



Anhui Anqing Shuguang Chemical Co., Ltd. **International Cyanide Management Code Recertification Audit**

ICMC Production Recertification Summary Audit Report

2026-08-20

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Prepared for

Anhui Anqing Shuguang Chemical Co., Ltd.

No. 47, Jingbei Road, Anqing City, Anhui Province, China

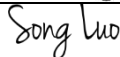
Submitted to

International Cyanide Management Institute (ICMI)

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Appendix A – Important Information Relating to this Report

1. Introduction

1.1 Operational General Information

Name of Production Operation:	Anhui Anqing Shuguang Chemical Co., Ltd.
Name of Facility Owner:	Anhui Anqing Shuguang Chemical Co., Ltd.
Name of Facility Operator:	Anhui Anqing Shuguang Chemical Co., Ltd.
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1.2 Operation Location Detail and Description

Anhui Anqing Shuguang Chemical Co., Ltd. (Shuguang Facility) was established in 1994 and is a joint-stock enterprise employing approximately 1000 personnel, of which approximately 200 employees are engaged in cyanide production. The Shuguang Facility is located on Jingbei Road and is bordered by the acrylonitrile unit of Sinopec Anqing Branch to the east and south. As a by-product of acrylonitrile manufacturing, hydrocyanic acid is supplied to the Shuguang Facility via dedicated pipelines and is used in the production of solid sodium cyanide. The Facility is approximately 9 kilometres(km) to the southwest of Anqing Tianzhushan Airport, 5km to the southeast of Anqing Bei Train Station, and 4km to the southwest of Anqing Train Station.

The part of the Shuang Facility used to manufacture liquid sodium cyanide and then convert the liquid sodium cyanide into solid sodium cyanide is referred to in this report as 'the cyanide facility'. The term 'the Site' is used in this report to refer to the entire Shuguang facility and includes a large number of manufacturing plants; these manufacturing plants are not subject to this report.

Shuguang Facility's solid sodium cyanide manufacturing processes include:

- Reaction - Liquid hydrocyanic acid (above 99.5% in purity) supplied by the adjacent acrylonitrile units of Sinopec Anqing Branch is reacted with 48% sodium hydroxide to generate 40% liquid product;
- Evaporation and Crystallisation - Saturated sodium cyanide solution is pumped into a vacuum evaporator to remove water, and the concentrate is fed to the crystalliser;

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- Centrifuge - Wet crystals are generated by continuous solid-liquid separation of the concentrated crystal pulp;
- Drying – The sodium cyanide crystal is heated in the dryer to evaporate the residual water, and crystals are dried into dry powder;
- Moulding – Dry sodium cyanide powder is moulded into “pillows” or flakes;
- Packaging – Sodium cyanide is delivered to the tablet tank through an oscillatory conveyor and then weighed in the weighing and packing machine. Products are tested by random sampling, and the qualified products are packed in 50 kg iron drums, or in 380 kg, 1,000 kg, or 1,100 kg timber boxes with inner polyethylene liners. The packaged cyanide is stored in the warehouse at the cyanide facility prior to dispatch from the Site.

The infrastructure at the cyanide facility mainly comprises:

- Reaction facilities with three units.
- Liquid cyanide storage tanks, located within an open concrete lined pit.
- Sodium hydroxide tank farm.
- Production facilities with three units.
- A products warehouse for storage of packaged solid sodium cyanide.
- Liquid cyanide loading facilities (platform and fill lines).
- Two administration buildings.
- Control Centre.
- Air emission treatment facilities.
- Wastewater treatment facilities.

The facility is paved with concrete. The vessels and tanks containing liquid sodium cyanide are located within concrete bunded areas. The solid sodium cyanide production buildings are both self-bunded with concrete floors, concrete walls and bunds at each doorway. The first flush stormwater is piped to a first flush system comprising one open concrete pit (312 m³) at the wastewater treatment plant, which services the entire site.

The facility operates on 8-hour shifts, 24 hours per day, seven days per week, with four production teams. No cyanide exposure incidents were noted during the audit period.

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2. Auditor's Findings

Shuguang Facility is ☒ in full compliance with **The International Cyanide Management Code**
☐ in substantial compliance with
☐ not in compliance with

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

2.1 Auditor Information

The audit was undertaken by Rudi Seebach (Lead Auditor and Technical Specialist) Song Luo (Auditor Trainee) and Shuang Feng (Auditor Trainee) of WSP Engineering Technology (Beijing) Co., Ltd., Shanghai Branch. Auditors' information is as follows:

Audit Company: WSP Engineering Technology (Beijing) Co., Ltd. Shanghai Branch

Audit Team: Rudi Seebach – Lead Auditor and Technical Specialist
Song Luo – Auditor Trainee
Shuang Feng – Auditor Trainee

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Dates of Audit: 9 to 11 March 2026

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2.2 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 Cyanide Code 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.

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3. Principles and Production Practices

3.1 Principles 1 | Operations

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

3.1.1 Production Practice 1.1

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

☒ in full compliance with

The operation is

☐ in substantial compliance with

Production Practice 1.1

☐ not in compliance with

Summarize the basis for this finding/Deficiencies Identified:

Quality control and quality assurance (QA/QC) programs have been implemented during construction and modification of cyanide production facilities and storage facilities, and the QA/QC records have been retained. Appropriately qualified personnel have reviewed the construction of the facility and provided documentation that the facility has been constructed as proposed and approved.

The plant was designed and constructed in 1995. The plant was constructed by China National Chemical Engineering Third Construction Co., Ltd. In addition, documents have been retained that record the certification of various organisations engaged in the design, fabrication and construction of cyanide facilities. No cyanide facilities have been constructed or modified since the previous recertification audit. The Facility was previously assessed as compliant with the Code, and Quality control and quality assurance documentation are available for the cyanide facilities. Since the 2020 rectification audit, several promotion modifications to the plant have been made, and records were retained for these modifications. Records of these modifications were provided for review.

The materials used for construction of cyanide production facilities are compatible with the reagents used and processes employed. No changes to the materials or processes employed have been undertaken during the audit period. The materials used for the cyanide facilities comprises the following:

- Cyanide production facilities and cyanide storage tanks – 304 grade stainless steel.
- Pipe work – 304 grade stainless steel.
- HCN pipeline– double-deck SUS316L grade stainless steel

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- Compressed air storage tanks – carbon steel
- Wastewater storage tanks – mild carbon steel with polyethylene
- Wastewater pipeline – carbon steel (Q235B)
- Tank unloading hose – high-pressure-rated chemical resistant neoprene rubber

These materials are recognised as being compatible for use with liquid sodium cyanide.

There are automatic systems and “interlocks” that shut down production systems and prevent releases due to power outages or equipment failures. Two power supply lines are maintained at the site. In the event of one power line failure, the other power line will be initiated. In the event of power failure or other upset, causing any of the nine parameters (Acid and alkali mother liquor circulating pumps of 3 reactors, circulating flow of 4 acid and alkali mother liquor circulating reaction tubes, reactor pressure, HCN density) to migrate outside of normal operating conditions, the Distributed Control System (DCS) will initiate the emergency shutdown system. In the event of HCN leakage, the HCN detectors will transmit a signal to the Central Control Room, triggering the DCS to initiate the emergency shutdown system to limit the extent of the HCN release and the impact of the release water spray operation.

All storage tanks are equipped with radar level meters and are connected to the central control room. The tanks are equipped with high-level switches. If the tank exceeds the high level (80% of the volume), the central control room will receive a signal from the level meter, and the level switch will be automatically initiated to shut down the cyanide supply. The reactors are equipped with interlock system which includes a high-pressure alarm, high level alarm, high level gauge and shutoff entry valve connected to DCS system. If the high level is reached, the DCS closes the inlet valve and triggers the transfer of the solution through the evaporator to the crystallisation vessel, which in turn can overflow to a buffer tank, which can maintain the flow for 10 to 20 minutes. These transfers are controlled by the DCS. If the pressure in the reactor reaches a nominated high level, the inlet valve is closed, the reaction slows down, the cooling water cools the reactor and the pressure decreases. At the same time, the product is transferred to the evaporator to further reduce the pressure. Excess reactants can also be transferred to one of the other two reactors. The site has never had a situation where there was not enough power to operate reactors. The 330m³ sodium cyanide storage tank (converted from storage of sodium hydroxide) is equipped with a thermometer, level meter, transfer pump and is connected to the DCS so that the delivery of sodium cyanide to the tank can be shut off when the tank reaches its high-level point. If the high level of the tank is reached, the DCS overrides the manually opened transfer pump.

The cyanide facility areas are covered with concrete pavement to prevent seepage to the subsurface. The two Cyanide Tank Farm bunds are also lined with concrete and epoxy coating. The capacity of the tanks is 75 m³ and in a tank farm that has a bund capacity of the tank farm is approximately 132m³. This capacity provides more than 110% of the capacity of the largest tank (75 m³ in volume). The other sodium cyanide storage tank has a volume of 330 m³. This tank is located in a bund with a capacity of 510.23 m³, which in excess of 110% of the tank volume.

