Technical Support Document
for
Draft Air Emission Permit No. 05300499-101

This technical support document (TSD) is intended for all parties interested in the draft permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft permit.

1. General information

1.1 Applicant and stationary source location

Table 1. Applicant and source address

Applicant/Address	**Stationary source/Address** (SIC Code: 3471 - Electroplating, Plating, Polishing, Anodizing, and Coloring)
Co-operative Plating 271 Snelling Ave N Saint Paul, MN 55104	Co-operative Plating Co 1605 Iglehart Ave Saint Paul, MN 55104
Contact: Corey Behmer Phone: 651-645-0787	

1.2 Facility description

Co-operative Plating Company (Facility) is a job shop metal finishing facility. The Facility operates eighteen separate metal coating lines that process many different base metals, including steel, brass, copper, and aluminum. Metal layers are plated onto the base metals for many reasons, including: wear, corrosion, and electrical resistance, and overall protection of the parts. The Facility uses both electrical and non-electrical processes for plating. Parts are cleaned in an alkaline cleaner, acid dipped to remove any oxidizers on the base metal, and then coated for the finished product.

The Facility also operates two solvent degreasing units, two boilers, and several plating waste storage tanks. Pollutants of concern from the Facility are particulate matter (PM), PM less than 10 microns (PM_{10}), PM less than 2.5 microns ($PM_{2.5}$), hazardous air pollutants (HAPs), and acid and metal particulates. The Facility has a horizontal wet scrubber that controls acid, metal particulate mists, and HAPs from the plating tanks; however, this unit is not required to operate because the Facility meets all emission limits and health benchmarks without the control device.

1.3 Description of the activities allowed by this permit action

This permit action is a State Permit.

This Facility previously had a Part 70 permit and now qualifies for an individual state permit because permit allowable emissions are now below federal permitting thresholds.

1.4 Description of notifications and applications included in this action

Table 2. Notifications and applications included in this action

Date received	Application/Notification type and description
04/01/2014	Part 70 Reissuance Application; turned into State Permit on 05/03/2018 (IND20140001) with supplemental information received on August 2, 2018. Final certified application received July 18, 2022.

1.5 Facility emissions

Table 3. Total facility potential to emit summary

	PM tpy	PM_{10} tpy	$PM_{2.5}$ tpy	SO_2 tpy	NO_x tpy	CO tpy	CO_2e tpy	VOC tpy	Single HAP tpy**	All HAPs tpy
Total facility limited potential emissions	45.1	45.0	45.0	0.03	4.5	3.6	5,418	19.0	6.5	11.4
Total facility actual emissions (2020)	15.0	15.0	4.4	0.008	1.4	1.2	*	5.7	*	

*Not reported in Minnesota emission inventory.

**On December 22, 2021, EPA issued a final action to add 1-BP (nPB) to the list of hazardous air pollutants under CAA section 112. The largest single HAP at the facility is nPB.

Table 4. Facility classification

Classification	Major	Synthetic minor/area	Minor/Area
New Source Review			X
Part 70		X	
Part 63		X	

1.6 Changes to permit

The permit does not authorize any specific modifications; however, the MPCA has a combined operating and construction permitting program under Minnesota Rules Chapter 7007, and under Minn. R. 7007.0800, the MPCA has authority to include additional requirements in a permit. Under that authority, the following changes to the permit are also made through this permit action:

- The permit has been updated to reflect current MPCA templates and standard citation formatting.
- Permit language associated with completed requirements has been deleted.
- The GP, EU, CE, and SV identifiers have been updated to COMG, EQUI, TREA, and STRU, respectively, to reflect MPCA's current permitting practice.
- Permitted sulfur content of the fuel oil used in boilers 1 and 2 was decreased to 0.0015 percent sulfur by weight to reflect commonly available No. 2 fuel oil.
- Federally enforceable requirements were added to make the building a total enclosure.
- Requirements were changed for the degreaser (EQUI 22) because the degreasing solvent was changed from TCE to n-propyl bromide (nPB). The reduced room draft requirements based on 40 CFR pt. 63, subp. T were removed since the type of enclosed degreaser has a very low air-solvent interface and therefore cannot measure the air flow across the air-solvent interface.
- EQUI 259 was added as the new smaller parts washer that uses TCE. The unit will cease using TCE by June 1, 2022. This unit has not been operated since installation and the facility does not plan to use it. A

requirement was added prohibiting the Facility from operating this unit and requiring an amendment to operate the unit in the future.

- Requirements on the plating tanks were separated into two main groups: those plating tanks subject to 40 CFR pt. 63, subp. WWWWWW (COMG 14), and those plating tanks not subject to it (COMG 27). The groups organized by plating line in the previous permits no longer have requirements, but they were still used in this permit action to organize potential emissions data.
- Brazing, soldering, torch-cutting, and welding activities, and the Black Oxide Oven were added to the insignificant activities list under Minn. R. 7007.1300, subp. 3(F).
- The following items were removed from the permit because they were removed from the Facility or decommissioned: 3 stack/vent structures, 1 paint spray booth and associated panel filter, 38 coating/cleaning tank emission units, and 3 process line groups.
- COMG 6 description changed from "Iridite Line" to "Surtec Line." COMG 25 description removed "Surtec Line."
- Removed EQUIs 7, 14, 23, 24, 25, 26, 27, 36, 49, 79, 80, 85, 86, 87, 95, 100, 101, 107, 113, 117, 120, 125, 128, 129, 130, 134, 135, 136, 137, 141, 144, 158, 159, 177, 185, 193, 217, 219, 221, 237, 244, 249, 254, 257; STRU 3, 4, and 6; TREA 1. These units have been removed from the Facility.
- Created new EQUIs 212-272. These units were added to the Facility.
- EQUIs were added to and moved between various COMG. The group members were updated to align the requirements with the correct emission units.
- An annual operating hours limit of 8,000 hours pr year was added to COMG 27, COMG 14, and EQUI 69. This limit ensures the Facility potential to emit is below health benchmark values.

2. Regulatory and/or statutory basis

2.1 New source review (NSR)

The Facility is a minor source under New Source Review regulations. No changes are authorized by this permit.

2.2 Part 70 permit program

The permit establishes limits on the Facility such that it is a nonmajor source under the Part 70 permit program.

2.3 New source performance standards (NSPS)

The Permittee has stated that no New Source Performance Standards apply to the operations at this facility.

2.4 National emission standards for hazardous air pollutants (NESHAP)

Under permit action 05300499-001, Co-operative was a major source of HAPs because the potential emissions of trichloroethylene (TCE) from its degreaser (EQUI 22, formerly EU131) exceeded 10 tpy. The Facility was subject to two major source NESHAPs. Permit number 05300499-002 established an operational limit on the degreaser (EQUI 22) such that it could be classified as an area source under 40 CFR pt. 63. However, the Facility was still subject to the major source NESHAPs and required to maintain a Part 70 permit due to EPA's former "once in, always in" policy, which required facilities that were major sources of HAPs on the first compliance date of a NESHAP to permanently comply with the MACT standard.

On January 25, 2018, EPA released a memorandum reversing the "once in, always in" policy, allowing facilities that were historically major sources for HAPs and still subject to major source NESHAPs to become subject to area source NESHAPs if they have taken limits to become a synthetic minor source or decreased their HAPs PTE in another manner. The applicable NESHAPs—40 CFR pt. 63, subps. N, T, and WWWWWW—contain provisions stating that subject area sources are exempt from the obligation to obtain a permit under 40 CFR pt. 70, provided they are not required to obtain a Part 70 permit for a reason other than their status as an area source. Additionally, the Facility's limited PTE is below the Part 70 thresholds for HAPs, and its

unlimited PTE is below Part 70 thresholds for all other pollutants. Therefore, it qualifies for a state permit while remaining subject to area source NESHAP requirements.

The area source NESHAPs that apply are:

- 40 CFR pt. 63, subp. N (NESHAP for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks); and
- 40 CFR pt. 63, subp. WWWWWW (NESHAP for Area Source standards for Plating and Polishing Operations). Since Co-operative Plating took limits to be considered an area source before the compliance date of the NESHAP (July 1, 2010), it is subject to this area standard.

40 CFR pt. 63, subp. T (NESHAP for Halogenated Solvent Cleaning), is not applicable to the n-propyl bromide (nPB) degreaser (EQUI 22) because nPB does not meet the definition of a "halogenated HAP solvent," as defined in 40 CFR § 63.461.

The Facility was a synthetic area source of HAPs before the compliance date of 40 CFR pt. 63, subp. JJJJJJ (NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources). Applicability is based on boilers using liquid, coal, or biomass fuel; any gas-fired boilers meeting the definition in 40 CFR § 63.11237 are not subject to subp. JJJJJJ, per 40 CFR § 63.11195(e). Co-operative's boilers have met the definition of being gas-fired since the compliance date, so they are not subject to subp. JJJJJJ. Language was added to the permit to restrict liquid fuel use to times allowed in the definition of gas-fired in 40 CFR § 63.11237.

2.5 Environmental review and air emissions risk analysis (AERA)

As part of this permit action, an AERA was prepared for the Facility. Although not initially required by law, the AERA was started in response to learning of an elevated TCE ambient (outdoor) air sample collected during a 2016 Phase II study for Birthright of St. Paul, located at 299 Snelling Ave. N. In 2019 Co-operative began using nPB as a degreasing alternative to TCE. An analysis of nPB was added to the AERA to determine if nPB usage limits were necessary to be protective of human health adjacent to the Facility. This AERA satisfies the requirement later legislated in Minn. Stat. 116.385, subd. 3, obligating the MPCA to ensure that solvents selected to replace TCE at facilities remain protective of human health and the environment.

2.6 Regulatory Overview

Table 5. Regulatory overview of facility

Subject item*	Applicable regulations	Rationale
TFAC 1 - Air Quality Total Facility	Minn. R. 7007.0800, subp. 5; Minn. R. 7007.1250, subp. 3	Plating tank inventory requirements carried forward from previous permit actions based on results of a Minnesota Department of Health (MDH) consultation in 2000.
	Minn. R. 7007.0800, subp. 2(A) & (B); Minn. R. 7009.0020-7009.0090; Minn. Stat. 116.07, subd. 4a(a)	The Total Building Enclosure Pressure Drop requirements ensure the building is a total enclosure based on Method 204 of Appendix M to 40 CFR part 51.

Subject item*	Applicable regulations	Rationale
	Minn. R. 7007.0100, subp. 7(A), 7(L) & 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0090, Minn. Stat. 116.07, subd. 4a(a), Minn. Stat. 116.07, subd. 9	If the Permittee proposes a change to the plating process that results in the emissions of: (1) chemicals of potential interest (COPI) for which health benchmarks have changed to more strict values in the current AERA Guidance, or (2) COPI for which there are new health benchmark values for in the current AERA Guidance, or (3) proposes to increase the emission rate or change the dispersion characteristics of any pollutant listed in Appendix B, this includes changes that do not require a permit amendment as well as changes that require any type of permit amendment. The Permittee shall first use the Co-operative Plating Air Emissions Risk Analysis (AERA) report as a template for recalculating and submitting the risk estimates, for updating the qualitative description of the risks (e.g. land use, exposure assumptions, etc.) and comparing the recalculated risk estimates for TCE, nPB, and any new pollutants emitted from the Facility to the risk management guidelines used in the Co-operative Plating Air Emissions Risk Analysis (AERA).
COMG 14 and 27 - Plating and polishing tanks	Minn. R. 7011.0715, subp. 1	Standards of Performance for post-1969 Industrial Process Equipment. Equipment for which there are no other promulgated performance standards are subject to the opacity and PM limits in this rule. The units were constructed after July 9, 1969.
COMG 14 - Plating Tanks subject to 40 CFR pt. 63, subp. WWWWWW	40 CFR pt. 63, subp. WWWWWW; Minn. 7011.8250	Area Source NESHAP for Plating and Polishing Operations • The Facility conducts non-chromium electroplating, electroless plating, and other non-electrolytic metal coating processes; and • The Facility is subject to the requirements for 1. non-cyanide electroplating, electroforming, or electropolishing tanks; 2. “flash” or short term electroplating tanks; and 3. electroplating tanks using cyanide in the plating bath and operating at a pH ≥ 12. The Permittee selected using wetting agents/fume suppressants, limiting operations hours and use of tank covers for flash/short term electroplating, and monitoring pH for cyanide plating baths as their compliance options.
EQUI 1 and 2 - Boilers	Minn. R. 7011.0515	Standards of Performance for New Indirect Heating Equipment • Construction of the unit was on or after January 31, 1977; • The unit burns gaseous and liquid fuels; • The Facility is located inside the cities in Table II of the rule; • The unit capacity is less than or equal to 250 MMBtu/hr (5.05 MMBtu/hr, each); and • The Facility has less than or equal to 250 MMBtu/hr of indirect heating equipment (10.1 MMBtu/hr).
	Minn. R. 7007.0800, subp. 2(A) & (B); Minn. R. 7009.0020-7009.0090; Minn. Stat. 116.07, subd. 4a	The distillate fuel oil usage is limited to meet the emission limits set by the AERA modeling criteria.
EQUI 22 - Degreaser	Minn. R. 7011.0715	Standards of Performance for post-1969 Industrial Process Equipment. Equipment for which there are no other promulgated performance standards are subject to the opacity and PM limits in this rule. The unit was constructed after July 9, 1969.

Subject item*	Applicable regulations	Rationale
	Minn. R. 7007.0800, subp. 2(A) & (B); Minn. R. 7009.0020-7009.0090; Minn. Stat. 116.07, subd. 4a(a)	The nPB usage limit was established such that nPB levels in the ambient air adjacent to the Facility do not exceed the acute (24-hr) or chronic (annual) MDH HBVs. Additional requirements (similar to requirements for a unit subject to 40 CFR pt. 63, subp. T, NESHAP for Halogenated Solvent Cleansers) are used to limit health and environmental risks from nPB.
	Minn. R. 7007.0800, subp. 2(B), Minn. R. 7007.0800, subp. 16(L), Minn. Stat. 116.07, subd. 4a(a)	The Facility is required to conduct an Alternatives Study to evaluated degreasing alternatives to TCE and nPB. The study is to determine if there are any viable, preferably non-toxic, alternatives to degrease and de-mask parts and replace TCE and nPB in Facility operations.
EQUI 32 - TriChrome Electroplating Equipment	40 CFR pt. 63, subp. N; Minn. R. 7011.7120	NESHAP for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks • The Facility has a decorative electroplating tank that uses a trivalent chromium bath; and • The bath incorporates a wetting agent.
STRU 25 – Building Exhaust Fan	Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a); Minn.	The AERA modeling was completed at the worst-case scenario with a maximum air flow rate of 100,000 cfm.

*Location of the requirement in the permit (e.g., EQUI 1, STRU 2, etc.).

3. Technical information

3.1 Calculations of potential to emit (PTE)

Attachment 1 to this TSD contains PTE calculations of the Facility, which include detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. Emission equations, factors, and known physical properties (such as heating values) are generally based on AP-42, with details in the PTE footnotes and below.

Plating Tanks: An emission factor was calculated for each tank using the emitting characteristic (EC) for sparging (a process in which a gas us bubbled through a liquid to remove other gases or volatile compounds). The EC is equal to the sparge rate multiplied by the metal concentration (weighted percent) in the tanks. Some of the tanks' gassing rates and related emission factors were updated since the last permit action based on the updated list of chemicals used in each tank. The worst case emissions were calculated from the performance tests plus a safety factor for total emissions. The individual production line emissions were calculated by summing the total EC and then determining the percentage of the total EC for each individual production line. This percentage was applied to the total worst case emissions to determine the emissions for each individual production line.

The "annual capacities" of the plating tanks were updated to the annual throughput in each tank, in units of pounds or gallons of chemical, averaged over 2014, 2015, 2016, and 2017. This is different than the plating tanks' maximum capacities listed in Tempo, which are the actual tank volumes in units of 'gallons/each.' The individual tank emissions were grouped and summed by plating line.

AP-42 emission factors for PM emissions from chromium electroplating include filterable and condensable PM; however, the condensable PM from these sources are likely to be negligible. Given that the $PM_{2.5}$ emissions from the plating tanks are likely small compared to the PM/PM_{10} emissions, it is reasonable to assume that using PM/PM_{10} as a surrogate for $PM_{2.5}$ is a conservative assumption. This

reasoning was also applied to the other types of process tanks. Until $PM_{2.5}$ emissions factors are better documented for these types of operations, the $PM_{2.5}$ emissions are assumed to be the same as the PM/PM_{10} emissions. The PM emissions are calculated using 30 percent capture efficiency and 90 percent control efficiency.

The HAP emissions are calculated using 30 percent capture efficiency and 90 percent control efficiency for most pollutants. Nickel, Hexavalent Chromium, Cadmium, Cobalt, and Zinc use emissions factors derived from performance tests because the tests showed the control efficiency was lower than 90 percent for those pollutants.

Degreaser: There are no emission factors available for nPB emissions from a degreaser. Although nPB is not regulated by 40 CFR pt. 63, subp. T, it is used in degreasers, similar to the six solvents regulated under 40 CFR pt. 63, subp. T. Accordingly, 40 CFR pt. 63, subp. T, may be used to generate an emission factor for nPB. Generally a solvent with a low boiling point is more volatile than one with a higher boiling point, so the PTE equation for nPB could be expected to be slightly different from that used for TCE. However, the equation is the same for all six solvents covered under 40 CFR pt. 63, subp. T, despite their boiling points ranging from 103°F to 250°F. Since the boiling point of nPB is near the middle, at 160°F (in between chloroform (142°F), 1,1,1-trichloroethane (165°F), and carbon tetrachloride (170°F)), the equation from 40 CFR 63.465(e)(1) was assumed to also represent worst-case emissions of nPB from the degreaser.

Boilers: The boilers use AP-42 for most emission factors. Chromium was speciated into chromium III and VI in this permit action. The emission factors are from AP-42 Tables 1.3-10 and 1.4-1. An EPA document (see Attachment 4) was used to determine the speciation for each fuel type. The boilers are limited to distillate fuel oil usage less than or equal to 10 percent of the total annual fuel usage (approximately 1,000 gallons per year). The greenhouse gas emissions are calculated using emission factors from 40 CFR 98, Table A-1.

Insignificant Activities: The Black Oxide Oven emission factors are from AP-42, Chapter 1.4 External Combustion sources, Natural Gas Combustion. The waste acid tanks are not expected to have many emissions because they contain spent products that are flushed from the process tanks. The inorganic constituents do not have VOC emissions, only PM emissions. The emissions were calculated using gassing rate loss factors.

3.2 Wet Scrubber Permit Changes

Between permit actions 05300499-001 and 05300499-002, the Facility installed the wet scrubber to abate potential uncaptured air toxics (specifically, acid and metal particulates) based on results of a MDH consultation and in response to public concern during permit action 05300499-001. While there is not a collection hood at every plating tank to send its vapors to the scrubber, permit action 05300499-002 established requirements that the Facility route indoor air through the scrubber as it exited the building, and perform monthly negative pressure monitoring to ensure that indoor air was being sent through the scrubber.

For this permit action, in order to apply the scrubber's control efficiency limits to federally-regulated pollutants (specifically PM, PM_{10}, $PM_{2.5}$, and HAPs) Co-operative had to adequately demonstrate that the building operates as a total enclosure at all times. They also had to accept requirements with increased monitoring and recordkeeping frequency so the limits are enforceable as a practical matter for the purposes of limiting the PTE of federally-regulated air pollutants (as opposed to the monitoring requirements in previous permits: monthly negative pressure monitoring). Both of these changes were implemented in permit action 05300499-101.

To get better dispersion characteristics for pollutants that were flagged during the AERA, Co-operative installed a building exhaust fan to work alongside the wet scrubber exhaust. Since the new fan draws a

portion of the building's air, the majority of building air will not necessarily be going through the wet scrubber at any given time. The fan will operate on a variable frequency drive (VFD) and be able to emit anywhere from 15,000 to 100,000 cfm of airflow. The Facility proposes that operating at the low air flow rate, about 70 percent of building air will still go through the scrubber stack (STRU 5), with the remaining going out the new fan (STRU 25) and operating at the high air flow rate, about 30 percent of building air will go through the scrubber stack. Table 6 shows the proposed relative airflow rates and percentages below. Flow rates will vary continuously due to the VFD on STRU 25, so this table is for example purposes.

Table 6. Co-operative proposed flow rate exhaust examples

STRU 25 Fan Speed (cfm)	Building exhaust flow (cfm, STRUs 25+5+4)	Percentage of building air exhausted through wet scrubber (STRU 5/TREA 2)
15,000	61,200 = (15,000+44,000+2,200)	72%
60,000	106,200 = (60,000+44,000+2,200)	41%
100,000	146,200 = (100,000+44,000+2,200)	30%

With these Facility changes, the Permittee could take credit for the scrubber's control efficiency when reporting PTE or annual emissions inventory of federally regulated pollutants (PM, PM_{10}, $PM_{2.5}$, and HAPs). Previously the Permittee could apply the scrubber's control efficiency to non-HAP air toxics' PTE (as originally intended since that was established for state-only purposes), and they could continue to do so with the changes described above.

The Facility modeled additional AERA scenarios (see Section 3.5) that demonstrated that TREA 2 is not required to operate to meet emission limits and HBV or for any regulatory reason. The Facility has opted not to take credit for the control efficiency in the PTE calculations or for the annual emissions inventory. Therefore, no requirements are in the permit for TREA 2.

3.3 Degreaser Permit Changes

In 2016 an ambient (outdoor) air sample collected during a Phase II environmental site assessment for Birthright of St. Paul (located at 299 Snelling Ave. N) indicated that there was an elevated level of TCE in the ambient air adjacent to the Facility. The sample, reportedly collected over a 24-hour period, reported 14.2 $\mu g/m^3$ TCE, compared to the MDH short-term (24-hour) HBV for TCE of 2 $\mu g/m^3$, established in 2018.

Co-operative has demonstrated compliance with their permit and 40 CFR pt. 63, subp. T—the federal standard designed to limit environmental and health impacts from degreasing solvents like TCE. A soil-vapor study in 2018-2019 indicated that TCE emissions from soil around the building are unlikely to be the source of the elevated outdoor air TCE level. Accordingly, since the current permit did not appear to be protective of human health in regards to TCE exposure, Co-operative was asked to find a degreasing alternative.

N-propyl bromide (nPB) was found to work effectively as a degreaser at the Facility, but it is unable to remove a masking agent Co-operative uses in some jobs. Additionally, to be protective of the chronic (annual) MDH HBV for nPB (20 $\mu g/m^3$), Co-operative's current stack parameters limit annual nPB usage to 6.5 tons per year. To protect their surrounding environment Co-operative switched to nPB on May 24, 2019, with the end goal of finding an affective degreasing *and* de-masking alternative. The Minnesota Technical Assistance Program (MnTAP) and the Massachusetts Toxics Use Reduction Institute (TURI) are helping Co-operative test alternatives for viability. In the meantime, Co-operative is using nPB to degrease parts in EQUI 22 and a small amount of TCE is available to de-mask parts in EQUI 259. As of June 1, 2022, EQUI 259 has not yet been used to de-mask any parts since the Facility switched to nPB as its main degreasing agent and the Facility stated they do not intend to use this unit. Because the Permittee's usage of nPB need to be kept low to be protective of the MDH HBVs, permit no. 05300499-101 includes usage limits for nPB.

Since MnTAP and TURI have not yet found a better degreasing alternative than nPB for Co-operative, the Permittee looked into facility modifications to increase its nPB limit (e.g., increasing the stack height or velocity, narrowing its diameter, routing to existing or new control equipment, or operational changes). Some changes include the 100,000 cfm building fan being installed for better dispersion and routing the degreaser to the scrubber rather than just out of the Facility with no control. Implementing further modification(s) could increase the Permittee's nPB limit while limiting nPB impacts to the surrounding community. The Permittee is required to submit a permit amendment to implement further changes not addressed in this permit action.

On June 18, 2020, EPA issued a notice of the Agency's rationale to grant petitions to add nPB to the EPA's list of HAPs. This is the first HAP to be added to EPA's list, so future steps in the process aren't known right now. On December 22, 2021, the EPA issued a final action to add nPB to the EPA's list of HAPs. If Co-operative, MnTAP, and TURI cannot find a viable alternative to nPB, Co-operative should continue to follow progress on this issue. The EPA's HAP list should be revisited for any permit amendments to see if nPB has been added to any NESHAPs or other applicable federal requirements.

3.4 Performance Testing Summary

Co-operative conducted performance testing to establish emission rates and control efficiencies for cadmium, chromium, cobalt, nickel, zinc, and hexavalent chromium emitted from the wet scrubber (TREA 2). Initial performance testing was performed in February 2020. The cadmium results came back higher than expected and improper analysis at the laboratory was suspected so additional testing was completed in July 2020. The performance test notices of compliance are included in Attachment 3 of this TSD. Since the Facility has opted not to take credit for the control efficiency from TREA 2, the emission rates from these performance tests were used to establish emission limits at STRU 25. Future performance testing will be conducted at STRU 25 and not at STRU 5.

3.4.1 February 2020 Testing

Performance tests were conducted on February 26 and 27, 2020, for HAPs and metals that had been flagged in the AERA. Testing was conducted by Pace Analytical. Tests were conducted first without the wet scrubber operating, to simulate uncontrolled emissions (STRU 5/TREA 2 influent), and then again with scrubber operating, to demonstrate controlled emissions (STRU 5/TREA 2 effluent). Both series of tests averaged results across three independent two-hour test runs. The controlled performance tests averaged a volumetric flow rate of 42,200 dscfm out of STRU 5.

Table 7. Summary of February 2020 Performance Test Results on STRU 5, TREA 2

	Test Results		
Pollutant	**Influent**	**Effluent**	**TREA 2 Test Result**
Cadmium (Cd)	0.00175 lb/hr	0.00091 lb/hr	48% control efficiency
Chromium (Cr)	0.00030 lb/hr	0.00009 lb/hr	70% control efficiency
Hexavalent Chromium (Cr VI)	0.00014 lb/hr	0.00017 lb/hr	41% control efficiency
Cobalt (Co)	<0.00001 lb/hr	<0.00001 lb/hr	N/A (results non-detect)
Nickel (Ni)	0.00095 lb/hr	0.00078 lb/hr	82% control efficiency
Zinc (Zn)	0.00111 lb/hr	0.000083 lb/hr	30% control efficiency

3.4.2 July 2020 Testing

Follow-up performance tests were conducted for cadmium on July 14, 2020, after improper analysis at the laboratory was suspected with the February cadmium result given the limited number of cadmium bathes at the Facility. Testing was conducted by Pace Analytical. Tests were conducted at

the influent to the scrubber. Tests averaged results across three independent one-hour test runs. The controlled performance tests averaged a volumetric flow rate of 33,700 dscfm.

Table 8. Summary of August 2020 Performance Test Results on STRU 5, TREA 2

Pollutant	Influent Test Result
Cadmium (Cd)	0.000029 lb/hr

*Permit had no applicable limit; test conducted for emissions factor determination

The airflow measured at the August test port location was lower than the airflow measured during the February performance tests of the scrubber stack. The cadmium mass rate that was calculated based on the average inlet airflow measured in the February testing (41,700 dscfm) averaged 0.000037 lb/hr cadmium.

3.5 Air Emission Risk Analysis – Dispersion Modeling

An Air Emission Risk Analysis (AERA) was conducted to determine the potential risk from pollutants emitted by the Facility, specifically TCE, nPB, metals, and other pollutants with MDH Health-Based Values (HBVs). The AERA includes both a quantitative analysis of potential impacts to human health using MPCA's Risk Assessment Screening Spreadsheet ("RASS," https://www.pca.state.mn.us/sites/default/files/aq9-22.xlsx), and a qualitative analysis using information from the site and the surrounding community. The MPCA used the RASS to assess the potential health risks from the Facility's emissions from all possible exposure durations, including non-cancer health effects from short-term (acute) exposures and non-cancer and cancer-related health effects from long-term (chronic) exposures. The inhalation health benchmarks the MPCA uses for risk assessment are shown in Table 9. A health benchmark is a level below which a pollutant is unlikely to cause adverse health effects in children and sensitive populations. The health benchmarks are provided for two time durations: Acute one-hour averaged exposures, and Chronic for annual or one-year averaged exposures. The results of the AERA are shown in Table 10.

Table 9. MPCA Inhalation Health Benchmarks

	Inhalation Health Benchmark Values Concentration (µg/m^3)			
Test Results	**Acute**	**Sub-Chronic**	**Non-Cancer Chronic**	**Cancer Based Air Concentration**
1-Bromo-propane (nPB)	50,000	4,000	20	-
Cadmium (Cd)	-	-	0.02	0.006
Chromic Acid Mists	-	0.02	0.008	0.001
Hexavalent Chromium (Cr VI)	-	0.02	0.008	0.001
Cobalt (Co)	-	0.02	0.006	0.001
Ethyl Benzene	10,000	9,000	300	4.00
Nickel (Ni)	0.2	-	0.014	0.02
Toluene	37,000	5,000	4,000	-
Trichloroethylene (TCE)	2	2	2	2

Table 10. AERA Modeling Results

	Modeling Results Concentration (µg/m^3)			
Test Results	**1-hr**	**24-hr**	**Monthly**	**Annual**
1-Bromo-propane (nPB)	275	116	10.7	5.4
Cadmium (Cd)	0.013	4.25E-03	1.02E-03	6.20E-04
Chromic Acid Mists	9.49E-03	4.51E-03	9.65E-04	5.48E-04
Hexavalent Chromium (Cr VI)	8.73E-04	2.51E-04	6.40E-05	3.94E-05

Test Results	Modeling Results Concentration (µg/m³)			
	1-hr	24-hr	Monthly	Annual
Cobalt (Co)	1.12E-03	4.93E-04	1.06E-04	6.30E-05
Ethyl Benzene	1.60E-03	4.62E-04	1.07E-04	6.60E-05
Nickel (Ni)	0.062	0.026	5.79E-03	3.14E-03
Toluene	0.14	0.041	0.010	6.45E-03
Trichloroethylene (TCE)	1.53	0.64	0.14	0.07

Based on the results, permitted emission and operating limits were established:

- The nPB short-term modeled air concentration is acceptable because it is less than the short-term health benchmark; however, the unlimited nPB long-term modeled air concentration is above the long-term health benchmark. Accordingly, an nPB usage limit was incorporated into the permit to protect against the long-term nPB HBV. Using currently certified stack information, the Permittee must limit nPB usage to less than 6.5 tons per year to be protective of the chronic (annual) nPB HBV. See permit Appendix B for parameters used to calculate this limit. This portion of the analysis satisfies Minn. Stat. 116.385, subd. 3, which requires that facilities replacing TCE with another chemical use a replacement demonstrated to be less toxic to human health, as reviewed by MPCA.
- Co-operative installed a building exhaust stack fan that can provide a flow rate up to 100,000 cfm. Modeling was performed with the fan operating at multiple fan speeds; however, the worst-case emissions occurred when the fan was operating at 100,000 cfm. This fan, combined with performance test data, decreases modeled air concentrations of all Co-operative's emitted pollutants below applicable short- and long-term health benchmarks.

Based on the results of the AERA, with applicable permit limits, the MPCA does not expect the Facility's limited emissions to adversely affect human health and the environment. The risk analysis describes the area surrounding the Facility site. With their applicable permit limits, the Facility should not affect daycares and schools located within the 1.5 kilometer radius from the Facility. See Attachment 5 for additional information on the AERA results.

The Facility provided an additional scenario where all emissions are vented to STRU 25 and TREA 2 is not operating. Based on the results of this scenario, the MPCA does not expect the Facility's limited emissions to adversely affect human health and the environment. Based on the AERA results, the Facility is required to monitor emissions at STRU 25 to verify the emissions still meet the modeling criteria. Air flow rate testing to verify the flow rate to STRU 5 is at least 30 percent is not required since the Facility can meet emissions criteria using STRU 25 only. The Facility also modeled additional scenarios where the emissions were vented to STRU 25 and STRU 5 without TREA 2 operating. A limit of 8,000 operating hours per year was applied to these scenarios to keep the emissions below the HBV. The additional scenarios are included in Attachment 5.

3.6 Risk Recalculation Requirements

As is done with criteria air dispersion modeling results, the MPCA evaluates AERA results on a case-by-case basis to determine what types of changes at the Facility may require the Permittee to recalculate risk from air pollutants to ensure that changes after the permit is issued do not have the potential to adversely affect human health. Some of the factors considered are addressed below:

- How close is the Facility to the applicable risk management guidance levels?: The AERA was used to determine permit limits such that for all pathways and endpoints the modeled concentrations are below guidance levels.
- The Facility setting (e.g., the possibility of surrounding land use changes): The Permittee's site is zoned for general business. It is near areas zoned as restricted industrial, traditional neighborhood (commercial), and multi-family and two-family residential housing. It is possible that land use changes in the surrounding area could affect the outcome of the risk analysis.

- The likelihood that facility modifications would increase the PTE of the TCE or nPB emissions or change dispersion characteristics: Co-operative has already expressed interest in modifying stack parameters to change nPB dispersion characteristics. The permit contains conditions that require Co-operative to re-evaluate the RASS and obtain agency approval before making any modifications that would change the dispersion characteristics or modeled emission rates.
- The likelihood that process changes would lead to emissions of new toxic pollutants: Potential for new toxic pollutants would come from the introduction of a new degreasing agent. The permit contains a condition that requires Co-operative to evaluate any new degreasing solvent to ensure it does not introduce new or greater amounts of a hazardous or toxic material.

Therefore, the MPCA has determined that a risk recalculation shall be required if modifications are made to EQUI 22, EQUI 259, STRU 4, STRU 5, or STRU 25, or if solvents used in aforementioned EQUI are changed. In the unlikely scenario that another TCE emitter locates within one mile of Co-operative, a risk recalculation should be completed. Chances are slim that a risk recalculation would set a lower limit than those included in this permit because of the levels of conservatism included in the calculations; however, these recalculation requirements include an additional layer of protection and conservatism.

3.7 Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- the likelihood of the facility violating the applicable requirements;
- whether add-on controls are necessary to meet the emission limits;
- the variability of emissions over time;
- the type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- the technical and economic feasibility of possible periodic monitoring methods; and
- the kind of monitoring found on similar units elsewhere.

Table 11 summarizes the monitoring requirements.

Table 11. Monitoring

Subject Item*	Requirement (basis)	What is the monitoring?	Why is this monitoring adequate?
TFAC 1 - Air Quality Total Facility	Total Building Enclosure Pressure Drop <= -0.007 inches of water between internal building pressure and outdoor ambient pressure. [Minn. R. 7007.0800, subp. 2(A) & (B); Minn. R. 7009.0020-7009.0090; Minn. Stat. 116.07, subd. 4a(a)]	Continuous airflow monitoring and recordkeeping.	The previous permit actions included negative pressure monitoring requirements. This permit action uses a pressure drop limit and additional monitoring to make the building a total enclosure and to be federally enforceable. The recordkeeping requirement is a means to track trends in pressure changes in the processing areas. This monitoring is enforceable as a practical matter.

Subject Item*	Requirement (basis)	What is the monitoring?	Why is this monitoring adequate?
	List of all plating tanks, including the bath constituents, concentrations of bath constituents, and bath make-up. [Minn. R. 7007.0800, subp. 5; Minn. R. 7007.1250, subp. 3]	Monthly recordkeeping.	Because of the nature of a batch plating facility, it is expected that the bath compositions will be altered and tweaked based on the needs of the customers. These small adjustments do not need to be tracked. However, if the Permittee switches out a tank, or adds a new bath constituent to the tank, etc., this should be updated on the list. If these changes result in a negligible emissions change, they are considered an insignificant modification(s); however, the recordkeeping requirement is a means to track these changes.
COMG 14 and 27 - Plating and polishing tanks	Opacity <= 20 % PM <= varies with airflow [Minn. R. 7011.0715, subp. 1]	None.	The limits apply to each piece of equipment individually within the groups. The calculated PM emission rate for each plating tank based on certified airflow of the control equipment is 36.11 lb/hr (0.042 gr/dscf). The highest PM potential to emit from one tank (EQUI 5) is 0.82 lb/hr which is much smaller than the allowable emission rate; therefore, it is unlikely that this limit will be exceeded. The plating tanks are also not expected to produce opacity; therefore, no monitoring is needed.
EQUI 1 and 2 - Boilers	Opacity <= 20 % PM <= 0.4 lb/MMBtu [Minn. R. 7011.0515]	Recordkeeping: monthly fuel records.	These units use either natural gas or distillate oil. When combusting natural gas, the likelihood of violating either of the emission limits is very small. The maximum Design based PTE for each unit (while burning distillate oil), using AP-42, is 0.002 lbs/MMBtu of PM compared to the rule limit of 0.4 lbs/MMBtu of PM.
	SO_2 <= 2.0 lb/MMBtu (Minn. R. 7011.0515) Sulfur Content of fuel <= 15 ppm (<= 0.0015 % by weight). [Minn. R. 7007.0800, subp. 2(A)]	Obtain and maintain fuel supplier shipment certifications and purchase records, fuel type records.	The potential to emit SO_2 from each unit is 0.002 lb/MMBtu, or 0.1 percent of the limit, due to equipment design and allowable fuels. The monitoring and records are indicators to have reasonable assurance of compliance.
	Distillate fuel oil <= 48 hrs/calendar year [Minn. R. 7007.0800, subp. 2(A)]	Recordkeeping: date, distillate oil used (in hours) and for what purpose.	The 48 hours/calendar year for periodic testing, maintenance, or operator training on liquid fuel limit is to keep EQUI 1 and 2 under the definition of a gas-fired boiler in 40 CFR 63.11237. The Permittee is allowed to use distillate oil in times of gas curtailment, periods of startup, or gas supply interruptions; however, these are not counted in the 48 hrs. Therefore, the recordkeeping is adequate to keep track of when distillate oil is used and to determine if the hours when distillate oil is used count towards the 48 hr limit or not.

Subject Item*	Requirement (basis)	What is the monitoring?	Why is this monitoring adequate?
	Distillate fuel oil <= 31.54 gallons per year 12-month rolling sum. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a]	Recordkeeping.	Records can be generated on a daily basis with a combination of daily manual logs and purchase records. The Permittee is able to use daily records of fuel usage to calculate monthly and 12-month rolling sum usage. Because these units are not likely to operate uniformly throughout the year, a 12-month rolling sum is adequate to ensure the Facility remains below the limit.
EQUI 22 - Degreaser	nPB <= 6.5 tpy 12-month rolling sum. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]	Monthly level checks, solvent additions/ deletions logs, calculations of solid solvent removed and emissions, and recordkeeping.	Monitoring and recordkeeping similar to 40 CFR pt. 63, subp. T, is being used to demonstrate compliance with the limit. The monthly level checks, solvent additions/deletions logs, and the equation listed in the *Monthly Solvent Emissions Equation* requirement allow the Permittee to calculate the monthly emissions from the unit. The permit requires the Permittee to calculate the 12-month rolling total emissions to ensure annual limits are not exceeded.
	Opacity <= 20 % PM <= varies with airflow [Minn. R. 7011.0715, subp. 1]	None.	No PM is expected from this equipment
EQUI 32 - TriChrome Electroplating Tank	Work and management practices [40 CFR pt. 63, subp. N; Minn. R. 7011.7120]	Recordkeeping of the bath components purchased, including the wetting agent.	The decorative chromium electroplating tank uses a trivalent chromium bath, so it qualifies for decreased recordkeeping, according to 40 CFR § 63.342(e)(1) and EPA's 1995 *Guidebook on How to Comply With the Chromium Electroplating and Anodizing NESHAP* Overview Section (page 4). Accordingly, the Permittee only needs to keep records of bath component purchases. If the Permittee ceases to incorporate a wetting agent as a bath ingredient, it becomes subject to emission limit(s) specified in 40 CFR § 63.342(d).
	Opacity <= 20 % PM <= varies with airflow [Minn. R. 7011.0715, subp. 1]	None.	Associated monitoring ensure that this applicable requirement is being met. These other operational limits give this unit a PTEs of 0.0053 lb/hr. Applicable rule limit at maximum airflow is 0.0866 lb/hr.

Subject Item*	Requirement (basis)	What is the monitoring?	Why is this monitoring adequate?
STRU 25 – Building Exhaust Fan	Air Flow Rate <= 100,000 cfm Cd <= 0.0000518 lb/hr Co <= 0.0000140 lb/hr CrVI <= 0.000196 lb/hr Ni <= 0.000133 lb/hr [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a); Minn. Stat. 116.385, subd. 3]	Periodic inspections and performance testing.	Inspections and performance testing are adequate to demonstrate compliance with the limits. This is adequate to comply with the AERA modeling conditions.

*Location of the requirement in the permit (e.g., EQUI 1, STRU 2, etc.).

3.8 Insignificant activities

Co-operative Plating Co. has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix A to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, Table 12 documents the justification why no additional periodic monitoring is necessary for the current insignificant activities.

Table 12. Insignificant activities

Insignificant activity	General applicable emission limit	Discussion
Infrared electric ovens	Opacity <= 20% (Minn. R. 7011.0110)	There are 4 electric ovens. These units are not likely to have any emissions of particulate matter at this site (used for hydrogen embrittlement prevention of plated parts). It is highly unlikely that they could violate the applicable requirement.
Brazing, soldering, torch-cutting, and/or welding equipment	PM, variable depending on airflow Opacity <= 20% (Minn. R. 7011.0715)	These are small, intermittent operations that typically do not have any emissions. It is highly unlikely that they could violate the applicable requirement. In addition, these units are operated and vented inside a building, so testing for PM or opacity is not feasible.
Individual units with potential emissions less than 2000 lb/year of certain pollutants	PM, variable depending on airflow Opacity <= 20% (Minn. R. 7011.0715)	There are 6 enclosed waste acid tanks. The tanks contain spent products and using the gassing rate for calculations, the potential PM emissions are very low. Since they are not open to the atmosphere and have very low MP emissions, it is highly unlikely that the units could violate the applicable requirement. The black oxide oven is natural gas-fired and has emissions less than the threshold to qualify for this insignificant activity. This unit uses natural gas; therefore, the likelihood of violating either of the emission limits is very small. The Permittee can demonstrate that this unit will continue to operate such that emissions are well below the emission limits by only burning natural gas. Design based PTE for this unit, using AP-42, is 0.00298 lb/hr of PM compared to the rule limit of 0.001 lb/hr of PM.

3.9 Permit organization

This permit deviates from MPCA Tempo Guidance. While they do not have requirements on them, COMG 1, 2, 3, 6, 8, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, and 26 were included in the permit to ease the emission data entry and calculations. Listing emissions at the group (plating line) level is more practical than listing them on each individual coating tank. The tanks in a given group all vent to the same stack, so listing emissions rates at the group level should be sufficient if the Facility is ever required to conduct modeling.

In this permit, federal requirements from NESHAPs are included in two different formats. The requirements for 40 CFR pt. 63, subps. N, T, and WWWWWW, are incorporated into the permit as individual permit requirements, which has historically been MPCA's standard practice. However, the requirements for the associated General Provisions in 40 CFR pt. 63, subp. A, are included in a different way. Requirements in Section 5 of the permit list the citations of all of the applicable parts of the standard along with a reference to Appendix C, where the full text of the standard is included.

3.10 Environmental Justice Community

MPCA's mission is to protect and improve our environment and enhance human health, and the agency is committed to ensuring that pollution does not have a disproportionate impact on any people group—the principle of environmental justice. The MPCA defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The impacts of pollution vary across Minnesota, and historical inequities have exposed some populations such as people of color, low-income households, and people with underlying health issues to greater health impacts from pollution.

Permits are an important tool used to protect the environment and people in Minnesota. The permitting process is a critical opportunity to identify activities and pollutants that pose the greatest risk to neighborhoods of environmental concern, and to evaluate potential pollution reduction efforts. Permit actions also allow for community involvement in an accessible and meaningful manner. This allows the MPCA and the facilities to understand and address community concerns and establish or enhance relationships with the surrounding community members.

As a part of this permit action, there was an effort to involve the community in a meaningful way. Partway through the permitting process MPCA attended the October 2018 Union Park District Committee on Land Use and Economic Development meeting to share about MPCA permitting and remediation activities at the site and learn if there were any initial pressing concerns with the facility. Shortly thereafter the permit was put on hold while the Minnesota Legislature worked on banning TCE. Since the permit has begun being edited again, outreach continued with the Union Park District Committee and local units of government. MPCA will meet with the Union Park District Committee in October to provide background on the permit and public notice process.

