

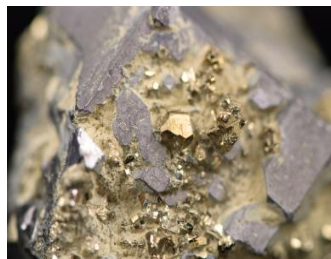
ICMI International Cyanide Management Code

Summary Audit Report

CyPlus GmbH

Wesseling Cyanide Production

2018 Re-Certification Audit



Submitted to:
The International Cyanide Management Institute
1400 I Street, NW – Suite 550
Washington, DC 20005
USA



CyPlus GmbH – Wesseling Cyanide Production

Company Names & Contact Information

Name and location of Operation:	CyPlus Wesseling Wesseling Production Facility Brühler Straße 2 50389 Wesseling Germany
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Operational Overview

The CyPlus Wesseling production facility is located within the Evonik Wesseling Industrial Park. Wesseling is approximately 15 kilometers south of Cologne, Germany. CyPlus was one of the first Signatory companies to achieve ICMC certification. The CyPlus Wesseling operation has maintained full compliance and certification with the ICMI International Cyanide Management Code (ICMC) since 2006. CyPlus also maintains several ICMC-certified Supply Chains and a transloading terminal / warehouse.

The CyPlus Wesseling operation produces cyanide in a number of different product forms. Cyanide is packaged in 1-ton wooden boxes with poly-propylene super-sacks filled up 1 ton of product.

CyPlus is a subsidiary of Evonik Industries AG. Evonik is headquartered in Essen Germany and is one of the world's largest specialty chemicals companies. Several environmental, health and safety services are provided to the CyPlus operation by Evonik. These include facility maintenance, emergency response personnel, medical personnel, and water/wastewater management. Appropriate service agreements exist between the organizations. Personnel from CyPlus and from the support service groups were available during the audit and participated, as appropriate.

Audit Implementation

This audit was conducted in accordance with the International Cyanide Management Institute (ICMI) ICMC certification requirements using the ICMC Cyanide Production Protocol. The audit was performed by an independent third-party audit team that fulfills all ICMI Lead Auditor requirements for production, gold mining, and transportation ICMC audits and Technical Expert requirements for ICMC audits of cyanide production and transportation operations.

The audit was conducted on-site at the CyPlus cyanide production plant in Wesseling, Germany.

Interviews were conducted with CyPlus Management, Staff, Operators, Trainers, Emergency Responders, Security, and Medical Personnel. Policies and procedures were reviewed, and records were evaluated. Cyanide production and packaging operations were observed.

Cyanide production, packaging, and storage conditions as well as administrative support functions were all evaluated during the audit. Extensive procedures, plans, and records from the re-certification period (2015-2018) were reviewed.

The assessment was based on random samples of information and therefore deficiencies may exist which have not been identified. The depth to which records and data were sampled was typical of an environmental, health and safety (EH&S) management system audit. Although legally required records were sampled to evaluate ICMC compliance, legal compliance with Federal and State regulations was not part of the scope of this evaluation.

Auditor's Finding and Attestation

The CyPlus Wesseling cyanide management practices were evaluated for ICMC compliance using the *ICMI Production Protocol*. CyPlus internal policies, standards, and procedures, regarding the management of the cyanide production were reviewed. Records from the re-certification period (2015-2018) were also evaluated and found to be very complete and well organized. Safety culture was very strong among all those interviewed during the audit, and awareness of roles, responsibilities, and safety requirements was excellent.

CyPlus did not have any significant cyanide-related spill or exposure events during the re-certification period.

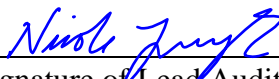
All personnel were very well prepared for the audit. The auditor found that the overall level of preparedness and understanding of ICMC requirements was excellent.

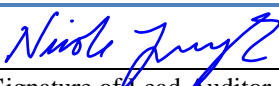
The CyPlus Wesseling production operation was found to be in FULL COMPLIANCE with ICMI International Cyanide Management Code requirements.

Audit Company:	MSS Code Certification Service, a Division of Management System Solutions, Inc. www.mss-team.com
Lead / Technical Auditors:	Nicole Jurczyk njurczyk@mss-team.com Ralf Jurczyk, Ph.D. rjurczyk@mss-team.com
Date(s) of Audit:	June 26-27, 2018

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Certification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Certification Auditors.

I attest that the Audit Reports accurately describe the findings of the re-certification audit. I further attest that the re-certification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Production Operations and using standard and accepted practices for health, safety and environmental audits.