There is no storage of HCN at the facility. The HCN is supplied through a double-layered stainless-steel pipeline from Sinopec Anqing Branch that is transported the reactor an elevated pipe bridge. The ground surface along the pipeline was paved with concrete to provide containment in the event of a leak. The

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packaging workshop and cyanide products warehouse are also constructed with concrete floors and were observed to be in good condition.

The Facility employs, inspects, tests, and maintains systems to prevent the overfilling of cyanide process and storage vessels, including level indicators and high-level alarms. All the signals indicated on the DCS. The methods applicable to each vessel are as follows:

- Reaction tanks: monitoring the parameters of temperature, liquid level, pressure, flow rate and density of HCN.
- Evaporators: monitoring the parameters of temperature, liquid level, pressure and vacuum.
- Crystalliser: monitoring the parameter of temperature.
- Centrifuge: monitoring the parameter of electric current.
- Regulating tanks: monitoring the parameters of temperature and liquid level.
- Liquid cyanide storage tanks: monitoring the parameters of temperature and liquid level.

When the liquid level reaches the 90% of the set value, the alarm will sound and the level switches will be initiated through the DCS system. Weighing scales and electronic load cells are used in the packing lines to prevent the overfilling of solid cyanide. There are automatic and manual filling lines. When the automatic filling lines is running, cyanide can be filled automatically using the electronic load cell, but the drums should be covered manually. While filling manually, the operation is initiated by pressing the “Manual Filling” button and the indicator light comes on when the drum is filled with the required quantity, prompting the operator to press the “Manual Stop” button to finish the filling process. A Metering & Packing Operation Procedure that specifically controls the operator’s actions during manual filling. The two 75 m³ storage tanks for sodium cyanide and one 330 m³ storage tank for sodium cyanide that are each fitted with high level volume meters (V-602A, V602B and LT1110) connected to the DCS. The DCS alarm activates if the high-volume limit is reached.

Secondary containments for process and storage tanks and containers are constructed of materials that provide a competent barrier to leakage and sized to hold a volume greater than that of the largest tank or container of cyanide solution within the containment and any piping draining back to the tank, and with additional capacity for the design storm event. The secondary containments for cyanide process and storage tanks and containers comprise two tank farm bunds, two reactor bunds (two reactors in one bund and one reactor in the other bund), the production building and the wastewater collection tank bund. There have been no changes to the previously certified containment systems, and calculations to demonstrate bund capacities were available for review. The Site has an emergency collection tank for liquid cyanide leakage and initial flush stormwater, with a capacity of 312 m³, to enable containment and reuse, or testing and treatment prior to discharge if needed.

Spill prevention or containment measures are provided for all cyanide solution pipelines. The pipelines are located on overhead gantries that pass over concrete-paved pedestrian walkways and roadways. There are no buried cyanide pipelines at the cyanide facility. Valve guards are used on all cyanide solution pipes on aboveground pipelines. There are no leak alarms on the cyanide pipelines. But HCN leak alarms have been set in the connection flange with a warning alarm on the site and in the control room. Pipelines used

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to transfer cyanide solutions are constructed of stainless steel (316), which is suitable for such use. The pipes are continuously welded (no flanges) except for some valve and instrument connections. A multi-tier inspection program has been established for the cyanide storage tank farm and associated pipelines. Operators on duty conduct on-site inspections every hour, while the Operations Responsible Person performs weekly inspections, the Technical Responsible Person conducts quarterly inspections, and the Principal Responsible Person undertakes semi-annual inspections. This inspection regime is designed to ensure the continued integrity, safe operation, and effective management of the cyanide storage and distribution system. The inspections include pipe work, flanges, pumps, high-level alarms and tanks to identify leaks. The inspector will submit the inspection results for the day and night shifts after the inspection. In the event of a loss from a pipeline within a bunded area, the spill would drain to a sump, from which the liquid would be pumped to the Emergency Storage Tank for reuse in the process. The cyanide facility undertakes monitoring of the pipe wall thicknesses every year via ultrasonic inspection. The inspection records note the integrity of the pipe and support structures. X-ray detection for the cyanide pipelines has been conducted by the qualified authority (General Administration of Quality Supervision, Inspection and Quarantine) every three years. In the event that a leak of cyanide solution from a pipeline is not trapped by the silica-based insulating compound or the stainless-steel casing, the leak would discharge onto concrete paving leading to the facility's emergency tanks of stormwater.

Cyanide is stored with measures to avoid or minimize the potential for exposure of cyanide to moisture and adequate ventilation to prevent the build-up of hydrogen cyanide gas and cyanide dust. Liquid hydrogen cyanide (HCN) is transferred from China Petroleum & Chemical Corporation Anqing Branch (Sinopec Anqing Branch) to the facility through a dedicated 316L stainless steel pipeline fitted with a cooling-water jacket. To maintain process stability and prevent decomposition, the HCN temperature is controlled at or below 20°C and the density is maintained within the specified operating range of 0.690-0.725 t/m³. The HCN transfer system is continuously monitored by control room operators through the Distributed Control System (DCS). Process deviations generate hierarchical alarms to facilitate timely operator intervention. In the event that critical operating parameters reach pre-established interlock thresholds, the Safety Instrumented System (SIS) and DCS automatically initiate the Sodium Cyanide Plant I-1 emergency interlock, shutting the HCN pipeline isolation valve and control valve. This engineered safeguard prevents unintended polymerization, self-reaction, or decomposition of HCN within the pipeline and minimizes the risk of hazardous process incidents. Solid cyanide is stored in 1000 kg or 1100 kg plastic bags within timber intermediate bulk containers (IBCs) and 50kg plastic bags within metal drums to avoid or minimise the possibility of moisture exposure to the cyanide. The IBCs are stored in a secure warehouse building prior to despatch from the Site. The warehouse is enclosed with concrete floor, walls and roof to prevent exposure of cyanide to moisture. The walls of the building are equipped with vents to ventilate the building. The built entry points have large doors, which also provide ventilation for the building during the movement of IBCs in and out. There are fixed HCN monitors in the warehouse that are connected to the DCS system in the control room. The entrance of the warehouse for employee inspections or maintenance is normally locked, which is manned by a security person and fitted with security cameras which transmit to the security office. Visitors to the warehouse are logged on paper records in logbooks. The warehouse building is surrounded by a concrete/brick wall. Access to the Site is only via a manned security gate. Public access is prohibited. Only solid cyanide is stored in the warehouse, which is separate from incompatible materials. Liquid cyanide is stored in two 75m³ tanks and one 330m³ tank in a tank farm with separate secondary containment in an open-air environment. Two

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fixed HCN monitors in the area are connected to the DCS system in the control room. Only authorized personnel can enter the tank farm.

3.1.2 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 **Production Practice 1.2**
☐ in substantial compliance with
☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The Facility has procedures that describe the standard practices necessary for its safe and environmentally sound operation. Shuguang operates under an Integrated Management System Manual that addresses ISO 9001, ISO 14001, ISO 45001, and ISO 50001. The System has been certified by third-party certifiers. Facility documentation is controlled through the document management system by designated personnel. Site workers access hard copies of the procedures at their work area.

The *Process Operating Procedure of Sodium Cyanide Production Process* addresses safety for each process across the whole of the operation, including warehousing, hot work, working at height, fire safety, confined space and management of personal protective equipment. The *Safety Technology Code for Cyanide Facility* identifies key safety characteristics of hydrogen cyanide and sodium cyanide, and specific safety requirements for each part of the production process, such as reactors, evaporators, crystallisation, centrifuges, dryers, and packaging. For the reactors, evaporators and crystallisers, it states that when the two reagents are being mixed, the composition of the mixture must be managed to avoid excessive generation of HCN. The concentration of sodium hydroxide in the reaction mixture is required to be kept between 1.0% and 1.5%. Hourly manual monitoring is undertaken of the hydroxide concentration to guide the supply settings of the reagents.

The *Process Operation Procedures for Sodium Cyanide Production Process* and *Safety Technology Code for Cyanide Facility* provide work instructions that address the following and show detailed operational steps for each job.

- General safety requirements.
- Operation safety requirements for unloading of cyanide solutions.
- Safety requirements for cleaning of cyanide pipes.
- Safety requirements for cleaning of cyanide equipment.
- Start-up and shut-down of the production facility standard operating requirements.

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- Standard operation requirements – e.g. evaporation, crystallisation, centrifuge, drying, pressing, packaging.
- Standard operation requirements for the operation of the wastewater treatment plant and cooling towers.
- Loading and unloading cyanide.