Additionally, a primary goal of our environmental justice efforts is to reduce the burden on the surrounding community. As part of this permit action, Co-operative added a total-facility fan that is automatically controlled to maintain the pressure drop at its building entrances and windows at all times, ensuring that no potentially toxic vapors can become "fugitive" (unintentional leak or release) vapors out windows or doors. A portion of the emitted air is treated by their scrubber, and a portion goes through their high-air-flow fan, increasing dispersion to limit risk to the nearby community. Co-operative continues to work with MnTAP to search for a non-toxic alternative to TCE and nPB that could replace its current degreaser, both for the health and safety of the community and its employees.

3.11 Comments received

Public Notice and EPA Review Period: [Date] – [Date]
This Section will be completed after the referenced review period.

4. Permit fee assessment

This permit action began as the reissuance of an individual Part 70 permit, but after EPA changed its "once in, always in" policy, the Facility now qualifies for an individual state operating permit. The MPCA made the decision to allow facilities with an open permit action to request their part 70 permits be converted to state individual permits without additional applications or fees. Therefore, no additional application fees apply under Minn. R. 7002.0016, subp. 1 and this MPCA decision. The permit also involves an AERA, but because it doesn't fall into a mandatory AERA category, no points are assessed for the AERA review. No additional fees apply for this permit action.

5. Conclusion

Based on the information provided by Co-operative Plating Co., the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 05300499-101 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

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TEMPO360 Activities: State Permit (IND20140001)

Attachments:
1. PTE summary calculation spreadsheets
2. Subject item inventory and facility requirements
3. Performance Tests Notices of Compliance
4. Chromium Emissions Speciation for Selected Source Categories March, 2011
5. AERA Additional Information

Attachment 1 – PTE Summary Calculation Spreadsheets

Co-Operative Plating Co
Potential Emission Calculations

Limited PTE, after controls (lb/hr)

Descriptions:	New SI:	Old SI:	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO2**	**NOx**	**CO**	**CO_2e**	**VOC**	Arsenic	Benzene	Beryllium	Cadmium	Cobalt	Chromium III	Chromium VI	Copper	Cyanide Compounds	Dichlorobenzene	Ethylbenzene	Formaldehyde
Boilers	**EQUI 1**	EU098	0.12	0.04	0.04	0.01	0.72	0.42	806	0.03	2.0E-05	1.0E-05	1.5E-05	1.5E-05	4.2E-07	1.2E-05	2.7E-06	3.0E-05		5.9E-06	2.3E-06	1.3E-03
	EQUI 2	EU099	0.12	0.04	0.04	0.01	0.72	0.42	806	0.03	2.0E-05	1.0E-05	1.5E-05	1.5E-05	4.2E-07	1.2E-05	2.7E-06	3.0E-05		5.9E-06	2.3E-06	1.3E-03
Degreaser	**EQUI 22**	EU131								1.5												
Degreaser	**EQUI 259**	-								0.0093												
Plating Tanks	**COMG 1**	GP001	0.69	0.69	0.69					0.22				0.0E+00	0.0E+00	1.2E-03	0.0E+00	2.8E-04	1.7E-02			
Plating Tanks	**COMG 2**	GP002	0.12	0.12	0.12					0.053				0.0E+00	0.0E+00	0.0E+00	1.0E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 3**	GP003	0.20	0.20	0.20					0.043				0.0E+00	1.3E-06	1.4E-03	3.0E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 15**	GP004	0.10	0.10	0.10					0.025				0.0E+00	0.0E+00	0.0E+00	4.4E-08	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP005	0.54	0.54	0.54					0.14				0.0E+00	1.6E-06	1.6E-03	4.4E-05	0.0E+00	0.0E+00			
Plating Tanks	**COMG 17**	GP007	1.89	1.89	1.89					0.25				0.0E+00	0.0E+00	0.0E+00	4.5E-06	1.7E-01	0.0E+00			
Plating Tanks	**COMG 18**	GP008	0.28	0.28	0.28					0.12				3.8E-05	0.0E+00	0.0E+00	1.7E-05	0.0E+00	1.7E-03			
Plating Tanks	**COMG 6**	GP009	0.08	0.08	0.08					7.49E-06				0.0E+00	0.0E+00	0.0E+00	7.5E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 19**	GP0010	0.53	0.53	0.53					0.15				0.0E+00	5.3E-06	4.4E-04	5.0E-07	0.0E+00	4.4E-03			
Plating Tanks	**COMG 20**	GP011	0.49	0.49	0.49					0.31				0.0E+00	0.0E+00	0.0E+00	8.6E-07	0.0E+00	0.0E+00			
Plating Tanks	**COMG 21**	GP012	0.63	0.63	0.63					0.21				0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E-03	2.2E-04			
Plating Tanks	**COMG 22**	GP014	1.42	1.42	1.42					0.32				0.0E+00	0.0E+00	0.0E+00	4.7E-07	3.8E-02	0.0E+00			
Plating Tanks	**COMG 8**	GP016	0.24	0.24	0.24					0.082				0.0E+00	0.0E+00	0.0E+00	4.7E-06	0.0E+00	1.4E-04			
Plating Tanks	**COMG 23**	GP018	0.02	0.024	0.024					0.0030				0.0E+00	0.0E+00	0.0E+00	6.3E-05	0.0E+00	2.1E-03			
Plating Tanks	**COMG 11**	GP019	0.13	0.13	0.13					0.043				0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00			
Plating Tanks	**COMG 12**	GP020	0.02	0.019	0.019					0.0020				8.0E-06	0.0E+00	0.0E+00	6.6E-06	0.0E+00	2.0E-03			
Plating Tanks	**COMG 25**	GP024	0.17	0.17	0.17					0.10				0.0E+00	0.0E+00	0.0E+00	8.6E-07	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP025	0.61	0.61	0.61					0.17				0.0E+00	4.3E-06	3.5E-03	0.0E+00	0.0E+00	0.0E+00			
TOTAL (tpy) **after** control			**8.4**	**8.2**	**8.2**	**0.02**	**1.4**	**0.8**	**1,611.5**	**3.8**	**4.0E-05**	**2.1E-05**	**3.0E-05**	**7.6E-05**	**1.3E-05**	**8.2E-03**	**1.6E-04**	**2.2E-01**	**2.7E-02**	**1.2E-05**	**4.6E-06**	**2.5E-03**

Uncontrolled PTE (tons per year)

Descriptions:	New SI:	Old SI:	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO2**	**NOx**	**CO**	**CO_2e**	**VOC**	Arsenic	Benzene	Beryllium	Cadmium	Cobalt	Chromium III	Chromium VI	Copper	Cyanide Compounds	Dichlorobenzene	Ethylbenzene	Formaldehyde
Boilers	**EQUI 1**	EU098	0.20	0.16	0.16	0.02	2.27	1.82	2,709	0.12	1.3E-05	4.6E-05	6.9E-06	2.8E-05	1.8E-06	3.2E-05	2.3E-06	3.0E-05		2.6E-05	1.0E-06	2.0E-03
	EQUI 2	EU099	0.20	0.16	0.16	0.02	2.27	1.82	2,709	0.12	1.3E-05	4.6E-05	6.9E-06	2.8E-05	1.8E-06	3.2E-05	2.3E-06	3.0E-05		2.6E-05	1.0E-06	2.0E-03
Degreaser	**EQUI 22**	EU131								8.6												
Degreaser	**EQUI 259**	-								0.93												
Plating Tanks	**COMG 1**	GP001	4.2	4.2	4.2					1.3				0.0E+00	0.0E+00	7.1E-03	0.0E+00	1.7E-03	1.0E-01			
Plating Tanks	**COMG 2**	GP002	0.7	0.74	0.74					0.32				0.0E+00	0.0E+00	0.0E+00	5.0E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 3**	GP003	1.2	1.2	1.2					0.26				0.0E+00	5.6E-06	8.2E-03	1.5E-05	0.0E+00	0.0E+00			
Plating Tanks	**COMG 15**	GP004	0.6	0.59	0.59					0.15				0.0E+00	0.0E+00	0.0E+00	2.2E-07	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP005	3.2	3.2	3.2					0.82				0.0E+00	7.0E-06	9.8E-03	2.2E-04	0.0E+00	0.0E+00			
Plating Tanks	**COMG 17**	GP007	11.3	11.3	11.3					1.5				0.0E+00	0.0E+00	0.0E+00	2.3E-05	1.0E+00	0.0E+00			
Plating Tanks	**COMG 18**	GP008	1.7	1.7	1.7					0.70				1.7E-04	0.0E+00	0.0E+00	8.6E-05	0.0E+00	1.0E-02			
Plating Tanks	**COMG 6**	GP009	0.46	0.46	0.46					0.00				0.0E+00	0.0E+00	0.0E+00	3.7E-05	0.0E+00	0.0E+00			
Plating Tanks	**COMG 19**	GP0010	3.2	3.2	3.2					0.89				0.0E+00	2.3E-05	2.6E-03	2.5E-06	0.0E+00	2.6E-02			
Plating Tanks	**COMG 20**	GP011	2.9	2.9	2.9					1.9				0.0E+00	0.0E+00	0.0E+00	4.3E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 21**	GP012	3.8	3.8	3.8					1.2				0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-02	1.3E-03			
Plating Tanks	**COMG 22**	GP014	8.5	8.5	8.5					1.9				0.0E+00	0.0E+00	0.0E+00	2.3E-06	2.3E-01	0.0E+00			
Plating Tanks	**COMG 8**	GP016	1.5	1.5	1.5					0.49				0.0E+00	0.0E+00	0.0E+00	2.3E-05	0.0E+00	8.3E-04			
Plating Tanks	**COMG 23**	GP018	0.1	0.14	0.14					0.018				0.0E+00	0.0E+00	0.0E+00	3.1E-04	0.0E+00	1.3E-02			
Plating Tanks	**COMG 11**	GP019	0.8	0.75	0.75					0.26				0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00			
Plating Tanks	**COMG 12**	GP020	0.1	0.12	0.12					0.012				3.5E-05	0.0E+00	0.0E+00	3.3E-05	0.0E+00	1.2E-02			
Plating Tanks	**COMG 25**	GP024	1.0	1.0	1.0					0.59				0.0E+00	0.0E+00	0.0E+00	4.3E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP025	3.7	3.7	3.7					1.0				0.0E+00	1.9E-05	2.1E-02	0.0E+00	0.0E+00	0.0E+00			
TOTAL (tpy) **after** control			**49.3**	**49.3**	**49.3**	**0.03**	**4.5**	**3.6**	**5,417.6**	**23.2**	**2.5E-05**	**9.1E-05**	**1.4E-05**	**2.6E-04**	**5.8E-05**	**4.9E-02**	**7.7E-04**	**1.3E+00**	**1.6E-01**	**5.2E-05**	**2.0E-06**	**4.0E-03**

Limited PTE, after controls (tons per year)

Descriptions:	New SI:	Old SI:	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO2**	**NOx**	**CO**	**CO_2e**	**VOC**	Arsenic	Benzene	Beryllium	Cadmium	Cobalt	Chromium III	Chromium VI	Copper	Cyanide Compounds	Dichlorobenzene	Ethylbenzene	Formaldehyde
Boilers	**EQUI 1**	EU098	0.20	0.16	0.16	0.02	2.27	1.82	2,709	0.12	1.3E-05	4.6E-05	6.9E-06	2.8E-05	1.8E-06	3.2E-05	2.3E-06	3.0E-05		2.6E-05	1.0E-06	2.0E-03
	EQUI 2	EU099	0.20	0.16	0.16	0.02	2.27	1.82	2,709	0.12	1.3E-05	4.6E-05	6.9E-06	2.8E-05	1.8E-06	3.2E-05	2.3E-06	3.0E-05		2.6E-05	1.0E-06	2.0E-03
Degreaser	**EQUI 22**	EU131								6.5												
Degreaser	**EQUI 259**	-								0.04												
Plating Tanks	**COMG 1**	GP001	3.0	3.0	3.0					0.94				0.0E+00	0.0E+00	5.2E-03	0.0E+00	1.2E-03	7.3E-02			
Plating Tanks	**COMG 2**	GP002	0.5	0.54	0.54					0.23				0.0E+00	0.0E+00	0.0E+00	4.4E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 3**	GP003	0.9	0.9	0.9					0.19				0.0E+00	5.6E-06	6.0E-03	1.3E-05	0.0E+00	0.0E+00			
Plating Tanks	**COMG 15**	GP004	0.4	0.43	0.43					0.11				0.0E+00	0.0E+00	0.0E+00	1.9E-07	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP005	2.4	2.4	2.4					0.60				0.0E+00	7.0E-06	7.1E-03	1.9E-04	0.0E+00	0.0E+00			
Plating Tanks	**COMG 17**	GP007	8.3	8.3	8.3					1.1				0.0E+00	0.0E+00	0.0E+00	2.0E-05	7.7E-01	0.0E+00			
Plating Tanks	**COMG 18**	GP008	1.2	1.2	1.2					0.51				1.7E-04	0.0E+00	0.0E+00	7.5E-05	0.0E+00	7.3E-03			
Plating Tanks	**COMG 6**	GP009	0.34	0.34	0.34					3.28E-05				0.0E+00	0.0E+00	0.0E+00	3.3E-05	0.0E+00	0.0E+00			
Plating Tanks	**COMG 19**	GP0010	2.3	2.3	2.3					0.65				0.0E+00	2.3E-05	1.9E-03	2.2E-06	0.0E+00	1.9E-02			
Plating Tanks	**COMG 20**	GP011	2.1	2.1	2.1					1.4				0.0E+00	0.0E+00	0.0E+00	3.8E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 21**	GP012	2.8	2.8	2.8					0.91				0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-02	9.9E-04			
Plating Tanks	**COMG 22**	GP014	6.2	6.2	6.2					1.4				0.0E+00	0.0E+00	0.0E+00	2.1E-06	1.7E-01	0.0E+00			
Plating Tanks	**COMG 8**	GP016	1.1	1.1	1.1					0.36				0.0E+00	0.0E+00	0.0E+00	2.1E-05	0.0E+00	6.1E-04			
Plating Tanks	**COMG 23**	GP018	0.1	0.10	0.10					0.013				0.0E+00	0.0E+00	0.0E+00	2.7E-04	0.0E+00	9.1E-03			
Plating Tanks	**COMG 11**	GP019	0.5	0.55	0.55					0.19				0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00			
Plating Tanks	**COMG 12**	GP020	0.1	0.08	0.08					0.0089				3.5E-05	0.0E+00	0.0E+00	2.9E-05	0.0E+00	8.9E-03			
Plating Tanks	**COMG 25**	GP024	0.8	0.8	0.8					0.43				0.0E+00	0.0E+00	0.0E+00	3.8E-06	0.0E+00	0.0E+00			
Plating Tanks	**COMG 16**	GP025	2.7	2.7	2.7					0.76				0.0E+00	1.9E-05	1.5E-02	0.0E+00	0.0E+00	0.0E+00			
TOTAL (tpy) **after** control			**36.1**	**36.0**	**36.0**	**0.03**	**4.5**	**3.6**	**5,417.6**	**16.6**	**2.5E-05**	**9.1E-05**	**1.4E-05**	**2.6E-04**	**5.8E-05**	**3.6E-02**	**6.8E-04**	**9.7E-01**	**1.2E-01**	**5.2E-05**	**2.0E-06**	**4.0E-03**

Note: On December 22, 2021, the EPA issued
a final action to add nPB to the HAPs list.

Co-Operative Plating Co
Potential Emission Calculations

Limited PTE, after controls (lb/hr)

Descriptions:	New SI:	Old SI:	Hydrochloric Acid	Hexane	Lead	Naphthalene	Mercury	Manganese	nPB	Nickel	Nitric Acid	Phosphoric Acid	POM	Selenium	Silver	Sulfuric Acid	Tin	Toluene	Trichloroethylene	1,1,1-Trichloroethane	o-Xylene	Zinc	Total HAPs
Boilers	**EQUI 1**	EU098		8.9E-03	4.5E-05	4.1E-05	1.5E-05	3.0E-05		1.5E-05			1.2E-04	7.6E-05				2.2E-04		8.5E-06	3.9E-06	1.4E-04	1.1E-02
	EQUI 2	EU099		8.9E-03	4.5E-05	4.1E-05	1.5E-05	3.0E-05		1.5E-05			1.2E-04	7.6E-05				2.2E-04		8.5E-06	3.9E-06	1.4E-04	1.1E-02
Degreaser	**EQUI 22**	EU131							1.5														1.5
Degreaser	**EQUI 259**	-																	0.0093				0.0093
Plating Tanks	**COMG 1**	GP001	1.4E-01							2.7E-04	5.1E-02	0.0E+00			0.0E+00	5.1E-03	0.0E+00					0.0E+00	0.16
Plating Tanks	**COMG 2**	GP002	1.9E-02							0.0E+00	3.4E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.019
Plating Tanks	**COMG 3**	GP003	4.1E-02							2.1E-05	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					3.4E-05	0.043
Plating Tanks	**COMG 15**	GP004	2.3E-02							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					2.3E-03	0.023
Plating Tanks	**COMG 16**	GP005	1.3E-01							4.8E-06	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					3.4E-03	0.13
Plating Tanks	**COMG 17**	GP007	7.8E-02							2.2E-04	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.078
Plating Tanks	**COMG 18**	GP008	4.0E-02							2.9E-05	6.5E-02	0.0E+00			0.0E+00	1.0E-02	0.0E+00					0.0E+00	0.041
Plating Tanks	**COMG 6**	GP009	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	7.49E-06
Plating Tanks	**COMG 19**	GP0010	1.4E-01							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.15
Plating Tanks	**COMG 20**	GP011	0.0E+00							1.0E-05	9.6E-02	0.0E+00			0.0E+00	2.1E-01	0.0E+00					0.0E+00	1.12E-05
Plating Tanks	**COMG 21**	GP012	2.6E-02							1.5E-04	1.3E-01	0.0E+00			0.0E+00	4.4E-02	0.0E+00					4.5E-04	0.026
Plating Tanks	**COMG 22**	GP014	0.0E+00							1.6E-04	2.2E-01	0.0E+00			0.0E+00	6.0E-02	0.0E+00					3.3E-06	1.61E-04
Plating Tanks	**COMG 8**	GP016	0.0E+00							2.1E-05	5.7E-02	0.0E+00			1.5E-05	2.5E-02	0.0E+00					0.0E+00	1.65E-04
Plating Tanks	**COMG 23**	GP018	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	8.7E-04	0.0E+00					0.0E+00	0.0022
Plating Tanks	**COMG 11**	GP019	2.9E-02							0.0E+00	1.4E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.029
Plating Tanks	**COMG 12**	GP020	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.0020
Plating Tanks	**COMG 25**	GP024	0.0E+00							3.1E-06	2.1E-02	0.0E+00			0.0E+00	7.8E-02	0.0E+00					0.0E+00	3.99E-06
Plating Tanks	**COMG 16**	GP025	1.6E-01							4.8E-06	5.6E-03	0.0E+00			0.0E+00	0.0E+00	0.0E+00					9.0E-03	0.16
TOTAL (tpy) **after** control			**8.3E-01**	**1.8E-02**	**9.1E-05**	**8.1E-05**	**3.0E-05**	**6.0E-05**	**1.50**	**9.3E-04**	**7.0E-01**	**0.0E+00**	**2.4E-04**	**1.5E-04**	**1.5E-05**	**4.4E-01**	**0.0E+00**	**4.5E-04**	**9.3E-03**	**1.7E-05**	**7.8E-06**	**1.5E-02**	**2.4**

Uncontrolled PTE (tons per year)

Descriptions:	New SI:	Old SI:	Hydrochloric Acid	Hexane	Lead	Naphthalene	Mercury	Manganese	nPB	Nickel	Nitric Acid	Phosphoric Acid	POM	Selenium	Silver	Sulfuric Acid	Tin	Toluene	Trichloroethylene	1,1,1-Trichloroethane	o-Xylene	Zinc	Total HAPs
Boilers	**EQUI 1**	EU098		3.9E-02	3.0E-05	3.0E-05	1.2E-05	2.1E-05		4.8E-05			5.4E-05	3.4E-05				1.6E-04		3.7E-06	1.7E-06	6.3E-04	4.2E-02
	EQUI 2	EU099		3.9E-02	3.0E-05	3.0E-05	1.2E-05	2.1E-05		4.8E-05			5.4E-05	3.4E-05				1.6E-04		3.7E-06	1.7E-06	6.3E-04	4.2E-02
Degreaser	**EQUI 22**	EU131							8.6														8.6
Degreaser	**EQUI 259**	-																	0.93				0.93
Plating Tanks	**COMG 1**	GP001	8.4E-01							1.6E-03	3.1E-01	0.0E+00			0.0E+00	3.0E-02	0.0E+00					0.0E+00	0.95
Plating Tanks	**COMG 2**	GP002	1.1E-01							0.0E+00	2.0E-01	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.11
Plating Tanks	**COMG 3**	GP003	2.5E-01							1.2E-04	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					2.0E-04	0.26
Plating Tanks	**COMG 15**	GP004	1.4E-01							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					1.4E-02	0.14
Plating Tanks	**COMG 16**	GP005	7.9E-01							2.8E-05	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					2.0E-02	0.80
Plating Tanks	**COMG 17**	GP007	4.7E-01							1.3E-03	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.47
Plating Tanks	**COMG 18**	GP008	2.4E-01							1.7E-04	3.9E-01	0.0E+00			0.0E+00	6.0E-02	0.0E+00					0.0E+00	0.25
Plating Tanks	**COMG 6**	GP009	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	3.74E-05
Plating Tanks	**COMG 19**	GP0010	8.6E-01							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.89
Plating Tanks	**COMG 20**	GP011	0.0E+00							6.0E-05	5.8E-01	0.0E+00			0.0E+00	1.3E+00	0.0E+00					0.0E+00	6.45E-05
Plating Tanks	**COMG 21**	GP012	1.6E-01							8.7E-04	7.8E-01	0.0E+00			0.0E+00	2.6E-01	0.0E+00					2.7E-03	0.16
Plating Tanks	**COMG 22**	GP014	0.0E+00							9.3E-04	1.3E+00	0.0E+00			0.0E+00	3.6E-01	0.0E+00					2.0E-05	9.34E-04
Plating Tanks	**COMG 8**	GP016	0.0E+00							1.2E-04	3.4E-01	0.0E+00			8.8E-05	1.5E-01	0.0E+00					0.0E+00	9.82E-04
Plating Tanks	**COMG 23**	GP018	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	5.2E-03	0.0E+00					0.0E+00	0.013
Plating Tanks	**COMG 11**	GP019	1.8E-01							0.0E+00	8.4E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.18
Plating Tanks	**COMG 12**	GP020	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.012
Plating Tanks	**COMG 25**	GP024	0.0E+00							1.8E-05	1.3E-01	0.0E+00			0.0E+00	4.7E-01	0.0E+00					0.0E+00	2.25E-05
Plating Tanks	**COMG 16**	GP025	9.3E-01							2.8E-05	3.3E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					5.4E-02	0.96
TOTAL (tpy) **after** control			**5.0E+00**	**7.8E-02**	**5.9E-05**	**5.9E-05**	**2.3E-05**	**4.1E-05**	**8.6**	**5.3E-03**	**4.2E+00**	**0.0E+00**	**1.1E-04**	**6.7E-05**	**8.8E-05**	**2.6E+00**	**0.0E+00**	**3.3E-04**	**9.3E-01**	**7.4E-06**	**3.4E-06**	**9.2E-02**	**14.8**

Limited PTE, after controls (tons per yea

Descriptions:	New SI:	Old SI:	Hydrochloric Acid	Hexane	Lead	Naphthalene	Mercury	Manganese	nPB	Nickel	Nitric Acid	Phosphoric Acid	POM	Selenium	Silver	Sulfuric Acid	Tin	Toluene	Trichloroethylene	1,1,1-Trichloroethane	o-Xylene	Zinc	Total HAPs
Boilers	**EQUI 1**	EU098		3.9E-02	3.0E-05	3.0E-05	1.2E-05	2.1E-05		4.8E-05			5.4E-05	3.4E-05				1.6E-04		3.7E-06	1.7E-06	6.3E-04	4.2E-02
	EQUI 2	EU099		3.9E-02	3.0E-05	3.0E-05	1.2E-05	2.1E-05		4.8E-05			5.4E-05	3.4E-05				1.6E-04		3.7E-06	1.7E-06	6.3E-04	4.2E-02
Degreaser	**EQUI 22**	EU131							6.5														6.5
Degreaser	**EQUI 259**	-																	0.0407				0.0407
Plating Tanks	**COMG 1**	GP001	6.1E-01							1.2E-03	2.2E-01	0.0E+00			0.0E+00	2.2E-02	0.0E+00					0.0E+00	0.69
Plating Tanks	**COMG 2**	GP002	8.3E-02							0.0E+00	1.5E-01	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.08
Plating Tanks	**COMG 3**	GP003	1.8E-01							9.1E-05	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					1.5E-04	0.19
Plating Tanks	**COMG 15**	GP004	1.0E-01							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					1.0E-02	0.10
Plating Tanks	**COMG 16**	GP005	5.8E-01							2.1E-05	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					1.5E-02	0.59
Plating Tanks	**COMG 17**	GP007	3.4E-01							9.8E-04	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.34
Plating Tanks	**COMG 18**	GP008	1.7E-01							1.3E-04	2.9E-01	0.0E+00			0.0E+00	4.4E-02	0.0E+00					0.0E+00	0.18
Plating Tanks	**COMG 6**	GP009	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	3.28E-05
Plating Tanks	**COMG 19**	GP0010	6.3E-01							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.65
Plating Tanks	**COMG 20**	GP011	0.0E+00							4.5E-05	4.2E-01	0.0E+00			0.0E+00	9.4E-01	0.0E+00					0.0E+00	4.91E-05
Plating Tanks	**COMG 21**	GP012	1.1E-01							6.6E-04	5.7E-01	0.0E+00			0.0E+00	1.9E-01	0.0E+00					2.0E-03	0.12
Plating Tanks	**COMG 22**	GP014	0.0E+00							7.0E-04	9.7E-01	0.0E+00			0.0E+00	2.6E-01	0.0E+00					1.5E-05	7.03E-04
Plating Tanks	**COMG 8**	GP016	0.0E+00							9.3E-05	2.5E-01	0.0E+00			6.4E-05	1.1E-01	0.0E+00					0.0E+00	7.23E-04
Plating Tanks	**COMG 23**	GP018	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	3.8E-03	0.0E+00					0.0E+00	0.0094
Plating Tanks	**COMG 11**	GP019	1.3E-01							0.0E+00	6.1E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.13
Plating Tanks	**COMG 12**	GP020	0.0E+00							0.0E+00	0.0E+00	0.0E+00			0.0E+00	0.0E+00	0.0E+00					0.0E+00	0.0089
Plating Tanks	**COMG 25**	GP024	0.0E+00							1.4E-05	9.2E-02	0.0E+00			0.0E+00	3.4E-01	0.0E+00					0.0E+00	1.75E-05
Plating Tanks	**COMG 16**	GP025	6.8E-01							2.1E-05	2.4E-02	0.0E+00			0.0E+00	0.0E+00	0.0E+00					3.9E-02	0.70
TOTAL (tpy) **after** control			**3.6E+00**	**7.8E-02**	**5.9E-05**	**5.9E-05**	**2.3E-05**	**4.1E-05**	**6.5**	**4.0E-03**	**3.0E+00**	**0.0E+00**	**1.1E-04**	**6.7E-05**	**6.4E-05**	**1.9E+00**	**0.0E+00**	**3.3E-04**	**4.1E-02**	**7.4E-06**	**3.4E-06**	**6.8E-02**	**10.4**

Note: On December 22, 2021, the EPA issued
a final action to add nPB to the HAPs list.

Co-Operative Plating Co
Potential Emission Calculations
Plating PM/PM_{10}/$PM_{2.5}$

KEY: Higher ton/yr addition rate from 2016 Emissions Inventory
Plating Tanks reported 0 throughput in CEDR 2016
Have new SI EQUI #s
Added by HDR For Final PTE Revisions

	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL [1]	Pollutant	Annual Capacity [1]	Units (lb / gal)	Specific Gravity	Addition Rate (lb/hr)	Addition Rate (ton/yr)	Gassing Rate [2] (Emission Factor) (lb_g/lb_l)	Gassing Rate [2] (Emission Factor) (lb_g/ton_l)	Production (hrs)	Actual (hrs)	PTE (x1.5) [3] (lb/hr)	PTE (x1.5) [3] (lb/yr)	PTE (x1.5) [3] (tpy)	Actual (lb/yr)
COPPER/NICKEL/CHROME line -- COMG 1 (GP001)																		
Soak Cleaner	28	005	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	3063	lbs	Solid	0.66	1.53	0.04	80	8760	4640	0.04	347	0.17	184
Electrocleaner	29	006	Alkaline Cleaner	SuperMax Amp	PM/10/2.5	3480	lbs	Solid	0.75	1.74	0.04	80	8760	4640	0.05	394	0.20	209
Muriatic Acid (Hydrochloric)	30	007	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	3960	gal	1.16	8.26	19.16	0.05	100	8760	4640	0.62	5425	2.71	2873
Trichrome	32	009	Plating	Boric Acid	PM/10/2.5	109	lbs	Solid	0.02	0.05	0.03	60	8760	4640	0.00	9	0.00	5
				Potassium Chloride	PM/10/2.5	120	lbs	Solid	0.03	0.06	0.03	60	8760	4640	0.00	10	0.01	5
				Trivalent Chromium	PM/10/2.5	320	lbs	Solid	0.07	0.16	0.03	60	8760	4640	0.00	27	0.01	14
North Nickel	92	191	Plating	Nickel Chloride	PM/10/2.5	75	gal	1.34	0.18	0.42	0.03	60	8760	4640	0.01	71	0.04	38
				Nickel Sulfate	PM/10/2.5	150	gal	1.33	0.36	0.83	0.03	60	8760	4640	0.02	141	0.07	75
				Boric Acid	PM/10/2.5	270	lbs	Solid	0.06	0.14	0.03	60	8760	4640	0.00	23	0.01	12
South Nickel	93	192	Plating	Nickel Chloride	PM/10/2.5	25	gal	1.34	0.06	0.14	0.03	60	8760	4640	0.00	24	0.01	13
				Nickel Sulfate	PM/10/2.5	130	gal	1.33	0.31	0.72	0.03	60	8760	4640	0.01	123	0.06	65
				Boric Acid	PM/10/2.5	90	lbs	Solid	0.02	0.05	0.03	60	8760	4640	0.00	8	0.00	4
Nickel Barrel	94	193	Plating	Nickel Chloride	PM/10/2.5	6	gal	1.34	0.01	0.03	0.03	60	8760	4640	0.00	6	0.00	3
				Nickel Sulfate	PM/10/2.5	25	gal	1.33	0.06	0.14	0.03	60	8760	4640	0.00	24	0.01	12
				Boric Acid	PM/10/2.5	47	lbs	Solid	0.01	0.02	0.03	60	8760	4640	0.00	4	0.00	2
Nitric Rack Strip	96	010	Acid Cleaning	Nitric Acid	PM/10/2.5	550	gal	1.41	1.39	3.23	0.05	100	8760	4640	0.10	916	0.46	485
Copper Plate Bath	179	008	Plating	Copper Cyanide	PM/10/2.5	108	lbs	Solid	0.02	0.05	0.02	40	8760	4640	0.00	6	0.00	3
				Sodium Cyanide	PM/10/2.5	505	lbs	Solid	0.11	0.25	0.02	40	8760	4640	0.00	29	0.01	15
Nickel Strike	224	206	Plating	Nickel Chloride	PM/10/2.5	100	gal	1.34	0.24	0.56	0.05	100	8760	4640	0.02	158	0.08	84
				Hydrochloric Acid	PM/10/2.5	5	gal	1.16	0.01	0.02	0.05	100	8760	4640	0.00	7	0.00	4
Electrocleaner for Brass	231	217	Alkaline Cleaner	Super Maxamp	PM/10/2.5	978	lbs	Solid	0.21	0.49	0.04	80	8760	4640	0.01	111	0.06	59
Black Pearl Electroblack	232	218	Plating	Electroblack SG	PM/10/2.5	3229	lbs	Solid	0.70	1.61	0.02	40	8760	4640	0.02	183	0.09	97
				Sodium Cyanide	PM/10/2.5	2874	lbs	Solid	0.62	1.44	0.02	40	8760	4640	0.02	163	0.08	86
Brass Strip	233	219	Acid Cleaning	Rostrip M-20	PM/10/2.5	300	lbs	Solid	0.06	0.15	0.05	100	8760	4640	0.00	42	0.02	23
				Sulfuric Acid	PM/10/2.5	30	gal	1.84	0.10	0.23	0.05	100	8760	4640	0.01	65	0.03	35
														Subtotal - Unrestricted	**0.95**	8315	**4.16**	4404
PASSIVATE line -- COMG 2 (GP002)																		
Muriatic Acid (Hydrochloric)	50	013	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	533	gal	1.16	1.11	2.58	0.05	100	8760	4640	0.08	730	0.37	387
Soak Cleaner	97	011	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	466	lbs	Solid	0.10	0.23	0.04	80	8760	4640	0.01	53	0.03	28
Electrocleaner	98	012	Alkaline Cleaner	Supermax Amp	PM/10/2.5	465	lbs	Solid	0.10	0.23	0.04	80	8760	4640	0.01	53	0.03	28
Nitric Acid	142	014	Acid Cleaning	Nitric Acid	PM/10/2.5	193	gal	1.41	0.49	1.13	0.05	100	8760	4640	0.04	321	0.16	170
Passivate	143	015	Acid Cleaning	Nitric Acid	PM/10/2.5	171	gal	1.41	0.43	1.00	0.05	100	8760	4640	0.03	283	0.14	150
				Sodium Dichromate	PM/10/2.5	141	lbs	Solid	0.03	0.07	0.05	100	8760	4640	0.00	20	0.01	11
Citric Acid	234	220	Acid Cleaning	Citric Acid	PM/10/2.5	7	gal	1.25	0.02	0.04	0.05	100	8760	4640	0.00	10	0.01	5
														Subtotal - Unrestricted	**0.17**	1470	**0.74**	779
ZINC #1 line -- COMG 3 (GP003)																		
Electrocleaner	53	022	Alkaline Cleaner	Super Maxamp	PM/10/2.5	1881	lbs	Solid	0.41	0.94	0.04	80	8760	4640	0.02	213	0.11	113
Hydrochloric Acid	54	023	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	1148	gal	1.16	2.39	5.55	0.05	100	8760	4640	0.18	1573	0.79	833
Zinc-Nickel	103	151	Plating	Zinc Chloride	PM/10/2.5	1	gal	1.79	0.00	0.01	0.02	40	8760	4640	0.00	1	0.00	0
				Nickel Chloride	PM/10/2.5	42	gal	1.34	0.10	0.23	0.02	40	8760	4640	0.00	26	0.01	14
				Potassium Chloride	PM/10/2.5	330	lbs	Solid	0.07	0.17	0.02	40	8760	4640	0.00	19	0.01	10
Zinc Cyanide	145	024	Plating	Sodium Cyanide	PM/10/2.5	840	lbs	Solid	0.18	0.42	0.02	40	8760	4640	0.01	48	0.02	25
				Sodium Hydroxide	PM/10/2.5	495	lbs	Solid	0.11	0.25	0.02	40	8760	4640	0.00	28	0.01	15
Clear Chromate	181	025	Plating	Tridur ZnB	PM/10/2.5	58	gal	1.16	0.12	0.28	0.04	80	8760	4640	0.01	63	0.03	33
Clear Chromate For Zinc-Nickel	194	152	Plating	Dipsol IZ-264	PM/10/2.5	7	gal	1.18	0.01	0.03	0.04	80	8760	4640	0.00	7	0.00	4
				Dipsol IZ-264T	PM/10/2.5	5	gal	1.23	0.01	0.02	0.04	80	8760	4640	0.00	6	0.00	3
Black Chromate	204	026	Plating	Chromater 50	PM/10/2.5	25	gal	1.17	0.05	0.12	0.04	80	8760	4640	0.00	27	0.01	14
				Havablack 50	PM/10/2.5	67	gal	1.06	0.13	0.30	0.04	80	8760	4640	0.01	67	0.03	36
				Havablack Catalyst	PM/10/2.5	40	gal	1.06	0.08	0.17	0.04	80	8760	4640	0.00	40	0.02	21
Yellow Chromate - Hex	225	207	Plating	Fordip 2500	PM/10/2.5	110	gal	1.42	0.28	0.65	0.04	80	8760	4640	0.02	147	0.07	78
Weak Hydrochloric Acid	226	208	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	8	gal	1.16	0.02	0.04	0.05	100	8760	4640	0.00	11	0.01	6
Yelow Chromate	235	221	Plating	Rodip ZNA Yellow	PM/10/2.5	24	lbs	Solid	0.01	0.01	0.04	80	8760	4640	0.00	3	0.00	1
Activator For Zn-Ni	236	222	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	8	gal	1.16	0.02	0.04	0.05	100	8760	4640	0.00	11	0.01	6
Chromate Seal	238	224	Plating	Tridur Finish 300	PM/10/2.5	5	gal	1.21	0.01	0.02	0.04	80	8760	4640	0.00	5	0.00	3
Zinc-Nickel (East)	263	NA	Plating	Zinc Chloride	PM/10/2.5	1	gal	1.79	0.00	0.01	0.02	40	8760	4640	0.00	1	0.00	0
				Nickel Chloride	PM/10/2.5	42	gal	1.34	0.10	0.23	0.02	40	8760	4640	0.00	26	0.01	14
				Potassium Chloride	PM/10/2.5	330	lbs	Solid	0.07	0.17	0.02	40	8760	4640	0.00	19	0.01	10
Soak Cleaner	264	NA	Alkaline Cleaner	Nuvat	PM/10/2.5	195	lbs	Solid	0.04	0.10	0.04	80	8760	4640	0.00	22	0.01	12
Soak Cleaner	265	NA	Alkaline Cleaner	Nuvat	PM/10/2.5	495	lbs	Solid	0.11	0.25	0.04	80	8760	4640	0.01	56	0.03	30
														Subtotal - Unrestricted	**0.28**	2418	**1.21**	1281

Co-Operative Plating Co
Potential Emission Calculations
Plating PM/PM_{10}/$PM_{2.5}$

KEY: Higher ton/yr addition rate from 2016 Emissions Inventory
Plating Tanks reported 0 throughput in CEDR 2016
Have new SI EQUI #s
Added by HDR For Final PTE Revisions

	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL [1]	Pollutant	Annual Capacity [1]	Units (lb / gal)	Specific Gravity	Addition Rate (lb/hr)	Addition Rate (ton/yr)	Gassing Rate [2] (Emission Factor) (lb_e/lb_i)	Gassing Rate [2] (Emission Factor) (lb_e/ton_i)	Production (hrs)	Actual (hrs)	PTE (x1.5) [3] (lb/hr)	PTE (x1.5) [3] (lb/yr)	PTE (x1.5) [3] (tpy)	Actual (lb/yr)
BLACK OXIDE/PHOSPHATE line -- COMG 15 (GP004)																		
Soak Cleaner	37	030	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	450	lbs	Solid	0.10	0.23	0.04	80	8760	4640	0.01	51	0.03	27
Hydrochloric Acid	38	032	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	655	gal	1.16	1.37	3.17	0.05	100	8760	4640	0.10	897	0.45	475
Zinc Phosphate	39	033	Plating	Interlox Phosphate 2325	PM/10/2.5	18	gal	1.42	0.05	0.11	0.02	40	8760	4640	0.00	12	0.01	6
Black Oxide	206	031	Plating	Black Magic Infusion (Ultra-Black 400L)	PM/10/2.5	100	gal	1.48	0.27	0.62	0.04	80	8760	4640	0.02	140	0.07	74
Zinc Phosphate for Zinc Plated Parts	227	210	Plating	Interlox Phosphate 2325	PM/10/2.5	100	gal	1.42	0.26	0.59	0.02	40	8760	4640	0.01	67	0.03	36
Chromic Acid Dip	239	225	Acid Cleaning	Chromium Trioxide	PM/10/2.5	1	lbs	Solid	0.00	0.00	0.04	80	8760	4640	0.00	0	0.00	0
Oil For Phosphate	240	226	Plating	Rustarest 53253	PM/10/2.5	10	gal	0.94	0.02	0.04	0.04	80	8760	4640	0.00	9	0.00	5
Phosphate Conditioner	241	227	Plating	Phosphate Conditioner 4	PM/10/2.5	2	lbs	Solid	0.00	0.00	0.04	80	8760	4640	0.00	0	0.00	0
														Subtotal - Unrestricted	**0.13**	1176	**0.59**	623
ZINC BARREL line -- COMG 16 (GP005)																		
Electrocleaner	40	035	Alkaline Cleaner	GF Clean 3051	PM/10/2.5	3094	lbs	Solid	0.67	1.55	0.04	80	8760	4640	0.04	350	0.18	186
Soak Cleaner	56	034	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	2992	lbs	Solid	0.64	1.50	0.04	80	8760	4640	0.04	339	0.17	180
Muriatic Acid (Weak) South Tank	57	036	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	1870	gal	1.16	3.90	9.05	0.05	100	8760	4640	0.29	2562	1.28	1357
Muriatic Acid (Strong) North Tank	58	037	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	1870	gal	1.16	3.90	9.05	0.05	100	8760	4640	0.29	2562	1.28	1357
Chromate Seal	105	153	Plating	Hypro Coat 320	PM/10/2.5	10	gal	1.26	0.02	0.05	0.04	80	8760	4640	0.00	12	0.01	6
Zinc-Nickel	106	154	Plating	Zinc Chloride	PM/10/2.5	24	gal	1.79	0.08	0.18	0.02	40	8760	4640	0.00	20	0.01	11
				Nickel Chloride	PM/10/2.5	21	gal	1.34	0.05	0.12	0.02	40	8760	4640	0.00	13	0.01	7
				Potassium Chloride	PM/10/2.5	1045	lbs	Solid	0.23	0.52	0.02	40	8760	4640	0.01	59	0.03	31
Zinc Chloride	149	039	Plating	Boric Acid	PM/10/2.5	370	lbs	Solid	0.08	0.19	0.02	40	8760	4640	0.00	21	0.01	11
				Potassium Chloride	PM/10/2.5	4730	lbs	Solid	1.02	2.37	0.02	40	8760	4640	0.03	268	0.13	142
				Zinc Chloride	PM/10/2.5	77	gal	1.79	0.25	0.57	0.02	40	8760	4640	0.01	65	0.03	34
Clear Chromate	182	038	Plating	HiTest 3030	PM/10/2.5	51	gal	1.29	0.12	0.27	0.04	80	8760	4640	0.01	62	0.03	33
Yellow Chromate For Zinc-Nickel	195	156	Plating	Rodip ZNA Yellow	PM/10/2.5	150	lbs	Solid	0.03	0.08	0.04	80	8760	4640	0.00	17	0.01	9
Electrocleaner For Brass	242	228	Alkaline Cleaner	Super Maxamp	PM/10/2.5	226	lbs	Solid	0.05	0.11	0.04	80	8760	4640	0.00	26	0.01	14
Soak Cleaner For Brass	243	229	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	161	lbs	Solid	0.03	0.08	0.04	80	8760	4640	0.00	18	0.01	10
Yellow Chromate (Hex) For Zinc/Black	245	231	Plating	Fordip 2500	PM/10/2.5	2	gal	1.42	0.01	0.01	0.03	60	8760	4640	0.00	2	0.00	1
				Chromater 50	PM/10/2.5	28	gal	1.17	0.06	0.13	0.03	60	8760	4640	0.00	23	0.01	12
				Havablack 50	PM/10/2.5	37	gal	1.06	0.07	0.16	0.03	60	8760	4640	0.00	27	0.01	15
				Havablack Catalyst	PM/10/2.5	26	gal	1.06	0.05	0.11	0.03	60	8760	4640	0.00	19	0.01	10
Clear Chromate For Zinc-Nickel	246	232	Plating	Dipsol IZ-264	PM/10/2.5	7	gal	1.18	0.01	0.03	0.03	60	8760	4640	0.00	6	0.00	3
				Dipsol IZ-264T	PM/10/2.5	3	gal	1.23	0.01	0.02	0.03	60	8760	4640	0.00	3	0.00	1
														Subtotal - Unrestricted	**0.74**	6474	**3.24**	3429
ELECTROLESS NICKEL ON STEEL transfer line -- COMG 17 (GP007)																		
Soak Cleaner	3	069	Alkaline Cleaner	GF Clean 5397	PM/10/2.5	1980	lbs	Solid	0.43	0.99	0.04	80	8760	4640	0.03	224	0.11	119
Muriatic Acid (Hydrochloric)	4	070	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	2200	gal	1.16	4.59	10.64	0.05	100	8760	4640	0.34	3014	1.51	1596
Electroless Nickel North Bay	5	071	Plating	Meta-Plate UCB-A	PM/10/2.5	2975	gal	1.25	6.68	15.50	0.03	60	8760	4640	0.30	2634	1.32	1395
				Meta-Plate UCB-C	PM/10/2.5	3305	gal	1.22	7.25	16.81	0.03	60	8760	4640	0.33	2857	1.43	1513
				Meta-Plate UCB-MU	PM/10/2.5	1995	gal	1.18	4.23	9.82	0.03	60	8760	4640	0.19	1668	0.83	883
Electrocleaner	47	068	Alkaline Cleaner	Super Maxamp	PM/10/2.5	1635	lbs	Solid	0.35	0.82	0.04	80	8760	4640	0.02	185	0.09	98
Electroless Nickel South Bay	247	233	Plating	5023A	PM/10/2.5	2264	gal	1.26	5.13	11.90	0.03	60	8760	4640	0.23	2021	1.01	1071
				5023B	PM/10/2.5	1278	gal	1.29	2.96	6.87	0.03	60	8760	4640	0.13	1168	0.58	619
				5023DA	PM/10/2.5	1857	gal	1.27	4.24	9.83	0.03	60	8760	4640	0.19	1671	0.84	885
Chromate	248	234	Plating	Meta-Seal EN 75 CR	PM/10/2.5	19	gal	1.37	0.05	0.11	0.05	100	8760	4640	0.00	30	0.01	16
Electroless Nickel High Phos	258	245	Plating	Meta-Plate UCB-A	PM/10/2.5	2975	gal	1.25	6.68	15.50	0.03	60	8760	4640	0.30	2634	1.32	1395
				Meta-Plate UCB-C	PM/10/2.5	3305	gal	1.22	7.25	16.81	0.03	60	8760	4640	0.33	2857	1.43	1513
				Meta-Plate UCB-MU	PM/10/2.5	1995	gal	1.18	4.23	9.82	0.03	60	8760	4640	0.19	1668	0.83	883
														Subtotal - Unrestricted	**2.58**	22632	**11.32**	11988
CADMIUM TRANSFER rack line -- COMG 18 (GP008)																		
Weak Nitric Acid	6	075	Acid Cleaning	Nitric Acid	PM/10/2.5	700	gal	1.41	1.77	4.12	0.05	100	8760	4640	0.13	1166	0.58	617
Soak Cleaner	60	072	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	664	lbs	Solid	0.14	0.33	0.04	80	8760	4640	0.01	75	0.04	40
Electrocleaner	61	073	Alkaline Cleaner	Super Maxamp	PM/10/2.5	1087	lbs	Solid	0.23	0.54	0.04	80	8760	4640	0.01	123	0.06	65
Hydrochloric Acid	62	074	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	1085	gal	1.16	2.26	5.25	0.05	100	8760	4640	0.17	1486	0.74	787
Cad Cyanide With Brighteners	109	157	Plating	Cadmium Oxide	PM/10/2.5	100	lbs	Solid	0.02	0.05	0.02	40	8760	4640	0.00	6	0.00	3
				Sodium Cyanide	PM/10/2.5	405	lbs	Solid	0.09	0.20	0.02	40	8760	4640	0.00	23	0.01	12
				Sodium Hydroxide	PM/10/2.5	75	lbs	Solid	0.02	0.04	0.02	40	8760	4640	0.00	4	0.00	2
Cad Cyanide No Brighteners	110	158	Plating	Cadmium Oxide	PM/10/2.5	39	lbs	Solid	0.01	0.02	0.02	40	8760	4640	0.00	2	0.00	1
				Sodium Cyanide	PM/10/2.5	265	lbs	Solid	0.06	0.13	0.02	40	8760	4640	0.00	15	0.01	8
				Sodium Hydroxide	PM/10/2.5	65	lbs	Solid	0.01	0.03	0.02	40	8760	4640	0.00	4	0.00	2
Hot Sulfuric Acid	115	163	Acid Cleaning	Sulfuric Acid	PM/10/2.5	60	gal	1.84	0.20	0.46	0.05	100	8760	4640	0.01	130	0.07	69
Nickel Strike	116	164	Plating	Nickel Chloride	PM/10/2.5	100	gal	1.34	0.24	0.56	0.05	100	8760	4640	0.02	158	0.08	84
				Hydrochloric Acid	PM/10/2.5	33	gal	1.16	0.07	0.16	0.05	100	8760	4640	0.01	45	0.02	24
Clear Chromate	196	159	Plating	Iridite 4L-1	PM/10/2.5	115	gal	1.31	0.27	0.62	0.04	80	8760	4640	0.02	141	0.07	75
Yellow Chromate	197	160	Plating	Fordip 2500	PM/10/2.5	5	gal	1.42	0.01	0.03	0.04	80	8760	4640	0.00	7	0.00	4
														Subtotal - Unrestricted	**0.39**	3385	**1.69**	1793