CyPlus GmbH – Wesseling		November 16, 2018
Name of Operation	Signature of Lead Auditor	Date

CyPlus GmbH – Wesseling Production		November 16, 2018
MSS Lead Auditor: Nicole Jurczyk	Signature of Lead Auditor www.mss-team.com	

Audit Results - Cyanide Production Verification Protocol

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

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

The operation is in full compliance with Production Practice 1.1

Summarize the basis for this Finding:

The Wesseling Production operation, buildings, storage facilities, containment areas, reactors, tanks, piping system, and water treatment areas were designed and constructed according to German law. These regulations have strict engineering and inspection requirements to ensure the safe operation of chemical production facilities for the protection of workers and the environment.

A quality assurance program was implemented during construction of the production facility. Materials used during construction followed strict Quality Control and Quality Assurance policies, procedures, and had regulatory oversight. Those same internal requirements and externally required periodic inspections by government authorities are in place for facility updates, repairs and maintenance. Records are retained and available for review. Management of Change records for a sample of recent facility updates were reviewed and were found to be acceptable. No significant changes to the facility were made during the recertification period.

The materials used for the construction of the cyanide production facilities are compatible with reagents used and processes employed. Interlock systems are used throughout the facility. Comprehensive records of the design and annual testing in cooperation with TÜV (the German testing and inspection authority) were reviewed and were found to be excellent. All production surfaces are built on concrete to minimize the risk of seepage to the ground or groundwater. The facility uses alarms and an interlock system to prevent the overflowing of cyanide process and storage vessels. All tanks are appropriately equipped.

Secondary containment for process and storage tanks and containers are constructed concrete and are sized to hold a volume greater than that of the largest tank or container within the containment and any piping draining back to the tank, and with additional capacity for a design storm event. The containment system is lined concrete with concrete sumps. The process area is constructed so that all process water flows into containment.

Spill prevention and containment measures are in place for all cyanide solution pipelines. Risk assessment is performed on all piping arrays. Testing and inspection activities are performed by

an independent testing authority, TÜV. The condition of the equipment and the adherence to local regulations and inspection requirements were all found to be acceptable by the auditors.

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

Summarize the basis for this Finding:

There are an extensive number of procedures that are formally controlled through the ISO 14001 and ISO 9001 certified systems. These procedures cover all aspects of the plant to ensure that standard practices needed for the safe running of the plant are well-defined.

All procedures reviewed were found to be comprehensive and appropriate for the operation. Contingency plans are in place for all foreseeable upset conditions and emergencies. Operators were interviewed to confirm awareness of these procedures. Awareness of actions to be taken in response to upset conditions and/or emergencies was excellent.

The CyPlus Wesseling Management of Change (MOC) procedure is applied for new projects and/or new equipment installations. The procedure requires that a risk analysis be conducted before changes in procedures or equipment is made.

CyPlus Wesseling has a formally documented preventive maintenance program for all equipment and devices used for cyanide production and handling. Inspections are often performed by TÜV (German testing and inspection authority) and records are maintained in SAP and/or hard copy. All inspections were current.

Maintenance records were available for review covering the recertification period and were found to be acceptable. Interlock and control systems are used and tested regularly. Instrumentation is calibrated according to manufacturer recommendations. Records from the re-certification period (2015-2018) were reviewed and were found to be complete.

Procedures are in place to prevent unauthorized/unregulated discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area. Procedures, practices, and operator awareness of the water management systems were all found to be acceptable by the auditors. CyPlus also has environmentally sound procedures for the disposal of cyanide-contaminated solids. Documentation of waste treatment and disposal was readily available for review and found to be acceptable.

The finished cyanide is stored, under cover, in buildings and fenced storage areas which provide sufficient ventilation to prevent the build-up of hydrogen cyanide gas. All operations and cyanide

storage areas are under roof to minimize the potential for cyanide to be exposed to moisture. The finished product is packaged in a polypropylene bag-in-box configuration which protects the product from moisture. Boxes are stored on concrete floors and under a roof to prevent contact with water. The storage facility was found to be appropriate.

The facility is locked, and access is restricted. Security guards are present 24 hours a day, 7 days a week. During the audit, all gates remained locked and secure. Access to unauthorized personnel is prohibited.