The *Cyanide Facility Operation Rules* notes that before any operation, the operators must check that the instrument air is functioning, pressure is stable, exhaust system and valves work well; functioning of the weight scale; and that the power and instrumentation are reliable. In case of any failure of the packing line, the operation will be stopped until the problem has been solved.

The *Maintenance Procedures for Critical Equipment* also specify the maintenance requirements for critical equipment, including:

- Reactors
- Evaporator
- Crystalliser
- Centrifuge
- Vacuum Filter
- Pumps
- Dryer
- Shaping Machine
- Weight Scale
- Capper
- Heating and Decomposition Tank
- Cooling water pumps in production building

The Facility has contingency plans for non-standard operating situations that may present a potential for cyanide exposures or releases. The *Emergency Response Plan (ERP) for Production Safety and Process Operating Procedure of Sodium Cyanide Production Process* include detailed emergency practices for abnormal conditions, including:

- Power Failure
- Steam Failure
- Instrument Air Failure
- Pipe Rupture of Circulating Water
- Instrument Failure for the Reaction System

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- HCN leakage
- Pressure Raise in the Reactors
- Leakage in the Liquid Cyanide Storage Tanks
- Solid Cyanide Spill

Other abnormal conditions are specific to the kinds of processing upsets and incidental conditions that may arise irregularly during operations, such as machine failures (agitators, pumps) and pipeline blockages.

The Facility uses menu displays configured in the DCS to monitor abnormal operating conditions from the control room. Should there be a cyanide exposure or release, these are managed via the site's emergency response plan documents that provide details on the response actions.

The Facility has a procedure which identifies when cyanide facilities or operating practices have or will be changed from those on which the initial design and operating practices were predicted. The *Change Management Procedure* applies to all plant modifications to ensure that they are implemented without risk to safety, health, the environment or physical security. For all potential modifications, possible risks and appropriate control measures must be identified to manage the health, safety and environmental impacts. Modification proposals are reviewed by appropriately qualified personnel from EHS, Production, Equipment and Maintenance departments. Before being enacted, the proposed change must be signed off on by the General Manager or a delegate. Based on the sample change applications reviewed, the EHS Manager had participated in the risk assessment process, and the changes were all signed off by the General Manager.

The cyanide facility has implemented preventative maintenance programs and documented activities for equipment and devices necessary for cyanide production and operation. A preventive maintenance program is managed by the maintenance department, with three separate teams responsible for the mechanical plant, civil structures, and instruments. The overall strategy of annual plan development for each department is described in its departmental procedure. The *Maintenance Procedures for Critical Equipment* specify the types of equipment requiring maintenance and their maintenance frequencies. This information is used to prepare an annual maintenance plan.

The Equipment Maintenance Plans list and describe the maintenance requirements of the equipment for each item. Equipment maintenance plans for cyanide facilities were reviewed for the audit period and correlated with the description of maintenance activities provided by site engineers. For reactive maintenance, the operator verbally reports issues to the maintenance department, which then raises a written maintenance request for action.

Forklifts are the critical equipment used in cyanide warehouse operations. A daily inspection programme is implemented by the forklift team, covering operator competency and authorization, operational safety performance, safety protection and guarding systems, and workplace housekeeping (6S) conditions. Inspection results are documented and tracked to ensure the continued safe operation of the equipment. In addition, routine preventive maintenance of electric forklifts is conducted by the equipment manufacturer at six-month intervals to maintain equipment reliability and safety performance.

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Process parameters are monitored with necessary instrumentation, and the instrumentation is calibrated according to the manufacturer's recommendations. The procedure requires that the calibration be conducted according to the planned frequency. Following calibration, a calibration notice must be placed on the equipment. The facility maintains annual calibration lists detailing the instruments on the plant that require calibration during the year. The instruments included: fixed and portable hydrogen cyanide detectors, portable flammable gas detector, high pressure gauges, vacuum pressure gauges, numerical temperature displays and flow meters. The calibrations of pressure gages, HCN detectors, and flowmeters are undertaken by an independent, externally qualified company. Liquid level indicators are calibrated by the Instrument Management Department. The calibration records were sampled at random and were available covering the audit period.

Procedures are in place and being implemented to prevent unauthorised or unregulated discharge of any cyanide solution or cyanide-contaminated water collected in a secondary containment area to the environment. Water that collects in the facility's secondary containment areas is considered to be potentially contaminated with cyanide. Accordingly, all secondary containment areas are configured to drain to the Shuguang Wastewater Treatment Plant, enabling treatment of contaminated water before it is discharged under agreement to the Sinopec Anqing Branch treatment plant for further treatment before discharge to the Yangtze River. The cyanide reagent tanker unloading area has also been considered as part of a secondary containment area. The unloading area is drained to the first flush basin, which also then forms part of the secondary containment. Arrangements are in place for the first-flush basin to be pumped clear to the Wastewater Treatment Plant, in the same way as other secondary containments.

There are online monitoring instruments and alarms installed at both the discharge point from the Shuguang Wastewater Treatment Plant and the stormwater pipeline, which normally discharges stormwater from plant road surfaces, that are expected to be nominally clean of cyanide contamination. If either alarm sounds, the relevant outlet valve is closed immediately, and the potentially contaminated water is collected in the Wastewater Treatment Plant or the First Flush Basin (when clean stormwater is usually detected as contaminated). Procedures require these conditions to be reported to the Shift Supervisor. The water quality is then monitored, and if over limit, it will be treated using sodium thiosulfate with close monitoring and the cause will be investigated. In addition to procedures for dealing with the discharge of contaminated stormwater, there are more preventive procedures that clearly specify steps to be undertaken in the event of leakage of cyanide into the bunds or unloading bay, posing a risk to stormwater. The procedures include the following specific items:

- Leakage during production
 - a) In the event of any leakage during production, check and ascertain the leakage source, shut down the production lines, and then correct it.
 - b) After completion of repair, the surface of the bunds is flushed using water which will be collected into the Wastewater treatment plant;
- Leakage during unloading

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In the event of any leakage during the unloading, unloading is stopped immediately, the outlet valve from the tanker and drainage valve are closed, leaked liquid cyanide is absorbed using adsorption pad, then the surface of the bunds is flushed using water which will be collected into the Wastewater treatment plant;

■ Leakage of storage tanks

- a) In the event of any leakage from the storage tanks, the outlet valve from the bund must be confirmed to be closed immediately and then reported to the supervisor;
- b) Site is inspected by qualified personnel from the liquid production line, leaked liquid cyanide is pumped to the emergency collection pond or transported by tankers, in addition, drainage valve of the stormwater is closed;
- c) Water quality of the drainage pipelines is monitored;
- d) Liquid cyanide in the bunds is recycled using submerged pump
- e) After the recycling the liquid cyanide, flushing water is collected into the Wastewater Treatment Plant.

With regard to the stormwater collected in the bund and the first flush (collected from potentially contaminated areas within the first 15 minutes of a rainfall event), these streams are conveyed through underground pipelines to the Wastewater Treatment Plant. The water quality of nominally clean stormwater is monitored both manually and automatically. Water meeting the target level of 0.2 mg/L total cyanide will be delivered into the stormwater system operated by Sinopec Anqing Branch and subsequently discharged to the Yangtze River after dilution with urban stormwater flows from the Anqing municipal drainage system.

The types of solid waste include:

- Contaminated product which cannot be sold to the customer.
- Contaminated packaging materials, such as plastic bags, plastic drums and timber.
- Protective clothing such as coveralls, respirator filter cartridges and gloves.

Waste cyanide is reprocessed at the cyanide facility in accordance with a Hazardous Waste Disposal Permit. The procedures clearly indicate the steps involved in disposal of cyanide or cyanide-contaminated solids. The *Management Procedure for Solid Waste* states that sludge from the WWTP should be treated with sodium thiosulfate for 48 hours and then be sent to the licensed waste disposal contractor. The *Procedure for Remediation of Contaminated Soil* states that contaminated soil will be tested for cyanide concentration. If the concentration exceeds the criteria (5 mg/L total cyanide), the soil will be placed in solid soaking pit, mixed with sodium thiosulfate and soaked for 48 hours. After the pre-treatment, the soil is to be transferred to licensed waste disposal contractor if it meets the criteria. The *Production Design Management and Emergency Response Procedure*, state that in case of any leakage of cyanide solids (including the wet crystalloid), the solid sodium cyanide will be scraped up and placed in steel drums and disposed of at the site's solid dissolving pond. The following actions will be undertaken to prevent environmental contamination:

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- a. Clean and collect the spilled cyanide solids which are then dissolved and recycled through the dissolving pond. Direct flushing using water at the site of the spill is prohibited;
- b. After solid cyanide is removed to the extent achievable, the affected surface will be flushed using water. Wastewater from the flushing is directed to the Wastewater treatment plant.