Co-Operative Plating Co
Potential Emission Calculations
Plating PM/PM_{10}/$PM_{2.5}$

KEY: Higher ton/yr addition rate from 2016 Emissions Inventory
Plating Tanks reported 0 throughput in CEDR 2016
Have new SI EQUI #s
Added by HDR For Final PTE Revisions

	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL [1]	Pollutant	Annual Capacity [1]	Units (lb / gal)	Specific Gravity	Addition Rate (lb/hr)	Addition Rate (ton/yr)	Gassing Rate [2] (Emission Factor) (lb_e/lb_i)	Gassing Rate [2] (Emission Factor) (lb_e/ton_i)	Production (hrs)	Actual (hrs)	PTE (x1.5) [3] (lb/hr)	PTE (x1.5) [3] (lb/yr)	PTE (x1.5) [3] (tpy)	Actual (lb/yr)
SURTEC line -- COMG 6 (GP009)																		
Deoxidizer	212	194	Acid Cleaning	Isoprep 188	PM/10/2.5	5920	lbs	Solid	1.28	2.96	0.04	80	8760	4640	0.08	671	0.34	355
Soak Cleaner	214	196	Alkaline Cleaner	Cleaner 3390	PM/10/2.5	190	lbs	Solid	0.04	0.10	0.04	80	8760	4640	0.00	22	0.01	11
Etch	183	076	Etching	Dipsol 430-RE	PM/10/2.5	1892	lbs	Solid	0.41	0.95	0.02	40	8760	4640	0.01	107	0.05	57
Surtec	222	204	Plating	Surtec 650	PM/10/2.5	214	gal	1.01	0.39	0.90	0.025	50	8760	4640	0.01	127	0.06	67
														Subtotal - Unrestricted	**0.11**	926	**0.46**	491
ZINC TRANSFER line 1 -- COMG 19 (GP010)																		
Soak Cleaner	10	087	Alkaline Cleaner	GF Clean 5397	PM/10/2.5	2140	lbs	Solid	0.46	1.07	0.04	80	8760	4640	0.03	242	0.12	128
Electrocleaner	11	088	Alkaline Cleaner	Super Maxamp	PM/10/2.5	1557	lbs	Solid	0.34	0.78	0.04	80	8760	4640	0.02	176	0.09	93
Strong Muriatic Acid (Hydrochloric)	68	089	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	3960	gal	1.16	8.26	19.16	0.05	100	8760	4640	0.62	5425	2.71	2873
Weak Muriatic Acid (Hydrochloric)	69	090	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	100	gal	1.16	0.21	0.48	0.05	100	8760	4640	0.02	137	0.07	73
Clear Chromate	186	092	Plating	Tridur ZnB	PM/10/2.5	22	gal	1.16	0.05	0.11	0.04	80	8760	4640	0.00	24	0.01	13
Zinc Cyanide	207	091	Plating	Sodium Cyanide	PM/10/2.5	1740	lbs	Solid	0.38	0.87	0.02	40	8760	4640	0.01	99	0.05	52
				Sodium Hydroxide	PM/10/2.5	1150	lbs	Solid	0.25	0.58	0.02	40	8760	4640	0.01	65	0.03	35
Yellow Chromate	229	213	Plating	Fordip 2500	PM/10/2.5	100	gal	1.42	0.25	0.59	0.04	80	8760	4640	0.02	134	0.07	71
														Subtotal - Unrestricted	**0.72**	6302	**3.15**	3338
ANODIZE line -- COMG 20 (GP011)																		
Nickel Acetate Seal	72	095	Sealing	Seal 2511	PM/10/2.5	439	gal	1.10	0.87	2.01	0.04	80	8760	4640	0.05	455	0.23	241
Soak Cleaner	118	166	Alkaline Cleaner	Cleaner 3390	PM/10/2.5	1056	lbs	Solid	0.23	0.53	0.04	80	8760	4640	0.01	120	0.06	63
Deoxidizer	153	094	Deoxidizer	Seaclean 203	PM/10/2.5	638	gal	1.32	1.51	3.50	0.04	80	8760	4640	0.09	793	0.40	420
Etch	187	093	Etching	Dipsol 430-RE	PM/10/2.5	2322	lbs	Solid	0.50	1.16	0.02	40	8760	4640	0.02	132	0.07	70
Nitric Acid	188	096	Plating	Nitric Acid	PM/10/2.5	1035	gal	1.41	2.62	6.09	0.05	100	8760	4640	0.20	1723	0.86	913
Dichromate Seal	198	167	Plating	Sodium Dichromate	PM/10/2.5	44	lbs	Solid	0.01	0.02	0.04	80	8760	4640	0.00	5	0.00	3
Anodize Tank	208	097	Acid Cleaning	Sulfuric Acid	PM/10/2.5	1220	gal	1.84	4.02	9.34	0.05	100	8760	4640	0.30	2644	1.32	1401
														Subtotal - Unrestricted	**0.67**	5872	**2.94**	3110
ELECTROLESS NICKEL HAND -- COMG 21 (GP012)																		
Zincate	12	104	Plating	Zincate 3116	PM/10/2.5	196	gal	1.45	0.51	1.18	0.02	40	8760	4640	0.02	134	0.07	71
Nitric Acid	13	105	Acid Cleaning	Nitric Acid	PM/10/2.5	190	gal	1.41	0.48	1.11	0.05	100	8760	4640	0.04	316	0.16	167
Electrocleaner	33	017	Alkaline Cleaner	Super Maxamp	PM/10/2.5	876	lbs	Solid	0.19	0.44	0.04	80	8760	4640	0.01	99	0.05	53
Nitric Acid	34	018	Acid Cleaning	Nitric Acid	PM/10/2.5	270	gal	1.41	0.68	1.59	0.05	100	8760	4640	0.05	450	0.22	238
Hydrochloric Acid	51	019	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	715	gal	1.16	1.49	3.46	0.05	100	8760	4640	0.11	979	0.49	519
Soak Cleaner	74	101	Acid Cleaning	Cleaner 3390	PM/10/2.5	395	lbs	Solid	0.09	0.20	0.05	100	8760	4640	0.01	56	0.03	30
Desmutter	76	103	Acid Cleaning	Ammonium Bifluoride	PM/10/2.5	1180	lbs	Solid	0.25	0.59	0.05	100	8760	4640	0.02	167	0.08	89
				Nitric Acid	PM/10/2.5	585	gal	1.41	1.48	3.43	0.05	100	8760	4640	0.11	973	0.49	515
				Sulfuric Acid	PM/10/2.5	260	gal	1.84	0.86	1.99	0.05	100	8760	4640	0.06	564	0.28	299
Electroless Nickel High Phos	77	106	Plating	OMNiPlate T4 BP10A	PM/10/2.5	473	gal	1.26	1.07	2.49	0.03	60	8760	4640	0.05	422	0.21	224
				OMNiPlate T4 BP10B	PM/10/2.5	260	gal	1.38	0.64	1.50	0.03	60	8760	4640	0.03	254	0.13	135
				OMNiPlate T4 BP10C	PM/10/2.5	481	gal	1.22	1.05	2.45	0.03	60	8760	4640	0.05	416	0.21	220
				OMNiPlate T4 BP10MU	PM/10/2.5	104	gal	1.26	0.24	0.55	0.03	60	8760	4640	0.01	93	0.05	49
Electroless Nickel High Phos	78	107	Plating	Liquid Nickel Sulfate 100	PM/10/2.5	399	gal	1.30	0.93	2.16	0.03	60	8760	4640	0.04	368	0.18	195
				Ultra Phos OG-BX	PM/10/2.5	200	gal	1.27	0.46	1.06	0.03	60	8760	4640	0.02	180	0.09	95
				Ultra Phos OG-CX	PM/10/2.5	321	gal	1.25	0.72	1.67	0.03	60	8760	4640	0.03	284	0.14	151
Electroless Nickel Mid Phos	99	147	Plating	Liquid Nickel Sulfate 100	PM/10/2.5	475	gal	1.30	1.11	2.57	0.03	60	8760	4640	0.05	438	0.22	232
				Ultra Phos OG-BX	PM/10/2.5	242	gal	1.27	0.55	1.28	0.03	60	8760	4640	0.02	218	0.11	115
				Ultra Phos OG-CX	PM/10/2.5	384	gal	1.25	0.86	2.00	0.03	60	8760	4640	0.04	340	0.17	180
Copper Plate	180	020	Plating	Copper Cyanide	PM/10/2.5	49	lbs	Solid	0.01	0.02	0.02	40	8760	4640	0.00	3	0.00	1
				Potassium Cyanide	PM/10/2.5	64	lbs	Solid	0.01	0.03	0.02	40	8760	4640	0.00	4	0.00	2
Etch	189	102	Acid Cleaning	Dipsol 430-RE	PM/10/2.5	440	lbs	Solid	0.09	0.22	0.05	100	8760	4640	0.01	62	0.03	33
Nitric Acid (Silver Rack Strip)	199	169	Acid Cleaning	Nitric Acid	PM/10/2.5	360	gal	1.41	0.91	2.12	0.05	100	8760	4640	0.07	599	0.30	318
Chromate Post Dip	200	170	Plating	Nichem Post Dip	PM/10/2.5	12	gal	1.15	0.02	0.06	0.04	80	8760	4640	0.00	13	0.01	7
Nickel Strike	230	215	Plating	Nickel Chloride	PM/10/2.5	12	gal	1.34	0.03	0.07	0.05	100	8760	4640	0.00	19	0.01	10
				Hydrochloric Acid	PM/10/2.5	17	gal	1.16	0.03	0.08	0.05	100	8760	4640	0.00	23	0.01	12
Copper Cleaner	266	214	Alkaline Cleaner	Q-Pex Copper Cleaner	PM/10/2.5	295	lbs	Solid	0.06	0.15	0.04	80	8760	4640	0.00	33	0.02	18
Acid Salt	267	NA	Acid Cleaning	Acid Salt W	PM/10/2.5	250	lbs	Solid	0.05	0.13	0.05	100	8760	4640	0.00	35	0.02	19
Electrocleaner For Brass	268	NA	Alkaline Cleaner	Meta-Kleen HDS-40	PM/10/2.5	250	lbs	Solid	0.05	0.13	0.04	80	8760	4640	0.00	28	0.01	15
														Subtotal - Unrestricted	**0.86**	7569	**3.78**	4009

Co-Operative Plating Co
Potential Emission Calculations
Plating PM/PM_{10}/$PM_{2.5}$

KEY: Higher ton/yr addition rate from 2016 Emissions Inventory | Added by HDR For Final PTE Revisions
Plating Tanks reported 0 throughput in CEDR 2016
Have new SI EQUI #s

	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL [1]	Pollutant	Annual Capacity [1]	Units (lb / gal)	Specific Gravity	Addition Rate (lb/hr)	Addition Rate (ton/yr)	Gassing Rate [2] (Emission Factor) (lb_g/lb_l)	Gassing Rate [2] (Emission Factor) (lb_g/ton_l)	Production (hrs)	Actual (hrs)	PTE (x1.5) [3] (lb/hr)	PTE (x1.5) [3] (lb/yr)	PTE (x1.5) [3] (tpy)	Actual (lb/yr)
ELECTROLESS NICKEL ON ALUMINUM line -- COMG 22 (GP014)																		
Zincate	15	113	Plating	Zincate 3116	PM/10/2.5	759	gal	1.45	1.97	4.58	0.02	40	8760	4640	0.06	518	0.26	275
Soak Cleaner	81	111	Alkaline Cleaner	Cleaner 3390	PM/10/2.5	546	lbs	Solid	0.12	0.27	0.04	80	8760	4640	0.01	62	0.03	33
Electroless Nickel South Bay	83	115	Plating	OMNiPlate T4 BP10A	PM/10/2.5	2528	gal	1.26	5.73	13.28	0.03	60	8760	4640	0.26	2257	1.13	1195
				OMNiPlate T4 BP10B	PM/10/2.5	1316	gal	1.38	3.26	7.57	0.03	60	8760	4640	0.15	1287	0.64	682
				OMNiPlate T4 BP10C	PM/10/2.5	2878	gal	1.22	6.31	14.64	0.03	60	8760	4640	0.28	2488	1.24	1318
				OMNiPlate T4 BP10MU	PM/10/2.5	532	gal	1.26	1.20	2.80	0.03	60	8760	4640	0.05	475	0.24	252
Electroless Nickel North Bay	84	116	Plating	5023A	PM/10/2.5	1405	gal	1.26	3.18	7.38	0.03	60	8760	4640	0.14	1254	0.63	664
				5023B	PM/10/2.5	896	gal	1.29	2.08	4.82	0.03	60	8760	4640	0.09	819	0.41	434
				5023DA	PM/10/2.5	1070	gal	1.27	2.44	5.66	0.03	60	8760	4640	0.11	962	0.48	510
Desmutter	123	171	Acid Cleaning	Ammonium Bifluoride	PM/10/2.5	7120	lbs	Solid	1.53	3.56	0.05	100	8760	4640	0.12	1008	0.50	534
				Sulfuric Acid	PM/10/2.5	180	gal	1.84	0.59	1.38	0.05	100	8760	4640	0.04	390	0.20	207
				Nitric Acid	PM/10/2.5	360	gal	1.41	0.91	2.11	0.05	100	8760	4640	0.07	599	0.30	317
Desmutter	124	172	Acid Cleaning	Ammonium Bifluoride	PM/10/2.5	6480	lbs	Solid	1.40	3.24	0.05	100	8760	4640	0.10	918	0.46	486
				Sulfuric Acid	PM/10/2.5	165	gal	1.84	0.54	1.26	0.05	100	8760	4640	0.04	358	0.18	189
				Nitric Acid	PM/10/2.5	330	gal	1.41	0.84	1.94	0.05	100	8760	4640	0.06	549	0.27	291
Weak White Nitric	126	174	Acid Cleaning	Nitric Acid	PM/10/2.5	863	gal	1.41	2.19	5.07	0.05	100	8760	4640	0.16	1437	0.72	761
Nitric Acid For Brass	127	175	Acid Cleaning	Nitric Acid	PM/10/2.5	675	gal	1.41	1.71	3.97	0.05	100	8760	4640	0.13	1124	0.56	595
Weak Desmutter	178	114	Plating	Seaclean 203	PM/10/2.5	248	gal	1.32	0.59	1.36	0.02	40	8760	4640	0.02	154	0.08	82
Etch	190	112	Etching	Dipsol 430-RE	PM/10/2.5	1031	lbs	Solid	0.22	0.52	0.02	40	8760	4640	0.01	58	0.03	31
Nitric Acid	250	236	Acid Cleaning	Nitric Acid	PM/10/2.5	150	gal	1.41	0.38	0.88	0.05	100	8760	4640	0.03	250	0.12	132
Chromate Post Dip	251	237	Plating	Nichem Post Dip	PM/10/2.5	15	gal	1.15	0.03	0.07	0.05	100	8760	4640	0.00	20	0.01	11
														Subtotal - Unrestricted	**1.94**	16987	**8.49**	8997
SILVER #3 line -- COMG 8 (GP016)																		
Electrocleaner	19	125	Alkaline Cleaner	Super Maxamp	PM/10/2.5	702	lbs	Solid	0.15	0.35	0.04	80	8760	4640	0.01	80	0.04	42
Q-pex Copper Cleaner	20	127	Alkaline Cleaner	Q-Pex Copper Cleaner	PM/10/2.5	762	lbs	Solid	0.16	0.38	0.04	80	8760	4640	0.01	86	0.04	46
Silver Plate	21	129	Plating	Potassium Cyanide	PM/10/2.5	30	lbs	Solid	0.01	0.02	0.02	40	8760	4640	0.00	2	0.00	1
Silver Strike	89	128	Plating	Potassium Silver Cyanide	PM/10/2.5	7	lbs	Solid	0.00	0.00	0.02	40	8760	4640	0.00	0	0.00	0
				Potassium Cyanide	PM/10/2.5	38	lbs	Solid	0.01	0.02	0.02	40	8760	4640	0.00	2	0.00	1
Soak Cleaner	131	179	Alkaline Cleaner	Nuvat Classic	PM/10/2.5	560	lbs	Solid	0.12	0.28	0.04	80	8760	4640	0.01	63	0.03	34
Electroless Nickel	132	180	Plating	Nichem 1123A	PM/10/2.5	530	gal	1.26	1.20	2.78	0.03	60	8760	4640	0.05	473	0.24	250
				Nichem 1123B	PM/10/2.5	315	gal	1.17	0.66	1.54	0.03	60	8760	4640	0.03	261	0.13	138
				Nichem 1123C	PM/10/2.5	432	gal	1.26	0.98	2.27	0.03	60	8760	4640	0.04	385	0.19	204
Sulfuric Acid	191	126	Acid Cleaning	Sulfuric Acid	PM/10/2.5	120	gal	1.84	0.40	0.92	0.05	100	8760	4640	0.03	260	0.13	138
Bright Acid Tin	201	181	Plating	Sulfuric Acid	PM/10/2.5	30	gal	1.84	0.10	0.23	0.04	80	8760	4640	0.01	52	0.03	28
Nitric Rack Strip Large	209	120	Acid Cleaning	Nitric Acid	PM/10/2.5	360	gal	1.41	0.91	2.12	0.05	100	8760	4640	0.07	599	0.30	318
Chromate Post Dip	228	212	Plating	Nichem Post Dip	PM/10/2.5	8	gal	1.15	0.02	0.04	0.04	80	8760	4640	0.00	9	0.00	5
Nitric Acid Strip For Tin	252	238	Acid Cleaning	Nitric Acid	PM/10/2.5	30	gal	1.41	0.08	0.18	0.05	100	8760	4640	0.01	50	0.02	26
Acid Copper	255	242	Plating	Copper Sulfate Solution	PM/10/2.5	125	gal	1.17	0.26	0.61	0.05	100	8760	4640	0.02	173	0.09	92
				Sulfuric Acid	PM/10/2.5	6	gal	1.83	0.02	0.04	0.05	100	8760	4640	0.00	12	0.01	6
Anti-Tarnish For Copper	256	243	Plating	Nortex Barrier Coat BC	PM/10/2.5	6	gal	1.83	0.02	0.04	0.05	100	8760	4640	0.00	12	0.01	6
Silver Strip	261	NA	Acid Cleaning	Nitric Acid	PM/10/2.5	225	gal	1.41	0.57	1.32	0.05	100	8760	4640	0.04	375	0.19	198
Acid Salt	262	NA	Acid Cleaning	Acid Salt W	PM/10/2.5	100	lbs	Solid	0.02	0.05	0.05	100	8760	4640	0.00	14	0.01	8
														Subtotal - Unrestricted	**0.33**	2908	**1.45**	1541
STRIP line -- COMG 23 (GP018)																		
Chromic Acid Strip	48	189	Stripping	Chromium Trioxide	PM/10/2.5	920	lbs	Solid	0.20	0.46	0.04	80	8760	4640	0.01	104	0.05	55
				Sulfuric Acid	PM/10/2.5	7	gal	1.84	0.02	0.05	0.04	80	8760	4640	0.00	11	0.01	6
Cyanide Nickel Strip	205	028	Stripping	Rostrip M-10	PM/10/2.5	1133	lbs	Solid	0.24	0.57	0.02	40	8760	4640	0.01	64	0.03	34
				Sodium Cyanide	PM/10/2.5	1701	lbs	Solid	0.37	0.85	0.02	40	8760	4640	0.01	96	0.05	51
Nickel Strip	253	240	Stripping	ENSTRIP EN-86A	PM/10/2.5	19	gal	1.06	0.04	0.08	0.02	40	8760	4640	0.00	9	0.00	5
				ENSTRIP EN-86B	PM/10/2.5	28	lbs	Solid	0.01	0.01	0.02	40	8760	4640	0.00	2	0.00	1
														Subtotal - Unrestricted	**0.03**	287.1	**0.14**	152.06
ELECTROPOLISH line -- COMG 11 (GP019)																		
Muriatic Acid (Hydrochloric)	67	085	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	825	gal	1.16	1.72	3.99	0.05	100	8760	4640	0.13	1130	0.57	599
Electrocleaner	151	086	Alkaline Cleaner	GF Clean 3051	PM/10/2.5	1095	lbs	Solid	0.24	0.55	0.04	80	8760	4640	0.01	124	0.06	66
Nitric Acid	272	NA	Acid Cleaning	Nitric Acid	PM/10/2.5	150	gal	1.41	0.38	0.88	0.05	100	8760	4640	0.03	250	0.12	132
														Subtotal - Unrestricted	**0.17**	1504	**0.75**	797
CADMIUM HAND line -- COMG 12 (GP020)																		
Olive Drab Chromate	114	162	Acid Cleaning	Tasdip OD-2R	PM/10/2.5	50	gal	1.13	0.10	0.23	0.04	80	8760	4640	0.01	53	0.03	28
				Tasdip OD-2C	PM/10/2.5	50	gal	1.13	0.10	0.23	0.04	80	8760	4640	0.01	53	0.03	28
Cadmium Cyanide Plate	138	186	Alkaline Cleaner	Cadmium Oxide	PM/10/2.5	20	lbs	Solid	0.00	0.01	0.04	80	8760	4640	0.00	2	0.00	1
				Sodium Cyanide	PM/10/2.5	405	lbs	Solid	0.09	0.20	0.04	80	8760	4640	0.01	46	0.02	24
				Sodium Hydroxide	PM/10/2.5	95	lbs	Solid	0.02	0.05	0.04	80	8760	4640	0.00	11	0.01	6
Clear Chroamte	202	187	Plating	Iridite 4L-1	PM/10/2.5	52	gal	1.31	0.12	0.28	0.04	80	8760	4640	0.01	64	0.03	34
Yellow Chromate	203	188	Plating	Fordip 2500	PM/10/2.5	2	gal	1.42	0.00	0.01	0.04	80	8760	4640	0.00	2	0.00	1
														Subtotal - Unrestricted	**0.03**	231	**0.12**	122

Co-Operative Plating Co
Potential Emission Calculations
Plating PM/PM_{10}/$PM_{2.5}$

KEY: Higher ton/yr addition rate from 2016 Emissions Inventory
Plating Tanks reported 0 throughput in CEDR 2016
Have new SI EQUI #s
Added by HDR For Final PTE Revisions

	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL [1]	Pollutant	Annual Capacity [1]	Units (lb / gal)	Specific Gravity	Addition Rate (lb/hr)	Addition Rate (ton/yr)	Gassing Rate [2] (Emission Factor) (lb_e/lb_i)	Gassing Rate [2] (Emission Factor) (lb_e/ton_i)	Production (hrs)	Actual (hrs)	PTE (x1.5) [3] (lb/hr)	PTE (x1.5) [3] (lb/yr)	PTE (x1.5) [3] (tpy)	Actual (lb/yr)
HARDCOAT & SURTEC line -- COMG 25 (GP024)																		
Nitric Acid	65	081	Acid Cleaning	Nitric Acid	PM/10/2.5	225	gal	1.41	0.57	1.32	0.05	100	8760	4640	0.04	375	0.19	198
Nickel Acetate Seal	184	080	Acid Cleaning	Seal 2511	PM/10/2.5	26	gal	1.10	0.05	0.12	0.05	100	8760	4640	0.00	34	0.02	18
Hardcoat	192	130	Electro polishing	Sulfuric Acid	PM/10/2.5	538	gal	1.84	1.77	4.12	0.04	80	8760	4640	0.11	933	0.47	494
Soak Cleaner	91	135	Alkaline Cleaner	Cleaner 3390	PM/10/2.5	1280	lbs	Solid	0.28	0.64	0.04	80	8760	4640	0.02	145	0.07	77
Etch	213	195	Etching	Dipsol 430-RE	PM/10/2.5	1715	lbs	Solid	0.37	0.86	0.02	40	8760	4640	0.01	97	0.05	51
Deoxidizer	150	077	Deoxidizer	Seaclean 203	PM/10/2.5	364	gal	1.35	0.88	2.05	0.04	80	8760	4640	0.05	464	0.23	246
Yellow Iridite	9	079	Plating	Iridite 14-2	PM/10/2.5	119	lbs	Solid	0.03	0.06	0.04	80	8760	4640	0.00	13	0.01	7
														Subtotal - Unrestricted	**0.24**	2061	**1.03**	1092
ZINC TRANSFER line 2 -- COMG 26 (GP025)																		
Soak Cleaner	215	197	Alkaline Cleaner	GF Clean 5397	PM/10/2.5	3000	lbs	Solid	0.65	1.50	0.04	80	8760	4640	0.04	340	0.17	180
Electrocleaner	216	198	Alkaline Cleaner	GF Clean 3051	PM/10/2.5	3614	lbs	Solid	0.78	1.81	0.04	80	8760	4640	0.05	409	0.20	217
Strong Muriatic Acid (Hydrochloric)	218	200	Acid Cleaning	Hydrochloric Acid	PM/10/2.5	4400	gal	1.16	9.17	21.28	0.05	100	8760	4640	0.69	6027	3.01	3193
Clear Chromate	220	202	Plating	Tridur ZnB	PM/10/2.5	177	gal	1.16	0.37	0.85	0.04	80	8760	4640	0.02	193	0.10	102
Zinc Generator	260	247	Plating	Zinc, Sodium Hydroxide	PM/10/2.5	750	lbs	Solid	0.16	0.38	0.02	40	8760	4640	0.00	42	0.02	23
Alkaline Non-Cyanide Zinc	269	NA	Plating	Zinc, Sodium Hydroxide	PM/10/2.5	1500	lbs	Solid	0.32	0.75	0.02	40	8760	4640	0.01	85	0.04	45
Nitric Acid Bright Dip	270	NA	Plating	Nitric Acid	PM/10/2.5	150	gal	1.41	0.38	0.88	0.02	40	8760	4640	0.01	100	0.05	53
Zinc Phosphate	271	NA	Plating	Interlox Phosphate 2325	PM/10/2.5	200	gal	1.42	0.51	1.18	0.02	40	8760	4640	0.02	134	0.07	71
														Subtotal - Unrestricted	**0.84**	7331	**3.67**	3883
															PTE (x1.5) [3] (lb/hr)	(lb/yr)	(tpy)	Actual (lb/yr)
														TOTAL PM/PM10/PM2.5 - Unrestricted	**11.17**	97848	**48.9**	51828
														TOTAL PM/PM10/PM2.5 - Controlled [4]	**8.15**	**71429**	**35.71**	40633
														OLD	**4.53**	39721	**19.9**	

Notes:
1. For some baths, two different chemical solutions may be added and mixed manually, and thus two different annual capacities (throughputs) are listed. Some baths may only have one chemical solution added that is provided as a mixture from the product supplier, and thus may have multiple chemicals listed but only one throughput because it is the pre-mixed mixture that is added.
2. Emissions from plating tanks and other plating process tanks were calculated using the gassing rate method for open surface tanks. For each tank a gassing rate and corresponding "percent loss of makeup material" are assigned based on the specific process and solution within each tank. See Plating HAPs tab/page for chemical formulas in each tank.
2a. Air-borne contaminants gassing rates were obtained from Electroplating Engineering Handbook, Fourth Edition, edited by Lawrence J. Durney, Tables 6, 7, and 8 on pages 646-650.
2b. Gassing rates from the Electroplating Engineering Handbook coorespond with percent loss of makeup material. Percent loss is related to the gassing rate in Modern Pollution Control Technology, Vol. 1, Air Pollution Control, Staff of Research and Education Association, Research and Education Association, 342 Madison Avenue, New York, NY. Book is available in MPCA library.

Gassing Rate	% loss
High	5
Medium-High	4
Medium	3
Low	2

2b(1). Since the gassing rate for chromic acid is High, it was assumed that the gassing rates for other (slightly acidic) chromium-containing contaminants ($Cr(NO_3)_3$, $Na_2Cr_2O_7$, CrO_3, $CrH_6O_{12}P_3$, $Cr_2(SO_4)_3$) are Medium-High.
2b(2). To determine a gassing rate for electroplating baths, the compound being plated is required. Gassing rates for plating baths where a chemical formula was not specified (EU 031, 226, 227, 153, 095) were assumed to be Medium-High to be conservative.
2b(3). Since the gassing rate for ZnCl is Low, it was assumed that the gassing rate for $Zn(NO_3)_2$ is Low.
3. PTE values multiplied by 1.5 as a safety factor.

Co-Operative Plating Co
Potential Emission Calculations
Plating VOCs & HAPS

Plating bath is subject to 40 CFR Part 63 NESHAP, Subpart WWWWWW. | Subject to NESHAP N so exempt from WWWWWW

KEY: Tanks reported 0 throughput, CEDR 2016 | Reported SO2/NOx where no S/N chemical OR didn't report SO2/NOx where there are S/N emissions, CEDR 2016

HAPS ↓

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	HCl (lb/yr)	H_3PO_4 (lb/yr)	HNO_3 (lb/yr)	H_2SO_4 (lb/yr)	CN (lb/yr)	Ni (lb/yr)	Cr +3 (lb/yr)	Cr +6 (lb/yr)	Zn (lb/yr)	Cu (lb/yr)	Sn (lb/yr)	Ag (lb/yr)	Cd (lb/yr)	Co (lb/yr)	VOC total	HAPs total
COPPER/NICKEL/CHROME line -- COMG 1 (GP001)																					
Soak Cleaner	28	005	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	29	006	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Muriatic Acid (Hydrochloric)	30	007	Acid Cleaning	HCl	55% by vol (31 wt% HCl)	1681.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Trichrome	32	009	Plating	Boric Acid	H_3BO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Potassium Chloride	KCl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Trivalent Chromium	CrO_3	0.00	0.00	0.00	0.00	0.00	0.00	14.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel North	92	191	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nickel Sulfate	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Boric Acid	H_3BO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel South	93	192	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nickel Sulfate	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Boric Acid	H_3BO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Barrel	94	193	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nickel Sulfate	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Boric Acid	H_3BO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Rack Strip	96	010	Acid Cleaning	Nitric Acid	50 % by vol (67 wt% HNO_3)	0.00	0.00	613.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Copper Plate Bath	179	008	Plating	Copper Cyanide	$Cu(CN)_2$	0.00	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	3.36	0.00	0.00	0.00	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	15.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Strike	224	206	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Hydrochloric Acid	12% by vol (31 wt% HCL)	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner for Brass	231	217	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Black Pearl Electroblack	232	218	Plating	Electroblack SG	NaCN	0.00	0.00	0.00	0.00	97.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	86.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Brass Strip	233	219	Acid Cleaning	Rostrip M-20	$C_6H_4NNaO_5S$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	11.3 % by vol (93 wt% H2SO4)	0.00	0.00	0.00	60.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	**1683.74**	**0.00**	**613.58**	**60.62**	**201.34**	**3.13**	**14.14**	**0.00**	**0.00**	**3.36**	**0.00**	**0.00**	**0.00**	**0.00**	1.290	0.951
					(ton/yr)	**0.842**	**0.000**	**0.307**	**0.030**	**0.101**	**0.002**	**0.007**	**0.000**	**0.000**	**0.0017**	**0.000**	**0.000**	**0.000**	**0.000**		
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.140**	**0.000**	**0.051**	**0.005**	**0.017**	**0.000**	**0.001**	**0.000**	**0.000**	**0.0003**	**0.000**	**0.000**	**0.000**	**0.000**	0.215	0.159
					(ton/yr)	**0.615**	**0.000**	**0.224**	**0.022**	**0.073**	**0.001**	**0.005**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	0.942	0.694
PASSIVATE line -- COMG 2 (GP002)																					
Muriatic Acid (Hydrochloric)	50	013	Acid Cleaning	Hydrochloric Acid	55% by vol (31 wt% HCl)	226.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	97	011	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	98	012	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Passivate Bath - Nitric Acid	142	014	Acid Cleaning	Nitric Acid	40 % by vol (67 wt% HNO_3)	0.00	0.00	215.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Passivate	143	015	Acid Cleaning	Nitric Acid	25 % by vol (67 wt% HNO_3)	0.00	0.00	189.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Dichromate	3 oz/gal $Na_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Citric Acid	234	220	Acid Cleaning	Citric Acid	$H_3C_6H_5O_7H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	**226.34**	**0.00**	**404.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
					(ton/yr)	**0.113**	**0.000**	**0.202**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.316	0.113
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.019**	**0.000**	**0.034**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.053	0.019
					(ton/yr)	**0.083**	**0.000**	**0.148**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.230	0.083
ZINC #1 line -- COMG 3 (GP003)																					
Electrocleaner	53	022	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid	54	023	Acid Cleaning	Hydrochloric Acid	75% by vol (31 wt% HCl)	487.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc-Nickel	103	151	Plating	Zinc Chloride	$ZnCl_2$	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00		
				Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Potassium Chloride	KCl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc Cyanide	145	024	Plating	Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Hydroxide	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chromate	181	025	Plating	Tridur ZnB	$Cr(NO_3)_3$, Co	0.00	0.00	0.00	0.00	0.00	0.00	13.77	0.00	0.00	0.00	0.00	0.00	0.00	0.01		
Chromate For Zinc-Nickel	194	152	Plating	Dipsol IZ-264	$Co(NO_3)_2 \bullet 6H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Dipsol IZ-264T	$CrCl_3 \bullet 6H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Black Chromate	204	026	Plating	Chromater 50	CrO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00		
				Havablack 50	$C_2H_4O_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Havablack Catalyst	$C_2H_4O_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate	225	207	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Weak Hydrochloric Acid	226	208	Acid Cleaning	Hydrochloric Acid	55% by vol (31 wt% HCl)	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yelow Chromate	235	221	Plating	Rodip ZNA Yellow	$Na_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Activator For Zn-Ni	236	222	Acid Cleaning	Hydrochloric Acid	55% by vol (31 wt% HCl)	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate Seal	238	224	Plating	Tridur Finish 300	$CrH_6O_{12}P_3$	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc-Nickel (East)	263	NA	Plating	Zinc Chloride	$ZnCl_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Potassium Chloride	KCl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	264	NA	Alkaline Cleaner	Nuvat	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	265	NA	Alkaline Cleaner	Nuvat	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	494.29	0.00	0.00	0.00	0.00	0.24	16.38	0.03	0.41	0.00	0.00	0.00	0.00	0.01		
					(ton/yr)	**0.247**	0.000	0.000	0.000	**0.000**	**0.000**	**0.008**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.256	0.255
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.041**	0.000	0.000	0.000	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.043	0.043
					(ton/yr)	**0.180**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.006**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.187	0.187
BLACK OXIDE/PHOSPHATE line -- COMG 15 (GP004)																					
Soak Cleaner	37	030	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid	38	032	Acid Cleaning	Hydrochloric Acid	75% by vol (31 wt% HCl)	278.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc Phosphate	39	033	Plating	Interlox phosphate 2325	$Zn(NO_3)_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.17	0.00	0.00	0.00	0.00	0.00		
Black Oxide	206	031	Plating	Ultra-Black 400L	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc Phosphate for Zinc Plated Parts	227	210	Plating	Interlox phosphate 2325	$Zn(NO_3)_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16	0.00	0.00	0.00	0.00	0.00		
Chromic Acid Dip	239	225	Acid Cleaning	Chromic Acid	H_2CrO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Oil For Phosphate	240	226	Plating	Rustarest 53253	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Phosphate Conditioner	241	227	Plating	Phosphate Conditioner 4	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	278.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.32	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	**0.139**	0.000	0.000	0.000	0.000	0.000	**0.000**	**0.000**	**0.014**	0.000	0.000	0.000	0.000	0.000	0.153	0.139
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.023**	0.000	0.000	0.000	0.000	0.000	**0.000**	**0.000**	**0.002**	0.000	0.000	0.000	0.000	0.000	0.025	0.023
					(ton/yr)	**0.102**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.111	0.102

Co-Operative Plating Co
Potential Emission Calculations
Plating VOCs & HAPs

Plating bath is subject to 40 CFR Part 63 NESHAP, Subpart WWWWWW. | Subject to NESHAP N so exempt from WWWWWW

KEY: Tanks reported 0 throughput, CEDR 2016 | Reported SO2/NOx where no S/N chemical OR didn't report SO2/NOx where there are S/N emissions, CEDR 2016

