

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

November 20, 2015

PERMIT TO INSTALL
152-15

ISSUED TO
PVS Technologies, Inc.

LOCATED AT
10825 Harper Avenue
Detroit, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
B2371

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: November 6, 2015	
DATE PERMIT TO INSTALL APPROVED: November 20, 2015	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO ₂ e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUK-127	Single-stage packed bed scrubber for hydrogen chloride. The scrubber uses water as a scrubbing solution.	1995	FGREDUCTION
EUK-501-502	Two-stage packed bed scrubber for chlorine. The scrubbing solutions for the scrubber may be ferrous chloride in both stages or ferrous chloride in one stage and a caustic solution in the other stage.	1991	FGCHLORINE
EUT-50	A 10,000 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-101	A 30,000 gallon intermediate process storage FRP tank for ferric chloride.	1991	FGFERRICCHLORIDE
EUT-102	A 30,000 gallon storage FRP tank for liquid ferric chloride.	1991	FGFERRICCHLORIDE
EUT-103	A 30,000 gallon storage FRP tank for liquid ferric chloride.	2015	FGFERRICCHLORIDE
EUT-104	A 30,000 gallon intermediate process storage FRP tank for unfiltered ferrous chloride.	1991	FGFERRICCHLORIDE
EUT-105B	A 30,000 gallon chlorine scrubber feed FRP tank containing filtered ferrous chloride.	1991	FGCHLORINE
EUT-106	A 20,500 gallon reduction reactor to produce a concentrated ferrous chloride solution.	1995	FGREDUCTION
EUT-107	A 20,500 gallon reduction reactor to produce a concentrated ferrous chloride solution.	1995	FGREDUCTION
EUT-107A	A 15,000 gallon reduction reactor to produce a concentrated ferrous chloride solution.	1995	FGREDUCTION
EUT-108A	A 30,000 gallon reactor that chlorinates the ferrous chloride into ferric chloride.	1991	FGCHLORINE
EUT-108B	A 30,000 gallon reactor that chlorinates the ferrous chloride into ferric chloride.	1991	FGCHLORINE
EUT-108C	A 30,000 gallon reactor that chlorinates the ferrous chloride into ferric chloride.	2001	FGCHLORINE
EUT-109	A 3,000 gallon intermediate storage tank containing unfiltered ferrous chloride. Exhaust gas vents to EUK-127.	1991	FGREDUCTION
EUT-114	A 150,000 gallon ferrous chloride/HCl solution storage tank.	1991	FGREDUCTION
EUT-115	A 150,000 gallon ferrous chloride/HCl solution storage tank.	1991	FGREDUCTION

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUT-116	A 150,000 gallon storage tank for drinking water grade liquid ferric chloride or may be used for ferrous chloride solution based upon need.	1991	FGREDUCTION
EUT-195	A 10,566 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-196	A 21,672 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-197	A 16,561 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-198	A 21,672 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-199	A 8,478 gallon storage tank for etchant or other specialty products.	1991	FGFERRICCHLORIDE
EUT-200	A 4,700 gallon HCl storage tank.	1991	FGREDUCTION
EUT-201	A 10,000 gallon reactor which reacts HCl with iron oxide to produce a ferrous chloride solution.	1991	FGREDUCTION
EUCIRailCar	Rail car that delivers chlorine to the facility and is unloaded into the chlorine pipeline.	Portable	FGCHLORINE
EUYARD	All open area storage piles of various material sizes and types. All truck traffic for delivery of raw material, loader traffic associated with storage pile handling, and unloading of delivery trucks.	1991	NA
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to:
EUCIRailCar

DESCRIPTION: Rail car that delivers chlorine to the facility and is unloaded into the chlorine pipeline.