Under the terms of the Hazardous Waste Disposal Permit, contaminated solids are required to be cleaned by soaking in water in the dissolving pond for 48 hours and soaking in sodium hypochlorite solution for another 48 hours. And the endpoint of the dissolving process is determined when the leached cyanide concentration in the water being applied for soaking is measured and falls below 1 mg/L total cyanide. Non-ferrous solids, after treatment (and meeting treatment specifications), will be transported to Anhui Haoyue Environmental Technology Co., Ltd. or Anqing Tianyun Fine Chemicals Co., Ltd. for further management in accordance with their permit to receive waste materials.

There are procedures to ensure that the cyanide is packaged and labelled as required by the political jurisdictions through which the packaged cyanide will pass. The cyanide facility packages cyanide in accordance with the Chinese regulatory Standard for Packing of Solid Cyanide. The standard was prepared to meet the requirements of the United Nations Recommendation on the Transport of Dangerous Goods – Model Regulations, (2005). The Standard for Packing of Solid Cyanide specifies the requirements for packing cyanide for export, including the packaging materials and the method for inspecting the packaging. The cyanide facility's packaging procedure in the Provision for Products Packaging and Labelling specifies the packaging requirements, including that the packaging must meet the Standard for Packing of Solid Cyanide. Stored cyanide was observed to be labelled with global harmonised system GHS pictograms and UN number identifying the product.

3.1.3 Production Practice 1.3

Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

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

Summarise the basis for this Finding/Deficiencies Identified:

The Facility conducts routine inspections of tanks, valves, pipelines, containments and other cyanide production and storage facilities, including:

- Tanks and vessels holding cyanide solutions for structural integrity, signs of corrosion, and leakage
- Secondary containments for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed and, if necessary, locked to prevent accidental releases to the environment, and
- Pipelines, pumps and valves for deterioration and leakage.

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- Containers used for transportation, where the producer is responsible for their integrity.

As specified in Maintenance Procedures for Critical Equipment, annual or monthly maintenance plans are developed and implemented for different facilities.

The Facility maintains a register of tanks and vessels and identifies which ones contain cyanide solutions. Inspections on the integrity of the tanks are conducted monthly, which includes pipe work, flanges, pumps, high level alarms and tanks to identify deterioration and leaks. The inspection records are dated. Ultrasonic test for the thickness of tanks is tested annually to ensure any corrosion is detected early and preventive action taken. In addition to Shuguang's own tests of the tanks, pipes and valves, tests are conducted every three years by the China General Administration of Quality Supervision, Inspection and Quarantine.

Secondary containments are inspected daily for leaks and the accumulation of any stormwater. Checks are also completed to ensure that all valves are closed. Monthly maintenance inspections of secondary containment include checks for structural integrity. The Auditor's site inspection confirmed that the secondary containments were in reasonable condition, and evidence of periodic maintenance and patching was observed.

The thickness of the wall of cyanide transport pipelines is monitored internally by ultrasonic testing annually. The inspection records note the integrity of the pipe and support structures. The inspection records are dated. Records were sighted for selected pipelines. The integrity test will be conducted every three years or six years, depending on the results of the last test results by third certified parties. For the containers used for transportation from the production area to the cyanide warehouse, the warehouse keeper conducts daily inspection for the vehicles before internal transportation.

Based on interviews, inspection of the facility and the content of the inspection records, the frequencies are considered sufficient to assure that the equipment is functioning within design parameters.

The Facility has documented inspections that are retained. The documentation identifies specific items to be observed and includes the date of the inspection, the name of the inspector, and observed deficiencies. The nature and date of corrective actions were noted as being documented, and records are retained. The facility also assigned Training Centre for the management system documents maintenance.

3.2 Principle 2 | Worker Safety

Protect workers' health and safety from exposure to cyanide.

3.2.1 Production Practice 2.1

Develop and implement procedures to protect plant personnel from exposure to cyanide.

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☒ in full compliance with

The operation is

☐ in substantial compliance with

Production Practice 2.1

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The Facility has developed procedures to minimise worker exposure during:

- a. Normal plant operations from receipt of raw materials through finished product packaging and shipping
- b. Non-routine and emergency operations
- c. Maintenance related activities

The *Process Operating Procedure of Sodium Cyanide Production Process* provides a comprehensive procedure covering the entire cyanide production and packaging operations. The procedures cover both normal and non-routine operations, and the production facility is managed through the DCS in the control room. In addition to the operating procedures there is a permit to work system that covers:

- Working at heights
- Confined space
- Lifting
- Digging
- Machinery maintenance
- Flow isolation plate, and
- Hot work.

The procedure discusses the PPE that must be worn and the need to conduct a field-level risk assessment prior to commencing work. It also requires the maintenance team to communicate with the local cyanide department prior to the commencement of work and to report any unsafe conditions to the department supervisor. For equipment that has been in contact with cyanide, the Facility has a strict decontamination process in place, and a test will be conducted after deep cleaning to verify its effectiveness. The safety permit requires a field-level risk assessment to be undertaken prior to the start of work, the use of a buddy system, records of tagging out, checking of PPE and undertaking gas testing.

The Facility solicits and considers worker input in developing and evaluating health and safety procedures. The employees are involved in hazard identification and risk control measures through specific meetings, team meetings, and employee suggestions. Employees can make suggestions regarding process or procedural changes to their supervisors or management via the Office Automation system.

The Facility has identified areas and activities where workers may be exposed to HCN gas or sodium cyanide dust at concentrations greater than 4.7 ppm (5 mg/m³), or to cyanide, and requires the use of

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personal protective equipment in these areas when these activities are being performed. The areas identified include:

- Packaging Operation
- Packaging Control Room
- Storage Warehouse
- Centrifuging Operation
- Drying Operation
- Reactor Areas
- Vacuum Filters
- Shaping Control Room
- Central Control Room.

Fixed HCN monitors are located around the facility in cyanide-bearing areas. The overall extent of the operation where there are risks of cyanide exposure has been demarcated with a distinctive red line. There are defined PPE requirements applicable to entry to the area within the fence. Signs displayed, and Standard Operating Procedures set out requirements for the use of defined PPE specific to the distinct areas listed above. Minimum PPE requirements and hygiene practices apply everywhere within the red line. During inspections of the facilities workers were observed to be wearing PPE as outlined in the procedures and signage displayed in the work area.

The Facility uses monitoring devices and associated alarms to confirm that controls are adequate to limit worker exposure to hydrogen cyanide gas and/or cyanide dust to levels exceeding 10 parts per million (ppm) instantaneously or 4.7 parts per million continuously over an 8-hour period, as cyanide. HCN monitors are installed throughout the cyanide-bearing areas within the production facility and warehouse. Additionally, personnel have access to portable HCN monitors. The fixed and personal monitors are set to alarm at 4.0 ppm. Portable monitors are used for task-specific activities, and the fixed monitors are used to provide detection of an issue with the process. Personnel are required to evacuate the immediate area of the alarm, and the supervisor for the area undertakes an assessment of the reason for the alarm. Further evacuation of the plant may be undertaken depending on the cause of the alarm.

In addition to gas monitoring, Shuguang undertake daily, weekly, fortnightly and monthly manual cyanide dust monitoring at a number of locations throughout the facility. The monitoring frequency is dependent on the level of risk to personnel. These locations include:

- Packing area
- Reactor area
- Main control room
- NaCN storage tank

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- Dryer operations area
- Northern factory gate
- Western factory gate
- Centrifugation workshop
- Moulding control room
- Vacuum filter
- Laboratory
- Warehouse.

Analysis of dust sampling is undertaken at the facility's laboratory. The Chinese standard is 1 mg/m³. All sampled records were below this standard.

When HCN gas levels trigger the alarm levels, the Site operator shall evacuate the Site area immediately. The emergency treatment personnel must wear an air-breathing apparatus and heavy protective clothing at the Site to locate the source of the leakage and block it.

The Facility has provisions to ensure that a buddy system is used, or workers can otherwise notify or communicate with other personnel for assistance if necessary. The Production Design Management and Emergency Response procedure clearly specifies that all operations must be conducted by at least two operators, and generally by four. Also, at least one medically trained person is present during each shift in the First Aid Station.

The workers are equipped with mobile phones and walkie-talkies, and there are several fixed calling points located in the major HCN-bearing areas, e.g., reaction areas, centrifuge operation area, shaping operation area, storage warehouse, etc., which were observed during the site audit. In any emergency, they can choose the fastest way to report.

The facility assesses employees' health to determine their fitness to perform their assigned tasks. All workers have a medical examination every year at Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital. The medical includes checking blood pressure, lung capacity, electrocardiography (ECG), blood, urine and a liver scan, depending upon the working location and duration of the employee.

The Clothes Exchange and Shower Procedure in the Occupational Disease Prevention System details that all employees and contractors must enter into the exchange room and exchange clothes before work, after the shift they must shower and exchange clothes again.

Every employee working in the cyanide department is provided with sets of clothes every year and all employees in the cyanide department have their clothes washed for them on site. Visitors are supplied with laboratory coats for use while visiting the facility.