CyPlus Wesseling packaging is packaged and labeled as required by the political jurisdictions through which the load will pass. Package labeling is in multiple languages and packaging testing records from 2018 were available to show that appropriate testing has been done. Packaging was tested in accordance with German and EU dangerous good transportation laws (ADR) requirements and in accordance with rail and ocean (IMDG) requirements. According to records reviewed, all packaging-related compliance obligations were fulfilled.

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

Summarize the basis for this Finding:

Preventive maintenance procedures and inspection records were available for all necessary equipment.

Daily visual inspections of the tanks, piping system, containment, production and storage areas are performed. Formal mechanical integrity inspections are also performed at defined frequencies. Tanks and piping arrays are inspected by independent TÜV Inspectors. Extensive records were available to demonstrate the inspections are occurring, as planned. The secondary containment system inspection is inspected on a regular basis. The maintenance and clean-out frequencies for sumps was found to be appropriate. Preventive maintenance procedures and inspection records were available for all equipment during the audit of the facility. Operators demonstrated very good understanding of operational risks and the need to alert management to any areas of concern.

CyPlus Wesseling performs inspections with an established frequency that was found to be appropriate for the operation. Many inspections are required by German law and are conducted to assure that equipment is functioning within desired parameters. All inspections are well documented. Risk assessment is part of the process for determining the necessary frequency of inspections.

The auditors observed examples of completed inspection forms and records. Confirmation was made that inspections are done on a regular basis and that appropriate action is taken in the event that a deficiency is identified.

Records reviewed included the date of the inspections, the name of the inspector, and any observed deficiencies. A wide variety of inspection documentation is maintained. Records included inspection plans, checklists, reports from experts (SGS, TÜV etc), check and control orders and analytical reports. Any deficiencies that are observed are documented and addressed.

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

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

The operation is **in full compliance with Production Practice 2.1**

Summarize the basis for this Finding:

To minimize worker exposure under normal operations, the facility has developed and implemented extensive procedures. Procedures exist for abnormal operations and emergency situations are in place. All procedures reviewed were found to be comprehensive and appropriate for the operation. Emergency events are addressed in the emergency response procedures maintained by the CyPlus production unit and the larger industrial facility. The emergency response procedures describe the steps to follow in case of an emergency due to sodium cyanide spills, releases, exposures, fire, or other emergencies in the facility.

The Management of Change procedure is used to review proposed operational changes. A team of experts reviews the proposed change and prepares a risk assessment as it applies to worker health and safety. This cross-functional team includes medical and safety personnel. If risks are identified counter-measures are implemented. There are regularly scheduled meetings on a regular basis which allow employees to present any concerns, questions or suggestions for improvement in work procedures.

The facility uses stationary HCN monitors to confirm that safe working conditions exist and that cyanide levels are below 4.7 ppm. The placement of the HCN monitors was found to be appropriate. Personal HCN monitors are also used in the operation and in the lab. The stationary HCN monitors are monitored continuously by the Control Room Operator. Calibration records for stationary and personal HCN monitors were available for review for the re-certification period and were found to be complete.

CyPlus Wesseling conducts periodic occupational health studies of indoor air quality to ensure that air quality in the production areas is safe and that workers are protected. The most recent

industrial hygiene air sampling was performed in 2018. No activities were identified as having elevated HCN or cyanide dust levels.

Employees are always in radio contact with each other and with the control room. The control room is always staffed. The operation is monitored by video cameras 24 hours a day to manage any urgent or emergency situations. The site is also part of the industrial park's wireless security service.

Operators have a medical exam when they are hired and every other year thereafter. Older employees have a medical exam every year. The exam includes checks of: blood pressure, heart function, vision and a general fitness for duty.

CyPlus has a clothing change policy for employees, contractors and visitors to areas with the potential for cyanide contamination of clothing exists. Appropriate cyanide warning signs and PPE signs are present on all doors that lead to the production area. Signage was found to be acceptable by the audit team. Eating, drinking, smoking, and open flames are prohibited where there is a potential for cyanide contamination. Operators are only allowed to eat and drink in the break room.

Employees showed very good awareness of the restrictions and of the potential dangers of not following the rules. Signs that explain these prohibited activities are on every door that leads to the production area.

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

Summarize the basis for this Finding:

CyPlus has developed and implemented a number of emergency response plan and procedures in accordance with German regulations. The main plan is referred to as: "BAGAP" (Betrieblicher Alarm- und Gefahrenabwehrplan). The emergency responder for the site was interviewed regarding the topic of cyanide exposure and the provision of medical assistance. A formal procedure is maintained to describe the steps to be taken in the event of a human exposure to cyanide.