HAPS ↓

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	HCl (lb/yr)	H_3PO_4 (lb/yr)	HNO_3 (lb/yr)	H_2SO_4 (lb/yr)	CN (lb/yr)	Ni (lb/yr)	Cr +3 (lb/yr)	Cr +6 (lb/yr)	Zn (lb/yr)	Cu (lb/yr)	Sn (lb/yr)	Ag (lb/yr)	Cd (lb/yr)	Co (lb/yr)	VOC total	HAPs total
ZINC BARREL line -- COMG 16 (GP005)																					
Electrocleaner	40	035	Alkaline Cleaner	GF Clean 3051	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	56	034	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid (Weak)	57	036	Acid Cleaning	Hydrochloric Acid	52% by vol (31 wt% HCl)	794.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid (Strong)	58	037	Acid Cleaning	Hydrochloric Acid	52% by vol (31 wt% HCl)	794.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate Seal	105	153	Plating	Hypro Coat 320	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc-Nickel	106	154	Plating	Zinc Chloride	$ZnCl_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.74	0.00	0.00	0.00	0.00	0.00		
				Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Potassium Chloride	KCl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc Chloride	149	039	Plating	Boric Acid	H_3BO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Potassium Chloride	KCl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Zinc Chloride	$ZnCl_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.23	0.00	0.00	0.00	0.00	0.00		
Clear Chromate	182	038	Plating	HiTest 3030	$Cr_2(SO_4)_3$, $CrCl_3$	0.00	0.00	0.00	0.00	0.00	0.00	17.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate For Zinc-Nickel	195	156	Plating	Rodip ZNA Yellow	$Na_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner For Brass	242	228	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner For Brass	243	229	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate (Hex) For Zinc	245	231	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Chromater 50	CrO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Havablack 50	$C_2H_4O_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Havablack Catalyst	$C_2H_4O_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chromate For Zinc-Nickel	246	232	Plating	Dipsol IZ-264	$Co(NO_3)_2$•$6H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.01		
				Dipsol IZ-264T	$CrCl_3$•$6H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	1,588.20	0.00	0.00	0.00	0.00	0.06	19.58	0.43	40.97	0.00	0.00	0.00	0.00	0.01		
					(ton/yr)	**0.794**	0.000	0.000	0.000	0.000	**0.000**	**0.010**	**0.000**	**0.020**	0.000	0.000	0.000	0.000	0.000	0.825	0.804
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.132**	0.000	0.000	0.000	0.000	**0.000**	**0.002**	**0.000**	**0.003**	0.000	0.000	0.000	0.000	0.000	0.137	0.134
					(ton/yr)	**0.580**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.007**	**0.000**	**0.015**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.602	0.587
ELECTROLESS NICKEL ON STEEL transfer line -- COMG 17 (GP007)																					
Soak Cleaner	3	069	Alkaline Cleaner	GF Clean 5397	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Muriatic Acid (Hydrochloric)	4	070	Acid Cleaning	Hydrochloric Acid	58% by vol (31 wt% HCl)	934.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	5	071	Plating	Meta-Plate UCB-A	$NiSO_4$, $CuSO_4$	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	1049.32	0.00	0.00	0.00	0.00		
				Meta-Plate UCB-C	NH_4OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Meta-Plate UCB-MU	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	47	068	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel South Bay	247	233	Plating	5023A	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				5023B	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				5023DA	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate	248	234	Plating	Meta-Seal EN 75 CR	H_2CrO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel High Phos	258	245	Plating	Meta-Plate UCB-A	$NiSO_4$, $CuSO_4$	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	1049.32	0.00	0.00	0.00	0.00		
				Meta-Plate UCB-C	NH_4OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Meta-Plate UCB-MU	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	934.23	0.00	0.00	0.00	0.00	2.61	0.00	0.05	0.00	2098.64	0.00	0.00	0.00	0.00		
					(ton/yr)	**0.467**	0.000	0.000	0.000	0.000	**0.001**	**0.000**	**0.000**	0.000	**1.049**	0.000	0.000	0.000	0.000	1.518	0.468
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.078**	0.000	0.000	0.000	0.000	**0.000**	**0.000**	**0.000**	0.000	**0.175**	0.000	0.000	0.000	0.000	0.253	0.078
					(ton/yr)	**0.341**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.766**	**0.000**	**0.000**	**0.000**	**0.000**	1.108	0.342
CADMIUM TRANSFER rack line -- COMG 18 (GP008)																					
Weak Nitric Acid	6	075	Acid Cleaning	Nitric Acid	37 % by vol (67 wt% HNO_3)	0.00	0.00	780.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	60	072	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	61	073	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid	62	074	Acid Cleaning	Hydrochloric Acid	82 % by vol (31 wt% HCl)	460.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cad Cyanide with Brighteners	109	157	Plating	Cadmium Oxide	CdO 2 oz/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	12.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Hydroxide	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cad Cyanide no Brighteners	110	158	Plating	Cadmium Oxide	CdO 2 oz/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	7.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Hydroxide	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hot Sulfuric Acid	115	163	Acid Cleaning	Sulfuric Acid	42 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	120.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Strike	116	164	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Hydrochloric Acid	12 % by vol (31 wt% HCl)	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chromate	196	159	Plating	Iridite 4L-1	15 % by vol (25 wt % CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate	197	160	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	474.55	0.00	780.92	120.94	20.14	0.33	0.00	0.17	0.00	0.00	0.00	0.00	0.34	0.00		
					(ton/yr)	**0.237**	0.000	**0.390**	**0.060**	**0.010**	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.699	0.248
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.040**	0.000	**0.065**	**0.010**	**0.002**	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.116	0.041
					(ton/yr)	**0.173**	**0.000**	**0.285**	**0.044**	**0.007**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.510	0.181
SURTEC line -- COMG 6 (GP009)																					
Deoxidizer	212	194	Acid Cleaning	Isoprep 188	$K_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	214	196	Alkaline Cleaner	Cleaner 3390	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Etch	183	076	Etching	Dipsol 430-RE	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Surtec	222	204	Plating	Surtec 650	F_6KZr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Subtotal - Controlled [2] PTE					**(lb/hr)**	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
					(ton/yr)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.000	0.000
ZINC TRANSFER line 1 -- COMG 19 (GP010)																					
Soak Cleaner	10	087	Alkaline Cleaner	GF Clean 5397	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	11	088	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Strong Muriatic Acid (Hydrochloric)	68	089	Acid Cleaning	Hydrochloric Acid	37% by vol (31 wt% HCl)	1681.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Weak Muriatic Acid (Hydrochloric)	69	090	Acid Cleaning	Hydrochloric Acid	50% by vol (31 wt% HCl)	42.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chromate	186	092	Plating	Tridur ZnB	$Cr(NO_3)_3$, $Co(NO_3)_2$	0.00	0.00	0.00	0.00	0.00	0.00	5.27	0.00	0.00	0.00	0.00	0.00	0.00	0.05		
Zinc Cyanide	207	091	Plating	Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	52.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Hydroxide	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate	229	213	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	1724.09	0.00	0.00	0.00	52.29	0.00	5.27	0.01	0.00	0.00	0.00	0.00	0.00	0.05		
					(ton/yr)	**0.862**	0.000	0.000	0.000	**0.026**	0.000	**0.003**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.891	0.891
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.144**	0.000	0.000	0.000	**0.004**	0.000	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.148	0.148
					(ton/yr)	**0.629**	**0.000**	**0.000**	**0.000**	**0.019**	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.650	0.650

Co-Operative Plating Co
Potential Emission Calculations
Plating VOCs & HAPS

Plating bath is subject to 40 CFR Part 63 NESHAP, Subpart WWWWWW. | Subject to NESHAP N so exempt from WWWWWW

KEY: Tanks reported 0 throughput, CEDR 2016 | Reported SO2/NOx where no S/N chemical OR didn't report SO2/NOx where there are S/N emissions, CEDR 2016

HAPS ↓

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	HCl (lb/yr)	H_3PO_4 (lb/yr)	HNO_3 (lb/yr)	H_2SO_4 (lb/yr)	CN (lb/yr)	Ni (lb/yr)	Cr +3 (lb/yr)	Cr +6 (lb/yr)	Zn (lb/yr)	Cu (lb/yr)	Sn (lb/yr)	Ag (lb/yr)	Cd (lb/yr)	Co (lb/yr)	VOC total	HAPs total
ANODIZE line -- COMG 20 (GP011)																					
Nickel Acetate Seal	72	095	Sealing	Seal 2511	3 % by vol (20 wt% Ni Salts)	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	118	166	Alkaline Cleaner	Cleaner 3390	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Desmutter	153	094	Deoxidizer	Seaclean 203	15 % by vol (15 wt% H_2SO_4)	0.00	0.00	0.00	118.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Etch	187	093	Etching	Dipsol 430-RE	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid	188	096	Plating	HNO_3	35 % by vol (67 wt% HNO_3)	0.00	0.00	1154.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Dichromate Seal	198	167	Plating	Sodium Dichromate	7 oz/gal $Na_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Anodize Bath	208	097	Acid Cleaning	Sulfuric Acid	11.3 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	2459.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Subtotal - Unrestricted PTE	**(lb/yr)**	0.00	0.00	1154.64	2578.14	0.00	0.12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	0.000	0.000	**0.577**	**1.289**	0.000	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	1.866	0.000
				Subtotal - Controlled [2] PTE	**(lb/hr)**	0.000	0.000	**0.096**	**0.215**	0.000	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.311	0.000
					(ton/yr)	**0.000**	**0.000**	0.421	0.941	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	1.363	0.000
ELECTROLESS NICKEL HAND -- COMG 21 (GP012)																					
Zincate	12	104	Plating	3116 Zincate	35 % by vol (5 wt% ZnO)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.37	0.00	0.00	0.00	0.00	0.00		
Nitric Acid	13	105	Acid Cleaning	Nitric Acid	50 % by vol (67 wt% HNO_3)	0.00	0.00	211.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	33	017	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid	34	018	Acid Cleaning	Nitric Acid	60 % by vol (67 wt% HNO_3)	0.00	0.00	301.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hydrochloric Acid	51	019	Acid Cleaning	Hydrochloric Acid	78% by vol (31 wt% HCl)	303.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	74	101	Acid Cleaning	Cleaner 3390	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Desmutter	76	103	Acid Cleaning	Ammonium Bifluoride	NH_4HF_2 1 lb/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nitric Acid	50 % by vol (67 wt% HNO_3)	0.00	0.00	651.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	22 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	524.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel High Phos	77	106	Plating	OMNiPlate T4 BP10A	$NiSO_4$, $CuSO_4$	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	85.40	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10B	$C_2H_3NaO_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10C	NH_4OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10MU	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel High Phos	78	107	Plating	Liquid Nickel Sulfate	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Ulta Phos OG-BX	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Ulta Phos OG-CX	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel Mid Phos	99	147	Plating	Liquid Nickel Sulfate	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Ulta Phos OG-BX	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Ulta Phos OG-CX	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Copper Plate North	180	020	Plating	Copper Cyanide	$Cu(CN)_2$	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00		
				Potassium Cyanide	KCN	0.00	0.00	0.00	0.00	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Etch	189	102	Acid Cleaning	Dipsol 430-RE	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Silver Rack Strip	199	169	Acid Cleaning	Nitric Acid	64 % by vol (67 wt% HNO_3)	0.00	0.00	401.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate Post Dip	200	170	Plating	Nichem Post Dip	5 % by vol (7.5 wt % CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Strike	230	215	Plating	Nickel Chloride	$NiCl_2$	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				HCl	12 % by vol (31 wt% HCl)	7.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Copper Cleaner	266	NA	Alkaline Cleaner	Q-Pex Copper Cleaner	$KHSO_5$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Acid Salt	267	NA	Acid Cleaning	Acid Salt W	$NaHSO_4$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner For Brass	268	NA	Alkaline Cleaner	Meta-Kleen HDS-40	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Subtotal - Unrestricted PTE	**(lb/yr)**	310.63	0.00	1565.93	524.17	2.70	1.75	0.00	0.00	5.37	86.92	0.00	0.00	0.00	0.00		
					(ton/yr)	**0.155**	**0.000**	**0.783**	**0.262**	**0.001**	**0.001**	**0.000**	**0.000**	**0.003**	**0.043**	0.000	0.000	0.000	0.000	1.249	0.158
				Subtotal - Controlled [2] PTE	**(lb/hr)**	**0.026**	**0.000**	**0.130**	**0.044**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.007**	0.000	0.000	0.000	0.000	0.208	0.026
					(ton/yr)	**0.113**	**0.000**	**0.572**	**0.191**	**0.001**	**0.001**	**0.000**	**0.000**	**0.002**	**0.032**	**0.000**	**0.000**	**0.000**	**0.000**	0.912	0.115
ELECTROLESS NICKEL ON ALUMINUM line -- COMG 22 (GP014)																					
Zincate	15	113	Plating	3116 Zincate	25 % by vol (5 wt% ZnO)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	81	111	Alkaline Cleaner	Cleaner 3390	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel South Bay	83	115	Plating	OMNiPlate T4 BP10A	$NiSO_4$, $CuSO_4$	0.00	0.00	0.00	0.00	0.00	0.93	0.00	0.00	0.00	456.41	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10B	$C_2H_3NaO_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10C	NH_4OH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				OMNiPlate T4 BP10MU	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel North Bay	84	116	Plating	5023A	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				5023B	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				5023DA	$NaH_2PO_2 \cdot H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Desmutter	123	171	Acid Cleaning	Ammonium Bifluoride	NH_4HF_2 1 lb/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	23 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	362.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nitric Acid	46 % by vol (67 wt% HNO_3)	0.00	0.00	401.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Desmutter	124	172	Acid Cleaning	Ammonium Bifluoride	NH_4HF_2 1 lb/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	23 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	332.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nitric Acid	46 % by vol (67 wt% HNO_3)	0.00	0.00	367.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Weak White Nitric	126	174	Acid Cleaning	Nitric Acid	48 % by vol (67 wt% HNO_3)	0.00	0.00	962.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid For Brass	127	175	Acid Cleaning	Nitric Acid	64 % by vol (67 wt% HNO_3)	0.00	0.00	753.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Weak Desmutter	178	114	Plating	Seaclean 203	15 % by vol (15 wt% H_2SO_4)	0.00	0.00	0.00	23.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Etch	190	112	Etching	Dipsol 430-RE	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid	250	236	Acid Cleaning	Nitric Acid	64 % by vol (67 wt% HNO3)	0.00	0.00	167.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate Post Dip	251	237	Plating	Nichem Post Dip	H_2CrO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Subtotal - Unrestricted PTE	**(lb/yr)**	0.00	0.00	2651.80	718.39	0.00	1.86	0.00	0.00	0.04	456.41	0.00	0.00	0.00	0.00		
					(ton/yr)	0.000	0.000	**1.326**	**0.359**	0.000	**0.001**	**0.000**	**0.000**	0.000	**0.228**	0.000	0.000	0.000	0.000	1.914	0.001
				Subtotal - Controlled [2] PTE	**(lb/hr)**	0.000	0.000	**0.221**	**0.060**	0.000	**0.000**	**0.000**	**0.000**	0.000	**0.038**	0.000	0.000	0.000	0.000	0.319	0.000
					(ton/yr)	**0.000**	**0.000**	**0.968**	**0.262**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.167**	**0.000**	**0.000**	**0.000**	**0.000**	1.397	0.001

Co-Operative Plating Co
Potential Emission Calculations
Plating VOCs & HAPS

Plating bath is subject to 40 CFR Part 63 NESHAP, Subpart WWWWWW. | Subject to NESHAP N so exempt from WWWWWW

KEY: Tanks reported 0 throughput, CEDR 2016 | Reported SO2/NOx where no S/N chemical OR didn't report SO2/NOx where there are S/N emissions, CEDR 2016

HAPS ↓

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	HCl (lb/yr)	H_3PO_4 (lb/yr)	HNO_3 (lb/yr)	H_2SO_4 (lb/yr)	CN (lb/yr)	Ni (lb/yr)	Cr +3 (lb/yr)	Cr +6 (lb/yr)	Zn (lb/yr)	Cu (lb/yr)	Sn (lb/yr)	Ag (lb/yr)	Cd (lb/yr)	Co (lb/yr)	VOC total	HAPs total
SILVER #3 line -- COMG 8 (GP016)																					
Electrocleaner	19	125	Alkaline Cleaner	Super Maxamp	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Q-pex Copper Cleaner	20	127	Alkaline Cleaner	Q-Pex Copper Cleaner	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Silver Plate	21	129	Plating	Potassium Cyanide	KCN	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Silver Strike	89	128	Plating	Potassium Silver Cyanide	$KAg(CN)_3$	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00		
				Potassium Cyanide	KCN	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Soak Cleaner	131	179	Alkaline Cleaner	Nuvat Classic	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electroless Nickel	132	180	Plating	Nichem 1123A	$NiSO_4$	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nichem 1123B	$C_2H_4O_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Nichem 1123C	$C_3H_5NaO_3$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Sulfuric Acid	191	126	Acid Cleaning	Sulfuric Acid	19 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	241.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Bright Tin (Acid Tin)	201	181	Plating	Sulfuric Acid	10 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	48.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Rack Strip Small	209	120	Acid Cleaning	Nitric Acid	4% by vol (67 wt% HNO_3)	0.00	0.00	401.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chromate Post Dip	228	212	Plating	Nichem Post Dip	5 % by vol (7.5 wt % CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid Strip For Tin	252	238	Acid Cleaning	Nitric Acid	64 % by vol (67 wt% HNO_3)	0.00	0.00	33.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Acid Copper	255	242		Copper Sulfate Solution	$CuSO_4 \cdot 5H_2O$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	23 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	11.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Anti-Tarnish For Copper	256	243		Notrex Barrier Coat BC	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Silver Strip	261	NA	Acid Cleaning	Nitric Acid	64% by vol (67 wt% HNO_3)	0.00	0.00	251.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Acid Salt	262	NA	Acid Cleaning	Acid Salt W	$NaHSO_4$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	0.00	0.00	686.09	301.33	1.67	0.25	0.00	0.05	0.00	0.00	0.00	0.18	0.00	0.00		
					(ton/yr)	0.000	0.000	**0.343**	**0.151**	**0.001**	**0.000**	**0.000**	**0.000**	0.000	0.000	**0.000**	**0.000**	0.000	0.000	0.495	0.001
Subtotal - Controlled [2] PTE					**(lb/hr)**	0.000	0.000	**0.057**	**0.025**	**0.000**	**0.000**	**0.000**	**0.000**	0.000	0.000	**0.000**	**0.000**	0.000	0.000	0.082	0.000
					(ton/yr)	**0.000**	**0.000**	**0.250**	**0.110**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.361	0.001
STRIP line -- COMG 23 (GP018)																					
Chromic Acid Strip	48	189	Stripping	Chromium Trioxide	CrO_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00		
				Sulfuric Acid	23 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	10.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Strip for Steel	205	028	Stripping	Rostrip M-10	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	25.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Strip	253	240	Stripping	ENSTRIP EN-86A	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				ENSTRIP EN-86B	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	0.00	0.00	0.00	10.48	25.05	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	0.000	0.000	0.000	0.005	**0.013**	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.013
Subtotal - Controlled [2] PTE					**(lb/hr)**	0.000	0.000	0.000	0.001	**0.002**	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002
					(ton/yr)	**0.000**	**0.000**	**0.000**	**0.004**	**0.009**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.013	0.009
ELECTROPOLISH line -- COMG 11 (GP019)																					
Muriatic Acid (Hydrochloric)	67	085	Acid Cleaning	Hydrochloric Acid	59% by vol (31 wt% HCl)	350.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	151	086	Alkaline Cleaner	GF Clean 3051	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitric Acid	272	NA	Acid Cleaning	Nitric Acid	64% by vol (67 wt% HNO_3)	0.00	0.00	167.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	350.34	0.00	167.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	**0.175**	**0.000**	0.084	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.259	0.175
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.029**	**0.000**	0.014	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043	0.029
					(ton/yr)	**0.128**	**0.000**	**0.061**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.189	0.128
CADMIUM HAND line -- COMG 12 (GP020)																					
Olive Drab Chromate	114	162	Acid Cleaning	Tasdip OD-2R	$Na_2Cr_2O_7$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00		
				Tasdip OD-2C	CH_2O_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cadmium Cyanide	138	186	Alkaline Cleaner	Cadmium Oxide	CdO 2 oz/gal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00		
				Sodium Cyanide	NaCN	0.00	0.00	0.00	0.00	24.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
				Sodium Hydroxide	NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chroamte	202	187	Plating	Iridite 4L-1	15 % by vol (25 wt % CrO3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Chromate	203	188	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	0.00	0.00	0.00	0.00	24.34	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	0.00		
					(ton/yr)	0.000	0.000	0.000	0.000	**0.012**	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.012	0.012
Subtotal - Controlled [2] PTE					**(lb/hr)**	0.000	0.000	0.000	0.000	**0.002**	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.002	0.002
					(ton/yr)	**0.000**	**0.000**	**0.000**	**0.000**	**0.009**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.009	0.009
HARDCOAT & SURTEC line -- COMG 25 (GP024)																					
Nitric Acid	65	081	Acid Cleaning	Nitric Acid	37 % by vol (67 wt% HNO_3)	0.00	0.00	251.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nickel Acetate Seal	184	080	Acid Cleaning	Seal 2511	2 % by vol (20 wt% Ni Salts)	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Hardcoat	192	130	Electro polishing	Sulfuric Acid	16 % by vol (93 wt% H_2SO_4)	0.00	0.00	0.00	867.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Alkaline Cleaner	91	135	Alkaline Cleaner	Cleaner 3390	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Etch	213	195	Etching	Dipsol 430-RE	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Deoxidizer	150	077	Deoxidizer	Seaclean 203	15 % by vol (15 wt% H_2SO_4)	0.00	0.00	0.00	69.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Yellow Iridite	9	079	Plating	Iridite 14-2	0.75 oz/gal (55 wt% CrO_3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	0.00	0.00	251.01	937.22	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
					(ton/yr)	0.000	0.000	**0.126**	**0.469**	0.000	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.594	0.000
Subtotal - Controlled [2] PTE					**(lb/hr)**	0.000	0.000	**0.021**	**0.078**	0.000	**0.000**	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.099	0.000
					(ton/yr)	**0.000**	**0.000**	**0.092**	**0.342**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.434	0.000
ZINC TRANSFER line 2 -- COMG 26 (GP025)																					
Soak Cleaner	215	197	Alkaline Cleaner	GF Clean 5397	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Electrocleaner	216	198	Alkaline Cleaner	GF Clean 3051	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Muriatic Acid (Strong)	218	200	Acid Cleaning	Hydrochloric Acid	59% by vol (31 wt% HCl)	1868.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Clear Chromate	220	202	Plating	Tridur ZnB	$Cr(NO_3)_3$, $Co(NO_3)_2$	0.00	0.00	0.00	0.00	0.00	0.00	42.26	0.00	0.00	0.00	0.00	0.00	0.00	0.04		
Zinc Generator	260	247	Plating	Zinc, Sodium Hydroxide	$ZnCl_2$, NaOH	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	20.38	0.00	0.00	0.00	0.00	0.00		
Alkaline Non-Cyanide Zinc	269	NA	Plating	Zinc, Sodium Hydroxide	$ZnCl_2$, NaOH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.76	0.00	0.00	0.00	0.00	0.00		
Nitric Acid Bright Dip	270	NA	Plating	Nitric Acid	0.1% by vol (67 wt% HNO_3)	0.00	0.00	66.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Zinc Phosphate	271	NA	Plating	Interlox Phosphate 2325	$Zn(NO_3)_2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.31	0.00	0.00	0.00	0.00	0.00		
Subtotal - Unrestricted PTE					**(lb/yr)**	1868.47	0.00	66.94	0.00	0.00	0.06	42.26	0.00	107.45	0.00	0.00	0.00	0.00	0.04		
					(ton/yr)	**0.934**	0.000	0.033	0.000	**0.000**	0.000	**0.021**	**0.000**	**0.054**	0.000	0.000	0.000	0.000	0.000	1.043	0.955
Subtotal - Controlled [2] PTE					**(lb/hr)**	**0.156**	0.000	0.006	0.000	**0.000**	0.000	**0.004**	**0.000**	**0.009**	0.000	0.000	0.000	0.000	0.000	0.174	0.159
					(ton/yr)	**0.682**	**0.000**	**0.024**	**0.000**	**0.000**	**0.000**	**0.015**	**0.000**	**0.039**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.761	0.697

Co-Operative Plating Co
Potential Emission Calculations
Plating VOCs & HAPS

Plating bath is subject to 40 CFR Part 63 NESHAP, Subpart WWWWWW. | Subject to NESHAP N so exempt from WWWWWW

KEY: Tanks reported 0 throughput, CEDR 2016 | Reported SO2/NOx where no S/N chemical OR didn't report SO2/NOx where there are S/N emissions, CEDR 2016

HAPS ↓

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	HCl (lb/yr)	H_3PO_4 (lb/yr)	HNO_3 (lb/yr)	H_2SO_4 (lb/yr)	CN (lb/yr)	Ni (lb/yr)	Cr +3 (lb/yr)	Cr +6 (lb/yr)	Zn (lb/yr)	Cu (lb/yr)	Sn (lb/yr)	Ag (lb/yr)	Cd (lb/yr)	Co (lb//yr)	VOC total	HAPs total
				TOTAL - Unrestricted PTE	**(lb/yr):**	9933	0.0	8343	5251	328	10.44	98	1.53	181.6	2645	0.00	0.18	0.41	0.11	**26792**	**10371**
					(ton/yr):	**4.97**	**0.000**	**4.17**	**2.63**	**0.164**	**0.01**	**0.049**	**0.001**	**0.091**	**1.323**	**0.00**	**0.00**	**0.000**	**0.000**	**13.4**	**5.2**
				TOTAL - Controlled [2] PTE	**(lb/hr):**	**8.28E-01**	**0.00E+00**	**6.95E-01**	**4.38E-01**	**2.73E-02**	**8.97E-04**	**8.14E-03**	**1.54E-04**	**1.51E-02**	**2.20E-01**	**0.00E+00**	**1.47E-05**	**4.63E-05**	**1.25E-05**	**2.23**	**0.86**
					(ton/yr):	**3.63E+00**	**0.00E+00**	**3.05E+00**	**1.92E+00**	**1.20E-01**	**3.93E-03**	**3.56E-02**	**6.73E-04**	**6.63E-02**	**9.66E-01**	**0.00E+00**	**6.45E-05**	**2.03E-04**	**5.48E-05**	**9.8**	**3.8**

Notes:
1. On the SDS for many chemicals listed above, a range is provided for the percent chemical composition. For example, it may state that its make-up is 30 to 70% of one component and <60% of another component. In the above calculations it was assumed that each component was present in its maximum perentage. Even though this is not physically possible, this estimates potential emissions conservatively for each individual compound and accounts for changes in product formulation from purchase to purchase.
2. Control efficiency of control equipment assumed to be 27% (30% capture and 90% control) to meet permit requirements. Capture and control of Ni, Cr+6, Cd and Co based on direct stack test data.
3. Emissions of Cr(VI), Ni, Cd, and CO based on stack test results for AERA. Includes 25% safety factor for PTE. If more than one additive in a given bath contains the subject chemical, all emissions are reported as from a single additive.

Element/Molecular Formula:	Molecular weights (lbs/mol)
Hydrogen (H)	1
Carbon (C)	12
Nitrogen (N)	14
Oxygen (O)	16
Fluorine (F)	19
Sodium (Na)	23
Phosphorus (P)	31
Sulfur (S)	32
Chlorine (Cl)	35.45
Potassium (K)	39
Chromium (Cr)	52
Nickel (Ni)	58.7
Copper (Cu)	63.55
Zinc (Zn)	65.38
Zirconium (Zr)	91.22
Silver (Ag)	107.87
Cadmium (Cd)	112.4
Tin (Sn)	118.69
HCl	36.45
HNO_3	63
H_2SO_4	98
H_3PO_4	98
$Cu(CN)_2$	115.55
NaCN	49
KCN	65
$Na_2Cr_2O_7$	262
$K_2Cr_2O_7$	294
$NiCl_2$	129.6
$NiSO_4$	154.7
$Zn(CN)_2$	117.38
$ZnCl_2$	136.28
ZnO	81.38
$Cr(NO_3)_3$	238
CrO_3	100
$Cr_2(SO_4)_3$	392
$CrCl_3$	158.35
$KAg(CN)_3$	224.87
$SnSO_4$	214.69
CN	26
KCl	74.45
$Zn(NO_3)_2$	189.38
CdO	128.4
$CrH_6O_{12}P_3$	343
H_2CrO_4	118
$CuSO_4$	159.55

Co-Operative Plating Co
Potential Emission Calculations
Boilers

Natural Gas Fired Boilers (AP42, Chapter 1.3 and 1.4, and Appendix A)

Description:
Boiler 1
EQUI 1 (EU098)
5.05 MMBtu/hr
43.37 MMCF/yr
315.4 10^3 gal/yr
Limited Distillate (10% of Annual Potential Usage)
10^3 gal/yr
31.54
0.0015% Sulfur
Industrial
No. 2 oil
Distillate heating value: 140,000 Btu/gal

Dist. heating value
1.40E-04
10^{12} Btu/10^3 gal

Pollutant	Emission Factor Natural Gas lb/MMscf	Emission Factor Distillate Oil lb/10^3 gal	Natural Gas lbs/hr	Distillate Oil lbs/hr	Natural Gas Only tpy	Natural Gas + Distillate Oil tpy	Potential Emissions Worst-Case Fuel Mix lbs/hr	Potential Emissions Worst-Case Fuel Mix tpy	Fuel	lbs/hr	lb/MMBtu	
PM	7.6	3.3	3.8E-02	1.2E-01	1.6E-01	2.0E-01	1.2E-01	0.20	MIX	0.12	0.02	
PM10	7.6	1.0	3.8E-02	3.6E-02	1.6E-01	1.6E-01	3.8E-02	0.16	NG			
PM2.5	7.6	0.25	3.8E-02	9.0E-03	1.6E-01	1.5E-01	3.8E-02	0.16	NG			
SO2	0.6	0.21	3E-03	7.7E-03	1.3E-02	1.5E-02	7.7E-03	0.015	MIX	0.01	0.002	
NOx	100	20	5E-01	7.2E-01	2.2E+00	2.3E+00	7.2E-01	2.27	MIX			
CO	84	5	4.2E-01	1.8E-01	1.8E+00	1.7E+00	4.2E-01	1.82	NG			
CO2	120000	22300	5.9E+02	8.0E+02	2.6E+03	2.7E+03	8.03E+02	2694	MIX			
N2O	2.2	0.26	1.1E-02	9.4E-03	4.8E-02	4.7E-02	1.1E-02	0.05	NG			
CH4	2.3	0.052	1.1E-02	1.9E-03	5.0E-02	4.6E-02	1.1E-02	0.05	NG			
CO2e			6.0E+02	8.1E+02	2.6E+03	2708.81	8.1E+02	2709	MIX			
VOC	5.5	0.2	2.7E-02	7.2E-03	1.2E-01	1.1E-01	2.7E-02	0.12	NG			
Arsenic	2.0E-04	6E-04	9.9E-07	2.0E-05	4.3E-06	1.3E-05	2E-05	1.3E-05	MIX			
Benzene	2.1E-03	2.14E-04	1.0E-05	7.7E-06	4.6E-05	4.4E-05	1.0E-05	4.6E-05	NG			
Beryllium	1.2E-05	4E-04	5.9E-08	1.5E-05	2.6E-07	6.9E-06	2E-05	6.9E-06	MIX			
Cadmium	1.1E-03	4E-04	5.4E-06	1.5E-05	2.4E-05	2.8E-05	2E-05	2.8E-05	MIX			
Cobalt	8.4E-05		4.2E-07		1.8E-06	1.6E-06	4.2E-07	1.8E-06	NG			
Chromium III	1.3E-03	3E-04	6.7E-06	1.2E-05	2.9E-05	3.2E-05	1E-05	3.2E-05	MIX	Assume 82% for fuel oil, 96% for natural gas		
Chromium VI	5.6E-05	8E-05	2.8E-07	2.7E-06	1.2E-06	2.3E-06	3E-06	2.3E-06	MIX	Assume 18% for fuel oil, 4% for natural gas		
Copper	8.5E-04	8E-04	4.2E-06	3.0E-05	1.8E-05	3.0E-05	3E-05	3.0E-05	MIX			
Dichlorobenzene	1.2E-03		5.9E-06		2.6E-05	2.3E-05	5.9E-06	2.6E-05	NG			
Ethylbenzene		6.36E-05		2.3E-06		1.0E-06	2.29E-06	1.0E-06	MIX			
Formaldehyde	7.5E-02	3.5E-02	3.7E-04	1.3E-03	1.6E-03	2.0E-03	1.3E-03	2.0E-03	MIX			
Hexane	1.8E+00		8.9E-03		3.9E-02	3.5E-02	8.9E-03	3.9E-02	NG			
Lead	5.00E-04	1E-03	2.48E-06	4.5E-05	1.08E-05	3.0E-05	5E-05	3.0E-05	MIX			
Naphthalene	6.1E-04	1.13E-03	3.0E-06	4.1E-05	1.3E-05	3.0E-05	4.07E-05	3.0E-05	MIX			
Mercury	2.6E-04	4E-04	1.3E-06	1.5E-05	5.6E-06	1.2E-05	2E-05	1.2E-05	MIX			
Manganese	3.8E-04	8E-04	1.9E-06	3.0E-05	8.2E-06	2.1E-05	3E-05	2.1E-05	MIX			
Nickel	2.1E-03	4E-04	1.0E-05	1.5E-05	4.6E-05	4.8E-05	2E-05	4.8E-05	MIX			
POM	8.7E-05	3.30E-03	4.3E-07	1.2E-04	1.9E-06	5.4E-05	1.19E-04	5.4E-05	MIX			
Selenium	2.4E-05	2.1E-03	1.2E-07	7.6E-05	5.2E-07	3.4E-05	7.6E-05	3.4E-05	MIX			
Toluene	3.4E-03	6.20E-03	1.7E-05	2.2E-04	7.4E-05	1.6E-04	2.23E-04	1.6E-04	MIX			
1,1,1-Trichloroethane		2.36E-04		8.5E-06		3.7E-06	8.50E-06	3.7E-06	MIX			
o-Xylene		1.09E-04		3.9E-06		1.7E-06	3.92E-06	1.7E-06	MIX			
Zinc	2.9E-02	6E-04	1.4E-04	2.0E-05	6.3E-04	5.7E-04	1E-04	6.3E-04	NG			
Total HAPs	2	0.05	9E-03	2E-03	4E-02	4E-02	9E-03	4E-02	NG			

Note: CrIII and CrVI emissions factors from AP42, Tables 1.2-10 and 1.4-1. CrVI speciation of 18% CrVI for distilate oil and 4% CrVI for natural gas based on Chromium Emissions Speciation for Selected Source Categories, March 2011, Chuck French and Anne Pope, SPPD.

Co-Operative Plating Co

Potential Emissi

Natural Gas Fire

Description:
Boiler 2
EQUI 2 (EU099)
5.05 MMBtu/hr
43.37 MMCF/yr
315.4 10^3 gal/yr
Limited Distillate (10% of Annual Potential Usage)
10^3 gal/yr
31.54
0.0015% Sulfur
Industrial
No. 2 oil
Distillate heating value: 140,000 Btu/gal

Dist. heating value
1.40E-04
10^{12} Btu/10^3 gal

Pollutant	Emission Factor Natural Gas lb/MMcu.ft.	Emission Factor Distillate Oil lb/10^3 gal	Natural Gas lbs/hr	Distillate Oil lbs/hr	Natural Gas Only tpy	Natural Gas + Distillate Oil tpy	Potential Emissions Worst-Case Fuel Mix lbs/hr	Potential Emissions Worst-Case Fuel Mix tpy	Fuel
PM	7.6	3.3	3.8E-02	1.2E-01	1.6E-01	2.0E-01	1.2E-01	2.0E-01	MIX
PM10	7.6	1.0	3.8E-02	3.6E-02	1.6E-01	1.6E-01	3.8E-02	1.6E-01	NG
PM2.5	7.6	0.3	3.8E-02	9.0E-03	1.6E-01	1.5E-01	3.8E-02	1.6E-01	NG
SO2	0.6	0.21	3E-03	7.7E-03	1E-02	1.5E-02	7.7E-03	1.5E-02	MIX
NOx	100	20	5E-01	7.2E-01	2E+00	2.3E+00	7.2E-01	2.3E+00	MIX
CO	84	5	4.2E-01	1.8E-01	1.8E+00	1.7E+00	4.2E-01	1.8E+00	NG
CO2	120000	22300	5.9E+02	8.0E+02	2.6E+03	2.7E+03	8.03E+02	2.69E+03	MIX
N2O	2.2	0.26	1.1E-02	9.4E-03	4.8E-02	4.7E-02	1.1E-02	4.8E-02	NG
CH4	2.3	0.052	1.1E-02	1.9E-03	5.0E-02	4.6E-02	1.1E-02	5.0E-02	NG
CO2e			6.0E+02	8.1E+02	2.6E+03	2.7E+03	8.1E+02	2.7E+03	MIX
VOC	5.5	0.2	2.7E-02	7.2E-03	1.2E-01	1.1E-01	2.7E-02	1.2E-01	NG
Arsenic	2.0E-04	6E-04	9.9E-07	2.0E-05	4.3E-06	1.3E-05	2E-05	1E-05	MIX
Benzene	2.1E-03	2.14E-04	1.0E-05	7.7E-06	4.6E-05	4.4E-05	1.0E-05	4.6E-05	NG
Beryllium	1.2E-05	4E-04	5.9E-08	1.5E-05	2.6E-07	6.9E-06	2E-05	7E-06	MIX
Cadmium	1.1E-03	4E-04	5.4E-06	1.5E-05	2.4E-05	2.8E-05	2E-05	3E-05	MIX
Cobalt	8.4E-05		4.2E-07		1.8E-06	1.6E-06	4.16E-07	1.82E-06	NG
Chromium III	1.3E-03	3E-04	6.7E-06	1.2E-05	2.9E-05	3.2E-05	1E-05	3E-05	MIX
Chromium VI	5.6E-05	8E-05	2.8E-07	2.7E-06	1.2E-06	2.3E-06	3E-06	2E-06	MIX
Copper	8.5E-04	8E-04	4.2E-06	3.0E-05	1.8E-05	3.0E-05	3E-05	3E-05	MIX
Dichlorobenzene	1.2E-03		5.9E-06		2.6E-05	2.3E-05	5.9E-06	2.6E-05	NG
Ethylbenzene		6.36E-05		2.3E-06		1.0E-06	2.29E-06	1.00E-06	MIX
Formaldehyde	7.5E-02	3.5E-02	3.7E-04	1.3E-03	1.6E-03	2.0E-03	1.3E-03	2.0E-03	MIX
Hexane	1.8E+00		8.9E-03		3.9E-02	3.5E-02	8.9E-03	3.9E-02	NG
Lead	5.00E-04	1E-03	2.48E-06	4.5E-05	1.08E-05	3.0E-05	5E-05	3E-05	MIX
Naphthalene	6.1E-04	1.13E-03	3.0E-06	4.1E-05	1.3E-05	3.0E-05	4.07E-05	2.97E-05	MIX
Mercury	2.6E-04	4E-04	1.3E-06	1.5E-05	5.6E-06	1.2E-05	2E-05	1E-05	MIX
Manganese	3.8E-04	8E-04	1.9E-06	3.0E-05	8.2E-06	2.1E-05	3E-05	2E-05	MIX
Nickel	2.1E-03	4E-04	1.0E-05	1.5E-05	4.6E-05	4.8E-05	2E-05	5E-05	MIX
POM	8.7E-05	3.30E-03	4.3E-07	1.2E-04	1.9E-06	5.4E-05	1.19E-04	5.37E-05	MIX
Selenium	2.4E-05	2.1E-03	1.2E-07	7.6E-05	5.2E-07	3.4E-05	7.6E-05	3.4E-05	MIX
Toluene	3.4E-03	6.20E-03	1.7E-05	2.2E-04	7.4E-05	1.6E-04	2.23E-04	1.64E-04	MIX
1,1,1-Trichloroethane		2.36E-04		8.5E-06		3.7E-06	8.50E-06	3.72E-06	MIX
o-Xylene		1.09E-04		3.9E-06		1.7E-06	3.92E-06	1.72E-06	MIX
Zinc	2.9E-02	6E-04	1.4E-04	2.0E-05	6.3E-04	5.7E-04	1E-04	6E-04	NG
Total HAPs	2	0.05	9E-03	2E-03	4E-02	4E-02	9E-03	4E-02	NG

Assume 82% for fuel oil, 96% for natural gas
Assume 18% for fuel oil, 4% for natural gas

Co-Operative Pla
Potential Emissi

2 Natural Gas Fi

Pollutant	Potential Emissions lbs/hr	tpy
PM	2.4E-01	4.0E-01
PM10	7.5E-02	3.3E-01
PM2.5	7.5E-02	3.3E-01
SO2	1.5E-02	3.0E-02
NOx	1.4E+00	4.5E+00
CO	8.3E-01	3.6E+00
CO2	1.61E+03	5.39E+03
N2O	2.2E-02	9.5E-02
CH4	2.3E-02	1.0E-01
CO2e	1.6E+03	5.4E+03
VOC	5.4E-02	2.4E-01
Arsenic	4E-05	3E-05
Benzene	2.1E-05	9.1E-05
Beryllium	3E-05	1E-05
Cadmium	3E-05	6E-05
Cobalt	8.3E-07	3.6E-06
Chromium III	2E-05	6E-05
Chromium VI	5E-06	5E-06
Copper	6E-05	6E-05
Dichlorobenzene	1.2E-05	5.2E-05
Ethylbenzene	4.58E-06	2.01E-06
Formaldehyde	2.5E-03	4.0E-03
Hexane	1.8E-02	7.8E-02
Lead	9E-05	6E-05
Naphthalene	8.14E-05	5.95E-05
Mercury	3E-05	2E-05
Manganese	6E-05	4E-05
Nickel	3E-05	1E-04
POM	2.38E-04	1.07E-04
Selenium	1.5E-04	6.7E-05
Toluene	4.46E-04	3.28E-04
1,1,1-Trichloroethane	1.70E-05	7.44E-06
o-Xylene	7.85E-06	3.44E-06
Zinc	3E-04	1E-03
Total HAPs	2E-02	8E-02

Co-Operative Plating Co
Potential Emission Calculations
Degreaser

EQUI 22 (EU131)

Operations (hrs)	Solvent/Air Interface Area (SAI, m^2)	2020 nPB use (ton solvent/yr)	PTE Adjustment (x 1.5)
8,760	0.836	5.76	8.6

Criteria Pollutant	Emission Factor (lb VOC/ton solvent)	Potential Emissions (lb/hr)	**(tpy)**	Limited Emissions (lb/hr)	**(tpy)**
nPB	2000	1.97	8.6	1.50	6.5

Emission factor is based on the assumption that all solvent purchased is emitted.

EQUI 259 (TCE Parts Washer)

Operations (H, hrs)	Solvent/Air Interface Area (SAI, ft^2)	Emission Factor ($lb/hr/ft^2$)*	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (ton/yr)	Limited Emissions (lb/hr)	Limited Emissions (tpy)
8,760	2.660	0.080	0.213	0.93	0.009	0.0407

*AP42, Table 4.6-2, Solvent Loss Emission Factors for Degreasing Operations

Co-Operative Plating Co
Potential Emission Calculations
Compliance with MN IPER
Minn. R. 7011.0715 (IPER) Compliance

Description of activies venting to stack (EQUI)	Stack SI ID	Treatment	Airflow (ASCFM)	Exit Gas Temp (°F)	Airflow (DSCFM)	Process Weight Rate* (lb/hr)	**Allowable Emission Rate (lb/hr) {Minn. R. 7011.0730 (Table 1)}**	Allowable grain loading (gr/dscf) {Minn. R. 7011.0735 (Table 2)}	**Applicable Emission Limit based on airflow (lb/hr)**	Less Stringent PM Limit (lb/hr)	Less Stringent PM Limit (gr/dscf)	****Stack Emissions PM lb/hr**	**PTE Calcs Demonstrate Compliance?**
EQUI 5	STRU 5	TREA 2	44000	70	43,834	0.82	0.029	0.0552	20.73	20.73	0.0552	0.82	YES
EQUI 5	STRU 25	NONE	100000	70	99,623	0.82	0.029	0.0423	36.11	36.11	0.0423	0.82	YES
IA Oven	STRU 5	TREA 2	44000	70	43,834	0.00298	0.001	0.0552	20.73	20.73	0.0552	0.003	YES
IA Oven	STRU 25	NONE	100000	70	99,623	0.00298	0.001	0.0423	36.11	36.11	0.0423	0.003	YES

Note: The highest PM potential to emit from one tank is EQUI 5; therefore this EQUI was used for the IPER calculations since it is the highest emitter.

Co-operative Plating

Summary

					Total Emissions (lb/hr)			
			25%	Safety Factor	New Fan Size			
Pollutant	Scrubber Inlet (lb/hr)[1]	Scrubber Outlet (lb/hr)	Scrubber Inlet (lb/hr)	Scrubber Outlet (lb/hr)	100,000 cfm	70,000 cfm	30,000 cfm	15,000 cfm
Hexavalent Chrome	1.40E-04	8.30E-05	1.75E-04	1.04E-04	1.54E-04	1.48E-04	1.34E-04	1.24E-04
Cobalt	1.00E-05	1.00E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05
Nickel	9.53E-04	1.70E-04	1.19E-03	2.13E-04	8.97E-04	8.21E-04	6.26E-04	4.88E-04
Cadmium[2]	3.70E-05	Not Measured	4.63E-05	Not Measured	4.63E-05	4.63E-05	4.63E-05	4.63E-05

			100,000 cfm Fan					
		Fan cfm:	44,000		100,000		2,200	
Pollutant	Total Emissions		Scrubber (lb/hr)	Scrubber (ton/yr)	New Fan (lb/hr)	New Fan (ton/yr)	Degreaser Fan (lb/hr)	Degreaser Fan (ton/yr)
	lb/hr	tpy						
Hexavalent Chrome	1.54E-04	6.73E-04	3.12E-05	1.37E-04	1.20E-04	5.24E-04	2.63E-06	1.15E-05
Cobalt	1.25E-05	5.48E-05	3.76E-06	1.65E-05	8.55E-06	3.74E-05	1.88E-07	8.24E-07
Nickel	8.97E-04	3.93E-03	6.40E-05	2.80E-04	8.15E-04	3.57E-03	1.79E-05	7.85E-05
Cadmium[2]	4.63E-05	2.03E-04	1.39E-05	6.10E-05	3.16E-05	1.39E-04	6.96E-07	3.05E-06

			70,000 cfm Fan					
		Fan cfm:	44,000		70,000		2,200	
Pollutant	Total Emissions		Scrubber (lb/hr)	Scrubber (ton/yr)	New Fan (lb/hr)	New Fan (ton/yr)	Degreaser Fan (lb/hr)	Degreaser Fan (ton/yr)
	lb/hr	tpy						
Hexavalent Chrome	1.48E-04	6.48E-04	3.93E-05	1.72E-04	1.05E-04	4.62E-04	3.31E-06	1.45E-05
Cobalt	1.25E-05	5.48E-05	4.73E-06	2.07E-05	7.53E-06	3.30E-05	2.37E-07	1.04E-06
Nickel	8.21E-04	3.60E-03	8.05E-05	3.52E-04	7.18E-04	3.14E-03	2.26E-05	9.88E-05
Cadmium[2]	4.63E-05	2.03E-04	1.75E-05	7.67E-05	2.79E-05	1.22E-04	8.76E-07	3.84E-06

			30,000 cfm Fan					
		Fan cfm:	44,000		30,000		2,200	
Pollutant	Total Emissions		Scrubber (lb/hr)	Scrubber (ton/yr)	New Fan (lb/hr)	New Fan (ton/yr)	Degreaser Fan (lb/hr)	Degreaser Fan (ton/yr)
	lb/hr	tpy						
Hexavalent Chrome	1.34E-04	5.86E-04	5.99E-05	2.62E-04	6.89E-05	3.02E-04	5.05E-06	2.21E-05
Cobalt	1.25E-05	5.48E-05	7.22E-06	3.16E-05	4.92E-06	2.16E-05	3.61E-07	1.58E-06
Nickel	6.26E-04	2.74E-03	1.23E-04	5.37E-04	4.69E-04	2.05E-03	3.44E-05	1.51E-04
Cadmium[2]	4.63E-05	2.03E-04	2.67E-05	1.17E-04	1.82E-05	7.98E-05	1.34E-06	5.85E-06

			15,000 cfm Fan					
		Fan cfm:	44,000		15,000		2,200	
Pollutant	Total Emissions		Scrubber (lb/hr)	Scrubber (ton/yr)	New Fan (lb/hr)	New Fan (ton/yr)	Degreaser Fan (lb/hr)	Degreaser Fan (ton/yr)
	lb/hr	tpy						
Hexavalent Chrome	1.24E-04	5.42E-04	7.46E-05	3.27E-04	4.29E-05	1.88E-04	6.29E-06	2.76E-05
Cobalt	1.25E-05	5.48E-05	8.99E-06	3.94E-05	3.06E-06	1.34E-05	4.49E-07	1.97E-06
Nickel	4.88E-04	2.14E-03	1.53E-04	6.69E-04	2.92E-04	1.28E-03	4.28E-05	1.88E-04
Cadmium[2]	4.63E-05	2.03E-04	3.33E-05	1.46E-04	1.13E-05	4.97E-05	1.66E-06	7.28E-06

[1] *Pollutant emission rates were determined in an initial stack tests on 2/25/20 and 2/26/20.*

[2] *Cadmium emission rates were determined on a second stack test on 8/11/20.*

The emission factors (note 1 and 2 above) are from the performance tests. A safety factor was added to be conservative. The emission factor was multiplied by the fan flow rate for each of the units (scrubber, fan, and degreaser because that existed at the time) divided by the total air flow. This was done for the various fan speeds to show that the uncontrolled emissions and the controlled combined were below HBV for all fan speeds.