Flexible Group ID: FGCHLORINE

POLLUTION CONTROL EQUIPMENT: Two-stage packed tower scrubber.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUCIRailCar unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the operation and unloading of EUCIRailCar, has been submitted within 45 days of permit issuance, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep the MAP at the facility and make it available to the Department upon request. The permittee shall keep all records demonstrating compliance with any preventative activities at the facility and make it available to the Department upon request. **(R 336.1225, R 336.1910, R 336.1911)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. All rail cars entering the facility shall operate in compliance with all conditions of EUCIRailCar pursuant to this Permit to Install. **(R 336.1224, R 336.1225)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to:
EUYARD

DESCRIPTION: All open area storage piles of various material sizes and types. All truck traffic for delivery of raw material, loader traffic associated with storage pile handling, and unloading of delivery trucks.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

1. Visible emissions from each of the material storage piles, including loading and unloading, and all truck traffic operated in conjunction with EUYARD shall not exceed five (5) percent opacity. Compliance shall be demonstrated using Test Method 9D as defined in Section 324.5525(j) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). **(R 336.1301, 40 CFR 52.21(c) & (d), Act 451 324.5524(2))**

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUYARD unless the nuisance minimization plan for fugitive dust for all plant roadways, the plant yard, all material storage piles, and all material handling has been submitted within 45 days of permit issuance, and is implemented and maintained. The permittee shall submit the nuisance minimization plan and any amendments to the nuisance minimization plan to the AQD District Supervisor for review and approval. The permittee shall keep the nuisance minimization plan on file at the facility, in a format acceptable to the AQD District Supervisor, and make it available to the Department upon request. **(Act 451 324.5524)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep records of activities associated with nuisance minimization. **(Act 451 324.5524)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGREDUCTION	The reduction of iron oxide and iron scrap with HCl to produce ferrous chloride.	EUK-127, EUT-106, EUT-107, EUT-107A, EUT-109, EUT-114, EUT-115, EUT-116, EUT-200, EUT-201
FGCHLORINE	The chlorination of ferrous chloride into ferric chloride.	EUK-501-502, EUT-105B, EUT-108A, EUT-108B, EUT-108C, EUCIRailCar
FGFERRICCHLORIDE	The total process of processing iron oxide and iron scrap into ferric chloride, and the final product storage.	FGREDUCTION, FGCHLORINE, EUT-50, EUT-101, EUT-102, EUT-103, EUT-104, EUT-195, EUT-196, EUT-197, EUT-198, EUT-199

The following conditions apply to:
FGREDUCTION

DESCRIPTION: The reduction of iron oxide and iron scrap with HCl to produce ferrous chloride.

Emission Units: EUK-127, EUT-106, EUT-107, EUT-107A, EUT-109, EUT-114, EUT-115, EUT-116, EUT-200, EUT-201

POLLUTION CONTROL EQUIPMENT: Single-stage packed tower scrubber.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen chloride	1.03 pph	Test Protocol*	FGREDUCTION	SC V.1**	R 336.1224, R 336.1225

*Test protocol shall specify averaging time.

**Compliance with this emission limit is also demonstrated through parametric monitoring of the control equipment.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any equipment in FGREDUCTION unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the single-stage packed tower scrubber (EUK-127), has been submitted within 45 days of permit issuance, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910, R 336.1911)**

2. The permittee shall immediately discontinue the input feed to all equipment in FGREDUCTION, consistent with safe operating procedures, upon occurrence of a malfunction of the single-stage packed tower scrubber. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**

3. The permittee shall use water or sodium hydroxide as the scrubbing solution in the single-stage packed tower scrubber. The conductance of water shall not exceed 709,000 microsiemens/centimeter. The conductance of sodium hydroxide shall not exceed 414,000 microsiemens/centimeter. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
4. The permittee shall maintain a minimum liquid flow rate within EUK-127 of 14 gallons per minute and shall not exceed a gas flow rate to EUK-127 of 3600 standard cubic feet per minute. The permittee shall not exceed a maximum pressure drop of 3 inches water gauge across EUK-127. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any equipment in FGREDUCTION unless the single-stage packed tower scrubber (EUK-127) is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
2. The permittee shall maintain, in a satisfactory manner, an alternate pump for resuming the normal flow of scrubbing liquid to the single-stage packed tower scrubber upon occurrence of a malfunction of the operating pump. The alternate pump shall be readily accessible at the facility. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the conductivity of the scrubbing solution in EUK-127 on a continuous basis while operating any equipment in FGREDUCTION. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the liquid flow rate of the scrubbing solution of EUK-127 on a continuous basis while operating any equipment in FGREDUCTION. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the pressure drop across EUK-127 on a continuous basis while operating any equipment in FGREDUCTION. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after permit issuance or an alternate timeline as agreed to in writing by the District Supervisor, the permittee shall verify hydrogen chloride emission rates from FGREDUCTION by testing at owner's expense, in accordance with Department requirements. If the initial test is performed with a caustic scrubbing solution, then a subsequent test shall be performed within 180 days of switching the scrubbing solution to water. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required records in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1301)**