Showers, low-pressure eye wash stations and first aid kits are located throughout the facility. The eye wash and emergency showers are tested at regular intervals. The facility has non-acid fire extinguishers located at strategic locations throughout the facility. The fire extinguishers, fire

detection and alarm systems are monitored and checked by the on-site Evonik fire department. Inspection and testing records were reviewed and found to be complete.

The facility has water, oxygen, resuscitators, antidote, and a means of communication available at all times. Emergency response services are provided by the industrial park landlord (Evonik). The emergency medical responder (paramedic) was interviewed in the fully equipped on-site ambulance that is available to assist immediately in the event of a cyanide exposure or suspected exposure. The emergency responder was very highly qualified and maintained extensive equipment and antidote that could be used to treat multiple exposure victims at once.

CyPlus maintains emergency response equipment and the cyanide antidote in appropriate storage conditions to ensure their availability during an emergency. Inspections are performed by ambulance personnel and the on-site Evonik fire department. Recent records of inspections of the equipment and antidote were reviewed. The method by which shelf-life medicines and antidotes are managed was also reviewed. Storage was found to be appropriate and in accordance with manufacturer recommendations. Emergency response equipment is also stored and tested according to the manufacturer's recommendations. Expiration dates of medicines, including the antidote are carefully managed to ensure that all necessary medicine is current and ready for use.

Copies of the sodium cyanide Safety Data Sheets are available throughout the facility in the local language - German. First aid procedures are available in the first aid kit. Both the Safety Data Sheets and the first aid procedures can be found on posters throughout the facility. The facility also has additional signage concerning the presence of cyanide and precautions that should be taken. The signage was reviewed and found to be current and appropriate.

In accordance with government regulations all tanks, containers and pipelines are labeled extensively with contents and the direction of cyanide flow. The labeling was readily observed throughout the operation by the auditors and was found to be appropriate.

The document "Instructions for Cleaning Work Clothes", states that employees must change clothes upon leaving the operational area. Operators have full chemical suits, boots, and gloves that are removed prior to leaving the warehouse area. They remove any clothing that has potentially been in contact with cyanide. Visitors are escorted at all times. Employees demonstrated an excellent understanding of the decontamination procedures and the need for safety precautions.

Evonik provides on-site trained medical emergency response personnel as well as an on-site fire department. These teams would provide first aid or medical assistance if needed. The site ambulance procedure covers transfer of exposed victims to a medical center. Trained on-site medical emergency response personnel are readily available to transport an exposure victim to a qualified medical facility.

Local hospitals, fire departments and first responders are well versed in emergency response - including cyanide exposure. They stock the necessary emergency equipment and are well

experienced. Representatives from local hospitals and the fire department regularly meet with CyPlus personnel to review and discuss response procedures.

CyPlus conducts regular emergency response drills at the Wesseling facility in conjunction with the on-site fire department and local first responders. During the re-certification period three drills took place between 2015 and 2017. The drills included the decontamination of a cyanide exposure victim and the cleanup of a cyanide spill. Following each drill a meeting is held to review the results and discuss opportunities for improvement. Procedures are updated if it is deemed necessary. Records from each drill were available for review and were found to be complete.

The site uses AGAP and BAGAP (emergency plans and procedures at the industrial park and production unit level) to report, evaluate and investigate accidents, including cyanide exposure cases. The emergency procedures are reviewed at least annually, or as needed. According to interviews, in the event of an incident, procedures and practices would be extensively reviewed to determine if they were in need of revision.

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

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

The operation is in full compliance with Production Practice 3.1

Summarize the basis for this Finding:

CyPlus Wesseling does not discharge wastewater directly to surface water. Wastewater is discharged through the on-site sewer system directly to the Evonik treatment plant. Monitoring measures are continuously monitored and maintained.

There have been no changes during the re-certification period to the way in which process wastewater that is treated by Evonik. Evonik operates within its permitted discharge limits and discharged water is monitored continuously. Data reviewed showed that free cyanide levels at the point of discharge from the wastewater treatment plant were at “Non-Detect” levels (under 0.02 mg/l).

There have been no cyanide releases or spills that would indicate that groundwater has been impacted. Groundwater sampling performed up gradient and down gradient from the operation during the re-certification period has demonstrated that there has been no cyanide impact to groundwater and/or indirect impact to surface water. There is no known seepage of cyanide-bearing water to groundwater and there are no cyanide-related remedial activities necessary. All

operations were reported as being in compliance with current government permits and requirements.