Co-operative Plating
Potential To Emit Calculations - Chrome

New Fan Air Flowrate (cfm)	100,000	70,000	30,000	15,000
Worst-Case Hexchrome Emissions (lb/hr)	1.54E-04	1.48E-04	1.34E-04	1.24E-04

Total Sum of EC 0.981

EQUI	Line	Bath Name	SI ID EQUI	(old) EU #	Bath Type	Dominent Chemical Additive	Lookup	CHEMICAL FORMULA	POLLUTANT		Bath Type	Bath Size (gal)	Surface Area (ft^2)	Target Chemical Concentration (oz/gal)	Metal Weight Percent (of Chemical)	Metal Concentration oz/gal	Metal Concentration (wt%)	Sparge Flowrate (acfm)	Emitting Characteristic[1]	Percent Emissions	Total Emissions (lb/hr) 100,000	70,000	30,000	15,000	Unc.
143	PASSIVATE line (GP002)	Passivate	143	015	Acid Cleaning	Sodium Dichromate	PASSIVATE line (	3 oz/gal $Na_2Cr_2O_7$	Cr	Cr(VI)	Aeration	200	Not Listed	3.50	35%	1.22	0.92%	0.7	0.0064	0.66%	1.01E-06	9.71E-07	8.78E-07	8.12E-07	1.15E-06
204	Zinc #1 Line (GP003)	Black Chromate	204	026	Plating	Chromater 50	Zinc #1 Line (GP0	CrO_3	Cr	Cr(VI)	Aeration	110	4.00	8.96	52%	4.66	3.51%	0.5	0.0175	1.79%	2.74E-06	2.64E-06	2.39E-06	2.21E-06	3.13E-06
235	Zinc #1 Line (GP003)	Yellow Chromate	225	207	Plating	Fordip 2500	Zinc #1 Line (GP0	0.5 % by vol (20 wt% CrO_3)	Cr	Cr(VI)	Aeration	110	4.00	1.28	14%	0.18	0.14%	1.1	0.0015	0.16%	2.38E-07	2.30E-07	2.08E-07	1.92E-07	2.72E-07
195	Zinc Barrel Line (GP005)	Yellow Chromate For Zinc-Nickel	195	156	Plating	Dynapass HY	Zinc Barrel Line (	CrO3	Cr	Cr(VI)	Aeration	115	9.33	32.00	52%	16.64	12.53%	2.2	0.2756	28.08%	4.31E-05	4.16E-05	3.76E-05	3.48E-05	4.91E-05
245	Zinc Barrel Line (GP005)	Yellow Chromate (Hex) For Zinc	245	231	Plating	Fordip 2500	Zinc Barrel Line (	0.5 % by vol (20 wt% CrO_3)	Cr	Cr(VI)	Aeration	115	10.00	1.28	14%	0.18	0.14%	2.1	0.0029	0.30%	4.55E-07	4.39E-07	3.97E-07	3.67E-07	5.18E-07
248	EN Transfer Line	Chromate	248	234	Plating	Meta-Seal EN 75 CR	EN Transfer Line(	H_2CrO_4	Cr	Cr(VI)	Aeration	470	14.00	2.56	52%	1.33	1.00%	2.9	0.0291	2.96%	4.55E-06	4.38E-06	3.96E-06	3.66E-06	5.18E-06
196	Cd Transfer	Clear Chromate	196	159	Plating	Iridite 4L-1	Cd Transfer Clear	15 % by vol (25 wt % CrO_3)	Cr	Cr(VI)	Aeration	200	9.00	10.69	52%	5.56	4.18%	2.6	0.1088	11.08%	1.70E-05	1.64E-05	1.48E-05	1.37E-05	1.94E-05
197	Cd Transfer	Yellow Chromate	197	160	Plating	Fordip 2500	Cd Transfer Yello	0.5 % by vol (20 wt% CrO_3)	Cr	Cr(VI)	Aeration	200	9.00	1.28	14%	0.18	0.14%	0.6	0.0008	0.08%	1.30E-07	1.25E-07	1.13E-07	1.05E-07	1.48E-07
9	Iridite	Yellow Iridite	9	079	Plating	Alodine 1200S	Iridite Yellow Iridit	0.75 oz/gal (55 wt% CrO_3)	Cr	Cr(VI)	Aeration	180	8.50	1.00	52%	0.52	0.39%	1.4	0.0055	0.56%	8.57E-07	8.27E-07	7.47E-07	6.91E-07	9.77E-07
212	Iridite	Deoxidizer	212	194	Acid Cleaning	Isoprep 188	Iridite Deoxidizer(	K2Cr2O7	Cr	Cr(VI)	Aeration	180	8.50	12.00	35%	4.24	3.19%	1.5	0.0479	4.88%	7.49E-06	7.22E-06	6.53E-06	6.04E-06	8.54E-06
229	Zinc Transfer #1	Yellow Chromate	229	213	Plating	Fordip 2500	Zinc Transfer #1Y	0.5 % by vol (20 wt% CrO_3)	Cr	Cr(VI)	Aeration	800	25.00	0.96	14%	0.14	0.10%	3.1	0.0032	0.33%	5.04E-07	4.86E-07	4.39E-07	4.06E-07	5.74E-07
198	Anodize Line	Dichromate Seal	198	167	Plating	Sodium Dichromate	Anodize Line Dich	7 oz/gal $Na_2Cr_2O_7$	Cr	Cr(VI)	Aeration	90	4.00	7.00	35%	2.44	1.84%	0.3	0.0055	0.56%	8.63E-07	8.32E-07	7.52E-07	6.96E-07	9.84E-07
251	EN on Aluminum	Chromate Post Dip	251	237	Plating	Meta-Seal EN 75 CR	EN on AluminumC	H2CrO4	Cr	Cr(VI)	Aeration	300	13.13	1.28	52%	0.67	0.50%	0.6	0.0030	0.31%	4.70E-07	4.53E-07	4.10E-07	3.79E-07	5.36E-07
228	Silver #3	Chromate Post Dip	228	212	Plating	Nichem Post Dip	Silver #3Chromat	5 % by vol (7.5 wt % CrO_3)	Cr	Cr(VI)	Aeration	80	6.00	6.40	52%	3.33	2.51%	1.2	0.0301	3.06%	4.70E-06	4.53E-06	4.10E-06	3.79E-06	5.36E-06
48	STRIP Line	Chromic Acid Strip	48	189	Stripping	Chromium Trioxide	STRIP LineChrom	CrO_3	Cr	Cr(VI)	Aeration	Not Listed	4.83	64	52%	33.28	25.05%	1.6	0.4008	40.84%	6.27E-05	6.05E-05	5.47E-05	5.06E-05	7.15E-05
114	Cd Hand	Olive Drab Chromate	114	162	Acid Cleaning	Tasdip OD-2R	Cd HandOlive Dra	$Na_2Cr_2O_7$	Cr	Cr(VI)	Aeration	60	3.00	10.62	20%	2.11	1.59%	1.6	0.0254	2.59%	3.97E-06	3.83E-06	3.46E-06	3.20E-06	4.53E-06
202	Cd Hand	Clear Chromate	202	187	Plating	Iridite 4L-1	Cd HandClear Ch	15 % by vol (25 wt % CrO3)	Cr	Cr(VI)	Aeration	80	4.00	10.69	52%	5.56	4.18%	0.4	0.0167	1.71%	2.62E-06	2.52E-06	2.28E-06	2.11E-06	2.98E-06
203	Cd Hand	Yellow Chromate	203	188	Plating	Fordip 2500	Cd HandYellow C	0.5 % by vol (20 wt% CrO_3)	Cr	Cr(VI)	Aeration	80	4.00	0.83	14%	0.12	0.09%	0.4	0.0004	0.04%	5.63E-08	5.43E-08	4.91E-08	4.54E-08	6.42E-08
239	Black Oxide / Phosphate (GP004)	Chromic Acid Dip	239	225	Acid Cleaning	Chromic Acid	Black Oxide / Pho	H_2CrO_4	Cr	Cr(VI)	Aeration	160	7.58	0.08	52%	0.04	0.03%	0.9	0.0003	0.03%	4.41E-08	4.25E-08	3.84E-08	3.55E-08	5.03E-08

[1]The emitting characteristic for sparging is = Sparge Rate * Metal Concentration (wt%) in the tanks.

Co-operative Plating
Potential To Emit Calculations - Nickel

New Fan Air Flowrate (cfm)	100,000	70,000	30,000	15,000
Worst-Case Nickel Emissions (lb/hr)	8.97E-04	8.21E-04	6.26E-04	4.88E-04

Total EC 9351

EQUI	Line	Bath Name	Dominent Chemical Additive	Lookup	CHEMICAL FORMULA	POLLUTANT		Bath Type	Bath Size (gal)	Surface Area (ft^2)	Target Chemical Concentration (oz/gal)	Metal Weight Percent (of Chemical)	Metal Concentration oz/gal	Metal Concentration (wt%)	Sparge Flowrate (acfm)[1]	Plating (Amps)		Emitting Characteristic[2,3]	Percent Emissions	Total Emissions (lb/hr) 100,000	70,000	30,000	15,000	Unc.
103	Zinc #1 Line (GP003)	Zinc-Nickel	Liquid Nickel Chloride	Zinc #1 Line (GP003)Zinc-NickelLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Aeration	445	15.00	4.53	45%	2.05	1.54%	2.7		--	166.660	1.782%	1.60E-05	1.46E-05	1.12E-05	8.69E-06	2.12E-05
5	EN Transfer Line	Electroless Nickel North Bay	META-PLATE UCB-A	EN Transfer LineElectroless Nickel North BayMETA-PLATE UCB-A	$NiSO_4$, $CuSO_4$	Ni	Ni	Aeration	475	14.00	6% v/v Ni	38%	--	7.73%	2.5		--	778.883	8.330%	7.47E-05	6.84E-05	5.22E-05	4.06E-05	9.93E-05
247	EN Transfer Line	Electroless Nickel South Bay	5023 A	EN Transfer LineElectroless Nickel South Bay5023 A	$NiSO_4$	Ni	Ni	Aeration	475	14.00	6% v/v Ni	38%	--	7.73%	2.5		--	778.883	8.330%	7.47E-05	6.84E-05	5.22E-05	4.06E-05	9.93E-05
258	EN Transfer Line	Electroless Nickel South Mid	META-PLATE UCB-A	EN Transfer LineElectroless Nickel South MidMETA-PLATE UCB-A	$NiSO_4$, $CuSO_4$	Ni	Ni	Aeration	445	14.00	6% v/v Ni	38%	--	7.73%	2.5		--	778.883	8.330%	7.47E-05	6.84E-05	5.22E-05	4.06E-05	9.93E-05
72	Anodize Line	Nickel Acetate Seal	Seal 2511	Anodize Line Nickel Acetate SealSeal 2511	3 % by vol (20 wt% Ni Salts)	Ni	Ni	Aeration	750	22.00	3.84	24%	0.91	0.68%	4.0		--	107.915	1.154%	1.04E-05	9.47E-06	7.23E-06	5.63E-06	1.38E-05
77	EN Hand	Electroless Nickel Mid North Phos	Liquid Nickel Sulfate	EN HandElectroless Nickel Mid North PhosLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Aeration	135	7.58	6% v/v Ni	38%	--	7.73%	1.4		--	421.710	4.510%	4.05E-05	3.70E-05	2.82E-05	2.20E-05	5.37E-05
78	EN Hand	Electroless Nickel High Phos	Liquid Nickel Sulfate	EN HandElectroless Nickel High PhosLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Aeration	135	7.58	6% v/v Ni	38%	--	7.73%	1.4		--	421.895	4.512%	4.05E-05	3.70E-05	2.83E-05	2.20E-05	5.38E-05
99	EN Hand	Electroless Nickel Mid South Phos	Liquid Nickel Sulfate	EN HandElectroless Nickel Mid South PhosLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Aeration	135	7.58	6% v/v Ni	38%	--	7.73%	1.4		--	421.710	4.510%	4.05E-05	3.70E-05	2.82E-05	2.20E-05	5.37E-05
83	EN on Aluminum	Electroless Nickel South Bay	META-PLATE UCB-A	EN on AluminumElectroless Nickel South BayMETA-PLATE UCB-A	$NiSO_4$	Ni	Ni	Aeration	315	15.00	6% v/v Ni	38%	--	7.73%	2.7		--	834.518	8.925%	8.01E-05	7.33E-05	5.59E-05	4.35E-05	1.06E-04
84	EN on Aluminum	Electroless Nickel North Bay	5023 A	EN on AluminumElectroless Nickel North Bay5023 A	$NiSO_4$	Ni	Ni	Aeration	315	15.00	6% v/v Ni	38%	--	7.73%	2.7		--	834.518	8.925%	8.01E-05	7.33E-05	5.59E-05	4.35E-05	1.06E-04
132	Silver #3	Electroless Nickel	Nichem 1123A	Silver #3Electroless Nickel Nichem 1123A	$NiSO_4$	Ni	Ni	Aeration	116	4.00	6% v/v Ni	38%	--	7.73%	0.7		--	222.538	2.380%	2.13E-05	1.95E-05	1.49E-05	1.16E-05	2.84E-05
184	Hardcoat & Surtec	Nickel Acetate Seal	Seal 2511	Hardcoat & SurtecNickel Acetate SealSeal 2511	2 % by vol (20 wt% Ni Salts)	Ni	Ni	Aeration	240	10.00	2.56	24%	0.60	0.45%	1.8		--	32.701	0.350%	3.14E-06	2.87E-06	2.19E-06	1.71E-06	4.17E-06
92	Copper Nickel Chrome (GP001)	Nickel North	Liquid Nickel Chloride	Copper Nickel Chrome (GP001)Nickel NorthLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	1000	--	9	45%	4.08	3.07%	--	1200.00	1200	--	--	--	--	--	--	--
			Liquid Nickel Sulfate	Copper Nickel Chrome (GP001)Nickel NorthLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Plating	1000	--	32	38%	12.14	9.13%	--	1200.00	1200	--	--	--	--	--	--	--
													Total	12.20%	--	1200.00	1200	1200.00	12.833%	1.15E-04	1.05E-04	8.04E-05	6.26E-05	1.53E-04
93	Copper Nickel Chrome (GP001)	Nickel South	Liquid Nickel Chloride	Copper Nickel Chrome (GP001)Nickel SouthLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	1000	--	9	45%	4.08	3.07%	--	1200.00	1200	--	--	--	--	--	--	--
	--	--	Liquid Nickel Sulfate	Copper Nickel Chrome (GP001)Nickel SouthLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Plating	1000	--	40	38%	15.17	11.42%	--	1200.00	1200	--	--	--	--	--	--	--
													Total	14.49%	--	1200.00	1200	1200.00	12.833%	1.15E-04	1.05E-04	8.04E-05	6.26E-05	1.53E-04
94	Copper Nickel Chrome (GP001)	Nickel Barrel	Liquid Nickel Chloride	Copper Nickel Chrome (GP001)Nickel BarrelLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	1000	--	9	45%	4.08	3.07%	--	350.00	350	--	--	--	--	--	--	--
	--	--	Liquid Nickel Sulfate	Copper Nickel Chrome (GP001)Nickel BarrelLiquid Nickel Sulfate	$NiSO_4$	Ni	Ni	Plating	1000	--	40	38%	15.17	11.42%	--	350.00	350	--	--	--	--	--	--	--
													Total	14.49%	--	350.00	350	350.00	3.743%	3.36E-05	3.07E-05	2.34E-05	1.83E-05	4.46E-05
224	Copper Nickel Chrome (GP001)	Nickel Strike	Liquid Nickel Chloride	Copper Nickel Chrome (GP001)Nickel StrikeLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	150	--	32	45%	14.49	10.91%	--	50.00	50	--	--	--	--	--	--	--
													Total	10.91%	--	50.00	50	50.00	0.535%	4.80E-06	4.39E-06	3.35E-06	2.61E-06	6.37E-06
103	Zinc #1 Line (GP003)	Zinc-Nickel	Liquid Nickel Chloride	Zinc #1 Line (GP003)Zinc-NickelLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	445	--	4.53	45%	2.05	1.54%	--	50.00	50	--	--	--	--	--	--	--
													Total	1.54%	--	50.00	50	50.00	0.535%	4.80E-06	4.39E-06	3.35E-06	2.61E-06	6.37E-06
260	Zinc #1 Line (GP003)	Zinc Nickel - New	Surtec 717 Ni	Zinc #1 Line (GP003)Zinc Nickel - NewSurtec 717 Ni	NiSO4*6H20	Ni	Ni	Plating	335	--	0.4	22%	0.09	0.07%	--	50.00	50		--	--	--	--	--	--
													Total	0.07%	--	50.00	50	50.00	0.535%	4.80E-06	4.39E-06	3.35E-06	2.61E-06	6.37E-06
106	Zinc Barrel Line (GP005)	Zinc-Nickel	Liquid Nickel Chloride	Zinc Barrel Line (GP005)Zinc-NickelLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	325	--	3.5	45%	1.59	1.19%	--	50.00	50	--	--	--	--	--	--	--
													Total	1.19%	--	50.00	50	50.00	0.535%	4.80E-06	4.39E-06	3.35E-06	2.61E-06	6.37E-06
116	Cd Transfer	Nickel Strike	Liquid Nickel Chloride	Cd Transfer Nickel StrikeLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	240	--	32	45%	14.49	10.91%	--	500.00	300	--	--	--	--	--	--	--
													Total	10.91%	--	500.00	300	300.00	3.208%	2.88E-05	2.63E-05	2.01E-05	1.56E-05	3.82E-05
230	EN Hand	Nickel Strike	Liquid Nickel Chloride	EN HandNickel StrikeLiquid Nickel Chloride	$NiCl_2$	Ni	Ni	Plating	80	--	32	45%	14.49	10.91%	--	300.00	300	--	--	--	--	--	--	--
													Total	10.91%	--	300.00	300	300.00	3.208%	2.88E-05	2.63E-05	2.01E-05	1.56E-05	3.82E-05

[1] Practice Sparge flowrates are assumed to be .18 cfm / ft^2 of open bath area based on Co-operative Plating Operating Procedures
[2] The emitting characteristic for sparging is = Sparge Rate * Metal Concentration (wt%) * 3997 (conversion factor to expected emissions from sparging versus plating)
[3] The emitting characteristic for Plating is = Current Amps in each tank.

Co-operative Plating
Potential To Emit Calculations - Cadmium

New Fan Air Flowrate (cfm)	100,000	70,000	30,000	15,000
Worst-Case Cadmium Emissions (lb/hr)	4.63E-05	4.63E-05	4.63E-05	4.63E-05

Total Sum of EC **725**

EQUI	Line	Bath Name	Dominent Chemical Additive	CHEMICAL FORMULA	POLLUTANT	Bath Type	Bath Size (gal)	Target Chemical Concentration (oz/gal)	Metal Weight Percent (of Chemical)	Metal Concentration oz/gal	Metal Concentration (wt%)	Sparge Flowrate (acfm)	Plating Current (Amps)	Emitting Characteristic[1]	Percent Emissions	Total Emissions				
																100,000	70,000	30,000	15,000	Unc.
109	Cd Transfer	Cad Cyanide with Brighteners	Cadmium Oxide	CdO 2 oz/gal	Cd	Plating	860	2.5	88%	2.19	1.65%	--	300	300	41.38%	1.91E-05	1.91E-05	1.91E-05	1.91E-05	1.91E-05
110	Cd Transfer	Cad Cyanide no Brighteners	Cadmium Oxide	CdO 2 oz/gal	Cd	Plating	420	2	88%	1.75	1.32%	--	300	300	41.38%	1.91E-05	1.91E-05	1.91E-05	1.91E-05	1.91E-05
138	Cd Hand	Cadmium Cyanide	Cadmium Oxide	CdO 2 oz/gal	Cd	Plating	320	2.5	88%	2.19	1.65%	--	125	125	17.24%	7.97E-06	7.97E-06	7.97E-06	7.97E-06	7.97E-06

[1]The emitting characteristic for Plating is = Current Amps in each tank.

Co-operative Plating
Potential To Emit Calculations - Cobalt

New Fan Air Flowrate (cfm)	100,000	70,000	30,000	15,000
Worst-Case Cobalt Emissions (lb/hr)	1.25E-05	1.25E-05	1.25E-05	1.25E-05

Total Sum of EC **0.326**

EQUI	Line	Bath Name	Dominent Chemical Additive	CHEMICAL FORMULA	POLLUTANT	Bath Type	Bath Size (gal)	Surface Area (ft^2)	Target Chemical Concentration (oz/gal)	Metal Weight Percent (of Chemical)	Metal Concentration oz/gal	Metal Concentration (wt%)	Sparge Flowrate (acfm)[1]	Emitting Characteristic[2]	Percent Emissions	Total Emissions (lb/hr)				
																100,000	70,000	30,000	15,000	Unc.
181	Zinc #1 Line (GP003)	Clear Chromate	Tridur ZN B (Co)	Cobalt	Co	Aeration	110	4.00	11.80	32%	3.80	2.86%	0.7	0.021	6.3%	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
194	Zinc #1 Line (GP003)	Chromate For Zinc-Nickel	Dipsol IZ-264	$Co(NO_3)_2$•$6H_2O$	Co	Aeration	80	3.00	9.60	32%	3.09	2.33%	0.5	0.013	3.9%	4.81E-07	4.81E-07	4.81E-07	4.81E-07	4.81E-07
246	Zinc Barrel Line (GP005)	Clear Chromate For Zinc-Nickel	Dipsol IZ-264	$Co(NO_3)_2$•$6H_2O$	Co	Aeration	125	10.00	9.60	32%	3.09	2.33%	1.8	0.042	12.8%	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06
186	Zinc Transfer #1	Clear Chromate	Tridur ZN B (Co)	Co(NO3)2	Co	Aeration	800	25.00	12.80	32%	4.12	3.10%	4.5	0.140	42.8%	5.35E-06	5.35E-06	5.35E-06	5.35E-06	5.35E-06
220	Zinc Transfer #2	Clear Chromate	Tridur ZN B (Co)	$Cr(NO_3)_3$	Co	Aeration	640	20.00	12.80	32%	4.12	3.10%	3.6	0.112	34.2%	4.28E-06	4.28E-06	4.28E-06	4.28E-06	4.28E-06

[1] Practice Sparge flowrates are assumed to be .18 cfm / ft^2 of open bath area based on Co-operative Plating Operating Procedures

[2] The emitting characteristic for sparging is = Sparge Rate * Metal Concentration (wt%) in the tanks.

Co-Operative Plating Co
Oxide Boiler - 0.4 MMBtu/hr Natural Gas-Fired - IA

Pollutant	Emission Factor Natural Gas lb/MMscf	Natural Gas lbs/hr	Total Emissions tpy
PM	7.6	2.98E-03	1.31E-02
PM10	7.6	2.98E-03	1.31E-02
PM2.5	7.6	2.98E-03	1.31E-02
SO2	0.6	2.35E-04	1.03E-03
NOx	100	3.92E-02	1.72E-01
CO	84	3.29E-02	1.44E-01
CO2	120000	4.71E+01	2.06E+02
N2O	2.2	8.63E-04	3.78E-03
CH4	2.3	9.02E-04	3.95E-03
CO2e		4.73E+01	2.07E+02
VOC	5.5	2.16E-03	9.45E-03
Arsenic	2.00E-04	7.84E-08	3.44E-07
Benzene	2.10E-03	8.24E-07	3.61E-06
Beryllium	1.20E-05	4.71E-09	2.06E-08
Cadmium	1.10E-03	4.31E-07	1.89E-06
Cobalt	8.40E-05	3.29E-08	1.44E-07
Chromium III	1.34E-03	5.27E-07	2.31E-06
Chromium VI	5.60E-05	2.20E-08	9.62E-08
Copper	8.50E-04	3.33E-07	1.46E-06
Dichlorobenzene	1.20E-03	4.71E-07	2.06E-06
Ethylbenzene			
Formaldehyde	7.50E-02	2.94E-05	1.29E-04
Hexane	1.80E+00	7.06E-04	3.09E-03
Lead	5.00E-04	1.96E-07	8.59E-07
Naphthalene	6.10E-04	2.39E-07	1.05E-06
Mercury	2.60E-04	1.02E-07	4.47E-07
Manganese	3.80E-04	1.49E-07	6.53E-07
Nickel	2.10E-03	8.24E-07	3.61E-06
POM	8.70E-05	3.41E-08	1.49E-07
Selenium	2.40E-05	9.41E-09	4.12E-08
Toluene	3.40E-03	1.33E-06	5.84E-06
1,1,1-Trichloroethane			
o-Xylene			
Zinc	2.90E-02	1.14E-05	4.98E-05
Total HAPs	1.92E+00	7.41E-04	3.29E-03

Cooperative Plating
Waste Acid Tanks - Insignficant Emission Unit Calculations

Tank Description	Capacity (gal)	Annual Throughput (gal)	Diluted Product
Alkaline Cleaner Waste Tank	3000	36000	KOH/NaOH
Hydrochoric Acid Waste Tank	3000	54000	HCl
Ammoniacal Acid Waste Tank	1500	6000	$NH_4HF_2/H_2SO_4/HNO_3$
Spent Chromate Tank	3000	36000	$CrO_3/Na_2Cr_2O_7$
Cyanide Dragout Tank	1500	15000	$NaCN/Cu(CN)_2/KCN$
Spent Nitric Acid Tank	1500	15000	HNO_3

*Annual throughput based on tank turnovers.

Calculation Assumptions

- Tank constituents are diluted in water - average 2 to 25 % solution
- Tanks contain spent acid products that are flushed from process tanks
- Inorganic constituents with no VOCs
- Reactivity is negligble, emissions based on lowest gassing rate loss factor of 2% from Electroplating Engineering Handbook

Tank	Throughput (gal)	Avg. Product Concentration (%)	Product (gal)	Product (lbs)	Gassing Rate (%)	PM Emissions (lbs/yr)	$NO_x/SO_2/VOC$ Emissions (lb/yr)
Alkaline Cleaner Waste Tank	36000	7	2520	21017	2	420	0
Hydrochoric Acid Waste Tank	54000	20	10800	90072	2	1801	0
Ammoniacal Acid Waste Tank	6000	25	1500	12510	2	250	0
Spent Chromate Tank	36000	20	7200	60048	2	1201	0
Cyanide Dragout Tank	15000	2	300	2502	2	50	0
Spent Nitric Acid Tank	15000	25	3750	31275	2	626	0

LINE/BATH NAME	SI ID EQUI	(old) EU #	MATERIAL	CHEMICAL (DOMINANT ADDITIVE)	CHEMICAL FORMULA [1]	Electrolytic (Y/N)	Compliance
COPPER/NICKEL/CHROME line -- COMG 1 (GP001)							
Nickel North	92	191	Plating	Nickel Chloride	$NiCl_2$	Y	Wetting Agent
				Nickel Sulfate	$NiSO_4$		
				Boric Acid	H_3BO_3		
Nickel South	93	192	Plating	Nickel Chloride	$NiCl_2$	Y	Wetting Agent
				Nickel Sulfate	$NiSO_4$		
				Boric Acid	H_3BO_3		
Nickel Barrel	94	193	Plating	Nickel Chloride	$NiCl_2$	Y	Wetting Agent
				Nickel Sulfate	$NiSO_4$		
				Boric Acid	H_3BO_3		
Nickel Strike	224	206	Plating	Nickel Chloride	$NiCl_2$	Y	Flash/Short Term
				Hydrochloric Acid	12% by vol (31 wt% HCL)		
PASSIVATE line -- COMG 2 (GP002)							
Passivate	143	015	Acid Cleaning	Nitric Acid	25 % by vol (67 wt% HNO_3)	N	
				Sodium Dichromate	3 oz/gal $Na_2Cr_2O_7$		
ZINC #1 line -- COMG 3 (GP003)							
Zinc-Nickel	103	151	Plating	Zinc Chloride	$ZnCl_2$	Y	Wetting Agent
				Nickel Chloride	$NiCl_2$		
				Potassium Chloride	KCl		
Clear Chromate	181	025	Plating	Tridur ZnB	$Cr(NO_3)_3$, Co	N	
Chromate For Zinc-Nickel	194	152	Plating	Dipsol IZ-264	$Co(NO_3)_2 \cdot 6H_2O$	N	
				Dipsol IZ-264T	$CrCl_3 \cdot 6H_2O$		
Black Chromate	204	026	Plating	Chromater 50	CrO_3	N	
				Havablack 50	$C_2H_4O_2$		
				Havablack Catalyst	$C_2H_4O_2$		
Yellow Chromate	225	207	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	N	
Yelow Chromate	235	221	Plating	Rodip ZNA Yellow	$Na_2Cr_2O_7$	N	
Chromate Seal	238	224	Plating	Tridur Finish 300	$CrH_6O_{12}P_3$	N	
Zinc-Nickel (East)	263	NA	Plating	Zinc Chloride	$ZnCl_2$	Y	Wetting Agent
				Nickel Chloride	$NiCl_2$		
				Potassium Chloride	KCl		
BLACK OXIDE/PHOSPHATE line -- COMG 15 (GP004)							
Chromic Acid Dip	239	225	Acid Cleaning	Chromic Acid	H_2CrO_4	N	
ZINC BARREL line -- COMG 16 (GP005)							
Zinc-Nickel	106	154	Plating	Zinc Chloride	$ZnCl_2$	Y	Wetting Agent
				Nickel Chloride	$NiCl_2$		
				Potassium Chloride	KCl		
Clear Chromate	182	038	Plating	HiTest 3030	$Cr_2(SO_4)_3$, $CrCl_3$	N	
Yellow Chromate For Zinc-Nickel	195	156	Plating	Rodip ZNA Yellow	$Na_2Cr_2O_7$	N	
Yellow Chromate (Hex) For Zinc	245	231	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	N	
				Chromater 50	CrO_3		
				Havablack 50	$C_2H_4O_2$		
				Havablack Catalyst	$C_2H_4O_2$		
Clear Chromate For Zinc-Nickel	246	232	Plating	Dipsol IZ-264	$Co(NO_3)_2 \cdot 6H_2O$	N	
				Dipsol IZ-264T	$CrCl_3 \cdot 6H_2O$		
ELECTROLESS NICKEL ON STEEL transfer line -- COMG 17 (GP007)							
	5	071	Plating	Meta-Plate UCB-A	$NiSO_4$, $CuSO_4$	N	
				Meta-Plate UCB-C	NH_4OH		
				Meta-Plate UCB-MU	NA		
Electroless Nickel South Bay	247	233	Plating	5023A	$NiSO_4$	N	
				5023B	$NaH_2PO_2 \cdot H_2O$		
				5023DA	$NaH_2PO_2 \cdot H_2O$		
Chromate	248	234	Plating	Meta-Seal EN 75 CR	H_2CrO_4	N	
Electroless Nickel High Phos	258	245	Plating	Meta-Plate UCB-A	$NiSO_4$, $CuSO_4$	N	
				Meta-Plate UCB-C	NH_4OH		
				Meta-Plate UCB-MU	NA		

CADMIUM TRANSFER rack line -- COMG 18 (GP008)							
Cad Cyanide with Brighteners	109	157	Plating	Cadmium Oxide	CdO 2 oz/gal	Y	pH
				Sodium Cyanide	NaCN		
				Sodium Hydroxide	NaOH		
Cad Cyanide no Brighteners	110	158	Plating	Cadmium Oxide	CdO 2 oz/gal	Y	pH
				Sodium Cyanide	NaCN		
				Sodium Hydroxide	NaOH		
Nickel Strike	116	164	Plating	Nickel Chloride	$NiCl_2$	Y	Flash/Short Term
				Hydrochloric Acid	12 % by vol (31 wt% HCl)		
Clear Chromate	196	159	Plating	Iridite 4L-1	15 % by vol (25 wt % CrO_3)	N	
Yellow Chromate	197	160	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	N	
ZINC TRANSFER line 1 -- COMG 19 (GP010)							
Clear Chromate	186	092	Plating	Tridur ZnB	$Cr(NO_3)_3$, $Co(NO_3)_2$	N	
Yellow Chromate	229	213	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	N	
ANODIZE line -- COMG 20 (GP011)							
Nickel Acetate Seal	72	095	Sealing	Seal 2511	3 % by vol (20 wt% Ni Salts)	N	
Dichromate Seal	198	167	Plating	Sodium Dichromate	7 oz/gal $Na_2Cr_2O_7$	N	
ELECTROLESS NICKEL HAND -- COMG 21 (GP012)							
Electroless Nickel High Phos	77	106	Plating	OMNiPlate T4 BP10A	$NiSO_4$, $CuSO_4$	N	
				OMNiPlate T4 BP10B	$C_2H_3NaO_2$		
				OMNiPlate T4 BP10C	NH_4OH		
				OMNiPlate T4 BP10MU	NA		
Electroless Nickel High Phos	78	107	Plating	Liquid Nickel Sulfate	$NiSO_4$	N	
				Ulta Phos OG-BX	$NaH_2PO_2 \cdot H_2O$		
				Ultra Phos OG-CX	$NaH_2PO_2 \cdot H_2O$		
Electroless Nickel Mid Phos	99	147	Plating	Liquid Nickel Sulfate	$NiSO_4$	N	
				Ulta Phos OG-BX	$NaH_2PO_2 \cdot H_2O$		
				Ultra Phos OG-CX	$NaH_2PO_2 \cdot H_2O$		
Chromate Post Dip	200	170	Plating	Nichem Post Dip	5 % by vol (7.5 wt % CrO_3)	N	
Nickel Strike	230	215	Plating	Nickel Chloride	$NiCl_2$	Y	Flash/Short Term
				HCl	12 % by vol (31 wt% HCl)		
ELECTROLESS NICKEL ON ALUMINUM line -- COMG 22 (GP014)							
Electroless Nickel South Bay	83	115	Plating	OMNiPlate T4 BP10A	$NiSO_4$, $CuSO_4$	N	
				OMNiPlate T4 BP10B	$C_2H_3NaO_2$		
				OMNiPlate T4 BP10C	NH_4OH		
				OMNiPlate T4 BP10MU	NA		
Electroless Nickel North Bay	84	116	Plating	5023A	$NiSO_4$	N	
				5023B	$NaH_2PO_2 \cdot H_2O$		
				5023DA	$NaH_2PO_2 \cdot H_2O$		
Chromate Post Dip	251	237	Plating	Nichem Post Dip	H_2CrO_4	N	
SILVER #3 line -- COMG 8 (GP016)							
Electroless Nickel	132	180	Plating	Nichem 1123A	$NiSO_4$	N	
				Nichem 1123B	$C_2H_4O_2$		
				Nichem 1123C	$C_3H_5NaO_3$		
Chromate Post Dip	228	212	Plating	Nichem Post Dip	5 % by vol (7.5 wt % CrO_3)	N	
STRIP line -- COMG 23 (GP018)							
Chromic Acid Strip	48	189	Stripping	Chromium Trioxide	CrO_3	N	
				Sulfuric Acid	23 % by vol (93 wt% H_2SO_4)		
ELECTROPOLISH line -- COMG 11 (GP019)							
CADMIUM HAND line -- COMG 12 (GP020)							
Olive Drab Chromate	114	162	Acid Cleaning	Tasdip OD-2R	$Na_2Cr_2O_7$	N	
				Tasdip OD-2C	CH_2O_2		
Cadmium Cyanide	138	186	Alkaline Cleaner	Cadmium Oxide	CdO 2 oz/gal	Y	pH
				Sodium Cyanide	NaCN		
				Sodium Hydroxide	NaOH		
Clear Chroamte	202	187	Plating	Iridite 4L-1	15 % by vol (25 wt % CrO3)	N	
Yellow Chromate	203	188	Plating	Fordip 2500	0.5 % by vol (20 wt% CrO_3)	N	
HARDCOAT & SURTEC line -- COMG 25 (GP024)							
Nickel Acetate Seal	184	080	Acid Cleaning	Seal 2511	2 % by vol (20 wt% Ni Salts)	N	
Yellow Iridite	9	079	Plating	Iridite 14-2	0.75 oz/gal (55 wt% CrO_3)	N	
ZINC TRANSFER line 2 -- COMG 26 (GP025)							
Clear Chromate	220	202	Plating	Tridur ZnB	$Cr(NO_3)_3$, $Co(NO_3)_2$	N	

Co-Operative Plating Co
Potential Emission Calculations
Process Description

LINE/BATH NAME	EU NUMBER	EQUI	CONSTRUCTION	REMOVE
COPPER/NICKEL/CHROME line - COMG 1 (GP001)				
Soak Cleaner	005	28	08/01/91	
Electrocleaner	006	29	08/01/91	
Muriatic Acid (Hydrochloric)	007	30	08/01/91	
Trichrome	009	32	08/01/91	
North Nickel	191	92	08/01/91	
South Nickel	192	93	08/01/91	
Nickel Barrel	193	94	08/01/91	
Nitric Rack Strip	010	96	08/01/91	
Copper Plate Bath	008	179	08/01/91	
~~Muriatic Acid For Brass~~	~~205~~	~~223~~	~~6/21/11~~	~~12/6/17~~
Nickel Strike	206	224	4/4/89	
Elecrocleaner For Brass	217	231	06/09/14	
Black Pearl Electroblack	218	232	9/16/16	
Brass Strip	219	233	11/19/91	
PASSIVATE line - COMG 2 (GP002)				
Muriatic Acid (Hydrochloric)	013	50	08/01/92	
Soak Cleaner	011	97	08/01/92	
Electrocleaner	012	98	08/01/92	
Nitric Acid	014	142	08/01/92	
Passivate	015	143	08/01/92	
Citiric Acid	220	234	03/21/06	
ZINC #1 line - COMG 3 (GP003)				
Electrocleaner	022	53	01/01/70	
Hydrochloric Acid	023	54	01/01/70	
Zinc-Nickel	151	103	8/1/07	
Zinc Cyanide	024	145	01/01/70	
Clear Chromate	025	181	01/01/70	
~~Olive Drab Chromate~~	~~150~~	~~193~~	~~6/27/06~~	~~1/14/21~~
Clear Chromate For Zinc-Nickel	152	194	8/1/08	
Black Chromate	026	204	01/01/70	
Yellow Chromate - Hex	207	225	1/7/10	
Weak Hydrochloric Acid	208	226	5/13/13	
Yellow Chromate	221	235	09/15/16	
Activator For Zn-Ni	222	236	10/02/14	
~~Black Chromate For Zinc-Nickel~~	~~223~~	~~237~~	~~08/10/16~~	~~1/20/20~~
Chromate Seal	224	238	08/10/16	
~~Sulfuric Acid~~	~~027~~	~~NA~~	~~01/01/70~~	~~10/31/12~~
~~Die Cast Cleaner~~	~~148~~	~~NA~~	~~01/01/70~~	~~7/31/12~~
~~Chromate Seal~~	~~149~~	~~NA~~	~~11/01/08~~	~~1/7/10~~
~~Yellow Chromate for Zinc-Nickel~~	~~209~~	~~NA~~	~~1/7/2010~~	~~7/25/2016~~
Zinc-Nickel (East)	NA	263	8/10/2020	
Soak Cleaner	NA	264	9/11/2020	
Soak Cleaner	NA	265	1/16/2021	
BLACK OXIDE/PHOSPHATE line - COMG 15 (GP004)				
Soak Cleaner	030	37	01/01/75	
Hydrochloric Acid	032	38	01/01/75	
Zinc Phosphate	033	39	01/01/75	
Black Oxide	031	206	01/01/75	
Zinc Phosphate For Zinc Plated Parts	210	227	12/12/12	
Chromic Acid Dip	225	239	05/10/17	
Oil For Phosphate	226	240	08/30/16	
Phosphate Conditioner	227	241	08/25/03	
ZINC BARREL line - COMG 16 (GP005)				
Electrocleaner	035	40	01/01/70	
Soak Cleaner	034	56	01/01/70	
Muriatic Acid (Weak) South Tank	036	57	01/01/70	
Muriatic Acid (Strong) North Tank	037	58	01/01/70	
Seal	153	105	3/30/06	
Zinc-Nickel	154	106	4/1/08	
Zinc Chloride	039	149	01/01/70	
Clear Chromate	038	182	01/01/70	
Yellow Chromate For Zinc-Nickel	156	195	6/10/08	
Electrocleaner For Brass	228	242	4/21/17	
Soak Cleaner For Brass	229	243	4/21/17	
~~Nickel Barrel~~	~~230~~	~~244~~	~~04/19/17~~	~~10/8/20~~
Yellow Chromate (Hex) For Zinc/Black Chromate	231	245	08/15/01	
Clear Chromate For Zinc-Nickel	232	246	06/10/08	
~~Zinc Generator~~	~~155~~	~~NA~~	~~4/1/08~~	~~3/1/12~~
~~Black Chromate~~	~~244~~	~~257~~	~~5/25/18~~	~~6/25/18~~