2. The permittee shall keep, in a satisfactory manner, a log of all EUK-127 downtime and maintenance and repair activities. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910, R 336.1911)**
3. The permittee shall keep, in a satisfactory manner, a record of the operating hours of FGREDUCTION on a daily and monthly basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225)**
4. The permittee shall maintain records of the maximum fan capacity for the fan associated with the exhaust gas flowing to EUK-127 to demonstrate compliance with SC III.4. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225)**
5. The permittee shall record and maintain the following information for FGREDUCTION at least once per shift:
 - a. The conductance of the scrubbing solution in EUK-127.
 - b. EUK-127 liquid flow rate in gallons per minute.
 - c. The pressure drop across EUK-127 in inches water gauge.One data point for each listed item shall be recorded, unless a more frequent timeframe is specified in the MAP. The permittee shall keep the records on file at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1301)**
6. The permittee shall maintain records of the results of the testing required in SC V.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225)**

VII. REPORTING

1. Within 30 days after the scrubbing solution is switched to water, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. The scrubbing solution is considered switched upon operation of the scrubber, EUK-127, with a water scrubbing solution. **(R 336.1201(7)(a))**
2. Within 30 days after completion of the installation of all the devices required in SC IV.3 through SC IV.5, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation is considered to occur not later than commencement of trial operation of EUK-127 with all required monitoring devices. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVK-127	18	49	R 336.1225

IX. OTHER REQUIREMENTS

1. The devices required in SC IV.3 through SC IV.5 shall be installed no later than February 18, 2016.
(R 336.1224, R 336.1225, R 336.1301, R 336.1910)

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to:
FGCHLORINE

DESCRIPTION: The chlorination of ferrous chloride into ferric chloride.

Emission Units: EUK-501-502, EUT-105, EUT-108A, EUT-108B, EUT-108C, EUCIRailCar

POLLUTION CONTROL EQUIPMENT: Two-stage packed tower scrubber.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Chlorine	1 ppmv	Test Protocol*	FGCHLORINE	SC VI.2**	R 336.1224, R 336.1225
2. Chlorine	0.022 pph	Test Protocol*	FGCHLORINE	SC V.2**	R 336.1224, R 336.1225

*Test protocol shall specify averaging time.

**Compliance with this emission limit is also demonstrated through parametric monitoring of the control equipment.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any equipment in FGCHLORINE unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the two-stage packed tower scrubber (EUK-501-502), has been submitted within 45 days of permit issuance, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.
 - d. A description of the procedure for maintaining calibration on the continuous chlorine emission monitor.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