The facility tests atmospheric process emissions of hydrogen cyanide gas every three years. The conclusion was that the operation is in full compliance.

Monitoring is conducted at regular frequencies. According to the records reviewed during the audit, all data results indicate that the operation has complied with all monitoring requirements and emission limits throughout the re-certification period. The monitoring program was found to be appropriate for the operation.

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

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

The operation is in full compliance with Production Practice 4.1

Summarize the basis for this Finding:

CyPlus Wesseling trains all its workers to understand the hazards of working with cyanide through annual training and refresher programs. Interviews with site personnel confirmed they had completed hazard awareness training. The auditors found that all employees have been trained on cyanide related topics. Records include the names of the employee and the trainer, the date, topics covered, and tests of understanding. Records are retained throughout an individual's employment documenting the training they receive. Records for the re-certification period (2015-2018) were available for review and found to be complete.

Site personnel receive specific training regarding the use, storage and cleaning of the personal protective equipment (PPE) required by each activity to be conducted. The Procedure for Safety Equipment Use and the online tool, which includes a learning module on PPE use, are used. In addition, each operational procedure includes the PPE required to perform the job. Auditors found all personnel were trained on the operational procedures, including the use of PPE. Records for the re-certification period (2015-2018) were available for review and found to be complete.

Internal training in the procedures has been given to all employees. The induction training program includes the safety procedures and safety measures applicable to the activities that are conducted onsite. The training is provided by the site's Operations Supervisor and by the company's H&S Coordinator. Competency records showing that testing was completed, and that understanding was confirmed were available for review during the audit. Employees are trained to perform normal

operation tasks to minimize risks to personal safety and the environment. All personnel are trained on cyanide awareness prior to beginning work at the facility and are trained in job procedures before working with cyanide. Through interviews, employees showed very good awareness of procedural requirements for both normal and upset operating conditions.

The facility uses work procedures as training materials. All the necessary elements are identified. Training elements are defined for the different jobs. There is a checklist of all tasks and information that must be learned for each task. Records were reviewed and were found to be complete.

General evaluation of the training provided to the site employees is done after induction/training sessions. A training schedule is maintained, based on requirements of each specific position and also on the skill level of each individual. Evaluation records are kept by the site.

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

The operation is in full compliance with Production Practice 4.2

Summarize the basis for this Finding:

The facility trains all its personnel in emergency response procedures. This is done as part of the regular safety training that is specific to each position at the facility. Interviews with personnel showed acceptable awareness of emergency procedures. First Responders from the on-site medical group would respond to any cyanide exposure emergency. Paramedics are highly trained professionals who are capable of providing assistance to multiple exposure victims in the unlikely event of a cyanide release. Training includes the use of the cyanide antidote kit owned by the site. The training includes practice in the use of the antidote kit. Information was confirmed through interviews, the evaluation of equipment, and a review of records.

Drills are conducted to test general response to chemical emergencies, including chemical exposure. Emergency drills are evaluated from a training perspective by appropriate personnel. Corrective actions are processed, and emergency procedures are revised as necessary following the drill results to incorporate improvement opportunities. The emergency response procedures are updated, if required. Site employees are notified of any modification to emergency response procedures. This was confirmed through employee interviews and a review of drill records.

The site keeps training records and evaluation results of all trained workers. Training records are maintained for at least as long as the employee works at the site. Records for the re-certification period (2015-2018) were reviewed and were found to be complete.

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

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

The operation is in full compliance with Production Practice 5.1

Summarize the basis for this Finding:

CyPlus Wesseling maintains its own emergency response plan and Evonik maintains an emergency response plan for the entire industrial complex. The emergency response plans are integrated and very well coordinated so that all the response to any emergency is efficient and effective.

The CyPlus and Evonik have emergency response plans that consider the potential failure scenarios appropriate for its site-specific environmental and operating circumstances, including potential releases of cyanide from the operation, fire, explosion, releases during loading and dissolution operations, pipe, valve or tank rupture, power outages, and the overtopping of the waste treatment facility. The scenarios were found to be appropriate by the auditors. The emergency plans were available for review and were found to be suitable.

The emergency response plans include specific actions to be taken in the event of a cyanide release, explosion and fire, evacuation of site personnel and of the surrounding facilities. The emergency response plans include telephone numbers and indicate the responsible party to make the appropriate notifications in the event of an emergency to CyPlus leadership, neighboring industrial partners, and authorities. Emergency procedures are also in place to detail the steps to be taken if there is a cyanide exposure or suspected exposure.