Co-Operative Plating Co
Potential Emission Calculations
Process Description

LINE/BATH NAME	EU NUMBER	EQUI	CONSTRUCTION	REMOVE
ELECTROLESS NICKEL ON STEEL transfer line - COMG 17 (GP007)				
Soak Cleaner	069	3	06/01/85	
Muriatic Acid (Hydrochloric)	070	4	06/01/85	
Electroless Nickel North Bay	071	5	06/01/85	
Electrocleaner	068	47	06/01/85	
Electroless Nickel Tank South Bay	233	247	08/23/07	
Chromate	234	248	02/13/92	
Electroless Nickel High Phos	245	258	10/10/18	
CADMIUM TRANSFER rack line - COMG 18 (GP008)				
Weak Nitric Acid	075	6	01/01/70	
Soak Cleaner	072	60	01/01/70	
Electrocleaner	073	61	01/01/70	
Hydrochloric Acid	074	62	01/01/70	
Cadmium Cyanide With Brighteners	157	109	01/01/70	
Cadmium Cyanide No Brighteners	158	110	01/01/70	
Hot Sulfuric Acid	163	115	01/01/70	
Nickel Strike	164	116	8/3/05	
Clear Chromate	159	196	01/01/70	
Yellow Chromate	160	197	01/01/70	
~~Desmutter~~	~~161~~	~~NA~~	~~01/01/70~~	~~12/3/07~~
SURTEC Line - COMG 6 (GP009)				
~~Clear Iridite~~	~~078~~	~~7~~	~~06/01/80~~	~~4/28/2016~~
Surtec	204	222	11/23/09	
Deoxidizer	194	212	11/23/09	
Soak Cleaner	196	214	11/23/09	
Etch	076	183	06/01/80	
ZINC TRANSFER line 1 - COMG 19 (GP010)				
Soak Cleaner	087	10	01/01/70	
Electrocleaner	088	11	01/01/70	
Strong Muriatic Acid (Hydrochloric)	089	68	01/01/70	
Weak Muriatic Acid (Hydrochloric)	090	69	01/01/70	
Clear Chromate	092	186	01/01/70	
Zinc Cyanide Plating Tank	091	207	01/01/70	
Yellow Chromate	213	229	6/30/89	
~~Chromate Seal~~	~~190~~	~~NA~~	~~01/01/70~~	~~9/21/11~~
ANODIZE line - COMG 20 (GP011)				
Nickel Acetate Seal	095	72	01/01/70	
Soak Cleaner	166	118	01/01/70	
Deoxidizer	094	153	01/01/70	
Etch	093	187	01/01/70	
Nitric Acid	096	188	01/01/70	
Dichromate Seal	167	198	01/01/70	
Anodize Tank	097	208	01/01/70	
~~Safegard 3400~~	~~168~~	~~NA~~	~~01/01/70~~	~~6/29/12~~
ELECTROLESS NICKEL HAND - COMG 21 (GP012)				
Zincate	104	12	01/01/99	
Nitric Acid	105	13	01/01/99	
Electrocleaner	017	33	01/01/70	
Nitric Acid	018	34	01/01/70	
Hydrochloric Acid	019	51	01/01/70	
Soak Cleaner	101	74	01/01/99	
Desmutter	103	76	01/01/99	
Electroless Nickel High Phos	106	77	01/01/99	
Electroless Nickel High Phos	107	78	01/01/99	
Electroless Nickel Mid Phos	147	99	8/1/08	
Copper Plate	020	180	01/01/70	
Etch	102	189	01/01/99	
Nitric Acid	169	199	01/01/99	
Chromate Post Dip	170	200	8/4/06	
Nickel Strike	215	230	4/01/10	
~~Acid Etch~~	~~235~~	~~249~~	~~10/18/10~~	~~6/11/20~~
~~Immersion Gold~~	~~108~~	~~NA~~	~~01/01/99~~	~~12/1/05~~
~~Silver Strike~~	~~109~~	~~NA~~	~~01/01/99~~	~~1/21/15~~
~~Silver Plate~~	~~110~~	~~NA~~	~~01/01/99~~	~~1/22/15~~
~~Copper Cleaner~~	~~214~~	~~NA~~	~~11/13/08~~	~~2/10/15~~
~~Desmuter B~~	~~216~~	~~NA~~	~~4/01/10~~	~~3/1/14~~
Copper Cleaner	214	266	10/27/20	
Acid Salt	NA	267	7/22/20	
Electrocleaner for Brass	NA	268	12/14/20	
~~**TIN/PRECIOUS METALS - GP013**~~				
~~Bright Tin (Acid Tin)~~	~~021~~	~~NA~~	~~01/01/70~~	~~3/01/13~~
~~Weak Sulfuric~~	~~146~~	~~NA~~	~~01/01/70~~	~~1/21/15~~

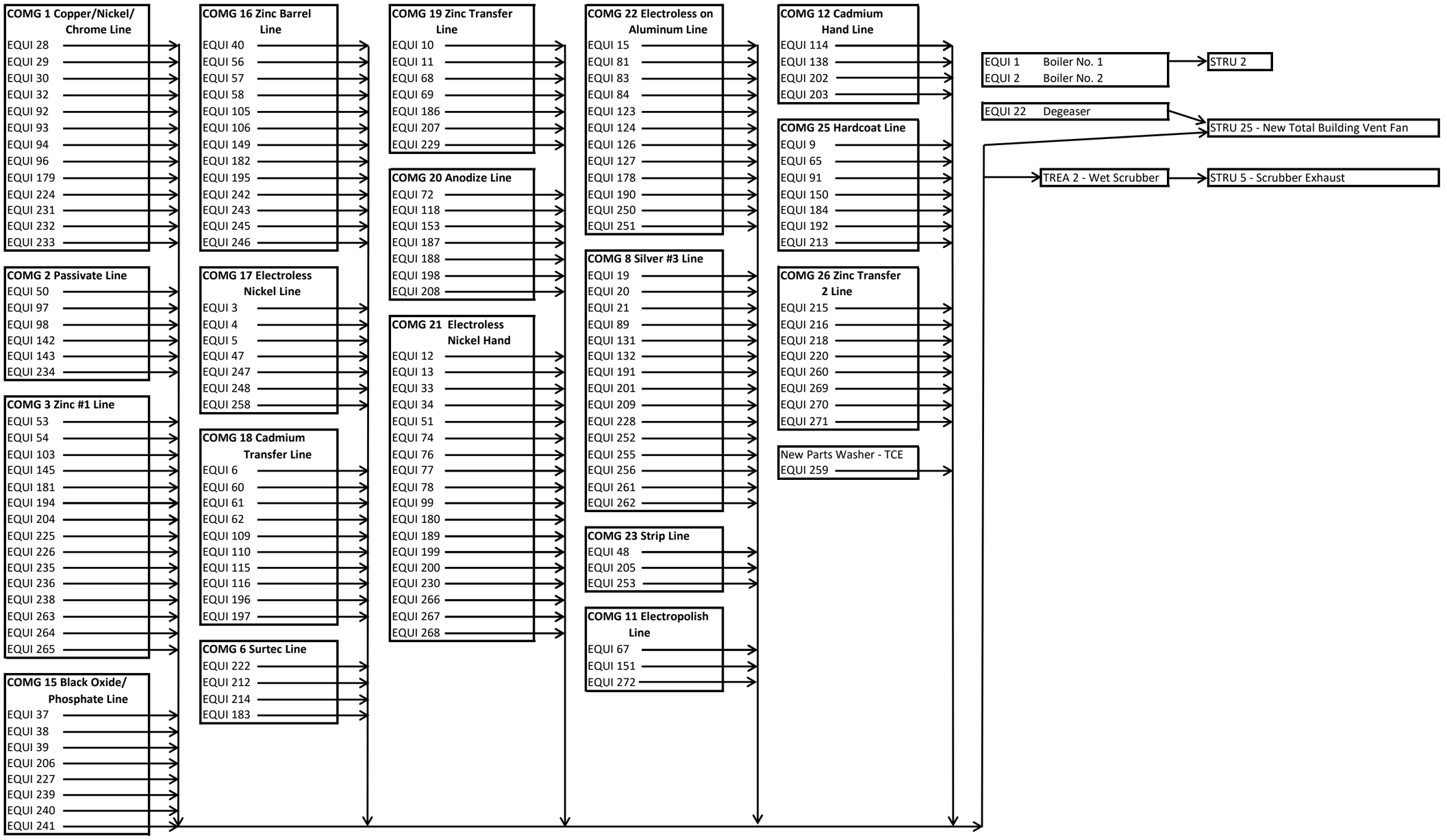
Co-Operative Plating Co
Potential Emission Calculations
Process Description

LINE/BATH NAME	EU NUMBER	EQUI	CONSTRUCTION	REMOVE
ELECTROLESS NICKEL ON ALUMINUM line - COMG 22 (GP014)				
Zincate	113	15	02/01/99	
Soak Cleaner	111	81	02/01/99	
Electroless Nickel South Bay	115	83	02/01/99	
Electroless Nickel North Bay	116	84	02/01/99	
Desmutter	171	123	02/01/99	
Desmutter	172	124	02/01/99	
Weak White Nitric	174	126	02/01/99	
Nitric Acid For Brass	175	127	02/01/99	
Weak Desmutter	114	178	02/01/99	
Etch	112	190	02/01/99	
Nitric Acid	236	250	3/6/15	
Chromate Post Dip	237	251	05/16/00	
~~Desmutter~~	~~173~~	~~NA~~	~~3/25/05~~	~~3/06/15~~
~~Fluoroboric Acid~~	~~176~~	~~NA~~	~~02/01/99~~	~~11/13/13~~
~~**SILVER 2 - GP015**~~				
~~Copper Plate North Bay~~	~~117~~	~~NA~~	~~02/01/99~~	~~6/1/09~~
~~Silver Strike~~	~~123~~	~~NA~~	~~04/01/99~~	~~6/1/09~~
~~Silver Plate~~	~~124~~	~~NA~~	~~04/01/99~~	~~6/1/09~~
~~Copper Plate South Bay~~	~~177~~	~~NA~~	~~02/24/05~~	~~6/1/09~~
~~Sulfuric Sour Dip~~	~~178~~	~~NA~~	~~03/03/05~~	~~6/1/09~~
SILVER #3 line - COMG 8 (GP016)				
Electrocleaner	125	19	04/01/99	
Q-pex Copper Cleaner	127	20	04/01/99	
Silver Plate	129	21	04/01/99	
Silver Strike	128	89	04/01/99	
Soak Cleaner	179	131	11/29/07	
Electroless Nickel	180	132	9/12/05	
Sulfuric Acid	126	191	04/01/99	
Bright Acid Tin	181	201	12/10/07	
Nitric Rack Strip Large	120	209	02/01/99	
~~Silver Strip~~	~~121~~	~~210~~	~~03/03/05~~	~~1/30/18~~
~~Nitric Rack Strip Small~~	~~122~~	~~211~~	~~02/24/05~~	~~4/16/14~~
Chromate Post Dip	212	228	6/07/11	
Nitric Acid Strip For Tin	238	252	04/16/14	
Acid Copper	242	255	11/30/17	
Anti-Tarnish For Copper	243	256	1/30/18	
~~Acid Copper~~	~~165~~	~~NA~~	~~06/01/80~~	~~8/01/11~~
~~Wood's Nickel Strike~~	~~182~~	~~NA~~	~~04/01/99~~	~~12/30/09~~
Silver Strip	121	261	6/13/18	
Acid Salt	NA	262	9/1/20	
~~**ZINC AUTOMATIC - GP017**~~				
~~Soak Cleaner~~	~~139~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Electrocleaner~~	~~140~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Hydrochloric Acid (North)~~	~~141~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Hydrochloric Acid (South)~~	~~142~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Zinc Cyanide~~	~~143~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Clear Chromate~~	~~144~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
~~Yellow Chromate~~	~~145~~	~~NA~~	~~05/01/01~~	~~9/01/11~~
STRIP line - COMG 23 (GP018)				
Chromic Acid Strip	189	48	01/01/70	
Cyanide Nickel Strip	028	205	01/01/70	
Nickel Strip	240	253	06/10/15	
~~Chromic Acid Bright Dip~~	~~241~~	~~254~~	~~10/18/17~~	~~02/03/20~~
~~B-929 Nickel Strip~~	~~029~~	~~NA~~	~~01/01/75~~	~~03/29/05~~
ELECTROPOLISH line - COMG 11 (GP019)				
Muriatic Acid (Hydrochloric)	085	67	01/01/70	
Electrocleaner	086	151	01/01/70	
~~Electropolish~~	~~083~~	~~177~~	~~01/01/70~~	~~11/3/2020~~
~~Caustic~~	~~084~~	~~185~~	~~01/01/70~~	~~11/3/2020~~
Nitric Acid	NA	272	11/3/20	
CADMIUM HAND line - COMG 12 (GP020)				
Olive Drab Chromate	162	114	5/21/07	
Cadmium Cyanide Plate	186	138	5/21/07	
Clear Chromate	187	202	5/21/07	
Yellow Chromate	188	203	5/21/07	
~~Hydrochloric Acid~~	~~183~~	~~NA~~	~~05/21/07~~	~~11/15/13~~
~~Desmutter~~	~~184~~	~~NA~~	~~5/21/07~~	~~2/27/15~~
~~Weak Nitric Acid~~	~~185~~	~~NA~~	~~5/21/07~~	~~2/27/15~~
~~Nitric Acid Activator~~	~~211~~	~~NA~~	~~11/5/13~~	~~2/27/15~~

Co-Operative Plating Co
Potential Emission Calculations
Process Description

LINE/BATH NAME	EU NUMBER	EQUI	CONSTRUCTION	REMOVE
HARDCOAT & SURTEC line - COMG 25 (GP024)				
Yellow Iridite	079	9	06/01/80	
Nitric Acid	081	65	06/01/80	
Soak Cleaner	135	91	01/04/99	
Deoxidizer	077	150	06/01/80	
Nickel Acetate Seal	080	184	06/01/80	
Hardcoat	130	192	06/01/97	
Etch	195	213	11/23/09	
~~Iridite NCP~~	~~239~~	~~253~~	~~05/31/17~~	~~12/29/2017~~
ZINC TRANSFER line 2 - COMG 26 (GP025)				
Soak Cleaner	197	215	12/01/11	
Electrocleaner	198	216	12/01/11	
~~Weak Muriatic Acid (Hydrochloric)~~	~~199~~	~~217~~	~~12/01/11~~	~~12/7/2019~~
Strong Muriatic Acid (Hydrochloric)	200	218	12/01/11	
~~Zinc Cyanide Plating~~	~~201~~	~~219~~	~~12/01/11~~	~~7/26/2019~~
Clear Chromate	202	220	12/01/11	
Zinc Generator	247	260	8/02/19	
~~Yellow Chromate~~	~~203~~	~~221~~	~~12/01/11~~	~~6/13/2019~~
Alkaline Non-Cyanide Zinc	NA	269	8/9/19	
Nitric Acid Bright Dip	NA	270	1/8/20	
Zinc Phosphate	NA	271	1/14/20	
BOILERS				
Boiler 1	098	1	08/01/95	
Boiler 2	099	2	08/01/95	
~~Paint Spray Booth~~	~~100~~	~~141~~	~~02/01/94~~	~~11/25/2019~~
Degreaser	131	22	11/01/96	
Parts Washer	NA	259	6/1/2018	
INSIGNIFICANT ACTIVITIES				
Q-Pex Copper Cleaner	132	NA	01/01/99	
Spent Chromate Tank	133	NA	01/01/99	
Cyanide Dragout	134	NA	01/01/99	
Hydrochloric Acid Waste Tank	136	NA	01/01/99	
Ammoniacal Acids Wastes	137	NA	01/01/99	
Nitric Acid Waste Tank	138	NA	01/01/99	
MISC				
~~Soak Cleaner~~	~~062~~	~~NA~~	~~11/01/95~~	~~05/10/07~~
~~Electrocleaner~~	~~063~~	~~NA~~	~~11/01/95~~	~~07/01/03~~
~~Hydrochloric Acid~~	~~064~~	~~NA~~	~~11/01/95~~	~~07/01/03~~
~~Hydrochloric Acid~~	~~065~~	~~NA~~	~~11/01/95~~	~~07/01/03~~
~~Zinc Chloride -~~	~~066~~	~~NA~~	~~11/01/95~~	~~07/01/03~~
~~Clear Chromate~~	~~067~~	~~NA~~	~~11/01/95~~	~~07/01/03~~
~~Muriatic Acid~~	~~118~~	~~NA~~	~~03/01/96~~	~~01/01/01~~
~~Nitric Rack Strip~~	~~119~~	~~NA~~	~~02/01/99~~	~~01/01/01~~

Co-Operative Plating Co
Process Flow Diagram



Attachment 2 – Subject Item Inventory and Facility Requirements

SI List

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Activity	Insignificant Air Emissions Activity	ACTV 3	Null	All IAs	
Agency Interest	Conventional Site	AISI 187	Null	Null	
Component Group	Air Component Group	COMG 1	GP001	Copper/Nickel/Chrome Line	
		COMG 2	GP002	Passivate Line	
		COMG 3	GP003	Zinc #1 Line	
		COMG 6	GP009	Surtec Line	
		COMG 8	GP016	Silver #3 Line	
		COMG 11	GP019	Electropolish Line	
		COMG 12	GP020	Cadmium Hand Line	
		COMG 14	GP022	Plating and Polishing Operations (NESHAP WWWWWW)	
		COMG 15	GP004	Black Oxide/Phosphate Line	
		COMG 16	GP005	Zinc Barrel Line	
		COMG 17	GP007	Electroless Nickel Line (Transfer Line)	
		COMG 18	GP008	Cadmium Transfer Rack Line	
		COMG 19	GP010	Zinc Transfer Line 1	
		COMG 20	GP011	Anodize Line	
		COMG 21	GP012	Electroless Nickel Hand Line	
		COMG 22	GP014	Electroless Nickel on Aluminum Line	
		COMG 23	GP018	Strip Line	
		COMG 25	Null	Hardcoat Line	
		COMG 26	Null	Zinc Transfer Line 2	
		COMG 27	Null	Plating operations not subject to NESHAP WWWWWW	
Equipment	Acid Treatment Equipment	EQUI 4	EU070	Muriatic Acid (Hydrochloric) - Electroless Nickel Transfer	
		EQUI 6	EU075	Weak Nitric Acid - Cad Line	
		EQUI 13	EU105	Water White Nitric - Electroless Nickel Hand Line	
		EQUI 30	EU007	Muriatic Acid (Hydrochloric) - Copper/Nickel/Chrome Line	
		EQUI 34	EU018	Nitric Acid - Electroless Nickel Hand Line	
		EQUI 38	EU032	Hydrochloric Acid - Oxide Line	
		EQUI 48	EU189	Chromic Acid Strip - Strip Line	
		EQUI 50	EU013	Muriatic Acid (Hydrochloric) - Passivate Line	
		EQUI 51	EU019	Hydrochloric Acid - Electroless Nickel Hand Line	
		EQUI 54	EU023	Hydrochloric Acid - Zinc 1	
		EQUI 57	EU036	Muriatic Acid (Weak) - Zinc Barrel Line	
		EQUI 58	EU037	Muriatic Acid (Strong) - Zinc Barrel Line	
		EQUI 62	EU074	Hydrochloric Acid - Cad Line	
		EQUI 65	EU081	Nitric Acid - Surtec/Hardcoat Line	
		EQUI 67	EU085	Muriatic Acid (Hydrochloric) - Electropolish Line	
		EQUI 68	EU089	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line	
		EQUI 69	EU090	Weak Muriatic Acid (Hydrochloric) - Zinc Transfer Line	
		EQUI 76	EU103	Desmutter - Electroless Nickel Hand Line	
		EQUI 96	EU010	Nitric Rack Strip - Copper/Nickel/Chrome Line	
		EQUI 115	EU163	Hot Sulfuric Acid - Cad Line	
		EQUI 123	EU171	Desmutter - Eless Aluminum	
		EQUI 124	EU172	Desmutter - Eless Aluminum	
		EQUI 127	EU175	Nitric Acid for Brass - Eless Aluminum	
		EQUI 142	EU014	Nitric Acid - Passivate Line	
		EQUI 143	EU015	Passivate - Passivate Line	
		EQUI 150	EU077	Deoxidizer - Surtec/Hardcoat Line	
		EQUI 153	EU094	Deoxidizer - Anodize Line	
		EQUI 183	EU076	Etch - Iridite Line	
		EQUI 184	EU080	Nickel Acetate Seal - Surtec/Hardcoat Line	
		EQUI 187	EU093	Etch - Anodize Line	
		EQUI 189	EU102	Etch - Electroless Nickel Hand Line	
		EQUI 190	EU112	Etch - Eless Aluminum	
		EQUI 191	EU126	Sulfuric - Silver #3	
		EQUI 199	EU169	Nitric Acid (Silver Rack Strip) - Electroless Nickel Hand Line	
		EQUI 201	EU181	Bright Acid Tin - Silver #3	
		EQUI 205	EU028	Cyanide Nickel Strip - Strip Line	
		EQUI 208	EU097	Anodize Tank - Anodize Line	
		EQUI 209	EU120	Nitric Rack Strip Large - Silver #3	
		EQUI 212	Null	Deoxidizer - Iridite Line	
		EQUI 213	Null	Etch - Surtec/Hardcoat Line	
		EQUI 218	Null	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line 2	
		EQUI 226	Null	Weak Hydrochloric Acid - Zinc 1	
		EQUI 233	Null	Brass Strip - Copper/Nickel/Chrome Line	
		EQUI 234	Null	Citric Acid - Passivate Line	
		EQUI 236	Null	Weak Hydrochloric Acid - Zinc 1	
		EQUI 239	Null	Chromic Acid Dip - Oxide Line	
		EQUI 250	Null	Nitric Acid - Eless Aluminum	
		EQUI 252	Null	Nitric Acid Strip For Tin - Silver #3	
		EQUI 261	Null	Silver Strip - Silver 3	
		EQUI 262	Null	Acid Salt - Silver 3	
		EQUI 267	Null	Acid Salt - EN Hand Line	
		EQUI 272	Null	Acid Treatment Equipment	
	Boiler	EQUI 1	EU098	Boiler #1	
		EQUI 2	EU099	Boiler #2	
	Cleaning Equipment	EQUI 3	EU069	Soak Cleaner - Electroless Nickel Transfer	
		EQUI 10	EU087	Soak Cleaner - Zinc Transfer Line	
		EQUI 11	EU088	Electrocleaner - Zinc Transfer Line	
		EQUI 19	EU125	Electrocleaner - Silver #3	
		EQUI 20	EU127	Q - Pex Copper Cleaner - Silver #3	
		EQUI 28	EU005	Soak Cleaner - Copper/Nickel/Chrome Line	
		EQUI 29	EU006	Electro Cleaner - Copper/Nickel/Chrome Line	
		EQUI 33	EU017	Electrocleaner - Electroless Nickel Hand Line	
		EQUI 37	EU030	Soak Cleaner - Oxide Line	
		EQUI 40	EU035	Electrocleaner - Zinc Barrel Line	
		EQUI 47	EU068	Electrocleaner - Electroless Nickel Transfer	
		EQUI 53	EU022	Electro Cleaner - Zinc 1	
		EQUI 56	EU034	Soak Cleaner - Zinc Barrel Line	
		EQUI 60	EU072	Soak Cleaner - Cad Line	
		EQUI 61	EU073	Electro Cleaner - Cad Line	
		EQUI 74	EU101	Soak Cleaner - Electroless Nickel Hand Line	

SI List

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Cleaning Equipment	EQUI 81	EU111	Soak Cleaner - Eless Aluminum	
		EQUI 91	EU135	Soak Cleaner - Surtec/Hardcoat Line	
		EQUI 97	EU011	Soak Cleaner - Passivate Line	
		EQUI 98	EU012	Electro Cleaner - Passivate Line	
		EQUI 118	EU166	Soak Cleaner - Anodize Line	
		EQUI 131	EU179	Soak Cleaner - Silver #3	
		EQUI 151	EU086	Electrocleaner - Electropolish Line	
		EQUI 214	Null	Soak Cleaner - Iridite Line	
		EQUI 215	Null	Soak Cleaner - Zinc Transfer Line 2	
		EQUI 216	Null	Electrocleaner - Zinc Transfer Line 2	
		EQUI 231	Null	Electrocleaner for Brass - Copper/Nickel/Chrome Line	
		EQUI 242	Null	Electrocleaner For Brass - Zinc Barrel Line	
		EQUI 243	Null	Soak Cleaner For Brass - Zinc Barrel Line	
		EQUI 264	Null	Soak Cleaner - Zinc Hand Line	
		EQUI 265	Null	Soak Cleaner - Zinc Hand Line	
		EQUI 266	Null	Copper Cleaner - EN Hand Line	
		EQUI 268	Null	Electrocleaner for Brass - EN Hand Line	
	Degreaser	EQUI 22	EU131	Degreaser (modified)	
		EQUI 259	Null	Parts Washer	
	Electroplating Equipment	EQUI 5	EU071	Electroless Nickel North Bay - Electroless Nickel Transfer	
		EQUI 9	EU079	Yellow Iridite - Iridite Line	
		EQUI 12	EU104	Zincate - Electroless Nickel Hand Line	
		EQUI 15	EU113	Zincate - Eless Aluminum	
		EQUI 21	EU129	Silver Plate - Silver #3	
		EQUI 32	EU009	TriChrome - Copper/Nickel/Chrome Line	
		EQUI 39	EU033	Zinc Phosphate - Oxide Line	
		EQUI 72	EU095	Nickel Acetate Seal - Anodize Line	
		EQUI 77	EU106	Electroless Nickel - West Bay - Electroless Nickel Hand Line	
		EQUI 78	EU107	Electroless Nickel - East Bay - Electroless Nickel Hand Line	
		EQUI 83	EU115	Electroless Nickel South Bay - Eless Aluminum	
		EQUI 84	EU116	Electroless Nickel North Bay - Eless Aluminum	
		EQUI 89	EU128	Silver Strike - Silver #3	
		EQUI 92	EU191	North Nickel - Copper/Nickel/Chrome Line	
		EQUI 93	EU192	South Nickel - Copper/Nickel/Chrome Line	
		EQUI 94	EU193	Nickel Barrel - Copper/Nickel/Chrome Line	
		EQUI 99	EU147	Electroless Nickel Mid Phos - Electroless Nickel Hand Line	
		EQUI 103	EU151	Zinc-Nickel - Zinc 1	
		EQUI 105	EU153	Seal - Zinc Barrel Line	
		EQUI 106	EU154	Zinc-Nickel - Zinc Barrel Line	
		EQUI 109	EU157	Cad Cyanide with brighteners - Cad Line	
		EQUI 110	EU158	Cad Cyanide no brighteners - Cad Line	
		EQUI 116	EU164	Nickel Strike - Cad Line	
		EQUI 126	EU174	Water White Nitric - Eless Aluminum	
		EQUI 132	EU180	Electroless Nickel - Silver #3	
		EQUI 138	EU186	Cadmium Cyanide - Cad Hand Line	
		EQUI 145	EU024	Zinc Cyanide - Zinc 1	
		EQUI 149	EU039	Zinc Chloride - Zinc Barrel Line	
		EQUI 178	EU114	Weak Desmutter - Eless Aluminum	
		EQUI 179	EU008	Copper Plate Bath - Copper/Nickel/Chrome Line	
		EQUI 180	EU020	Copper Plate - Electroless Nickel Hand Line	
		EQUI 188	EU096	Nitric Acid - Anodize Line	
		EQUI 206	EU031	Black Oxide - Oxide Line	
		EQUI 207	EU091	Zinc Cyanide Plating Tank- Zinc Transfer Line	
		EQUI 224	Null	Nickel Strike - Copper/Nickel/Chrome Line	
		EQUI 230	Null	Nickel Strike - Electroless Nickel Hand Line	
		EQUI 232	Null	Black Pearl Electroblack - Copper/Nickel/Chrome Line	
		EQUI 255	Null	Acid Copper - Silver #3	
		EQUI 256	Null	Anti-Tarnish for Copper - Silver #3	
		EQUI 258	Null	Electroless Nickel Transfer Bath - South	
		EQUI 263	Null	Zinc Nickel East - Zinc Hand Line	
		EQUI 269	Null	Alkaline Non-Cyanide Zinc - Zinc Transfer Line 2	
	Other Emission Unit	EQUI 114	EU162	Olive Drab Chromate - Cad Hand Line	
		EQUI 181	EU025	Clear Chromate - Zinc 1	
		EQUI 182	EU038	Clear Chromate - Zinc Barrel Line	
		EQUI 186	EU092	Clear Chromate - Zinc Transfer Line	
		EQUI 192	EU130	Hard Coat - Surtec/Hardcoat Line	
		EQUI 194	EU152	Chromate for Zinc-Nickel - Zinc 1	
		EQUI 195	EU156	Chromate for Zinc-Nickel - Zinc Barrel Line	
		EQUI 196	EU159	Clear Chromate - Cad Line	
		EQUI 197	EU160	Yellow Chromate - Cad Line	
		EQUI 198	EU167	Dichromate Seal - Anodize Line	
		EQUI 200	EU170	Chromate Post Dip - Electroless Nickel Hand Line	
		EQUI 202	EU187	Clear Chromate - Cad Hand Line	
		EQUI 203	EU188	Yellow Chromate - Cad Hand Line	
		EQUI 204	EU026	Black Chromate - Zinc 1	
		EQUI 220	Null	Clear Chromate - Zinc Transfer Line 2	
		EQUI 222	Null	Surtec - Surtec/Hardcoat Line	
		EQUI 225	Null	Yellow Chromate-Hex - Zinc 1	
		EQUI 227	Null	Zinc Phosphate for Zinc Plated Parts - Oxide Line	
		EQUI 228	Null	Chromate Post Dip - Silver #3	
		EQUI 229	Null	Yellow Chromate - Zinc Transfer Line	
		EQUI 235	Null	Yellow Chromate - Zinc 1	
		EQUI 238	Null	Chromate Seal - Zinc 1	
		EQUI 240	Null	Oil For Phosphate - Oxide Line	
		EQUI 241	Null	Phosphate Conditioner - Oxide Line	
		EQUI 245	Null	Yellow Chromate (Hex) For Zinc - Zinc Barrel Line	
		EQUI 246	Null	Clear Chromate For Zinc-Nickel - Zinc Barrel Line	
		EQUI 247	Null	Electroless Nickel South Bay - Electroless Nickel Transfer	
		EQUI 248	Null	Chromate - Electroless Nickel Transfer	
		EQUI 251	Null	Chromate Post Drip - Eless Aluminum	
		EQUI 253	Null	Nickel Strip - Strip Line	
		EQUI 260	Null	Zinc Generator - Zinc Transfer Line 2	

SI List

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Other Emission Unit	EQUI 270	Null	Nitric Acid Bright Dip - Zinc Transfer Line 2	
		EQUI 271	Null	Zinc Phosphate - Zinc Transfer Line 2	
Structure	Building	STRU 23	Null	Main Building	
		STRU 24	Null	Office/Welding Maintenance	
	Stack/Vent	STRU 2	SV015	Boiler	
		STRU 5	SV014	Scrubber Exhaust	
		STRU 25	Null	Building Exhaust Fan	
Total Facility	Air Quality Total Facility	TFAC 1	05300499	Co-operative Plating Co	
Treatment	001-Wet Scrubber - High Efficiency	TREA 2	CE001	Wet Scrubber - High Efficiency	

Insignificant Activities

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

SI Category	SI Type	Status Description	Sub Attribute Description	
Activity	Insignificant Air Emissions Activity	Active / Existing	Minn. R. 7007.1300, subp. 3(B)(1)	
			Minn. R. 7007.1300, subp. 3(E)	
			Minn. R. 7007.1300, subp. 3(F)	

Emission Units 1

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Boiler	EQUI 1	EU098	Boiler #1	Kewanee Manufacturing Co Inc	M505-GO	5.05	million British thermal units/hours	Heat	Not coal burning	N	Nu	
	EQUI 2	EU099	Boiler #2	Kewanee Manufacturing Co Inc	M505-GO	5.05	million British thermal units/hours	Heat	Not coal burning	N	Nu	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Acid Treatment Equipment	EQUI 4	EU070	Muriatic Acid (Hydrochloric) - Electroless Nickel Tr..	None	None	470	gallons/each	Acid	6/1/1985	6/1/1985	Null	
	EQUI 6	EU075	Weak Nitric Acid - Cad Line	None	None	200	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 13	EU105	Water White Nitric - Electroless Nickel Hand Line	None	None	80	gallons/each	Acid	1/1/1999	1/1/1999	Null	
	EQUI 30	EU007	Muriatic Acid (Hydrochloric) - Copper/Nickel/Chro..	None	None	800	gallons/each	Acid	8/1/1991	8/1/1991	Null	
	EQUI 34	EU018	Nitric Acid - Electroless Nickel Hand Line	None	None	60	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 38	EU032	Hydrochloric Acid - Oxide Line	None	None	150	gallons/each	Acid	1/1/1975	1/1/1975	Null	
	EQUI 48	EU189	Chromic Acid Strip - Strip Line	None	None	110	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 50	EU013	Muriatic Acid (Hydrochloric) - Passivate Line	None	None	200	gallons/each	Acid	8/1/1992	8/1/1992	Null	
	EQUI 51	EU019	Hydrochloric Acid - Electroless Nickel Hand Line	None	None	70	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 54	EU023	Hydrochloric Acid - Zinc 1	None	None	110	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 57	EU036	Muriatic Acid (Weak) - Zinc Barrel Line	None	None	105	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 58	EU037	Muriatic Acid (Strong) - Zinc Barrel Line	None	None	105	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 62	EU074	Hydrochloric Acid - Cad Line	None	None	200	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 65	EU081	Nitric Acid - Surtec/Hardcoat Line	None	None	200	gallons/each	Acid	6/1/1980	6/1/1980	Null	
	EQUI 67	EU085	Muriatic Acid (Hydrochloric) - Electropolish Line	None	None	495	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 68	EU089	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line	None	None	800	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 69	EU090	Weak Muriatic Acid (Hydrochloric) - Zinc Transfer Line	None	None	800	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 76	EU103	Desmutter - Electroless Nickel Hand Line	None	None	90	gallons/each	Acid	1/1/1999	1/1/1999	Null	
	EQUI 96	EU010	Nitric Rack Strip - Copper/Nickel/ Chrome Line	None	None	95	gallons/each	Acid	8/1/1991	8/1/1991	Null	
	EQUI 115	EU163	Hot Sulfuric Acid - Cad Line	None	None	19	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 123	EU171	Desmutter - Eless Aluminum	None	None	65	gallons/each	Acid	2/1/1999	2/1/1999	Null	
	EQUI 124	EU172	Desmutter - Eless Aluminum	None	None	65	gallons/each	Acid	2/1/1999	2/1/1999	Null	
	EQUI 127	EU175	Nitric Acid for Brass - Eless Aluminum	None	None	55	gallons/each	Acid	2/1/1999	2/1/1999	Null	
	EQUI 142	EU014	Nitric Acid - Passivate Line	None	None	200	gallons/each	Acid	8/1/1992	8/1/1992	Null	
	EQUI 143	EU015	Passivate - Passivate Line	None	None	200	gallons/each	Acid	8/1/1992	8/1/1992	Null	
	EQUI 150	EU077	Deoxidizer - Surtec/Hardcoat Line	None	None	180	gallons/each	Acid	6/1/1980	6/1/1980	Null	
	EQUI 153	EU094	Deoxidizer - Anodize Line	None	None	690	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 183	EU076	Etch - Iridite Line	None	None	240	gallons/each	Acid	6/1/1980	6/1/1980	Null	
	EQUI 184	EU080	Nickel Acetate Seal - Surtec/Hardcoat Line	None	None	240	gallons/each	Acid	6/1/1980	6/1/1980	Null	
	EQUI 187	EU093	Etch - Anodize Line	None	None	750	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 189	EU102	Etch - Electroless Nickel Hand Line	None	None	80	gallons/each	Acid	1/1/1999	1/1/1999	Null	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Acid Treatment Equipment	EQUI 190	EU112	Etch - Eless Aluminum	None	None	290	gallons/each	Acid	2/1/1999	2/1/1999	Null	
	EQUI 191	EU126	Sulfuric - Silver #3	None	None	160	gallons/each	Acid	4/1/1999	4/1/1999	Null	
	EQUI 199	EU169	Nitric Acid (Silver Rack Strip) - Electroless Nickel Ha..	None	None	60	gallons/each	Acid	1/1/1999	1/1/1999	Null	
	EQUI 201	EU181	Bright Acid Tin - Silver #3	Indelco	None	185	gallons/each	Acid	12/10/2007	12/10/2007	Null	
	EQUI 205	EU028	Cyanide Nickel Strip - Strip Line	None	None	140	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 208	EU097	Anodize Tank - Anodize Line	None	None	1,950	gallons/each	Acid	1/1/1970	1/1/1970	Null	
	EQUI 209	EU120	Nitric Rack Strip Large - Silver #3	None	None	140	gallons/each	Acid	2/1/1999	2/1/1999	Null	
	EQUI 212	Null	Deoxidizer - Iridite Line	Indelco	None	215	gallons/each	Acid	11/23/2009	11/23/2009	Null	
	EQUI 213	Null	Etch - Surtec/Hardcoat Line	Indelco	None	240	gallons/each	Acid	11/23/2009	11/23/2009	Null	
	EQUI 218	Null	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line 2	Indelco	None	850	gallons/each	Acid	12/1/2011	12/1/2011	Null	
	EQUI 226	Null	Weak Hydrochloric Acid - Zinc 1	Indelco	None	80	gallons/each	Acid	5/13/2013	5/13/2013	Null	
	EQUI 233	Null	Brass Strip - Copper/ Nickel/Chrome Line	Indelco	None	60	gallons/each	Acid	11/19/1991	11/19/1991	Null	
	EQUI 234	Null	Citric Acid - Passivate Line	Indelco	None	65	gallons/each	Acid	3/21/2006	3/21/2006	Null	
	EQUI 236	Null	Weak Hydrochloric Acid - Zinc 1	Indelco	None	60	gallons/each	Acid	10/2/2014	10/2/2014	Null	
	EQUI 239	Null	Chromic Acid Dip - Oxide Line	Indelco	None	160	gallons/each	Acid	5/10/2017	5/10/2017	Null	
	EQUI 250	Null	Nitric Acid - Eless Aluminum	Indelco	None	80	gallons/each	Acid	3/6/2015	3/6/2015	Null	
	EQUI 252	Null	Nitric Acid Strip For Tin - Silver #3	Indelco	None	60	gallons/each	Acid	4/16/2014	4/16/2014	Null	
	EQUI 261	Null	Silver Strip - Silver 3	Indelco	None	58	gallons/each	Material	6/13/2018	6/13/2018	Null	
	EQUI 262	Null	Acid Salt - Silver 3	Cooperative	None	15	gallons/each	Material	9/1/2020	9/1/2020	Null	
	EQUI 267	Null	Acid Salt - EN Hand Line	Indelco	None	45	gallons/each	Material	7/22/2020	7/22/2020	Null	
	EQUI 272	Null	Acid Treatment Equipment	Indelco	None	150	gallons/each	Material	11/3/2020	11/3/2020	Null	
Cleaning Equipment	EQUI 3	EU069	Soak Cleaner - Electroless Nickel Transfer	None	None	560	gallons/yea..	Material	6/1/1985	6/1/1985	Null	
	EQUI 10	EU087	Soak Cleaner - Zinc Transfer Line	None	None	1,000	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 11	EU088	Electrocleaner - Zinc Transfer Line	None	None	1,050	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 19	EU125	Electrocleaner - Silver #3	none	None	210	gallons/each	Material	4/1/1999	4/1/1999	Null	
	EQUI 20	EU127	Q - Pex Copper Cleaner - Silver #3	None	None	160	gallons/each	Material	4/1/1999	4/1/1999	Null	
	EQUI 28	EU005	Soak Cleaner - Copper/ Nickel/Chrome Line	None	None	750	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 29	EU006	Electro Cleaner - Copper/Nickel/ Chrome Line	None	None	750	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 33	EU017	Electrocleaner - Electroless Nickel Hand Line	None	None	140	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 37	EU030	Soak Cleaner - Oxide Line	None	None	150	gallons/each	Material	1/1/1975	1/1/1975	Null	
	EQUI 40	EU035	Electrocleaner - Zinc Barrel Line	None	None	145	gallons/each	Material	1/1/1970	1/1/1970	Null	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Cleaning Equipment	EQUI 47	EU068	Electrocleaner - Electroless Nickel Transfer	None	None	560	gallons/each	Material	6/1/1985	6/1/1985	Null	
	EQUI 53	EU022	Electro Cleaner - Zinc 1	None	None	250	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 56	EU034	Soak Cleaner - Zinc Barrel Line	None	None	140	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 60	EU072	Soak Cleaner - Cad Line	None	None	350	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 61	EU073	Electro Cleaner - Cad Line	None	None	350	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 74	EU101	Soak Cleaner - Electroless Nickel Hand Line	None	None	80	gallons/each	Material	1/1/1999	1/1/1999	Null	
	EQUI 81	EU111	Soak Cleaner - Eless Aluminum	None	None	350	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 91	EU135	Soak Cleaner - Surtec/Hardcoat Line	None	None	240	gallons/each	Material	1/4/1999	1/4/1999	Null	
	EQUI 97	EU011	Soak Cleaner - Passivate Line	None	None	200	gallons/each	Material	8/1/1992	8/1/1992	Null	
	EQUI 98	EU012	Electro Cleaner - Passivate Line	None	None	240	gallons/each	Material	8/1/1992	8/1/1992	Null	
	EQUI 118	EU166	Soak Cleaner - Anodize Line	None	None	750	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 131	EU179	Soak Cleaner - Silver #3	Indelco	None	160	gallons/each	Material	11/29/2007	11/29/2007	Null	
	EQUI 151	EU086	Electrocleaner - Electropolish Line	None	None	580	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 214	Null	Soak Cleaner - Iridite Line	Indelco	None	240	gallons/each	Material	11/23/2009	11/23/2009	Null	
	EQUI 215	Null	Soak Cleaner - Zinc Transfer Line 2	Indelco	None	1,060	gallons/each	Material	12/1/2011	12/1/2011	Null	
	EQUI 216	Null	Electrocleaner - Zinc Transfer Line 2	Indelco	None	1,060	gallons/each	Material	12/1/2011	12/1/2011	Null	
	EQUI 231	Null	Electrocleaner for Brass - Copper/Nickel/ Chrome Line	Indelco	None	530	gallons/each	Material	6/9/2014	6/9/2014	Null	
	EQUI 242	Null	Electrocleaner For Brass - Zinc Barrel Line	Indelco	None	135	gallons/each	Material	4/21/2017	4/21/2017	Null	
	EQUI 243	Null	Soak Cleaner For Brass - Zinc Barrel Line	Indelco	None	135	gallons/each	Material	4/21/2017	4/21/2017	Null	
	EQUI 264	Null	Soak Cleaner - Zinc Hand Line	Indelco	None	60	gallons/each	Material	9/11/2020	9/11/2020	Null	
	EQUI 265	Null	Soak Cleaner - Zinc Hand Line	Indelco	None	185	gallons/each	Material	1/16/2021	1/16/2021	Null	
	EQUI 266	Null	Copper Cleaner - EN Hand Line	Indelco	None	45	gallons/each	Material	10/27/2020	10/27/2020	Null	
	EQUI 268	Null	Electrocleaner for Brass - EN Hand Line	BSI	None	43	gallons/each	Material	12/14/2020	12/14/2020	Null	
Degreaser	EQUI 22	EU131	Degreaser (modified)	None	None	9	tons/years	Solvents	11/1/1996	11/1/1996	Null	
	EQUI 259	Null	Parts Washer	JUSTRITE	27110	11	gallons/each	Solvents	6/1/2019	TBD	Null	
Electroplating Equipment	EQUI 5	EU071	Electroless Nickel North Bay - Electroless Nickel Tr..	None	None	475	gallons/each	Material	6/1/1985	6/1/1985	Null	
	EQUI 9	EU079	Yellow Iridite - Iridite Line	None	None	180	gallons/each	Material	6/1/1980	6/1/1980	Null	
	EQUI 12	EU104	Zincate - Electroless Nickel Hand Line	None	None	65	gallons/each	Material	1/1/1999	1/1/1999	Null	
	EQUI 15	EU113	Zincate - Eless Aluminum	None	None	300	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 21	EU129	Silver Plate - Silver #3	None	None	185	gallons/each	Material	4/1/1999	4/1/1999	Null	
	EQUI 32	EU009	TriChrome - Copper/ Nickel/Chrome Line	None	None	900	gallons/each	Material	8/1/1991	8/1/1991	Null	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Electroplating Equipment	EQUI 39	EU033	Zinc Phosphate - Oxide Line	none	none	150	gallons/each	Material	1/1/1975	1/1/1975	Null	
	EQUI 72	EU095	Nickel Acetate Seal - Anodize Line	None	None	750	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 77	EU106	Electroless Nickel - West Bay - Electroless Nickel Hand Line	None	None	135	gallons/each	Material	1/1/1999	1/1/1999	Null	
	EQUI 78	EU107	Electroless Nickel - East Bay - Electroless Nickel Hand Line	None	None	135	gallons/each	Material	1/1/1999	1/1/1999	Null	
	EQUI 83	EU115	Electroless Nickel South Bay - Eless Aluminum	None	None	315	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 84	EU116	Electroless Nickel North Bay - Eless Aluminum	None	None	315	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 89	EU128	Silver Strike - Silver #3	None	None	165	gallons/each	Material	4/1/1999	4/1/1999	Null	
	EQUI 92	EU191	North Nickel - Copper/ Nickel/Chrome Line	None	None	1,000	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 93	EU192	South Nickel - Copper/ Nickel/Chrome Line	None	None	1,000	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 94	EU193	Nickel Barrel - Copper/ Nickel/Chrome Line	None	None	225	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 99	EU147	Electroless Nickel Mid Phos - Electroless Nickel Hand Line	Indelco	None	135	gallons/each	Material	8/1/2008	8/1/2008	Null	
	EQUI 103	EU151	Zinc-Nickel - Zinc 1	Indelco	None	445	gallons/each	Material	8/1/2007	8/1/2007	Null	
	EQUI 105	EU153	Seal - Zinc Barrel Line	Indelco	None	100	gallons/each	Material	3/30/2006	3/30/2006	Null	
	EQUI 106	EU154	Zinc-Nickel - Zinc Barrel Line	Indelco	None	325	gallons/each	Material	4/1/2008	4/1/2008	Null	
	EQUI 109	EU157	Cad Cyanide with brighteners - Cad Line	none	None	450	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 110	EU158	Cad Cyanide no brighteners - Cad Line	None	None	420	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 116	EU164	Nickel Strike - Cad Line	None	None	240	gallons/each	Material	8/3/2005	8/3/2005	Null	
	EQUI 126	EU174	Water White Nitric - Eless Aluminum	None	None	250	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 132	EU180	Electroless Nickel - Silver #3	None	None	112	gallons/each	Material	9/12/2005	9/12/2005	Null	
	EQUI 138	EU186	Cadmium Cyanide - Cad Hand Line	Indelco	None	320	gallons/each	Material	5/21/2007	5/21/2007	Null	
	EQUI 145	EU024	Zinc Cyanide - Zinc 1	None	None	350	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 149	EU039	Zinc Chloride - Zinc Barrel Line	None	None	450	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 178	EU114	Weak Desmutter - Eless Aluminum	None	None	250	gallons/each	Material	2/1/1999	2/1/1999	Null	
	EQUI 179	EU008	Copper Plate Bath - Copper/Nickel/ Chrome Line	None	None	830	gallons/each	Material	8/1/1991	8/1/1991	Null	
	EQUI 180	EU020	Copper Plate - Electroless Nickel Hand Line	None	None	140	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 188	EU096	Nitric Acid - Anodize Line	None	None	690	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 206	EU031	Black Oxide - Oxide Line	None	None	155	gallons/each	Material	1/1/1975	1/1/1975	Null	
	EQUI 207	EU091	Zinc Cyanide Plating Tank- Zinc Transfer Line	None	None	2,100	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 224	Null	Nickel Strike - Copper/ Nickel/Chrome Line	Indelco	None	150	gallons/each	Material	4/4/1989	4/4/1989	Null	
	EQUI 230	Null	Nickel Strike - Electroless Nickel Hand Line	Indelco	None	80	gallons/each	Material	4/1/2010	4/1/2010	Null	
	EQUI 232	Null	Black Pearl Electroblack - Copper/ Nickel/Chrome Line	Indelco	None	620	gallons/each	Material	9/16/2016	9/16/2016	Null	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Electroplating Equipment	EQUI 255	Null	Acid Copper - Silver #3	Indelco	NA	160	gallons/each	Material	11/30/2017	11/30/2017	Null	
	EQUI 256	Null	Anti-Tarnish for Copper - Silver #3	Indelco	NA	58	gallons/each	Material	1/30/2018	1/30/2018	Null	
	EQUI 258	Null	Electroless Nickel Transfer Bath - South	Indelco	None	445	gallons/each	Material	10/10/2018	10/10/2018	Null	
	EQUI 263	Null	Zinc Nickel East - Zinc Hand Line	Indelco	None	335	gallons/each	Material	8/10/2020	8/10/2020	Null	
	EQUI 269	Null	Alkaline Non-Cyanide Zinc - Zinc Transfer Line 2	Indelco	None	2,260	gallons/each	Material	8/8/2019	8/8/2019	Null	
Other Emission Unit	EQUI 114	EU162	Olive Drab Chromate - Cad Hand Line	Indelco	None	60	gallons/each	Material	5/21/2007	5/21/2007	Null	
	EQUI 181	EU025	Clear Chromate - Zinc 1	None	None	110	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 182	EU038	Clear Chromate - Zinc Barrel Line	None	None	110	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 186	EU092	Clear Chromate - Zinc Transfer Line	None	None	800	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 192	EU130	Hard Coat - Surtec/Hardcoat Line	None	None	425	gallons/each	Material	6/1/1997	6/1/1997	Null	
	EQUI 194	EU152	Chromate for Zinc-Nickel - Zinc 1	Indelco	None	80	gallons/each	Material	8/1/2008	8/1/2008	Null	
	EQUI 195	EU156	Chromate for Zinc-Nickel - Zinc Barrel Line	Indelco	None	115	gallons/each	Material	6/10/2008	6/10/2008	Null	
	EQUI 196	EU159	Clear Chromate - Cad Line	None	None	200	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 197	EU160	Yellow Chromate - Cad Line	None	None	200	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 198	EU167	Dichromate Seal - Anodize Line	None	None	95	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 200	EU170	Chromate Post Dip - Electroless Nickel Hand Line	Indelco	None	75	gallons/each	Material	8/4/2006	8/4/2006	Null	
	EQUI 202	EU187	Clear Chromate - Cad Hand Line	Indelco	None	80	gallons/each	Material	5/21/2007	5/21/2007	Null	
	EQUI 203	EU188	Yellow Chromate - Cad Hand Line	Indelco	None	80	gallons/each	Material	5/21/2007	5/21/2007	Null	
	EQUI 204	EU026	Black Chromate - Zinc 1	None	None	110	gallons/each	Material	1/1/1970	1/1/1970	Null	
	EQUI 220	Null	Clear Chromate - Zinc Transfer Line 2	Indelco	None	850	gallons/each	Material	12/1/2011	12/1/2011	Null	
	EQUI 222	Null	Surtec - Surtec/Hardcoat Line	Indelco	None	220	gallons/each	Material	11/23/2009	11/23/2009	Null	
	EQUI 225	Null	Yellow Chromate-Hex - Zinc 1	Indelco	None	110	gallons/each	Material	1/7/2010	1/7/2010	Null	
	EQUI 227	Null	Zinc Phosphate for Zinc Plated Parts - Oxide Line	Indelco	None	60	gallons/each	Material	12/12/2012	12/12/2012	Null	
	EQUI 228	Null	Chromate Post Dip - Silver #3	Indelco	None	80	gallons/each	Material	6/7/2011	6/7/2011	Null	
	EQUI 229	Null	Yellow Chromate - Zinc Transfer Line	Indelco	None	800	gallons/each	Material	6/30/1989	6/30/1989	Null	
	EQUI 235	Null	Yellow Chromate - Zinc 1	Indelco	None	30	gallons/each	Material	9/15/2016	9/15/2016	Null	
	EQUI 238	Null	Chromate Seal - Zinc 1	Indelco	None	70	gallons/each	Material	8/10/2016	8/10/2016	Null	
	EQUI 240	Null	Oil For Phosphate - Oxide Line	Indelco	None	80	gallons/each	Material	8/30/2016	8/30/2016	Null	
	EQUI 241	Null	Phosphate Conditioner - Oxide Line	Indelco	None	80	gallons/each	Material	8/25/2003	8/25/2003	Null	
	EQUI 245	Null	Yellow Chromate (Hex) For Zinc - Zinc Barrel Line	Indelco	None	115	gallons/each	Material	8/15/2001	8/15/2001	Null	
	EQUI 246	Null	Clear Chromate For Zinc-Nickel - Zinc Barrel Line	Indelco	None	115	gallons/each	Material	6/10/2008	6/10/2008	Null	