Additional PPE is required in the packaging area, including the use of coveralls, gloves, boots, and full-face respirators. Personnel leaving the packaging facility must head to the change room for a shower and clothes change.

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Warning signs advising workers that cyanide is present and that, if necessary, suitable PPE must be worn are located around the Facility. Warning signs for both sodium cyanide and hydrogen cyanide are placed in all process and storage areas. Warning signs were observed to be located on the outside of the warehouse buildings at entrance points and within the warehouse.

All personnel are prohibited from smoking, eating, and drinking, and having open flames in areas where there is the potential for cyanide contamination. All process and storage areas have signs stating no smoking, no eating or drinking and no open flames.

3.2.2 Production Practice 2.2

Develop and implement plans and procedures for rapid and effective response to cyanide exposure.

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

Summarise the basis for this Finding/Deficiencies Identified:

The Facility has developed specific written emergency response plans for cyanide exposures and an on-site disposal method to illustrate a detailed treatment procedure after a spill or exposure. The operation has access to trained medical personnel at all times, and the persons interviewed knew to relocate the exposed person off-site, take anti-cyanide capsules, remove contaminated clothes, inject the exposed person with cyanide-resistant injection, rinse the contaminated part with moving water, contact the first-aid clinic and hospital for emergency care. Qualified doctors provide annual first aid training to the employees. Topics include:

- Poisoning rates and exposure pathways
- First aid measures
- Safety protection and prevention.

An Emergency Response Knowledge Question and Answer Card has been prepared and distributed to each on-site employee. This card specifies the emergency response procedures in case of cyanide exposure involving skin contact, eye contact, or inhalation. Warning signs that provide emergency response procedures are also posted in the plant.

Showers, low-pressure eye wash stations and non-acidic fire extinguishers are located at strategic locations throughout the Facility. They are maintained and inspected on a regular basis. The Facility has a monthly preventative maintenance inspection and servicing programme. Dry powder fire extinguishers are assigned throughout the Facility. Weekly inspection has been conducted by the fire safety officer, as well as monthly inspection conducted by the production team. There are emergency showers/ eye wash stations in the production and cyanide storage areas which are inspected on a scheduled basis.

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The Facility has oxygen, a resuscitator, anti-cyanide capsules, ambulance and a means of communication or emergency notification readily available for use in the plant. First aid kits are reported and observed in the following areas: production workshop, packaging workshop, storage warehouse, and control rooms of the production building. These medical kits are checked by the First Aid station personnel on a weekly basis. The emergency response equipment maintained on site includes the oxygen cylinders, oxygen cylinder trolley, resuscitators and ambulance. The oxygen resuscitator is comprised of an oxygen bottle with regulator, tubing, and bag-valve mask. Antidote injection medicine and anti-cyanide capsules are stored in the first aid station. Each cyanide-related workstation is also provided with amyl nitrite as the antidote. Mobile phones, walkie-talkies and fixed calling points are readily available as a means of communication in the event of emergency. Personnel interviewed knew the location of antidotes and the emergency notification process. Inspection records were sampled reviewed during the audit period and found to be in order.

The Facility inspects its first aid equipment regularly to assure that it is available when needed. The first aid and emergency response equipment are stored and tested as directed by their manufacturer and replaced on a schedule so that they will be effective when used.

Emergency equipment is inspected as follows:

- Cyanide Antidote and Anti-cyanide capsules– weekly
- Oxygen cylinders – monthly
- Other first aid consumables (e.g. gauze, bandages etc.) - monthly

Antidotes are stored under temperature conditions per manufacturer's specifications. The auditor verified that the antidote was stored appropriately and was in date. The site's first-aid clinic doctor inspects the oxygen bottles and resuscitators each month. Fire extinguishers are sent in rotation to an off-site facility fire facility company for servicing and refilling as required by the manufacturer. Fire extinguishers observed during the audit were fully charged and within their service dates.

Safety data sheets (SDS) and first aid procedures on cyanide safety are in the language of the workforce (Mandarin) and are available to workers at the site. All the signs and procedures are in Chinese, which is the official language. The SDS has been developed in accordance with global harmonised system (GHS) requirements. The Emergency Response Knowledge Question and Answer Card is distributed to all employees. This card describes the first aid procedures in the event of cyanide exposure. Dangerous Chemical Safety Notification Cards for cyanide are posted on the wall in work areas where there is a potential for exposure to cyanide. The main information contained in the MSDS (e.g. hazards, first aid measures, emergency response measures, etc.) is included in the notification cards in the Chinese language.

The Facility has a decontamination policy or procedure for employees, contractors and visitors leaving the areas with the potential for skin exposure to cyanide. All visitors and facility workers receive induction training detailing information about the dangers of cyanide, plant-specific risks, and general safety, including cyanide exposure procedures. The procedures specify cloth-changing and showering for workers working in areas where they may be exposed to cyanide. This procedure applies to personnel in the laboratory, packaging, evaporation, maintenance, centrifuge, drying, modelling, and cyanide storage areas.

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They are required to change clothes and shower upon exiting the work area. For the visitors, if they have visited areas where they may be exposed to cyanide, they shall follow the same policy as the workers of the Facility. If they only visit the designated route with a low risk of cyanide exposure, they shall wear the disposable cloth, take off the cloth, and wash their hands before leaving the area. In the case of skin exposure, the procedures specify that the clothes must be removed, the person involved must be washed in a shower for at least 20 minutes, and then seek assistance from the First Aid Station.

The Facility has its own on-site capability to provide first aid to workers exposed to cyanide. The site has an on-site first-aid clinic, which is staffed 24 hours a day by qualified doctors and/ or nurses. If any cyanide exposure occurs, it will be treated by the site medical staff in the first instance. Should the injuries be too severe to treat on-site, patients can be transferred to the Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital by ambulance, a 3.0 km journey. The ambulance is stationed in Shuguang Facility and is available 24 hours a day. The Facility has developed a procedure for transporting exposed workers to locally qualified off-site medical facilities.

The Facility has alerted local hospitals, clinics, and other providers of the potential need to treat patients for cyanide exposure, and the Facility is confident that the medical provider has adequate, qualified staff, equipment, and expertise to respond to cyanide exposures. As described above, if any cyanide exposure occurs, it will be treated by the site medical staff in the first instance. Should the injuries be too severe to successfully treat on-site, patients can be transferred to the Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital via its own ambulance within 15 minutes. Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital is an integrated hospital with appropriate equipment and qualified and experienced staff to treat patients with cyanide poisoning. Shuguang has signed a medical cooperation protocol with the Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital for the treatment of cyanide injuries, which was validated during the site visit.

Procedures are in place to investigate and evaluate cyanide exposure incidents to determine if the operations programmes and procedures, to protect worker health and safety and to respond to cyanide exposures, are adequate or need to be revised. The procedure for cyanide exposure incident investigation and evaluation is detailed in the Accident Management Procedure, as well as for non-cyanide-related incidents. It details an accident classification system that determines the type of investigation required, as well as the processes for accident reporting and communication. The most serious accidents and exposures require investigation by the government or external agencies. For accidents without lost workdays, the EHS department, in collaboration with the production department, will conduct an investigation to determine the root cause. The accident and treatment report will detail the accident, the accident analysis, the prevention measures, the responsible person(s), and the monetary punishment decision. It proceeds to a corrective measures section that tabulates the hazard, the corrective measure, the implementation date, and the responsible person.

No cyanide exposure or cyanide release incidents were reported during this ICMC recertification period, as well as the other lost workday accidents.

3.3 Principle 3 | Monitoring

Ensure that process controls are preventive of the environment.

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3.3.1 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

Summarise the basis for this Finding/Deficiencies Identified:

The Facility is in FULL COMPLIANCE with Production Practice 3.1 requiring environmental monitoring to be conducted to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

The Facility does monitor for cyanide in discharges to surface water and in surface and ground water upgradient and downgradient of the site. The Facility does not have a direct discharge to surface water. The Facility operates an on-site wastewater treatment plant (WWTP) that provides preliminary treatment of wastewater. The pre-treated effluent is then conveyed under a trade waste agreement to the central wastewater treatment plant of the industrial complex, operated by Sinopec Anqing Branch. At this facility, it is treated in conjunction with wastewater from other industrial operations within the complex prior to final discharge to the Yangtze River, approximately 11 km south of the Shuguang Facility. Shuguang conducts daily wastewater monitoring and annual monitoring by an independent third-party testing institute. An online monitoring system is installed at the final discharge point prior to transfer to the Sinopec Anqing Branch system. Internal and external monitoring records for the audit period were reviewed and indicate that total cyanide concentrations in the wastewater discharged to Sinopec Anqing Branch remained below 1 mg/L, in accordance with the Shuguang Facility's trade waste agreement.