2. The permittee shall immediately discontinue the input feed to all equipment in FGCHLORINE, consistent with safe operating procedures, upon occurrence of a malfunction of the two-stage packed tower scrubber. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
3. The permittee shall cease operation of FGCHLORINE if the chlorine concentration meets or exceeds the limit in SC I.1. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
4. The permittee shall not exceed a gas flow rate to EUK-501-502 of 2,000 standard cubic feet per minute. **(R 336.1224, R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any equipment in FGCHLORINE unless the two-stage packed tower scrubber (EUK-501-502) is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
2. The permittee shall maintain, in a satisfactory manner, an alternate pump for resuming the normal flow of scrubbing liquid to the two-stage packed tower scrubber upon occurrence of a malfunction of the operating pump. The alternate pump shall be readily accessible at the facility. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the chlorine concentration of the exhaust gas from SVK-501-502 on a continuous basis while operating any equipment in FGCHLORINE. The monitoring device shall be equipped with an alarm and interlocking shutdown system that ceases operation of FGCHLORINE when the monitored chlorine concentration meets or exceeds the limit in SC I.1. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
4. The permittee shall use ferrous chloride only or ferrous chloride and sodium hydroxide as the scrubbing solutions in the two-stage packed tower scrubber. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the Oxidation Reduction Potential of the ferrous chloride scrubbing solution in EUK-501-502 on a continuous basis while operating any equipment in FGCHLORINE. If the permittee switches from a sodium hydroxide scrubbing solution to a ferrous chloride scrubbing solution in EUK-501-502, then the permittee shall, within 90 days of the switch, install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the Oxidation Reduction Potential of the ferrous chloride scrubbing solution in that stage of EUK-501-502 on a continuous basis while operating any equipment in FGCHLORINE. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the liquid flow rates of the scrubbing solutions of EUK-501-502 on a continuous basis while operating any equipment in FGCHLORINE. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor the pressure drop across EUK-501-502 on a continuous basis while operating any equipment in FGCHLORINE. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after permit issuance or an alternate timeline as agreed to in writing by the District Supervisor, the permittee shall verify chlorine emission rates from FGCHLORINE by testing at owner's expense, in accordance with Department requirements. If the initial test is performed with ferrous chloride and sodium hydroxide as the scrubbing solutions, then a subsequent test shall be performed within 180 days of switching to the use of ferrous chloride only. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required records in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1301)**
2. The permittee shall keep, in a satisfactory manner, records of the chlorine concentration in the exhaust gas from SVK-501-502 on a continuous basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**
3. The permittee shall keep, in a satisfactory manner, a log of all EUK-501-502 downtime and maintenance and repair activities, including all events related to the shutdown of EUK-501-502 through the interlocking shutdown system. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910, R 336.1911)**
4. The permittee shall keep, in a satisfactory manner, a record of the operating hours of FGCHLORINE on a daily and monthly basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225)**
5. The permittee shall maintain records of the maximum fan capacity for the fan associated with the exhaust gas flowing to EUK-501-502 to demonstrate compliance with SC III.4. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225)**
6. The permittee shall maintain records of the results of the testing required in SC V.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225)**

VII. REPORTING

1. Within 30 days after completion of the installation of all the devices required in SC IV.4 through SC IV.6, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation is considered to occur not later than commencement of trial operation of EUK-501-502 with all required monitoring devices. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVK-501-502	18	49	R 336.1225

IX. OTHER REQUIREMENTS

1. The devices required in SC IV.4 through SC IV.6 shall be installed no later than February 18, 2016. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to:
FGFERRICCHLORIDE

DESCRIPTION: The total process of processing iron oxide and iron scrap into ferric chloride, and the final product storage.

Flexible Group IDs and Emission Units: FGREDUCTION, FGCHLORINE, EUT-50, EUT-101, EUT-102, EUT-103, EUT-104, EUT-195, EUT-196, EUT-197, EUT-198, EUT-199

POLLUTION CONTROL EQUIPMENT: A single-stage packed tower scrubber for FGREDUCTION and a two-stage packed tower scrubber for FGCHLORINE.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall maintain the Emergency Action Plan for the equipment in FGFERRICCHLORIDE. The Emergency Action Plan should describe the triggering event for use of the Emergency Action Plan and the subsequent actions to be taken. The permittee shall keep a copy of the Emergency Action Plan on file at the facility and make it available to the Department upon request. **(R 336.1224, R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep the Emergency Action Plan at the facility and make it available to the Department upon request. The permittee shall keep all records related to triggering events and the subsequent actions taken and make them available to the Department upon request. **(R 336.1224, R 336.1225)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVK-127	18	49	R 336.1225
2. SVK-501-502	18	49	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).