Emission Units 3

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Other Emission Unit	EQUI 247	Null	Electroless Nickel South Bay - Electroless Nickel Tr..	Indelco	None	475	gallons/each	Material	8/23/2007	8/23/2007	Null	
	EQUI 248	Null	Chromate - Electroless Nickel Transfer	Indelco	None	470	gallons/each	Material	2/13/1992	2/13/1992	Null	
	EQUI 251	Null	Chromate Post Drip - Eless Aluminum	Indelco	None	300	gallons/each	Material	5/16/2000	5/16/2000	Null	
	EQUI 253	Null	Nickel Strip - Strip Line	Indelco	None	20	gallons/each	Material	6/10/2015	6/10/2015	Null	
	EQUI 260	Null	Zinc Generator - Zinc Transfer Line 2	Indelco	None	675	gallons/each	Material	8/2/2019	8/2/2019	Null	
	EQUI 270	Null	Nitric Acid Bright Dip - Zinc Transfer Line 2	Indelco	None	850	gallons/each	Material	1/8/2020	1/8/2020	Null	
	EQUI 271	Null	Zinc Phosphate - Zinc Transfer Line 2	Indelco	None	410	gallons/each	Material	1/14/2020	1/14/2020	Null	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 1	GP001	Copper/Nickel/Chrome Line	EQUI 28	
			EQUI 29	
			EQUI 30	
			EQUI 32	
			EQUI 92	
			EQUI 93	
			EQUI 94	
			EQUI 96	
			EQUI 179	
			EQUI 224	
			EQUI 231	
			EQUI 232	
			EQUI 233	
COMG 2	GP002	Passivate Line	EQUI 50	
			EQUI 97	
			EQUI 98	
			EQUI 142	
			EQUI 143	
			EQUI 234	
COMG 3	GP003	Zinc #1 Line	EQUI 53	
			EQUI 54	
			EQUI 103	
			EQUI 145	
			EQUI 181	
			EQUI 194	
			EQUI 204	
			EQUI 225	
			EQUI 226	
			EQUI 235	
			EQUI 236	
			EQUI 238	
			EQUI 263	
			EQUI 264	
			EQUI 265	
COMG 6	GP009	Surtec Line	EQUI 183	
			EQUI 212	
			EQUI 214	
			EQUI 222	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 8	GP016	Silver #3 Line	EQUI 19	
			EQUI 20	
			EQUI 21	
			EQUI 89	
			EQUI 131	
			EQUI 132	
			EQUI 191	
			EQUI 201	
			EQUI 209	
			EQUI 228	
			EQUI 252	
			EQUI 255	
			EQUI 256	
			EQUI 261	
			EQUI 262	
COMG 11	GP019	Electropolish Line	EQUI 67	
			EQUI 151	
			EQUI 272	
COMG 12	GP020	Cadmium Hand Line	EQUI 114	
			EQUI 138	
			EQUI 202	
			EQUI 203	
COMG 14	GP022	Plating and Polishing Operations (NESHAP WWWWWW)	EQUI 5	
			EQUI 9	
			EQUI 48	
			EQUI 72	
			EQUI 77	
			EQUI 78	
			EQUI 83	
			EQUI 84	
			EQUI 92	
			EQUI 93	
			EQUI 94	
			EQUI 99	
			EQUI 103	
			EQUI 106	
			EQUI 109	
			EQUI 110	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 14	GP022	Plating and Polishing Operations (NESHAP WWWWWW)	EQUI 114	
			EQUI 116	
			EQUI 132	
			EQUI 138	
			EQUI 143	
			EQUI 181	
			EQUI 182	
			EQUI 184	
			EQUI 186	
			EQUI 194	
			EQUI 195	
			EQUI 196	
			EQUI 197	
			EQUI 198	
			EQUI 200	
			EQUI 202	
			EQUI 203	
			EQUI 204	
			EQUI 220	
			EQUI 224	
			EQUI 225	
			EQUI 228	
			EQUI 229	
			EQUI 230	
			EQUI 235	
			EQUI 238	
			EQUI 239	
			EQUI 245	
			EQUI 246	
			EQUI 247	
			EQUI 248	
			EQUI 251	
			EQUI 258	
			EQUI 263	
COMG 15	GP004	Black Oxide/Phosphate Line	EQUI 37	
			EQUI 38	
			EQUI 39	
			EQUI 206	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 15	GP004	Black Oxide/Phosphate Line	EQUI 227	
			EQUI 239	
			EQUI 240	
			EQUI 241	
COMG 16	GP005	Zinc Barrel Line	EQUI 40	
			EQUI 56	
			EQUI 57	
			EQUI 58	
			EQUI 105	
			EQUI 106	
			EQUI 149	
			EQUI 182	
			EQUI 195	
			EQUI 242	
			EQUI 243	
			EQUI 245	
			EQUI 246	
COMG 17	GP007	Electroless Nickel Line (Transfer Line)	EQUI 3	
			EQUI 4	
			EQUI 5	
			EQUI 47	
			EQUI 247	
			EQUI 248	
			EQUI 258	
COMG 18	GP008	Cadmium Transfer Rack Line	EQUI 6	
			EQUI 60	
			EQUI 61	
			EQUI 62	
			EQUI 109	
			EQUI 110	
			EQUI 115	
			EQUI 116	
			EQUI 196	
			EQUI 197	
COMG 19	GP010	Zinc Transfer Line 1	EQUI 10	
			EQUI 11	
			EQUI 68	
			EQUI 69	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 19	GP010	Zinc Transfer Line 1	EQUI 186	
			EQUI 207	
			EQUI 229	
COMG 20	GP011	Anodize Line	EQUI 72	
			EQUI 118	
			EQUI 153	
			EQUI 187	
			EQUI 188	
			EQUI 198	
			EQUI 208	
COMG 21	GP012	Electroless Nickel Hand Line	EQUI 12	
			EQUI 13	
			EQUI 33	
			EQUI 34	
			EQUI 51	
			EQUI 74	
			EQUI 76	
			EQUI 77	
			EQUI 78	
			EQUI 99	
			EQUI 180	
			EQUI 189	
			EQUI 199	
			EQUI 200	
			EQUI 230	
			EQUI 266	
			EQUI 267	
			EQUI 268	
COMG 22	GP014	Electroless Nickel on Aluminum Line	EQUI 15	
			EQUI 81	
			EQUI 83	
			EQUI 84	
			EQUI 123	
			EQUI 124	
			EQUI 126	
			EQUI 127	
			EQUI 178	
			EQUI 190	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 22	GP014	Electroless Nickel on Aluminum Line	EQUI 250	
			EQUI 251	
COMG 23	GP018	Strip Line	EQUI 48	
			EQUI 205	
			EQUI 253	
COMG 25	Null	Hardcoat Line	EQUI 9	
			EQUI 65	
			EQUI 91	
			EQUI 150	
			EQUI 184	
			EQUI 192	
			EQUI 213	
COMG 26	Null	Zinc Transfer Line 2	EQUI 215	
			EQUI 216	
			EQUI 218	
			EQUI 220	
			EQUI 260	
			EQUI 269	
			EQUI 270	
			EQUI 271	
COMG 27	Null	Plating operations not subject to NESHAP WWWWWW	EQUI 3	
			EQUI 4	
			EQUI 6	
			EQUI 10	
			EQUI 11	
			EQUI 12	
			EQUI 13	
			EQUI 15	
			EQUI 19	
			EQUI 20	
			EQUI 21	
			EQUI 28	
			EQUI 29	
			EQUI 30	
			EQUI 32	
			EQUI 33	
			EQUI 34	
			EQUI 37	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 27	Null	Plating operations not subject to NESHAP WWWWWW	EQUI 38	
			EQUI 39	
			EQUI 40	
			EQUI 47	
			EQUI 50	
			EQUI 51	
			EQUI 53	
			EQUI 54	
			EQUI 56	
			EQUI 57	
			EQUI 58	
			EQUI 60	
			EQUI 61	
			EQUI 62	
			EQUI 65	
			EQUI 67	
			EQUI 68	
			EQUI 69	
			EQUI 74	
			EQUI 76	
			EQUI 81	
			EQUI 89	
			EQUI 91	
			EQUI 96	
			EQUI 97	
			EQUI 98	
			EQUI 105	
			EQUI 115	
			EQUI 118	
			EQUI 123	
			EQUI 124	
			EQUI 126	
			EQUI 127	
			EQUI 131	
			EQUI 142	
			EQUI 145	
			EQUI 149	
			EQUI 150	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 27	Null	Plating operations not subject to NESHAP WWWWWW	EQUI 151	
			EQUI 153	
			EQUI 178	
			EQUI 179	
			EQUI 180	
			EQUI 183	
			EQUI 187	
			EQUI 188	
			EQUI 189	
			EQUI 190	
			EQUI 191	
			EQUI 192	
			EQUI 199	
			EQUI 201	
			EQUI 205	
			EQUI 206	
			EQUI 207	
			EQUI 208	
			EQUI 209	
			EQUI 212	
			EQUI 213	
			EQUI 214	
			EQUI 215	
			EQUI 216	
			EQUI 218	
			EQUI 222	
			EQUI 226	
			EQUI 227	
			EQUI 231	
			EQUI 232	
			EQUI 233	
			EQUI 234	
			EQUI 236	
			EQUI 240	
			EQUI 241	
			EQUI 242	
			EQUI 243	
			EQUI 250	

Component Groups

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Group Member ID	
COMG 27	Null	Plating operations not subject to NESHAP WWWWWW	EQUI 252	
			EQUI 253	
			EQUI 255	
			EQUI 256	
			EQUI 260	
			EQUI 261	
			EQUI 262	
			EQUI 264	
			EQUI 265	
			EQUI 266	
			EQUI 267	
			EQUI 268	
			EQUI 269	
			EQUI 270	
			EQUI 271	
			EQUI 272	

PTE by SI

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

SI Category	SI Type	Subject Item ID	Delta Designation	Description	Pollutant	Potential (lbs/hr)	Unrestricted Potential (tons/yr)	Potential Limited (tons/yr)	Actual Emissions (tons/yr)
Component Group	Air Component Group	COMG 1	GP001	Copper/ Nickel/ Chrome Line	Chromium compounds	0.00147	0.00707	0.00646	
					Copper	0.000351	0.00168	0.00154	
					Cyanide compounds	0.021	0.101	0.0919	
					HAPs - Total	0.198	0.951	0.869	
					Hydrochloric acid	0.176	0.842	0.769	
					Nickel compounds	0.000365	0.00175	0.0016	
					Particulate Matter	0.949	4.16	3.8	
					PM < 2.5 micron	0.949	4.16	3.8	
					PM < 10 micron	0.949	4.16	3.8	
					Sulfuric Acid Mist	0.00632	0.0303	0.0277	
					Volatile Organic Compounds	0.269	1.29	1.18	
		COMG 2	GP002	Passivate Line	Chromium compounds	1.17e-06	5.63e-06	5.14e-06	
					HAPs - Total	0.0236	0.113	0.103	
					Hydrochloric acid	0.0236	0.113	0.103	
					Particulate Matter	0.17	0.735	0.671	
					PM < 2.5 micron	0.17	0.735	0.671	
					PM < 10 micron	0.17	0.735	0.671	
					Volatile Organic Compounds	0.0658	0.316	0.288	
		COMG 3	GP003	Zinc #1 Line	Chromium compounds	0.0017	0.0082	0.00749	
					Cobalt compounds	1.3e-06	6.23e-06	5.69e-06	
					HAPs - Total	0.053	0.255	0.233	
					Hydrochloric acid	0.0515	0.247	0.226	
					Nickel compounds	2.82e-05	0.000135	0.000124	
					Particulate Matter	0.28	1.21	1.1	
					PM < 2.5 micron	0.28	1.21	1.1	
					PM < 10 micron	0.28	1.21	1.1	
					Volatile Organic Compounds	0.0533	0.256	0.234	
					Zinc	4.23e-05	0.000203	0.000185	
		COMG 6	GP009	Surtec Line	Chromium compounds	8.74e-06	4.19e-05	3.83e-05	
					HAPs - Total	8.74e-06	4.19e-05	3.83e-05	
					Particulate Matter	0.11	0.463	0.423	
					PM < 2.5 micron	0.11	0.463	0.423	
					PM < 10 micron	0.11	0.463	0.423	
					Volatile Organic Compounds	8.74e-06	4.19e-05	3.83e-05	
		COMG 8	GP016	Silver #3 Line	Chromium compounds	5.48e-06	2.63e-05	2.4e-05	
					Cyanide compounds	0.000139	0.000834	0.000762	
					HAPs - Total	0.000208	0.001	0.000913	
					Nickel compounds	2.9e-05	0.000139	0.000127	
					Particulate Matter	0.33	1.45	1.33	
					PM < 2.5 micron	0.33	1.45	1.33	
					PM < 10 micron	0.33	1.45	1.33	
					Sulfuric Acid Mist	0.0314	0.151	0.138	
					Volatile Organic Compounds	0.103	0.495	0.452	
		COMG 11	GP019	Electropolish Line	HAPs - Total	0.0365	0.175	0.16	
					Hydrochloric acid	0.0365	0.175	0.16	
					Particulate Matter	0.17	0.752	0.687	
					PM < 2.5 micron	0.17	0.752	0.687	
					PM < 10 micron	0.17	0.752	0.687	
					Volatile Organic Compounds	0.054	0.259	0.236	
		COMG 12	GP020	Cadmium Hand Line	Cadmium compounds	8.16e-06	3.91e-05	3.57e-05	
					Chromium compounds	7.75e-06	3.72e-05	3.39e-05	
					Cyanide compounds	0.00254	0.0122	0.0111	
					HAPs - Total	0.00255	0.0122	0.0112	
					Particulate Matter	0.026	0.115	0.105	
					PM < 2.5 micron	0.026	0.115	0.105	
					PM < 10 micron	0.026	0.115	0.105	
					Volatile Organic Compounds	0.00255	0.0122	0.0112	
		COMG 15	GP004	Black Oxide/ Phosphate Line	Chromium compounds	5.14e-08	2.47e-07	2.25e-07	
					HAPs - Total	0.0232	0.139	0.102	
					Hydrochloric acid	0.029	0.139	0.127	
					Particulate Matter	0.13	0.588	0.537	
					PM < 2.5 micron	0.13	0.588	0.537	
					PM < 10 micron	0.13	0.588	0.537	
					Volatile Organic Compounds	0.0318	0.153	0.139	
					Zinc	0.00285	0.0137	0.0125	
		COMG 16	GP005	Zinc Barrel Line	Chromium compounds	0.0021	0.01	0.0092	
					Cobalt compounds	1.6e-06	7.9e-06	7.2e-06	
					HAPs - Total	0.168	0.804	0.734	
					Hydrochloric acid	0.17	0.79	0.73	

PTE by SI

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

SI Category	SI Type	Subject Item ID	Delta Designation	Description	Pollutant	Potential (lbs/hr)	Unrestricted Potential (tons/yr)	Potential Limited (tons/yr)	Actual Emissions (tons/yr)
Component Group	Air Component Group	COMG 16	GP005	Zinc Barrel Line	Nickel compounds	6.52e-06	3.13e-05	2.85e-05	
					Particulate Matter	0.739	3.237	2.956	
					PM < 2.5 micron	0.739	3.237	2.956	
					PM < 10 micron	0.739	3.237	2.956	
					Volatile Organic Compounds	0.172	0.825	0.753	
					Zinc	0.0043	0.02	0.019	
		COMG 17	GP007	Electroless Nickel Line (Transfer Line)	Chromium compounds	5.3e-06	2.54e-05	2.32e-05	
					Copper	0.219	1.05	0.958	
					HAPs - Total	0.0977	0.469	0.428	
					Hydrochloric acid	0.0974	0.467	0.427	
					Nickel compounds	0.000305	0.00146	0.00133	
					Particulate Matter	2.58	11.3	10.3	
					PM < 2.5 micron	2.58	11.3	10.3	
					PM < 10 micron	2.58	11.3	10.3	
					Volatile Organic Compounds	0.316	1.52	1.39	
		COMG 18	GP008	Cadmium Transfer Rack Line	Cadmium compounds	3.91e-05	0.000188	0.000171	
					Chromium compounds	2e-05	9.59e-05	8.76e-05	
					Cyanide compounds	0.0021	0.0101	0.00919	
					HAPs - Total	0.0517	0.248	0.226	
					Hydrochloric acid	0.0495	0.237	0.217	
					Nickel compounds	3.91e-05	0.000188	0.000171	
					Particulate Matter	0.39	1.69	1.55	
					PM < 2.5 micron	0.39	1.69	1.55	
					PM < 10 micron	0.39	1.69	1.55	
					Sulfuric Acid Mist	0.0126	0.0605	0.0552	
					Volatile Organic Compounds	0.146	0.699	0.638	
		COMG 19	GP010	Zinc Transfer Line 1	Chromium compounds	0.00055	0.00264	0.00241	
					Cobalt compounds	5.47e-06	2.62e-05	2.4e-05	
					Cyanide compounds	0.00545	0.0261	0.0239	
					HAPs - Total	0.186	0.891	0.814	
					Hydrochloric acid	0.18	0.862	0.787	
					Particulate Matter	0.72	3.15	2.88	
					PM < 2.5 micron	0.72	3.15	2.88	
					PM < 10 micron	0.72	3.15	2.88	
					Volatile Organic Compounds	0.186	0.891	0.814	
		COMG 20	GP011	Anodize Line	Chromium compounds	1.01e-06	4.83e-06	4.41e-06	
					HAPs - Total	1.51e-05	7.23e-05	6.6e-05	
					Nickel compounds	1.41e-05	6.75e-05	6.16e-05	
					Particulate Matter	0.67	2.94	2.68	
					PM < 2.5 micron	0.67	2.94	2.68	
					PM < 10 micron	0.67	2.94	2.68	
					Sulfuric Acid Mist	0.269	1.29	1.18	
					Volatile Organic Compounds	0.389	1.87	1.7	
		COMG 21	GP012	Electroless Nickel Hand Line	Copper	0.00906	0.0435	0.0397	
					Cyanide compounds	0.000281	0.00135	0.00123	
					HAPs - Total	0.0329	0.158	0.144	
					Hydrochloric acid	0.0324	0.155	0.142	
					Nickel compounds	0.000204	0.000979	0.000894	
					Particulate Matter	0.86	3.78	3.46	
					PM < 2.5 micron	0.86	3.78	3.46	
					PM < 10 micron	0.86	3.78	3.46	
					Sulfuric Acid Mist	0.0546	0.262	0.239	
					Volatile Organic Compounds	0.26	1.25	1.14	
					Zinc	0.00056	0.00268	0.00245	
		COMG 22	GP014	Electroless Nickel on Aluminum Line	Chromium compounds	6e-07	2.88e-06	2.63e-06	
					Copper	0.0476	0.228	0.208	
					HAPs - Total	0.000218	0.00105	0.000956	
					Nickel compounds	0.000218	0.00104	0.000953	
					Particulate Matter	1.94	8.49	7.76	
					PM < 2.5 micron	1.94	8.49	7.76	
					PM < 10 micron	1.94	8.49	7.76	
					Sulfuric Acid Mist	0.0749	0.359	0.328	
					Volatile Organic Compounds	0.399	1.91	1.75	
					Zinc	4.59e-06	2.2e-05	2.01e-05	
		COMG 23	GP018	Strip Line	Chromium compounds	7.31e-05	0.000351	0.00032	
					Cyanide compounds	0.00261	0.0125	0.0114	
					HAPs - Total	0.00268	0.0129	0.0118	
					Particulate Matter	0.033	0.144	0.131	
					PM < 2.5 micron	0.033	0.144	0.131	

PTE by SI

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

SI Category	SI Type	Subject Item ID	Delta Designation	Description	Pollutant	Potential (lbs/hr)	Unrestricted Potential (tons/yr)	Potential Limited (tons/yr)	Actual Emissions (tons/yr)
Component Group	Air Component Group	COMG 23	GP018	Strip Line	PM < 10 micron	0.033	0.144	0.131	
					Sulfuric Acid Mist	0.00109	0.00524	0.00479	
					Volatile Organic Compounds	0.00378	0.0181	0.0165	
		COMG 25	Null	Hardcoat Line	Chromium compounds	1e-06	4.79e-06	4.38e-06	
					HAPs - Total	5.26e-06	2.52e-05	2.3e-05	
					Nickel compounds	4.26e-06	2.04e-05	1.87e-05	
					Particulate Matter	0.24	1.03	0.941	
					PM < 2.5 micron	0.24	1.03	0.941	
					PM < 10 micron	0.24	1.03	0.941	
					Sulfuric Acid Mist	0.0977	0.469	0.428	
					Volatile Organic Compounds	0.124	0.594	0.543	
		COMG 26	Null	Zinc Transfer Line 2	Chromium compounds	0.0044	0.021	0.019	
					Cobalt compounds	4.4e-06	2.1e-05	1.87e-05	
					HAPs - Total	0.199	0.955	0.873	
					Hydrochloric acid	0.19	0.91	0.85	
					Nickel compounds	6.5e-06	3.1e-05	2.9e-05	
					Particulate Matter	0.84	3.69	3.35	
					PM < 2.5 micron	0.84	3.69	3.35	
					PM < 10 micron	0.84	3.69	3.35	
					Volatile Organic Compounds	0.217	1.04	0.952	
					Zinc	0.011	0.054	0.049	
Equipment	Boiler	EQUI 1	EU098	Boiler #1	1,1,1-Trichloroethane	8.5e-06	3.72e-06	3.72e-06	
					1,4-Dichlorobenzene (para-)	5.94e-06	2.6e-05	2.6e-05	
					Arsenic compounds	2.02e-05	1.27e-05	1.27e-05	
					Benzene	1.04e-05	4.55e-05	4.55e-05	
					Beryllium	1.51e-05	6.86e-06	6.86e-06	
					Cadmium compounds	1.51e-05	2.81e-05	2.81e-05	
					Carbon Dioxide	821	3,597	3,597	
					Carbon Dioxide Equivalent	806	2,709	2,709	
					Carbon Monoxide	0.416	1.82	1.82	
					Chromium compounds	1.51e-05	3.39e-05	3.39e-05	
					Cobalt compounds	4.16e-07	1.82e-06	1.82e-06	
					Copper	3.02e-05	2.98e-05	2.98e-05	
					Ethylbenzene	2.29e-06	1e-06	1e-06	
					Formaldehyde	0.00126	0.00202	0.00202	
					HAPs - Total	0.0108	0.0416	0.0416	
					Hexane	0.00891	0.039	0.039	
					Lead	4.54e-05	2.96e-05	2.96e-05	
					Manganese compounds	3.02e-05	2.07e-05	2.07e-05	
					Mercury	1.51e-05	1.17e-05	1.17e-05	
					Methane	0.0114	0.0499	0.0499	
					Naphthalene	4.07e-05	2.97e-05	2.97e-05	
					Nickel compounds	1.51e-05	4.76e-05	4.76e-05	
					Nitrogen Oxides	0.720091324	2.26705	2.26705	
					Nitrous Oxide	0.0109	0.0477	0.0477	
					Particulate Matter	0.12	0.2003664	0.2	
					PM < 2.5 micron	0.04	0.165	0.16	
					PM < 10 micron	0.04	0.16	0.16	
					Polycyclic organic matter	0.000119	5.37e-05	5.37e-05	
					Selenium compounds	7.56e-05	3.36e-05	3.36e-05	
					Sulfur Dioxide	0.007668973	0.01506891	0.01506891	
					Toluene	0.000223	0.000164	0.000164	
					Volatile Organic Compounds	0.0272	0.119	0.119	
					Xylenes, Total	3.92e-06	1.72e-06	1.72e-06	
					Zinc	0.000144	0.000629	0.000629	
		EQUI 2	EU099	Boiler #2	1,1,1-Trichloroethane	8.5e-06	3.72e-06	3.72e-06	
					1,4-Dichlorobenzene (para-)	5.94e-06	2.6e-05	2.6e-05	
					Arsenic compounds	2.02e-05	1.27e-05	1.27e-05	
					Benzene	1.04e-05	4.55e-05	4.55e-05	
					Beryllium	1.51e-05	6.86e-06	6.86e-06	
					Cadmium compounds	1.51e-05	2.81e-05	2.81e-05	
					Carbon Dioxide	821.2	3,597	3,597	
					Carbon Dioxide Equivalent	806	2,709	2,709	
					Carbon Monoxide	0.416	1.82	1.82	
					Chromium compounds	1.51e-05	3.39e-05	3.39e-05	
					Cobalt compounds	4.16e-07	1.82e-06	1.82e-06	
					Copper	3.02e-05	2.98e-05	2.98e-05	
					Ethylbenzene	2.29e-06	1e-06	1e-06	
					Formaldehyde	0.00126	0.00202	0.00202	

PTE by SI

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

SI Category	SI Type	Subject Item ID	Delta Designation	Description	Pollutant	Potential (lbs/hr)	Unrestricted Potential (tons/yr)	Potential Limited (tons/yr)	Actual Emissions (tons/yr)
Equipment	Boiler	EQUI 2	EU099	Boiler #2	HAPs - Total	0.0108	0.0416	0.0416	
					Hexane	0.00891	0.039	0.039	
					Lead	4.54e-05	2.96e-05	2.96e-05	
					Manganese compounds	3.02e-05	2.07e-05	2.07e-05	
					Mercury	1.51e-05	1.17e-05	1.17e-05	
					Methane	0.0114	0.0499	0.0499	
					Naphthalene	4.07e-05	2.97e-05	2.97e-05	
					Nickel compounds	1.51e-05	4.76e-05	4.76e-05	
					Nitrogen Oxides	0.72	2.27	2.27	
					Nitrous Oxide	0.0109	0.0477	0.0477	
					Particulate Matter	0.12	0.20037	0.2	
					PM < 2.5 micron	0.04	0.16	0.16	
					PM < 10 micron	0.04	0.16	0.16	
					Polycyclic organic matter	0.000119	5.37e-05	5.37e-05	
					Selenium compounds	7.56e-05	3.36e-05	3.36e-05	
					Sulfur Dioxide	0.00767	0.0151	0.0151	
					Toluene	0.000223	0.000164	0.000164	
					Volatile Organic Compounds	0.0272	0.119	0.119	
					Xylenes, Total	3.92e-06	1.72e-06	1.72e-06	
					Zinc	0.000144	0.000629	0.000629	
	Degreaser	EQUI 22	EU131	Degreaser (modified)	HAPs - Total	1.5	8.64	6.5	
					Volatile Organic Compounds	1.5	8.64	6.5	
		EQUI 259	Null	Parts Washer	HAPs - Total	0.00929	0.851	0.0407	
					Trichloroethylene (TCE)	0.00929	0.851	0.0407	
					Volatile Organic Compounds	0.00929	0.851	0.0407	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Acid Treatment Equipment	EQUI 4	EU070	Muriatic Acid (Hydrochloric) - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 6	EU075	Weak Nitric Acid - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 13	EU105	Water White Nitric - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 30	EU007	Muriatic Acid (Hydrochloric) - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 34	EU018	Nitric Acid - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 38	EU032	Hydrochloric Acid - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 48	EU189	Chromic Acid Strip - Strip Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 50	EU013	Muriatic Acid (Hydrochloric) - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 51	EU019	Hydrochloric Acid - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 54	EU023	Hydrochloric Acid - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 57	EU036	Muriatic Acid (Weak) - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 58	EU037	Muriatic Acid (Strong) - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 62	EU074	Hydrochloric Acid - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 65	EU081	Nitric Acid - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 67	EU085	Muriatic Acid (Hydrochloric) - Electropolish Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 68	EU089	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Acid Treatment Equipment	EQUI 68	EU089	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line	sends to	STRU 25	70	Stack/Vent	Null	
		EQUI 69	EU090	Weak Muriatic Acid (Hydrochloric) - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 76	EU103	Desmutter - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 96	EU010	Nitric Rack Strip - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 115	EU163	Hot Sulfuric Acid - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 123	EU171	Desmutter - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 124	EU172	Desmutter - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 127	EU175	Nitric Acid for Brass - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 142	EU014	Nitric Acid - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 143	EU015	Passivate - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 150	EU077	Deoxidizer - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 153	EU094	Deoxidizer - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 183	EU076	Etch - Iridite Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 184	EU080	Nickel Acetate Seal - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 187	EU093	Etch - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 189	EU102	Etch - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 190	EU112	Etch - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Acid Treatment Equipment	EQUI 190	EU112	Etch - Eless Aluminum	sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 191	EU126	Sulfuric - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 199	EU169	Nitric Acid (Silver Rack Strip) - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 201	EU181	Bright Acid Tin - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 205	EU028	Cyanide Nickel Strip - Strip Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 208	EU097	Anodize Tank - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 209	EU120	Nitric Rack Strip Large - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 212	Null	Deoxidizer - Iridite Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 213	Null	Etch - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 218	Null	Strong Muriatic Acid (Hydrochloric) - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 226	Null	Weak Hydrochloric Acid - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 233	Null	Brass Strip - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 234	Null	Citric Acid - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 236	Null	Weak Hydrochloric Acid - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 239	Null	Chromic Acid Dip - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 250	Null	Nitric Acid - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Acid Treatment Equipment	EQUI 252	Null	Nitric Acid Strip For Tin - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 261	Null	Silver Strip - Silver 3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 262	Null	Acid Salt - Silver 3	is controlled by	STRU 25	70	Stack/Vent	Null	
					sends to	STRU 5	30	Stack/Vent	SV014	
						TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
		EQUI 267	Null	Acid Salt - EN Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 272	Null	Acid Treatment Equipment	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
	Boiler	EQUI 1	EU098	Boiler #1	sends to	STRU 2	100	Stack/Vent	SV015	
		EQUI 2	EU099	Boiler #2	sends to	STRU 2	100	Stack/Vent	SV015	
	Cleaning Equipment	EQUI 3	EU069	Soak Cleaner - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 10	EU087	Soak Cleaner - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 11	EU088	Electrocleaner - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 19	EU125	Electrocleaner - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 20	EU127	Q - Pex Copper Cleaner - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 28	EU005	Soak Cleaner - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 29	EU006	Electro Cleaner - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 33	EU017	Electrocleaner - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 37	EU030	Soak Cleaner - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 40	EU035	Electrocleaner - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Cleaning Equipment	EQUI 47	EU068	Electrocleaner - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 53	EU022	Electro Cleaner - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 56	EU034	Soak Cleaner - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 60	EU072	Soak Cleaner - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 61	EU073	Electro Cleaner - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 74	EU101	Soak Cleaner - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 81	EU111	Soak Cleaner - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 91	EU135	Soak Cleaner - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends soil/waste to	STRU 25	70	Stack/Vent	Null	
					sends to	STRU 5	30	Stack/Vent	SV014	
		EQUI 97	EU011	Soak Cleaner - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 98	EU012	Electro Cleaner - Passivate Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 118	EU166	Soak Cleaner - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 131	EU179	Soak Cleaner - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 151	EU086	Electrocleaner - Electropolish Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 214	Null	Soak Cleaner - Iridite Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 215	Null	Soak Cleaner - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 216	Null	Electrocleaner - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Cleaning Equipment	EQUI 216	Null	Electrocleaner - Zinc Transfer Line 2	sends to	STRU 25	70	Stack/Vent	Null	
		EQUI 231	Null	Electrocleaner for Brass - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 242	Null	Electrocleaner For Brass - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 243	Null	Soak Cleaner For Brass - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 264	Null	Soak Cleaner - Zinc Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 265	Null	Soak Cleaner - Zinc Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 266	Null	Copper Cleaner - EN Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 268	Null	Electrocleaner for Brass - EN Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
	Degreaser	EQUI 22	EU131	Degreaser (modified)	sends to	STRU 25	0	Stack/Vent	Null	
		EQUI 259	Null	Parts Washer	sends to	STRU 25	100	Stack/Vent	Null	
	Electroplating Equipment	EQUI 5	EU071	Electroless Nickel North Bay - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 9	EU079	Yellow Iridite - Iridite Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 12	EU104	Zincate - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 15	EU113	Zincate - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 21	EU129	Silver Plate - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 32	EU009	TriChrome - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 39	EU033	Zinc Phosphate - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 72	EU095	Nickel Acetate Seal - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Electroplating Equipment	EQUI 72	EU095	Nickel Acetate Seal - Anodize Line	sends to	STRU 25	70	Stack/Vent	Null	
		EQUI 77	EU106	Electroless Nickel - West Bay - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 78	EU107	Electroless Nickel - East Bay - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 83	EU115	Electroless Nickel South Bay - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 84	EU116	Electroless Nickel North Bay - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 89	EU128	Silver Strike - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 92	EU191	North Nickel - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 93	EU192	South Nickel - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 94	EU193	Nickel Barrel - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 99	EU147	Electroless Nickel Mid Phos - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 103	EU151	Zinc-Nickel - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 105	EU153	Seal - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 106	EU154	Zinc-Nickel - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 109	EU157	Cad Cyanide with brighteners - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 110	EU158	Cad Cyanide no brighteners - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 116	EU164	Nickel Strike - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 126	EU174	Water White Nitric - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Electroplating Equipment	EQUI 126	EU174	Water White Nitric - Eless Aluminum	sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 132	EU180	Electroless Nickel - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 138	EU186	Cadmium Cyanide - Cad Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 145	EU024	Zinc Cyanide - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 149	EU039	Zinc Chloride - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 178	EU114	Weak Desmutter - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 179	EU008	Copper Plate Bath - Copper/Nickel/Chrome Line	is controlled by	STRU 25	70	Stack/Vent	Null	
						TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
		EQUI 180	EU020	Copper Plate - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 188	EU096	Nitric Acid - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 206	EU031	Black Oxide - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 207	EU091	Zinc Cyanide Plating Tank- Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 224	Null	Nickel Strike - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 230	Null	Nickel Strike - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 232	Null	Black Pearl Electroblack - Copper/Nickel/Chrome Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 255	Null	Acid Copper - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 256	Null	Anti-Tarnish for Copper - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Electroplating Equipment	EQUI 258	Null	Electroless Nickel Transfer Bath - South	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 263	Null	Zinc Nickel East - Zinc Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 269	Null	Alkaline Non-Cyanide Zinc - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
	Other Emission Unit	EQUI 114	EU162	Olive Drab Chromate - Cad Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 181	EU025	Clear Chromate - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 182	EU038	Clear Chromate - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 186	EU092	Clear Chromate - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 192	EU130	Hard Coat - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 194	EU152	Chromate for Zinc-Nickel - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 195	EU156	Chromate for Zinc-Nickel - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 196	EU159	Clear Chromate - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 197	EU160	Yellow Chromate - Cad Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 198	EU167	Dichromate Seal - Anodize Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 200	EU170	Chromate Post Dip - Electroless Nickel Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 202	EU187	Clear Chromate - Cad Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 203	EU188	Yellow Chromate - Cad Hand Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Other Emission Unit	EQUI 203	EU188	Yellow Chromate - Cad Hand Line	sends to	STRU 25	70	Stack/Vent	Null	
		EQUI 204	EU026	Black Chromate - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 220	Null	Clear Chromate - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 222	Null	Surtec - Surtec/Hardcoat Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 225	Null	Yellow Chromate-Hex - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 227	Null	Zinc Phosphate for Zinc Plated Parts - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 228	Null	Chromate Post Dip - Silver #3	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 229	Null	Yellow Chromate - Zinc Transfer Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 235	Null	Yellow Chromate - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 238	Null	Chromate Seal - Zinc 1	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 240	Null	Oil For Phosphate - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 241	Null	Phosphate Conditioner - Oxide Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 245	Null	Yellow Chromate (Hex) For Zinc - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 246	Null	Clear Chromate For Zinc-Nickel - Zinc Barrel Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 247	Null	Electroless Nickel South Bay - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 248	Null	Chromate - Electroless Nickel Transfer	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 251	Null	Chromate Post Drip - Eless Aluminum	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	

Relationships

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Equipment	Other Emission Unit	EQUI 251	Null	Chromate Post Drip - Eless Aluminum	sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 253	Null	Nickel Strip - Strip Line	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 260	Null	Zinc Generator - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 270	Null	Nitric Acid Bright Dip - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	
		EQUI 271	Null	Zinc Phosphate - Zinc Transfer Line 2	is controlled by	TREA 2	100	001-Wet Scrubber - High Efficiency	CE001	
					sends to	STRU 5	30	Stack/Vent	SV014	
						STRU 25	70	Stack/Vent	Null	

Building

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

Subject Item ID	Delta Designation	Description	Height	Units (height)	Length	Units (length)	Width	Units (width)	
STRU 23	Null	Main Building	20	feet	325	feet	114	feet	
STRU 24	Null	Office/Welding Maintenance	20	feet	100	feet	86	feet	

Stack/Vents

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

STRU 2	SV015	Boiler	25.25	1.67	Null	Null	3,000	70	Manufacturer	Upwards wit stack/vent	
STRU 5	SV014	Scrubber Exhaust	38	4	Null	Null	44,000	70	Manufacturer	Upwards wit stack/vent	
STRU 25	Null	Building Exhaust Fan	38	6	Null	Null	100,000	70	Manufacturer	Upwards wit stack/vent	