Stormwater runoff from the facility is collected and stored in an on-site stormwater storage tank (312 m³) before discharge to the stormwater collection system of Sinopec Anqing Branch and finally to the municipal stormwater drainage system of Anqing City. The first-flush stormwater from the area where the water may be contaminated with cyanide is segregated and treated in the WWTP at the Shuguang Facility. Stormwater monitoring records conducted by Shuguang for the audit period were provided for review, and the randomly selected reports showed the results were below 0.2 mg/L for total cyanide, which meets the Class III of Environmental Quality Standards for Surface Water (GB3838-2002) specified in Environment Impact Assessment (EIA) Report (total cyanide ≤ 0.2 mg/L).

No beneficial uses of groundwater for domestic or production purposes were identified in the vicinity of the facility. Three groundwater monitoring wells have been installed at the western and eastern site boundaries (up-gradient and down-gradient of the cyanide plant) to inspect any seepage potentially containing cyanide. Groundwater at the groundwater monitoring wells was sampled and monitored during the audit period. The result of total cyanide is below the applicable Chinese Groundwater Quality Standard (Class III, ≤ 0.05 mg/L for total cyanide). Based on the monitoring undertaken of groundwater at the facility, there is no evidence of groundwater contamination at the facility that could impact on surface water quality to the extent specified by the Code.

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The Facility limits the atmospheric emissions of hydrogen cyanide gas such that the health of workers and the community are protected. Engineering controls for minimising emissions of hydrogen cyanide include the following:

- a. Pre-treatment of air emissions from the drying process by cyclone-type dust removal, water scrubber and alkaline scrubber prior to discharge through a 50 m high stack. An online HCN meter is installed in the dryer stack;
- b. Air emission from the shaping and packing process is discharged through local exhaust ventilation for processing equipment and mechanical ventilation system is installed for the workshop.

There are fixed HCN detectors that constantly monitor the manufacturing processes. The HCN detectors are mainly located at liquid hydrocyanic acid inlet pipes, reaction area, evaporation area, crystallisation area, centrifuge area, modelling area, packing area, boundary area and warehouse. Shuguang undertakes both internal monitoring and engages licensed third-party contractors to conduct annual air emissions monitoring. Results for hydrogen cyanide indicate concentrations were below the applicable Chinese standard of 1.9 mg/m³.

Monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. The frequency of monitoring undertaken at the cyanide facility is:

- Wastewater discharges –online monitoring.
- Stormwater discharges – during rainfall events.
- Groundwater quality – annually externally.
- Air quality – online monitoring.

These frequencies are considered adequate in the operating circumstances to meet Code requirements.

3.4 Principle 4 | Training

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

3.4.1 Production Practice 4.1

Train employees to operate the plant in a manner that minimises the potential for cyanide exposures and releases.

The operation is	☒ in full compliance with	Production Practice 4.1
	☐ in substantial compliance with	
	☐ not in compliance with	

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Summarise the basis for this Finding/Deficiencies Identified:

The operation does train workers to understand the hazards of cyanide and refresher training is periodically conducted. New employees have three levels of training comprising company, departmental and operational level training.

Company level training consists of three days of classroom training. One main booklet called 'Safety Training material' is given to all employees during the training. These books are available at the end of the course in the control room of the cyanide department.

Departmental level training consists of three days training. The training is conducted in the conference room and on Site to demonstrate chemical hazards, emergency response and PPE. New employees are shown the entire cyanide production plant operation. For the employees who may encounter cyanide, the training will include the topics such as the health effects of cyanide, symptoms of cyanide exposure, and procedures to follow in the event of exposure.

Operational level training consists of three days of on-Site training in the area of the cyanide department where the new employees in the cyanide department will be working, each employee is designated an experienced worker to teach them how to operate the machines in that area. During these three days, they do not operate the machines on their own, and at the end of the three days, they have an exam. In addition, they have to pass the operating procedures.

Refresher training is conducted in the form of monthly training sessions. Each month, the safety adviser of the cyanide department conducts approximately two hours of training. The training includes the safety requirement for cyanide-related work tasks. At the end of the training, a test is required to verify their understanding of the safety requirement for cyanide-related work tasks.

Interviews with personnel and training records confirmed that workers are trained in cyanide hazards prior to undertaking works and refresher training is provided.

Annual training Plans include training target, training method, training date and training time, training topic, trainer.

The Facility trains workers in the use of personal protective equipment (PPE) and when and where this equipment is required. PPE training is covered in all three levels of training (company, departmental and operational) and there are specific management and departmental procedures regarding PPE storage, maintenance and which type of PPE is required in the different operations within the cyanide department. In the Emergency Response Knowledge Question and Answer Card for each employee, there is detailed requirement for PPE usage for each post. Interviews with employees has confirmed that training was provided on how and when to use PPE.

The Facility trains workers to perform their normal production tasks with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. An annual training plan is developed at the beginning of the year which includes training elements on the physical and chemical properties of cyanide, fire prevention, personal protection equipment, EHS management procedures, Emergency Response Plan, safety operation process, occupational health requirement, maintenance requirement etc., and also specific training materials regarding each post. New employees are partnered with an experienced individuals to learn the job tasks and are supervised by the supervisor for the area.

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The department leader has overall responsibility for the provision of training and delegates the training sessions to the qualified trainees (normally the experienced and knowledgeable engineers). Emergency response training is conducted in the department level safety training and annual refresher training held by the EHS Department.

Employees are trained before they are allowed to work with cyanide. Workers must complete the company and department training before being allowed to perform the work. New employees are expected to work with experienced operators and are not allowed to work unsupervised until the shift supervisor is satisfied that the employee can perform the necessary tasks safely in accordance with procedures.

Employees who change positions or transfer out of their previous position for more than 6 months are required to be retrained. The refresher training on normal production tasks has been provided to ensure that employees continue to perform their work in a safe and environmentally protective manner.

Refresher training is provided in the form of monthly training sessions. The training includes the safety requirement for cyanide-related work tasks. Irregular exam is arranged after annual testing to verify their understanding of the safety requirements for cyanide-related work tasks.

The training elements are necessary for each job identified in training materials. An annual training plan is developed at the beginning of the year, which includes training on the physical and chemical properties of cyanide, fire prevention, personal protection equipment, EHS management procedures, Emergency Response Plan, safety operation process, occupational health requirement, maintenance requirement etc., and also specific training materials regarding each post.

The Facility has personnel certified in safety management involved in the regular safety management of the facility, including national certified safety engineers. These qualified personnel and managers provide internal trainings to all employees on cyanide operations. Training for management is provided by Safety Director of Shuguang Group, who is national certified safety engineer.

The Facility evaluates the effectiveness of cyanide training by testing and observations.

There are questionnaires that are used for the three levels of training and are retained. New employees work with an experience person who demonstrates and observers the worker perform their tasks. Also, the Facility daily, weekly, monthly, annually inspection and evaluation for employees EHS performance.

3.4.2 Production Practice 4.2

Train employees to respond to cyanide exposures and releases

The operation is	☒ in full compliance with	Production Practice 4.2
	☐ in substantial compliance with	
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

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The Facility does train workers in the procedures to be followed if a cyanide exposure or release is discovered.

Workers are trained in company, departmental and operational training as well as monthly and weekly training on the procedures to follow if a cyanide release is detected. Workers interviewed were able to describe the response processes including evacuation to upwind, use of safety showers, reporting of incidents, and use of antidotes. In addition to the process workers, the facility has dedicated emergency response personnel who are trained in higher level response actions.

Also, the Facility has conducted emergency drills to train workers and test their skills for responding to cyanide releases once a year at least. Workers' performance in the drill about response skills has been included in the Drill Summary Report.

The Facility does train workers to respond to worker exposure to cyanide and are routine drills used to test and improve their response skills. Mock drills have been conducted with workers to train them and test their response skills. Worker exposure scenarios have been conducted at the facility. The drills are documented and reports assess the performance of the drills and improvements needed.

Training records are retained throughout an individual's employment, and document the training they receive, including the names of the employee and trainer, the date of the training, the topics covered, and how the employee demonstrated an understanding of the training materials.

Training files for members of the Facility were reviewed and contained evidence of training, including course content, assessments and certificates. All workers received trainings on personal protective equipment and emergency response procedures in the event of a spill or exposure, including daily, weekly, monthly and annually trainings.

3.5 Principle 5 | Emergency Response

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

3.5.1 Production Practice 5.1

Prepare detailed emergency response plans for potential cyanide releases.

The operation is	☒ in full compliance with	Production Practice 5.1
	☐ in substantial compliance with	
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The Facility has developed emergency procedures for the management of emergencies associated with the storage of chemicals including cyanide.

The facility has the following emergency response plans:

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Emergency Response Plan for Production Safety Accident, Production Design Management and Emergency Response Procedure and Emergency Response Plan for Environmental Emergencies which provide high level guidance for the preparation of the following subordinate plans.

