurally incapable of releasing cyanide or other toxic substances to the environment unless otherwise intended. Furthermore, the Company is exercising rigorous control and supervision as mandated by Korean law to make sure no prohibited substances are released to the air, water, or soil. The Company's air pollutant release systems have a TMS (tele-monitoring system) that

automatically transmits the emissions data to the government's supervising agency for monitoring purposes. Tongsuh has set their pollutant emissions management standard at about 40% to 50% lower than the one required by the law. The Company voluntarily complies with such rigorous standard for managing pollutant releases at their facilities. In addition, it carries out routine inspections that include sampling and analyzing air, water and soil to ensure absolute prevention of cyanide release. Tongsuh's discharge of treated wastewater to the sea meets the Code's discharge limit and that the cyanide concentration after the government-established missing zone meets the Code limit as well as the legal limit. So far, all of the inspection results have been negative against the legally specified criteria, meaning the protocol has satisfied the standards.

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

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

The operation is:	X in full compliance with □ in substantial compliance with □ not in compliance with	Production Practice 4.1

Summarize the basis for this Finding/Deficiencies Identified:
All workers at the Company's Ulsan cyanide production facilities are required to receive training that familiarizes them with the risk and hazard as well as handling of cyanide and other petrochemical substances. Training elements are identified in Tongsuh's training materials and those workers are trained before being allowed to work with cyanide. Re-training is also underway to ensure workers are functionally familiar with the latest safety information. The training programs also include instructions for using PPE and handling any release of cyanide. All this training (beginning contract employment session: 16 hours, ongoing sessions: 2 hours each month) is mandated by Korean laws regulating worker safety and health and the environment. External specialists and qualified internal personnel carry out the training and evaluate post-training efficacy, with the results being incorporated into future training sessions. Through consistent, repetitive training, the workers are prepared to respond to risks and hazards that exist in their work.

Production 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 □ not subject to	Production Practice 4.2

Summarize the basis for this Finding/Deficiencies Identified:
Via the safety and emergency response training, all workers at the Tongsuh Ulsan cyanide production facilities are required to familiarize themselves with the protocol and their responsibilities during a possible cyanide release and other related emergencies. The Company's Emergency Response Procedures specify each worker's responsibility during an emergency. Each worker must be fully familiar with these Emergency Response Procedures. The Company gives its workers routine mock-up training to make sure they are fully aware of their responsibilities and are able to carry them out when necessary. The training involves efficacy evaluation of the program, and requires correction of a procedure(s) or a worker requiring improvement. All training and mock-up drill results are documented. Through its rigorous emergency training, Tongsuh makes sure each of its workers is fully prepared to respond to a cyanide release and other emergency in a manner that minimizes the damage, if any.

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.

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

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh has established Emergency Response Procedures for its cyanide production facilities against potential release of cyanide. The document includes all information deemed necessary during an emergency, such as emergency contact information, rescue operation, evacuation, handling situations, pollution-preventive measures, and communication with interested parties. The procedures also provide drill scenarios and allocate responsibilities to each worker. Training is given to workers according to envisioned scenarios to ensure workers are fully familiar with and able to comply with their emergency responsibilities and to minimize confusion during any situation. The scenarios are constantly revised and updated by evaluating the results of the drills.

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Production Practice 5.2: Involve site personnel and stakeholders in the planning process.

The operation is.	X in full compliance with □ in substantial compliance with □ not in compliance with	Production Practice 5.2

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh's Emergency Response Procedures include all potential interested parties, such as external emergency response organizations, health care providers, and local communities. The Company has produced an emergency contact (network) that covers nearby plants, subcontractors, fire stations, and administrative agencies. The efficacy of the network is regularly verified via mock-up drills. To ensure a more efficient response, the fire station installed inside the petrochemical production complex, which is a government agency, is in charge of contacting the community and providing evacuation plans in the event of an emergency. Results of mock-up drills are reviewed by all of the interested parties, and are revised and improved when necessary.

Production 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	Production Practice 5.3

Summarize the basis for this Finding/Deficiencies Identified:
The Company's Emergency Response Procedures have been established based on the understanding that having streamlined directions, a clear definition of responsibilities, and allocation of duties and authority in place are imperative for effective emergency response. Thus, all workers at the facilities are given individualized responsibilities, and emergency response managers have been appointed to ensure a clear chain of command. Also, external interested parties are permitted to share relevant information so that they, too, will understand their respective roles during an emergency. Tongsuh's emergency response organization is comprised of 8 functions or teams including control, medical care, fire extinguishing, CBR, and recovery. The Company has provided a list of equipment/devices needed during emergencies that are being regularly inspected and calibrated to ensure 100% readiness. Tongsuh has established and implemented procedures for training and call-out of its emergency response personnel and those external responders are included in 3 Tongsuh's mock emergency drills.

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Production 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	Production Practice 5.4

Summarize the basis for this Finding/Deficiencies Identified:
It is imperative for a company to promptly notify both internal and external interested parties of an emergency, should one occur. Fully embracing the code, Tongsuh has prepared their own emergency response procedures that include internal and external emergency notification and reporting. In Tongsuh's Emergency Response Plan, a communication method such as contents, numbers and so on with government offices, external associated organizations and hospitals was well described. However, emergency communication with local community is set to be done by government.

Production 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	Production Practice 5.5

Summarize the basis for this Finding/Deficiencies Identified:
Petrochemical manufacturers are required to observe the MSDS and sodium cyanide manuals to eliminate the risks during emergencies resulting from petrochemical handling. The sodium cyanide manual has specified in detail the risks of and handling methods for products that are used to clean cyanide, as well as methods for treating the damage/injuries. In Tongsuh's Cyanide Handling Manual, cyanide neutralization methods for cyanide contamination were described and also, there was a list of chemicals which should not be used to treat contaminated surface water. Both manuals are provided throughout the facilities so workers have immediate access to them when needed. In addition, key information in the manuals is emphasized repetitively via safety training sessions. A sampling point is installed at each of the four corners of the safety fences surrounding the facilities to verify the extent and impact of cyanide release during an emergency.

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Production 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	Production Practice 5.6

Summarize the basis for this Finding/Deficiencies Identified:
Tongsuh regularly holds emergency mock-up drills and their efficacy is maximized by closely collaborating with the fire station at the petrochemical industrial complex and with nearby manufacturers. The results are evaluated, analyzed and used in revising the Emergency Response Procedures. In addition, the Company provides routine mock-up drills to monitor the efficacy of its emergency contact networks.

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