The emergency response plans consider control of releases at their source for different scenarios. The plans state that the release must be controlled at its source, if at all possible to do so. The emergency response plans describe the necessary actions to take for release containment, assessment, mitigation and prevention.

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

The operation is in full compliance with Production Practice 5.2

Summarize the basis for this Finding:

Each business at the industrial park, including CyPlus Wesseling sends a representative to the site-wide meetings with Evonik emergency personnel. Evonik then works with the community to formulate emergency response actions.

The local authorities receive a copy of the emergency response plans. During training sessions, local emergency response agencies are informed of their responsibilities in case of an emergency. Adjacent facilities have been informed of the site operations, the coordination plan in case evacuation is required and have been provided with CyPlus contact information. Communication and training records were available for review and were found to be acceptable.

The site has informed adjacent facilities and local communities regarding its operations and the coordination plan in case evacuation is required. The site has provided a copy of its emergency response procedures to the authorities. CyPlus Wesseling, working with the neighboring industries, has also created a brochure that is posted on their web-site which explains what the risks are and how to respond in the event of an emergency.

The facility was able to demonstrate through interviews and through communication records that they are in regular contact with local authorities, and external emergency responders. Evonik performs emergency drills with the local emergency responders and medical facilities to ensure that all those involved understand their role in the event of an emergency.

Production Practice 5.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is in full compliance with Production Practice 5.3

Summarize the basis for this Finding:

The CyPlus and Evonik emergency plans (BAGAP and AGAP) clearly define the roles and responsibilities of key personnel and their back-ups. Authorities are clearly stated. Formal emergency response teams are formed, trained, and maintained. Refresher training (drills) are done on a regular basis to keep team skills current. Emergency Response Team information was available for review during the audit. The members of the emergency response brigade have been trained by qualified personnel. The emergency procedures indicate responsibilities and training needs for the emergency responders. Refresher training is done at least annually.

The emergency response procedures have updated emergency telephone numbers list with 24-hour contact information. It includes telephone numbers of the local emergency response agencies, CyPlus, and Evonik representatives. The BAGAP and AGAP list the emergency response equipment that should be available and includes PPE, medical equipment, firefighting equipment, containment and neutralization materials, and collection equipment for waste generated during the emergency. Emergency response equipment is inspected monthly using a checklist. Its availability and operability were confirmed during the audit.

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

The operation is in full compliance with Production Practice 5.4

Summarize the basis for this Finding:

The emergency plans have emergency telephone numbers including the nearest hospital, local emergency agencies, Evonik, and CyPlus representatives. The emergency plans include telephone numbers and indicate the responsible party to make the appropriate notifications in the event of an emergency to leadership, neighboring industrial partners, and authorities.

The Evonik Government Affairs group (a shared service) would be the group to make formal notifications to government authorities. The Evonik Crisis Team would be responsible for making sure that all necessary notifications during the emergency were handled appropriately. The emergency plans include procedures and contact information for notifying potentially affected communities and/or media.

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

Summarize the basis for this Finding:

Actions that are required immediately for spill response are detailed in the BAGAP and AGAP emergency plans. Decontamination and disposal procedures are also in place to address the need for decontamination and/or disposal of contaminated solids or debris. If required, contaminated material is disposed as hazardous waste through an authorized company. The scenarios identified in the plans are consistent with the activities performed at the site.

The BAGAP prohibits the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that have been released into surface water. The document also explains why this is important, namely that the use of such chemicals could lead to additional environmental harm.

The emergency procedures state that environmental experts and regulators will work together to determine what needs to be tested in the event of a release.

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**

Summarize the basis for this Finding:

The emergency response plans are reviewed at least once a year and emergency response drills are performed regularly. Records were available for review. Both the BAGAP and AGAP were reviewed and revised in 2018.

Emergency drills occur on a regular basis. During the re-certification period drills took place in 2015, 2016, and 2017. The drills included the decontamination of a cyanide exposure victim and the cleanup of a cyanide spill. Lessons learned from the emergency drills are taken into consideration when updating the emergency response plans and procedures, if required. Workers are notified of any modifications to the plans.

The auditors reviewed the mock drill reports from the re-certification period. Response times were considered as well as the training, suitability of material handling and the personal involvement. The reports include evaluation of the drills, emergency response plan compliance, and establishing the necessary corrective action.

Procedures call for the ERP to be reviewed and updated following the evaluation of any drill or after an emergency. During the site interviews, personnel and site management employees were aware that the plan should be reviewed in case of emergencies.