On-Site Disposal Plan for sodium cyanide accidents from production facilities details the emergency response for potential releases of cyanide.

Emergency Response Plan for Production Safety Accident, details the emergency response for potential releases of sodium cyanide and hydrocyanic acid in sodium cyanide production facilities, Solid Sodium cyanide warehouse, Liquid sodium cyanide intermediate tank area, Liquid sodium cyanide tank farm, respectively.

The emergency procedures do consider the potential failure scenarios appropriate for its Site-specific environmental and operating circumstances.

- a. Emergency Response Plan for Production Safety Accident states the response measures in the event of catastrophic release of hydrogen cyanide.
- b. Emergency Response Plan for Environmental Emergencies details what to do in the event of a large leak. The Site controls the source of leakage by closing valves, pump the material leaking in the cofferdam into the accident tanks, stopping operations,
- c. Emergency Response Plan for Production Safety Accident details what to do in the event of a release. If the fire is small, on-Site personnel use on-Site dry powder fire extinguishers to extinguish the fire themselves. If the condition meets the fire and explosion special accident emergency plan start conditions, will activate the corresponding plan immediately. External fire fighters will be called in to deal with large fires and explosion,
- d. Production Design Management and Emergency Response Procedure details emergency actions to be taken in the event of rupture to pipes, tanks or valves.
- e. Power outages and equipment failures are dealt with in On-Site Disposal Plan for sodium cyanide accidents from production facilities which details what to do in the event of power outages. The Systems Document contains a 'Plan for emergency treatment of power failure of sodium cyanide plant' that details that the emergency response plan for three situations is power failure caused by power grid fault, power failure caused by the fault of sodium cyanide device itself, and power shock. The site also have back up power generators that are stested on a regular basis.
- f. Overtopping of ponds, tanks and waste treatment facilities will not happened in the plant, because all liquid devices in the plant are equipped with cofferdams that are 110% larger than the volume of liquid storage devices, and the emergency pool is calculated in detail during the design, and no overflow will occur.

The emergency procedures do describe:

- a. Specific response actions, as appropriate for the anticipated emergency situations, such as evaluating site personnel and potentially affected communities from the area of exposure.

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Chapter 7 of Production Design Management and Emergency Response sets out the specific response actions, such as evacuating site personnel and potentially affected communities from the area of exposure. The Section 5 in Chapter 7 of details the response actions required for each department involved in the management of the emergency. The response actions include those identified within this question.

- b. Use of cyanide antidotes and first aid measures for cyanide exposure.

Production Design Management and Emergency Response describes cyanide first aid measures for persons impacted by HCN or cyanide including the use of cyanide antidotes.

- c. Control of release at their source

The Emergency Response Plan for Production Safety Accident outlines 17 emergency scenarios of which nine are specifically related to cyanide release. The nine cyanide release-related scenarios are:

- HCN spill/leakage
- Power outages for cyanide manufacturing facilities
- Explosions of pressure vessels containing cyanide
- Cyanide release from tanks
- Explosions of cyanide reaction facilities
- Abnormal conditions of cyanide reaction facilities
- Steam outages for cyanide manufacturing facilities
- Environmental emergency response during hazardous chemicals release and explosions of pressure vessels
- Flood prevention for cyanide manufacturing facilities

And the detailed response process has been specified in the On-Site Disposal Plan for sodium cyanide accidents from production facilities. These seem appropriate for the site-specific environmental and operating circumstances.

- d. Containment, assessment, mitigation and future prevention of releases.

The Emergency Response Plan for Production Safety Accident specified the containment steps which are outlined in response scenarios for containment measures.

3.5.2 Production Practice 5.2

Involve Site personnel and stakeholders in the planning process.

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☒ in full compliance with

The operation is

☐ in substantial compliance with

Production Practice 5.2

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The Facility has involved its workforce and stakeholders in the emergency response planning process.

The EHS Manager indicated that the workforce has opportunities to comment on the emergency response documentation during annual training on its content.

Shuguang has identified the following external stakeholders:

- Anqing Petrochemical Fire-fighting Bureau sited next-door to Shuguang.
- Emergency Management Bureau
- Environmental Ecological Management Bureau
- Fire Prevention Bureau
- Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital
- First line staff

Each external stakeholder has received controlled copies of the emergency response documentation following each update of the documents. In addition, Shuguang has cooperation protocol with the local hospital.

The Facility has made potentially affected communities aware of the nature of their risks associated with accidental cyanide releases, and consulted with them directly or through community representatives regarding what communications and response actions are appropriate

The Site consulted neighbouring industrial facilities that there may be a risk of cyanide leakage in the Site and the possible impact on them after the leakage. The measures for risk response have been agreed with neighbouring industrial facilities, and a risk response communication mechanism has been established.

The Facility has involved local response agencies such as outside responders and medical facilities in the emergency planning and response process.

The *Production Design Management and Emergency Response Procedure* details the roles of outside responders.

The outside responders include:

- Sinopec Anchin branch

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- Shuguang Packaging
- Fire-fighting Bureau sited next-door to Shuguang.
- Fire Prevention Bureau
- Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital

As detailed in 5.2.1, these agencies have been provided with controlled copies of the emergency response documentation.

The operation engages in regular consultation and communication with stakeholders to ensure that the Plan addresses current conditions and risks as detailed above.

Employees are involved in the regular cycle of training, drills and post-drill reviews as a means of testing the suitability of the emergency response documentation for current conditions and risks.

Shuguang is in regular consultation with the following external stakeholders through the provision of updated emergency response documentation:

- Anqing Petrochemical Company
- Safety Protection Bureau
- Environmental Protection Bureau
- Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital

3.5.3 Production Practice 5.3

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

The operation is	☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with	Production Practice 5.3
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Summarise the basis for this Finding/Deficiencies Identified:

The emergency response documentation:

- a. Does designate primary and alternate emergency response coordinators.

As specified in Chapter 7, Section 5 of the *Production Design Management and Emergency Response Procedure*, a commander team will be organized in case of emergency which included a cyanide-related emergency. General Manager will be the commander in chief, and Vice General Manager will be the backup. Leaders of each department will be the members of the commander team.

- b. Identifies Emergency Response Teams.

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Designated responders from each department consist of the emergency response and rescue team. Duties of each department are detailed in Chapter 7, Section 5 of the *Production Design Management and Emergency Response Procedure*.

A list of trained emergency responders is maintained by the EHS Department.

- c. Requires appropriate training for emergency responders.

The *Production Design Management and Emergency Response Procedure* stipulates the requirement for annual training of Emergency Commanders. The *Safety Training and Education Procedure* outlines the requirements for regular emergency response training for employees. Training records indicate that employees receive annual training in emergency response and participate in annual mock drills.

- d. Includes call-out procedures and 24-h contact information for the coordinators and response team members, all the team members have the knowledge and ability of cyanide emergency treatment.

Section 6.2.4 in Chapter 7 of the *Production Design Management and Emergency Response Procedure* details contact information for all internal and external persons directly involved in the Emergency Response.

The EHS Department maintains a list of all emergency response trained employees, which includes contact information.

- e. Specifies the duties and responsibilities of the coordinators and team members.

Section 5 in Chapter 7 of the *Production Design Management and Emergency Response Procedure* clearly specify the duties for the Command Team and each department to be involved in emergency response.

- f. Lists all emergency response equipment that should be available.

Appendix 4 of the *Production Design Management and Emergency Response Procedure* lists the emergency response facilities and equipment, specifications for the equipment items, the number of each item that is required to be available, the locations of the facilities and items and identifies the department responsible ensuring the equipment is kept available and expected to use the equipment in an emergency response situation. The emergency response equipment mainly includes fire extinguishers (dry power and foam), fire hoses, shower and eye wash stations, fire hydrants, fire pumps, high temperature emergency clothing, SCBAs, chemical coveralls, gloves, light oil, HCN and ammonia detectors, emergency lighting, masks, chemical resistant gloves, sand, sand drum, shovel, and cyanide antidote.

The cyanide antidote available on site is amyl nitrite, which is administered via nasal inhalation. Amyl nitrite antidote kits are provided at all cyanide-related workstations, including the cyanide warehouse, briquetting area, drying area, centrifuge area, Post 101, finished product warehouse, and truck loading station.

Personnel working in cyanide-related operations, as well as emergency response personnel, are trained in the recognition of cyanide exposure symptoms and the emergency administration of amyl

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nitrite. The training program is organized and delivered by the Company's Occupational Health Management Personnel and includes:

- Pre-job training for all new employees before assignment to cyanide-related duties; and
- Annual refresher training for employees during their employment.

In addition, clear and prominently displayed instructions for the use of amyl nitrite are posted at relevant work areas to guide employees in the event of a cyanide exposure emergency.

- g. Includes procedures to inspect emergency response equipment and assure its availability when required.

Section 5.3 in Chapter 7 of the *Production Design Management and Emergency Response Procedure*, requires that emergency response equipment should be inspected monthly.

Inspections of fire extinguishers, cyanide antidote, eye wash bottles, fire hydrants, SCBAs, PPE, gloves, fixed and portable monitors, emergency lighting and masks, are undertaken as part of monthly inspections.

- h. Describes the role of outside responders, medical facilities or communities in emergency response procedures.

The *Production Design Management and Emergency Response Procedure* clearly describes the call out procedures and contact information for outside responders, medical facilities and community representatives in Chapter 7, Section 6. The roles of outside responders are clearly described in Chapter 7, Section 5.4 of the *Production Design Management and Emergency Response Procedure*, supported by further details contained together with the agreement with Sinopec Anqing Branch and Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital.

The facility has confirmed that outside entities included in the ERP are aware of their involvement and are included as necessary in mock drills or implementation exercises.

The site has given the ERP to the Anqing Petrochemical Company (Sinopec Anqing Branch), Anqing Petrochemical Fire-fighting Bureau sited next-door to Shuguang, Emergency Management Bureau, Environmental Ecological Management Bureau, Fire Prevention Bureau and Nanjing Drum Tower Hospital Group Anqing Petrochemical Hospital.

The mock drills conducted in June annually. The outside responders have participated in mock drills in the last three year.

3.5.4 Production Practice 5.4

Develop procedures for internal and external emergency notification and reporting.

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☒ in full compliance with

The operation is

☐ in substantial compliance with

Production Practice 5.4

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The emergency response documentation contains clear flow charts and contact information describing the call out procedures for notifying management, regulatory agencies, outside response providers and medical facilities.

Section 5 and Section 6 in Chapter 7 of *Production Design Management and Emergency Response Procedure* describe the duties of management, each department, regulatory agencies, outside responders, including the hospital as well as outlines the reporting procedures.

Section 6 in Chapter 7 and Appendix 1, Chain of command and emergency response process chart of *Production Design Management and Emergency Response Procedure* provides contact phone numbers for all internal and external responders.

In addition, contact information for the emergency response team, the on-site doctor, ambulance, fire control and hospital is on the obvious position of the Site.

The emergency response documentation includes procedures and contact information for notifying potentially affected communities and communication with the media.

Based on a review of potential releases from the Shuguang site and the distances involved. No villages in the 1000 m radius of the Site.

As an industrial neighbour also handles hydrocyanic acid, the Sinopec Anqing Branch's facility in Jingbei Road has been identified as potentially affected by incidents at the site.

As described in Chapter 7, Section 5.5 of the *Production Design Management and Emergency Response Procedure*, the command team is required to inform Sinopec Anqing Branch and if based on the estimation of affected scope, request them to evacuate. The contact information of the neighbouring company and the media contacts considered appropriate by Shuguang for emergency notification is detailed in Chapter 7, Section 6 of the *Production Design Management and Emergency Response Procedure*.

The operation has a written procedure for notifying ICMI of any significant cyanide incidents, as defined in ICMI's Definitions and Acronyms document.

Shuguang has established Production Design Management and Emergency Response Procedure that specifies the requirement of a significant cyanide incidents. Shuguang will notify ICMI of any significant cyanide incident.

As interviewed, no such significant cyanide incidents have occurred.

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3.5.5 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 ☒ in full compliance with **Production Practice 5.5**
☐ in substantial compliance with
☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The emergency response documentation does describe specific, appropriate remediation measures, such as recovery or neutralisation of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris. Alternate drinking water supply is regarded as not applicable to the Shuguang site given that the drinking water supply is municipal water, and that the nearest surface water is approximately 3 km from the site. The drinking water source is the Yangtze River, which is about 11 km south-east of the Site.

The *Pollution control remediation management procedures* details response and remediation methods for:

- Soil contamination
 - Isolate area
 - Test soil for cyanide
 - If above 5 mg/L total cyanide
 - Neutralise using sodium hypochlorite
 - Excavate soil
 - Dispose of soil via a solid waste vendor
 - Retest area and continue to excavate if cyanide concentration is still above 5 mg/L total cyanide
- Groundwater contamination
 - Use a pump to extract groundwater
 - Analyse water for cyanide
 - Dispose water via the site's wastewater treatment station
 - Monitor groundwater every two hours

Continue extracting until cyanide concentrations are below 0.05 mg/L total cyanide.

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The emergency response documentation prohibits the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water.

Section 7.2.3 of *Production Design Management and Emergency Response* states that “Sodium hypochlorite, ferrous sulfate and hydrogen peroxide should not be used to treat a cyanide release once it has entered surface water”.

Despite this requirement, the facility is located at least 3 km away from the nearest surface water and it is unlikely therefore that there will be any emergency with direct discharge of cyanide to surface water. The operation does not consider the release of cyanide to surface water through the stormwater system to be a credible scenario.

The emergency response documentation does address the potential need for environmental monitoring to identify the extent and impact of a release, and includes sampling methods, parameters and, where possible locations where feasible.

The environmental monitoring plan of groundwater and soil associated with an emergency is set forth in the *Pollution control remediation management procedures*. This procedure indicate relevant steps, test methods and concentration limits.

3.5.6 Production Practice 5.6

Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is	☒ in full compliance with	Production Practice 5.6
	☐ in substantial compliance with	
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The emergency response documentation contains provisions for periodically reviewing and evaluating its adequacy and they are being implemented.

Chapter 7, Section 8.1 of the *Production Design Management and Emergency Response Procedure* states that the plan is required to be evaluated annually and updated if any deficiencies are identified during the implementation of the procedure. Evaluation records were provided for review.

Additionally, evidence of reviews of the procedure was provided in the form of signed receipts of acknowledgement from external stakeholders who are sent updates of the emergency response documentation. Mock emergency drills are conducted periodically to test response procedures for various exposure scenarios, and the lessons learned from the drills are incorporated into emergency response planning.

The Plant undertakes four emergency response drills for cyanide related facilities each year in accordance with Chinese standards and the facility’s Emergency Response Plan. A drill conducted for the entire emergency response process for a cyanide spill accident which included disposal plan for a cyanide spill and a cyanide poisoning response.

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Examples of the drill reports for the following scenarios over the last three years were reviewed.

- Drill of disposal plan for cyanide tank area leakage accident. This mock drill is mainly to simulate the disposal method of liquid sodium cyanide storage tank leakage accident, a cyanide poisoning response (post-incident handling drills in the event of cyanide poisoning) was also included in the mock drill
- Fire response (Emergency drills after a fire, including rescue, disposal of pollutants after a fire, etc.)
- Fire extinguisher training.
- Ammonia liquid spills, which is mainly include the mock drill for the ammonia liquid spills in the tank farm, how to clean up the spills and evacuation of the affected area.

In addition to the drills, employees receive annual training on emergency response procedures for the scenarios identified in the emergency response documentation.

For each drill the following is recorded:

- Description of emergency scenario
- Record of training attendance and assessment
- Photographs of the event.

Independent Emergency Drill Reports is prepared to identify the deficiencies of the ERP. An updated version to address the deficiencies is prepared after the drill as required. The facility has provisions to evaluate the plan after an emergency that required implementation of the plan, and for revising the plan as necessary.

Section 8.3 in Chapter 7 of *Production Design Management and Emergency Response Procedure* states that after each mock drill, evaluation team should be organized to assess the performance and effectiveness of the mock drill, and if any deficiencies identified, the elements of the emergency response plan should be corrected or improved in a timely manner.

During the site visit, post mock drill evaluation documents were reviewed, which indicated that no deficiencies were identified during the mock drill evaluation sessions. There have been no cyanide related emergencies since the last ICMC audit.

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4. Important Information

Your attention is drawn to the document titled – “Important Information Relating to this Report”, which is included in **Appendix A** of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations WSP Engineering Technology (Beijing) Co., Ltd. Shanghai Branch has under the contract between it and its client.

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Appendix A – Important Information Relating to this Report

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Appendix A Important Information

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by WSP Engineering Technology (Beijing) Co. Ltd. Shanghai Branch ("WSP") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by WSP to its client ("Client") under and subject to a contract between WSP and its Client ("Contract"). The contents of this page are not intended to and do not alter WSP's obligations (including any limits on those obligations) to its Client under the Contract.

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This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and WSP accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

The scope of WSP's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by WSP in regards to it.

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WSP accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. WSP has assumed that such information is correct unless otherwise stated and no responsibility is accepted by WSP for incomplete or inaccurate data supplied by its Client or any other person for whom WSP is not responsible. WSP has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to WSP.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed WSP to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by WSP or otherwise made available to WSP. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to WSP when the Services were performed and this Report was prepared. WSP has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, WSP may have retained subconsultants affiliated with WSP to provide some or all of the Services. However, it is WSP which remains solely responsible for the Services and there is no legal recourse against any of WSP's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by WSP dealing with any matter that is in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to WSP for clarification.

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