Scrubbers

AI ID (Name): 187 (Co-operative Plating Co)
Activity: IND20140001

001-Wet Scrubber - High Efficiency	TREA 2	CE001	Wet Scrubber - High Efficiency	Scrub Air Vent Systems, Inc. (40,000)	3/1/2001	Copper	80	90	No	Null	Mfr/ Vendor data	Null	
						Sulfuric Acid Mist	80	90	No	Null	Mfr/ Vendor data	Null	
						Zinc	80	90	No	Null	Mfr/ Vendor data	Null	

SI ID	Sequence	Requirements
TFAC 1	1	The Permittee shall limit the Processing Building Enclosure Pressure Drop <= -0.007 inches of water between internal building pressure and outdoor ambient pressure as established in Method 204 of Appendix M to 40 CFR part 51. Pressure drop across the established enclosure shall be monitored at all times as described elsewhere in this permit. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
TFAC 1	2	The Permittee shall operate and maintain the Processing Building Enclosure as a permanent total enclosure that meets the criteria of Method 204 of Appendix M, 40 CFR pt. 51. The Processing Building Enclosure is defined as the area of the building enclosing the processing and production areas of the building, but excluding the shipping and receiving area. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0020, Minn. Stat. 116.07, subd. 4a(a), Minn. Stat. 116.385, subd. 3]
TFAC 1	3	Processing Building Enclosure Pressure Drop Continuous Monitoring Device: The Permittee shall install, operate, and maintain a pressure drop monitoring system (pressure gauge) for the Processing Building Enclosure meeting the following requirements and maintain records of compliance with these requirements: (1) Complete a minimum of one cycle of operation for each successive 15-minute period having a minimum of four equally spaced successive cycles of CPMS operation in one hour; (2) Determine the average of all recorded readings for each successive 3-hour period of the pressure drop monitoring system for the Processing Building Enclosure; (3) Record the results of each inspection, calibration, and validation check of each pressure gauge; (4) Maintain the pressure gauges at all times and have available necessary parts for routine repairs of the monitoring equipment; (5) Operate the pressure gauges and collect pressure drop data at all times that a plating operation is operating, except during monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, if applicable, calibration checks and required zero and span adjustments); (6) Do not use data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. Use all the data collected during all other periods in calculating the data averages for determining compliance with the Processing Building Enclosure requirements; (7) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across the monitored enclosure; (8) Use a pressure sensor with an accuracy of at least five percent of the minimum pressure drop to be maintained. (9) Perform an initial calibration of the sensor according to the manufacturer's requirements; (10) Conduct a validation check before initial operation or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources; (11) Conduct accuracy audits every quarter and after every deviation. Accuracy audits include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources; (12) Perform monthly leak checks on pressure connections. A pressure of at least 1.0 inches of water column to the connection must yield a stable sensor result for at least 15 seconds; and (13) Perform a visual inspection of the sensor at least monthly. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, 4a(a), Minn. Stat. 116.385, subd. 3]
TFAC 1	4	Processing Building Enclosure Pressure Drop Alarm: The Permittee shall install, operate, and maintain an alarm that triggers when the pressure drop set point is exceeded. The set point at which the alarm triggers shall be set such that the alarm sounds when the pressure drop

SI ID	Sequence	Requirements
		limit established in this permit is not met. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, 4a(a), Minn. Stat. 116.385, subd. 3]
TFAC 1	5	Processing Building Enclosure Airflow Direction: The Permittee shall maintain airflow into the Processing Building Enclosure at all times. If airflow into the enclosure is not maintained, plating operations in the Processing Building Enclosure shall be shut down until airflow direction into the enclosure is restored and shall be reported as a deviation. The Permittee shall document and keep records of all deviations, including the date of malfunction, steps taken to restore airflow direction into the enclosure, and the date operation continued. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, 4a(a), Minn. Stat. 116.385, subd. 3]
TFAC 1	6	Monitoring: Processing Building Enclosure Pressure Drop. The Permittee shall continuously monitor the pressure drop across natural draft openings established during the most-recent performance test following Method 204 of Appendix M to 40 CFR Part 51. If it is discovered that pressure drop is not being maintained, either by inspection or the alarm is sounded, plating operations in the facility shall be shut down until the pressure drop state is restored. Each violation of the pressure drop limit shall be reported as a deviation. The Permittee shall document and keep records of all deviations, including the date of malfunction, steps taken to restore the pressure drop, and the date operation continued. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, 4a(a), Minn. Stat. 116.385, subd. 3]
TFAC 1	10	The Permittee shall maintain a list of all plating tanks. For each tank the list shall include the bath constituents and the concentrations of the constituents in the baths. For each tank the Permittee shall also track the make-up added to the baths. The list shall be updated monthly. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1250, subp. 3]
TFAC 1	1240	Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in Appendix A: Insignificant Activities and General Applicable Requirements, Appendix B: TCE and nPB AERA Parameters, and Appendix C: 40 CFR pt. 63, subp. A. [Minn. R. 7007.0800, subp. 2(A)]
TFAC 1	1245	The Permittee must comply with Minn. Stat. 116.385. The Permittee may not use trichloroethylene at its permitted facility after June 1, 2022, including in any manufacturing, processing, or cleaning processes, except as described in Minn. Stat. 116.385, subd. 2(b) and 4. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency (EPA) Administrator and citizens under the Clean Air Act. [Minn. Stat. 116.385]
TFAC 1	1260	PERMIT SHIELD: Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements. This permit shall not alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance. [Minn. R. 7007.1800(A)(2)]
TFAC 1	1380	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted. [Minn. R. 7011.0020]
TFAC 1	1390	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2(A) & (B)]

SI ID	Sequence	Requirements
TFAC 1	1400	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 16(J)]
TFAC 1	1410	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate. [Minn. R. 7019.1000, subp. 4]
TFAC 1	1420	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150. [Minn. R. 7011.0150]
TFAC 1	1430	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7030.0010-7030.0080]
TFAC 1	1440	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A). [Minn. R. 7007.0800, subp. 9(A)]
TFAC 1	1450	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16. [Minn. R. 7007.0800, subp. 16]
TFAC 1	1460	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in this permit. [Minn. R. ch. 7017]
TFAC 1	1470	Performance Test Notifications and Submittals: Performance Test Notification and Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due seven days before each Performance Test Performance Test Report: due 45 days after each Performance Test The Notification, Test Plan, and Test Report must be submitted in a format specified by the commissioner. [Minn. R. 7017.2017, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2]
TFAC 1	1480	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025, subp. 3]
TFAC 1	1490	Monitoring Equipment Calibration - The Permittee shall either: 1. Calibrate or replace required monitoring equipment every 12 months; or 2. Calibrate at the frequency stated in the manufacturer's specifications. For each monitor, the Permittee shall maintain a record of all calibrations, including the date

SI ID	Sequence	Requirements
		conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit. [Minn. R. 7007.0800, subp. 4(D)]
TFAC 1	1500	Operation of Monitoring Equipment: Unless noted elsewhere in this permit, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system. [Minn. R. 7007.0800, subp. 4(D)]
TFAC 1	1510	Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A). [Minn. R. 7007.0800, subp. 5(C)]
TFAC 1	1520	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes. [Minn. R. 7007.0800, subp. 5(B)]
TFAC 1	1590	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For non-expiring permits, these records shall be kept for a period of five years from the date the change was made. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format. [Minn. R. 7007.1200, subp. 4]
TFAC 1	1610	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in items A, B, and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over. [Minn. R. 7019.1000, subp. 3]
TFAC 1	1620	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in items A, B, and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over. [Minn. R. 7019.1000, subp. 2]
TFAC 1	1630	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by

SI ID	Sequence	Requirements
		facsimile, of any deviation from permit conditions which could endanger human health or the environment. [Minn. R. 7019.1000, subp. 1]
TFAC 1	1640	Notification of Deviations Endangering Human Health or the Environment Report: Within two working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. [Minn. R. 7019.1000, subp. 1]
TFAC 1	1650	The Permittee must submit a semiannual deviations report : Due semiannually, by the 30th of January and July. The first semiannual report submitted by the Permittee must cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. Submit this on form DRF-2 (Deviation Reporting Form). If no deviations have occurred, submit the signed report certifying that there were no deviations. [Minn. R. 7007.0800, subp. 6(B)(2)]
TFAC 1	1670	The parameters used in Air Toxics modeling performed for an AERA and for determining emission limits for permit number 05300499-101 are listed in Appendix B of this permit. For any changes that affect any modeled parameter documented in Appendix B, a Remodeling Submittal requirement is triggered. This includes changes that do not require a permit amendment as well as changes that require any type of permit amendment. Remodeling Submittal: The Permittee must submit to the Commissioner for approval any revisions of these parameters and must wait for a written approval before making such changes. For changes that require a permit amendment the proposal must be submitted with the permit amendment application. Written approval for changes that require an amendment will be in the form of an issued permit amendment for major amendments, a construction authorization letter for moderate amendments, or written approval for minor amendments. For minor amendments, written approval of the modeling may be given before permit issuance; however, the approval applies only to the modeling and not to any other changes. The information submitted must include, for stack and vent sources, source emission rates, location, heights, diameters, exit velocities, exit temperatures, discharge direction, use of rain caps or rain hats, and, if applicable, locations and dimensions of nearby buildings. For non-stack/vent sources, this includes the source emission rate, location, size and shape, release height, and, if applicable, any emission rate scalars, and the initial lateral dimensions and initial vertical dimensions and adjacent building heights. If the plume dispersion characteristics due to the revisions of the information in the proposal are equivalent to or better than the dispersion characteristics modeled in May 2019 then no further risk recalculation is needed because of changes to any modeled parameter. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must submit full

SI ID	Sequence	Requirements
		remodeling, using currently acceptable methods, and use the Co-operative Plating Air Emissions Risk Analysis (AERA) report as a template for recalculating and submitting the risk estimates, for updating the qualitative description of the risks (e.g. land use, exposure assumptions, etc.), and to compare the recalculated risk estimates for all pollutants emitted from the facility to the risk management guidelines used in the Co-operative Plating AERA report. Updated risk assessment guidance (including toxicological values, emission estimates, etc.) should be incorporated when appropriate. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0100, subp. 7(A), 7(L) & 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0090, Minn. Stat. 116.07, subd. 4a(a), Minn. Stat. 116.07, subd. 9]
TFAC 1	1680	Updated AERA Triggers: The Permittee shall update the most recent approved Co-operative Plating Air Emissions Risk Analysis (AERA) report if the Permittee proposes a change to the plating process that results in the emissions of: (1) chemicals of potential interest (COPI) for which health benchmarks have changed to more strict values in the current AERA Guidance, or (2) COPI for which there are new health benchmark values for in the current AERA Guidance, or (3) proposes to increase the emission rate or change the dispersion characteristics of any pollutant listed in Appendix B, this includes changes that do not require a permit amendment as well as changes that require any type of permit amendment. Changes made under the Administrative amendment process are excluded from this requirement. The Permittee shall first use the Co-operative Plating AERA report as a template for recalculating and submitting the risk estimates, for updating the qualitative description of the risks (e.g. land use, exposure assumptions, etc.) and comparing the recalculated risk estimates to the risk management guidelines used in the most recent approved Co-operative Plating AERA. Updated risk assessment guidance (including toxicological values, emission estimates, etc.) shall be incorporated when appropriate. The Permittee shall keep records of the recalculated risk estimates and a statement of the purpose for making the change. For changes that require a permit amendment, the report with the updated AERA results must be submitted with the permit amended application. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. Stat. 116.07, subd. 4a(a), Minn. Stat. 116.07, subd. 9(2)]
TFAC 1	1700	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed. Upon adoption of a new or amended federal applicable requirement, and if there are three or more years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 - 7007.1500]
TFAC 1	1703	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H). [Minn. R. 7007.1400, subp. 1(H)]
TFAC 1	1740	The Permittee must submit a compliance certification : Due annually, by the 31st of January (for the previous calendar year). Submit this on form CR-04 (Annual Compliance Certification Report). This report covers all deviations experienced during the calendar year. If no

SI ID	Sequence	Requirements
		deviations have occurred, submit the signed report certifying that there were no deviations. [Minn. R. 7007.0800, subp. 6(D)]
TFAC 1	1750	Within 15 days of a request from the Commissioner, the Permittee must provide a complete summary of all performance tests required at the facility including the subject item, pollutant, most recent test date (if applicable), and the date of the next test in an approved format. [Minn. R. 7007.0800, subp. 16(L)]
TFAC 1	1760	Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. Submit in a format specified by the Commissioner. [Minn. R. 7019.3000-7019.3100]
TFAC 1	1761	Emission Fees: due 30 days after receipt of an MPCA bill. [Minn. R. 7002.0005-7002.0085]
TFAC 1	1831	The Permittee must submit a notification of reclassification: Due within 15 calendar days after permit issuance. Submit the name and address of the Permittee, the address of the affected source, an identification of the major source and area source standards being reclassified from and to, respectively, and date of effectives of the reclassification. The notification must be submitted electronically to Compliance and Emissions Data Reporting Interface (CEDRI) via https://cdx.epa.gov/. [40 CFR 63.12(c), 40 CFR 63.9(b)(1)(ii), 40 CFR 63.9(j) and (k)]
COMG 14	1	Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies to each unit individually. [Minn. R. 7011.0715, subp. 1(A)]
COMG 14	2	Opacity <= 20 percent opacity. This limit applies to each unit individually. [Minn. R. 7011.0715, subp. 1(B)]
COMG 14	3830	Hours <= 8000 hours per year 12-month rolling sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
COMG 14	3840	Hours: Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain a record of the total hours of operation. This shall be based on written logs or hour meter readings. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
COMG 14	3850	Hours: Monthly Recordkeeping. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total hours of operation for the previous calendar month using the daily records; and 2) The 12-month rolling sum hours of operation for the previous 12-month period by summing the monthly hours of operation for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
COMG 14	9640	For each non-cyanide electroplating, electroforming, or electropolishing tank, the Permittee shall use a wetting agent/fume suppressant in the bath of the affected tank as defined by 40 CFR Section 63.11511. [40 CFR 63.11507(a)(1), Minn. R. 7011.8250]
COMG 14	9650	For each non-cyanide electroplating, electroforming, or electropolishing tank, the Permittee shall: i) initially add the wetting agent/fume suppressant in the amounts recommended by the manufacturer for the specific type of electrolytic process. ii) add wetting agent/fume suppressant in proportion to the other bath chemistry

SI ID	Sequence	Requirements
		ingredients that are added to replenish the tank bath, as in the original make-up of the tank or in proportions such that the bath contents are returned to that of the original make-up of the bath. iii) If a wetting agent/fume suppressant is included in the electrolytic process bath chemicals used in the affected tank according to the manufacturer's instructions, it is not necessary to add additional wetting agent/fume suppressant to the tank to comply with this rule. [40 CFR 63.11507(a)(1)(i)-(iii), Minn. R. 7011.8250]
COMG 14	9660	The Permittee shall keep the following records: (1) a copy of any Initial Notification and Notification of Compliance Status submitted and all documentation supporting those notifications; (2) Records specified in the General Provisions, 40 CFR Section 63.10(b)(2)(i)-(iii) & (xiv); (3) Records required to show continuous compliance with each management practice and equipment standard that applies to the facility. [40 CFR 63.11507(e), Minn. R. 7011.8250]
COMG 14	9670	Records shall be kept for a minimum of 5 years, and kept on site for a minimum of 2 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. [40 CFR 63.11507(f), Minn. R. 7011.8250]
COMG 14	9690	The Permittee must comply with one of the following requirements: - The Permittee shall limit short-term or "flash" electroplating to no more than 1 cumulative hour per day or 3 cumulative minutes per hour of plating time. OR - The Permittee shall use a tank cover on all short-term or "flash" electroplating tanks for at least 95 percent of the plating time. [40 CFR 63.11507(b), Minn. R. 7011.8250]
COMG 14	9700	For all tanks that use cyanide in the plating bath, as defined in 40 CFR Section 63.11511, the Permittee shall measure and record the pH of the tanks upon start-up. [40 CFR 63.11507(d)(1), Minn. R. 7011.8250]
COMG 14	9715	The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. A as follows: 40 CFR 63.1(a); 40 CFR 63.1(b)(1); 40 CFR 63.1(b)(3); 40 CFR 63.1(c)(1); 40 CFR 63.1(c)(2); 40 CFR 63.1(c)(5); 40 CFR 63.2; 40 CFR 63.3; 40 CFR 63.4(a);40 CFR 63.4(b);40 CFR 63.4(c); 40 CFR 63.6(a)(1); 40 CFR 63.6(b)(2); 40 CFR 63.6(c)(1);40 CFR 63.6(c)(2); 40 CFR 63.10(a)(5);40 CFR 63.10(a)(6);40 CFR 63.10(a)(7); 40 CFR 63.10(b)(1); 40 CFR 63.10(b)(2)(i);40 CFR 63.10(b)(2)(ii);40 CFR 63.10(b)(2)(iii); 40 CFR 63.10(b)(2)(xiv); 40 CFR 63.10(b)(3); 40 CFR 63.10(d)(1); 40 CFR 63.10(f); 40 CFR 63.12; 40 CFR 63.13; 40 CFR 63.14; 40 CFR 63.15(a); and 40 CFR 63.15(b). A copy of 40 CFR pt. 63, subp. A is included in Appendix B. If the standard changes or upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [40 CFR 63.11510, 40 CFR pt. 63, subp. A, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-1500, Minn. R. 7011.7000, Minn. R. 7011.8250, Minn. R. 7017.1010 & 7017.2025, Minn. R. 7019.0100]
COMG 14	9730	The Permittee must implement the following requirements, as practicable: - minimize bath agitation when removing any parts processed in the tank, as practicable except when necessary to meet part quality requirements. - maximize draining of bath solution back into the tank, as practicable, by extending drip time when removing parts from the tank; using drain boards (drip shields); or withdrawing

SI ID	Sequence	Requirements
		parts slowly from the tank. - optimize the design of barrels, racks, and parts to minimize dragout of bath solution (such as by using slotted barrels and tilted racks, or by designing parts with flow-through holes), as practicable. - use tank covers, if already owned and available at the facility, whenever practicable. - minimize or reduce heating of process tanks, as practicable. - perform regular repair, maintenance, and preventative maintenance of racks, barrels, and other equipment associated with affected sources, as practicable. - minimize bath contamination. - maintain quality control of chemicals, and chemical and other bath ingredient concentration in the tanks, as practicable. - perform general good housekeeping, such as regular sweeping or vacuuming, if needed, and periodic washdowns, as practicable. - minimize spills and overflow of tanks, as practicable. - use squeegee rolls in continuous or reel-to-reel plating tanks, as practicable. - perform regular inspections to identify leaks and other opportunities for pollution prevention. [40 CFR 63.11507(g), Minn. R. 7011.8250]
COMG 14	9740	To demonstrate continuous compliance with the applicable management practices and equipment standards specified in 40 CFR pt., 63, subp. WWWWWW, the Permittee must satisfy the requirements specified in 40 CFR Section 63.11508(d)(1) through (8). [40 CFR 63.11508(d), Minn. R. 7011.8250]
COMG 14	9741	The Permittee shall prepare an annual certification of compliance report. The annual certification of compliance shall only be submitted if a deviation from the requirements of 40 CFR pt. 63, subp. WWWWWW occur during the reporting year. Each annual compliance report must be prepared no later than January 31 of the year immediately following the reporting period. If a deviation has occurred during the year, each annual compliance report shall be submitted along with the deviation report, and postmarked or delivered no later than January 31 of the year immediately following the reporting period. [40 CFR 63.11509(c), 40 CFR 63.11509(c)(7)]
COMG 14	9750	The Permittee shall prepare an annual certification of compliance report. The annual certification of compliance shall only be submitted if a deviation from the requirements of 40 CFR pt. 63, subp. WWWWWW occur during the reporting year. Each annual compliance report must be prepared no later than January 31 of the year immediately following the reporting period. If a deviation has occurred during the year, each annual compliance report shall be submitted along with the deviation report, and postmarked or delivered no later than January 31 of the year immediately following the reporting period. [40 CFR 63.11509(c), 40 CFR 63.11509(c)(7)]
COMG 14	9760	The annual compliance report shall include: 1) For electroplating, electroforming, or electropolishing tanks that use a wetting agent/fume suppressant to comply with this subpart, a statement that the Permittee added the wetting agent/fume suppressant to the bath according to the manufacturer's specification and instructions 2) For flash or short-term electroplating tanks, and the Permittee complies with 40 CFR pt. 63, subp. WWWWWW by limiting the plating time of the affected tank, a statement that the Permittee has limited the short-term or flash electroplating to no more than 1 cumulative hour per day or 3 cumulative minutes per hour of plating time. 3) For batch electrolytic processes or flash or short-term electroplating tanks, and the Permittee complies with 40 CFR pt. 63, subp. WWWWWW by operating the affected tank with a cover, a statement that the Permittee has operated the tank with the cover in place

SI ID	Sequence	Requirements
		at least 95 percent of the electrolytic process time. 4) A statement that the Permittee has implemented the applicable management practices, as practicable. [40 CFR 63.11509(c)(1)-(6), Minn. R. 7011.8250]
COMG 27	3	Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies to each unit individually. [Minn. R. 7011.0715, subp. 1(A)]
COMG 27	3690	Opacity <= 20 percent opacity. This limit applies to each unit individually. [Minn. R. 7011.0715, subp. 1(B)]
COMG 27	3830	Hours <= 8000 hours per year 12-month rolling sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
COMG 27	3840	Hours: Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain a record of the total hours of operation. This shall be based on written logs or hour meter readings. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
COMG 27	3850	Hours: Monthly Recordkeeping. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total hours of operation for the previous calendar month using the daily records; and 2) The 12-month rolling sum hours of operation for the previous 12-month period by summing the monthly hours of operation for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
EQUI 1	1	Filterable Particulate Matter <= 0.4 pounds per million Btu heat input. The potential to emit from the unit is 0.02 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0515, subp. 1]
EQUI 1	5	Sulfur Dioxide <= 2.0 pounds per million Btu heat input. The potential to emit from the unit is 0.002 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0515, subp. 1]
EQUI 1	3570	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0515, subp. 2]
EQUI 1	3580	Fuel Types: natural gas and distillate fuel oil, only. The Permittee shall retain fuel purchase records on-site. [Minn. R. 7007.0800, subp. 2(A)]
EQUI 1	3590	Sulfur Content of Fuel <= 15 parts per million (0.0015 percent by weight). This limit applies to use of distillate fuel oil No. 2. [Minn. R. 7007.0800, subp. 2(A)]
EQUI 1	3600	The Permittee shall limit distillate fuel oil Fuel Usage <= 31,540 gallons per year 12-month rolling sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. This limit applies to all distillate fuel oil used in EQUI 1. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
EQUI 1	3601	The Permittee shall limit distillate fuel oil Fuel Usage <= 48 hours per calendar year for periodic testing, maintenance, or operator training on liquid fuel as allowed under the definition of gas-fired boiler in 40 CFR 63.11237. Hours of operation using distillate fuel oil during periods of startup, gas curtailment, or gas supply interruptions are not included in the 48-hours. [Minn. R. 7007.0800, subp. 2(A)]

SI ID	Sequence	Requirements
EQUI 1	3602	Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of distillate fuel oil, certifying that the sulfur content of the fuel is less than 0.0015% by weight. [Minn. R. 7007.0800, subps. 4-5]
EQUI 1	3603	Distillate fuel oil: Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain a record of the total gallons of distillate fuel oil used and the reason for the fuel usage (gas curtailment, gas supply interruption, maintenance, operator training, periodic testing, or startup). This shall be based on fuel usage meter readings. [Minn. R. 7007.0800, subps. 4-5]
EQUI 1	3604	Distillate fuel oil: Monthly Recordkeeping. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total gallons of distillate fuel oil used for the previous calendar month using the daily records; and 2) The 12-month rolling sum of total gallons of distillate fuel oil used for the previous 12-month period by summing the monthly total gallons of distillate fuel oil used for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
EQUI 2	1	Filterable Particulate Matter <= 0.4 pounds per million Btu heat input. The potential to emit from the unit is 0.02 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0515, subp. 1]
EQUI 2	3	Sulfur Dioxide <= 2.0 pounds per million Btu heat input. The potential to emit from the unit is 0.002 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0515, subp. 1]
EQUI 2	5	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0515, subp. 2]
EQUI 2	3570	Fuel Type: natural gas and distillate fuel oil, only. The Permittee shall retain fuel purchase records on-site. [Minn. R. 7007.0800, subp. 2(A)]
EQUI 2	3600	The Permittee shall limit distillate fuel oil Fuel Usage <= 48 hours per calendar year for periodic testing, maintenance, or operator training on liquid fuel as allowed under the definition of gas-fired boiler in 40 CFR 63.11237. Hours of operation using distillate fuel oil during periods of startup, gas curtailment, or gas supply interruptions are not included in the 48-hours. [Minn. R. 7007.0800, subp. 2(A)]
EQUI 2	3601	The Permittee shall limit usage of distillate fuel oil Fuel Usage <= 31,540 gallons per year 12-month rolling sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. This limit applies to all distillate fuel oil used in EQUI 2. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a]
EQUI 2	3602	Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of distillate fuel oil, certifying that the sulfur content of the fuel is less than 0.0015% by weight. [Minn. R. 7007.0800, subps. 4-5]
EQUI 2	3603	Distillate fuel oil: Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain a record of the total gallons of distillate fuel oil used and the reason for the fuel oil usage (gas curtailment, gas supply interruption, maintenance, operator training, periodic testing, or startup). This shall be based on fuel usage meter readings. [Minn. R. 7007.0800, subps. 4-5]
EQUI 2	3604	Distillate fuel oil: Monthly Recordkeeping. By the 15th of the month, the Permittee shall calculate and record the following:

SI ID	Sequence	Requirements
		1) The total gallons of distillate fuel oil used for the previous calendar month using the daily records; and 2) The 12-month rolling sum of total gallons of distillate fuel oil used for the previous 12-month period by summing the monthly total gallons of distillate fuel oil used for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
EQUI 22	1	The Permittee shall limit n-propylbromide, also known as 1-Bromopropane <= 6.5 tons per year 12-month rolling sum. [Minn. R. 7007.0800, subp 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	2	The Permittee shall not use TCE in EQUI 22. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	3	Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. [Minn. R. 7011.0715, subp. 1(A)]
EQUI 22	4	Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
EQUI 22	11	The Permittee shall ensure that EQUI 22 be designed or operated to have a reduced room draft as described in 40 CFR Section 63.463(e)(2)(ii). [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	12	The Permittee shall ensure that EQUI 22 has a freeboard ratio of 1.0. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	13	The Permittee shall use the following control combination: Freeboard ratio of 1.0, reduced room draft, and superheated vapor. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	19	The Permittee shall ensure that the temperature of the solvent vapor at the center of the superheated vapor zone is at least 10 degrees F above the solvent's boiling point. An exceedance has occurred if the above requirement has not been met and is not corrected within 15 days of detection. Adjustments or repairs shall be made to EQUI 22 to reestablish required levels. The parameter must be re-measured immediately upon adjustment or repair and demonstrated to be within required limits. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	20	EQUI 22 shall have an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 meters per minute (11 feet per minute) or less from the initial loading of parts through removal of cleaned parts. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	21	EQUI 22 shall be equipped with a vapor level control device that shuts off the sump heat if the vapor level in EQUI 22 rises above the height of the primary condenser. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	22	EQUI 22 shall have a primary condenser. [Minn. R. 7007.0800, sub. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	23	The parts baskets or the parts being cleaned in an open-top batch vapor cleaning machine shall not occupy more than 50 percent of the solvent/air interface area unless the parts baskets or parts are introduced at a speed of 0.9 meters per minute (3 feet per minute) or less. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]

SI ID	Sequence	Requirements
EQUI 22	24	The Permittee shall complete any spraying operations within the vapor zone or within a section of EQUI 22 that is not directly exposed to the ambient air (i.e., a baffled or enclosed area of the solvent cleaning machine). [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	25	The Permittee shall orient parts so that the solvent drains from them freely. Parts having cavities or blind holes shall be tipped or rotated before being removed from EQUI 22 unless an equally effective approach has been approved by the Commissioner. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	26	The Permittee shall not remove parts baskets or parts from EQUI 22 until dripping has stopped. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	27	During startup of EQUI 22, the Permittee shall turn on the primary condenser before the sump heater. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	28	During shutdown of EQUI 22, the Permittee shall turn off the sump heater and allow the solvent vapor layer to collapse before the primary condenser is turned off. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	29	When solvent is added or drained from EQUI 22, the Permittee shall transfer the solvent using threaded or other leakproof couplings and locate the end of the pipe in the solvent sump beneath the liquid solvent surface. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	30	The Permittee shall maintain EQUI 22 as recommended by the manufacturers of the equipment or using alternative maintenance practices that have been demonstrated to the Commissioner's satisfaction to achieve the same or better results as those recommended by the manufacturer. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	32	The Permittee shall collect and store waste solvent, still bottoms, and sump bottoms in closed containers. The closed containers may contain a device that would allow pressure relief, but would not allow liquid solvent to drain from the container. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	33	The Permittee shall not clean sponges, fabric, wood, and paper products. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	35	The Permittee shall ensure that the manufacturer's specifications for determining the minimum proper dwell time within the superheated vapor system are followed. An exceedance has occurred if the above requirement has not been met. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	37	The Permittee shall ensure that parts remain within the superheated vapor for at least the minimum proper dwell time. An exceedance has occurred if the above requirement has not been met. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	41	The Permittee shall use a thermometer or thermocouple to measure the temperature at the center of the superheated solvent vapor zone while EQUI 22 is in the idling mode. The temperature shall be monitored and the results recorded on a weekly basis. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	42	The Permittee shall monitor the hoist speed as described below:

SI ID	Sequence	Requirements
		(1) Determine the hoist speed by measuring the time it takes for the hoist to travel a measured distance. The speed is equal to the distance in meters or feet divided by the time in minutes (meters or feet per minute, respectively). (2) The monitoring shall be conducted monthly. If after the first year, no exceedances of the hoist speed are measured, the Permittee may begin monitoring the hoist speed quarterly. (3) If an exceedance of the hoist speed occurs during quarterly monitoring, the monitoring frequency returns to monthly until another year of compliance without an exceedance is demonstrated. (4) If the Permittee can demonstrate to the Commissioner's satisfaction in the initial compliance report that the hoist cannot exceed a speed of 11 feet per minute (3.4 meters permit minute), the required monitoring frequency is quarterly, including during the first year of compliance. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	43	The Permittee can use alternative monitoring procedures approved by the Commissioner. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	44	Clean Liquid Solvent: The Permittee shall, on the first operating day of every month, ensure that EQUI 22 contains only clean liquid solvent. This includes, but is not limited to, fresh unused solvent, recycled solvent, and used solvent that has been cleaned of soiled materials. A fill line must be indicated during the first month the measurements are made. The solvent level within EQUI 22 must be returned to the same fill-line each month, immediately prior to calculating monthly emissions as specified in Monthly Solvent Emissions Equation, below. EQUI 22 does not have to be emptied and filled with fresh unused solvent prior to the calculations. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	45	Solvent Additions/Deletions Log: The Permittee shall maintain a log of solvent additions and deletions for EQUI 22. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	46	Monthly Solvent Emissions Equation: The Permittee shall, on the first operating day of the month, using the records of all solvent additions and deletions for the previous month, determine solvent emissions (E) from EQUI 22 using the following equation: E= SAi - LSRi - SSRi Where: E = The total solvent emissions from EQUI 22 during the most recent month i, (kilograms of solvent per month) SAi = The total amount of liquid solvent added to EQUI 22 during the most recent month i, (kilograms of solvent per month) LSRi = The total amount of liquid solvent removed from EQUI 22 during the most recent month i, (kilograms of solvent per month) SSRi = The total amount of solvent removed from EQUI 22 in solid waste, obtained as described in Solid Solvent Removed, below, during the most recent month i, (kilograms of solvent per month). [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	47	Solid Solvent Removed (SSR): The Permittee shall, on the first operating day of the month, determine SSRi using the method specified in (i) or (ii) below: (i) From tests conducted using EPA reference method 25d; or (ii) By engineering calculations included in the compliance report. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]

SI ID	Sequence	Requirements
EQUI 22	48	12-month rolling total (ET): The Permittee shall on the first operating day of the month, after 12 months of emissions data are available, determine the 12-month rolling total emissions, ET, for the 12-month period ending with the most recent month using the equation below: ET = Sum (E) If 12 months of emissions data are not available, the Permittee shall on the first operating day of the month determine the extrapolated 12-month rolling total emissions, (ETunit)j, for the j-month period ending with the most recent month using the equation below: (ETunit)j = Sum (Eunit) * 12/j, from j=1 to 12 Where: ETunit = The total solvent emissions over the preceding 12 months, (kilograms of solvent emissions per 12-month period). Eunit = solvent emissions for each month (j) for the most recent 12 months, (kilograms of solvent per month). (ETunit)j = The predicted total solvent emissions over the initial 12 months, (kilograms of solvent emissions per 12-month period). j = The number of months of operating data available. If (ETunit)j exceeds the annual usage limit in 5.6.1, the Permittee shall take corrective action(s) to ensure the annual limit is not exceeded. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	49	The Permittee shall maintain records specified below either in electronic or written form for a period of 5 years: (1) The dates and amounts of solvent that are added to EQUI 22. (2) The solvent composition of wastes removed from EQUI 22 as determined using the Solid Solvent Removed (SSR) procedure above. (3) Calculation sheets showing how monthly emissions and the 12-month rolling total emissions from EQUI 22 were determined, and the results of all calculations. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	50	The Permittee shall maintain the following records, in written or electronic form, for the lifetime of EQUI 22: - Owner's manuals, or if not available, written maintenance and operating procedures, for EQUI 22. - The date of installation for EQUI 22. - Records of the solvent content for each solvent used in EQUI 22. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	51	The Permittee shall maintain the following records, in written or electronic form, for a period of 5 years: - Information on the actions taken to comply with requirements in this permit on EQUI 22. This information shall include records of written or verbal orders for replacement parts, a description of the repairs made, and additional monitoring conducted to demonstrate that monitored parameters have returned to accepted levels. - Records of visual inspections. - Estimates of annual solvent consumption for EQUI 22. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]

SI ID	Sequence	Requirements
EQUI 22	52	The Permittee shall submit an annual report: Due annually, by the 1st of February. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	54	The annual report shall include an estimate of the solvent consumption for EQUI 22 during the reporting period. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	56	The Permittee shall submit a solvent emission report: Due annually, by the 1st of February. The Permittee shall submit a solvent emission report every year. This solvent emission report shall contain the requirements specified below: (1) The average monthly solvent consumption for the affected facility in kilograms per month; (2) The 12-month rolling total solvent emission estimates calculated each month using the Monthly Solvent Emissions Equation requirement and the 12-month rolling total (ETunit); AND (3) This report shall be combined with the annual report required in 6.2.1 into a single report for each facility. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	57	Exceedance: If the applicable emission limit presented in requirement 5.6.1 of this permit is not met, an exceedance has occurred. All exceedances shall be reported as described below in "exceedance report.". [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	58	The Permittee shall submit an exceedance report: Due semiannually, by the 30th of January and July. The Permittee shall submit an exceedance report to the Commissioner semiannually except when the Commissioner determines on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the source, or an exceedance occurs. Once an exceedance has occurred, the Permittee shall follow a quarterly reporting format until a request to reduce reporting frequency is approved. Exceedance reports shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	60	The exceedance report shall include: (1) Information on actions taken to comply with requirements of this permit on EQUI 22, including records of written or verbal orders for replacement parts, a description of the repairs made, and additional monitoring conducted to demonstrate that monitored parameters have returned to accepted levels. (2) If an exceedance has occurred, the reason for the exceedance and a description of the actions taken. (3) If no exceedances of a parameter have occurred, or if a piece of equipment has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	61	If the Permittee is required to submit an exceedance report on a quarterly (or more frequent) basis, the Permittee may reduce the frequency of reporting to semiannual if the conditions below are met: (1) The source has demonstrated a full year of compliance without an exceedance. (2) The Permittee continues to comply with all relevant recordkeeping and monitoring requirements specified herein. (3) The Commissioner does not object to a reduced frequency of reporting for the affected source. [Minn. R. 7007.0800, subp. 2(B), Minn. Stat. 116.07, subd. 4a]
EQUI 22	69	The Permittee shall submit a major amendment application: Due within 120 days of submitting a revised, approved nPB AERA. The amendment application shall specify any nPB reduction methods and, if needed, other changes in facility operations selected to reduce risk from the Permittee's emissions of nPB such that its limit can be increased. In the

SI ID	Sequence	Requirements
		amendment application the Permittee shall include the approved nPB AERA, certified stack testing results if they were used to revise the AERA, and proposed permit conditions to ensure the facility modifications are maintained (i.e., pressure drop on a stack fan to ensure an increased flowrate is maintained). This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0800, subp. 2(B), Minn. R. 7007.0800, subp. 16(L), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	70	If the Permittee selects facility modification(s), such as raising the stack height or decreasing the stack diameter, to reduce risk from the Permittee's emissions of nPB, the Permittee shall submit a notification of the date construction began on the modification(s) identified in the nPB AERA: Due 30 calendar days after Date of Construction Start. Submit the name and number of the Subject Item and the date construction began. The notification shall be submitted electronically on Form CS-02. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0800, subp. 2(B), Minn. R. 7007.0800, subp. 16(L), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	72	If the Permittee selects a nPB reduction method such as routing to existing control equipment or other modification(s) in the nPB AERA, the Permittee shall submit a notification of the actual date of the completion of each change(s) identified in the nPB AERA: Due 15 calendar days after completing each selected modification(s). If the change(s) affects existing equipment, submit the name and number of the Subject Item(s) affected. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7007.0800, subp. 2(B), Minn. R. 7007.0800, subp. 16(L), Minn. Stat. 116.07, subd. 4a(a)]
EQUI 22	3830	Hours <= 8000 hours per year 12-month rolling sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
EQUI 22	3840	Hours: Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain a record of the total hours of operation. This shall be based on written logs or hour meter readings. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000]
EQUI 22	3850	Hours: Monthly Recordkeeping. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total hours of operation for the previous calendar month using the daily records; and 2) The 12-month rolling sum hours of operation for the previous 12-month period by summing the monthly hours of operation for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
EQUI 32	1	Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. [Minn. R. 7011.0715, subp. 1(A)]
EQUI 32	5	Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
EQUI 32	6	40 CFR pt. 63, subp. N is an Applicable Requirement under Minn. R. 7007.0100, subp. 7(D); however, this standard is not delegated to MPCA. [Minn. R. 7007.0100, subp. 7(D)]

SI ID	Sequence	Requirements
EQUI 32	8	The affected source to which the provisions of 40 CFR pt. 63, subp. N apply is each chromium electroplating or chromium anodizing tank at facilities performing hard chromium electroplating, decorative chromium electroplating, or chromium anodizing. [40 CFR 63.340(a), Minn. R. 7011.7120]
EQUI 32	10	At all times, the Permittee must operate and maintain any affected source subject to the requirements of 40 CFR pt. 63, subp. N, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. N have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.342(a)(1), Minn. R. 7011.7120]
EQUI 32	12	A decorative chromium electroplating tank that uses a trivalent chromium bath that incorporates a wetting agent as a bath ingredient is subject to the recordkeeping and reporting requirements of 40 CFR Section 63.346(b)(14) and 40 CFR Section 63.347(i). The wetting agent must be an ingredient in the trivalent chromium bath components purchased from vendors. [40 CFR 63.342(e)(1), Minn. R. 7011.7120]
EQUI 32	3690	After September 21, 2015, the Permittee shall not add PFOS-based fume suppressants to any affected decorative chromium electroplating tank. [40 CFR 63.342(e)(2), Minn. R. 7011.7120]
EQUI 32	7910	The Permittee of an existing affected source shall comply with the requirements in 40 CFR Section 63.342 by and after the compliance dates specified in 40 CFR Section 63.343(a). [40 CFR 63.342(a)(2), Minn. R. 7011.7120]
EQUI 32	8690	If the Permittee operates the trivalent chromium bath without incorporating a wetting agent as a bath ingredient, it is subject to the standards of 40 CFR Section 63.342(d). If the Permittee ceases using a trivalent chromium bath that incorporates a wetting agent, the reporting requirements of 40 CFR Section 63.347(i)(3) must be fulfilled, and the applicable emission limitation must be complied with within the timeframe specified in 40 CFR Section 63.343(a)(7). [40 CFR 63.342(e)(3) & (4), Minn. R. 7011.7120]
EQUI 32	8700	The emission limitations in 40 CFR Section 63.342 apply during tank operation as defined in 40 CFR Section 63.341, and during periods of startup and shutdown as these are routine occurrences for affected sources subject to 40 CFR pt. 63, subp. N. In response to an action to enforce the standards set forth in this subpart, the owner or operator may assert a defense to a claim for civil penalties for violations of such standards that are caused by a malfunction, as defined in 40 CFR Section 63.2. Appropriate penalties may be assessed, however, if the Permittee fails to meet the burden of proving all the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief. [40 CFR 63.342(b)(1), Minn. R. 7011.7120]
EQUI 32	8710	To establish the affirmative defense in any action to enforce such a standard, the Permittee must timely meet the reporting requirements of 40 CFR Section 63.342(b)(1)(ii), and must prove by a preponderance of evidence the items described in 40 CFR Section 63.342(b)(1)(i). [40 CFR 63.342(b)(1)(i), Minn. R. 7011.7120]
EQUI 32	8720	The Permittee seeking to assert an affirmative defense shall submit a written report to the Commissioner with all necessary supporting documentation, that it has met the requirements set forth in 40 CFR Section 63.342(b)(1)(i). This affirmative defense report shall

SI ID	Sequence	Requirements
		be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmation defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard. [40 CFR 63.342(b)(1)(ii), Minn. R. 7011.7120]
EQUI 32	8730	The Permittee shall maintain the following records for each affected source: 1. Records of the bath components purchased, with the wetting agent clearly identified as a bath constituent contained in one of the components. [40 CFR 63.342(e)(1), 40 CFR 63.346(a), 40 CFR 63.346(b)(14), Minn. R. 7011.7120]
EQUI 32	8960	All records shall be maintained for a period of 5 years in accordance with 40 CFR Section 63.10(b)(1). [40 CFR 63.346(a), 40 CFR 63.346(c), Minn. R. 7011.7120]
EQUI 32	8970	The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. A as follows: 40 CFR 63.1(a); 40 CFR 63.1(c)(1); 40 CFR 63.1(c)(2); 40 CFR 63.2; 40 CFR 63.3; 40 CFR 63.4(a); 40 CFR 63.4(b);40 CFR 63.4(c); 40 CFR 63.5(a); 40 CFR 63.5(b); 40 CFR 63.5(d);40 CFR 63.5(e); 40 CFR 63.6(a)(1); 40 CFR 63.6(b)(2); 40 CFR 63.6(c)(1);40 CFR 63.6(c)(2); 40 CFR 63.6(f);40 CFR 63.6(g); 40 CFR 63.7(a)(3); 40 CFR 63.7(e); 40 CFR 63.7(g); 40 CFR 63.8(b)(1); 40 CFR 63.8(f); 40 CFR 63.9(c); 40 CFR 63.9(i);40 CFR 63.9(j); 40 CFR 63.10(a)(5);40 CFR 63.10(a)(6);40 CFR 63.10(a)(7); 40 CFR 63.10(b)(1); 40 CFR 63.10(d)(1); 40 CFR 63.10(f); 40 CFR 63.12; 40 CFR 63.13; 40 CFR 63.14; 40 CFR 63.15(a); and 40 CFR 63.15(b). A copy of 40 CFR pt. 63, subp. A is included in Appendix C. If the standard changes or upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [40 CFR 63.340(b), 40 CFR pt. 63, subp. A, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-1500, Minn. R. 7011.7000, Minn. R. 7011.7120, Minn. R. 7017.1010 & 7017.2025, Minn. R. 7019.0100]
EQUI 259	1	EQUI 259 is not permitted to operate. If the Permittee would like to operate this unit, the Permittee must submit an amendment to change the solvent type to a solvent other than TCE and to add the appropriate requirements. [Minn. R. 7007.0800, subp. 2]
STRU 25	1	The Permittee shall limit the Air Flow Rate <= 100,000 cubic feet per minute The VFD for the building exhaust fan must be programmed to limit the fan operation. [Minn. R. 7007.0800, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, 4a(a), Minn. Stat. 116.385, subd. 3]
STRU 25	6	Cadmium: The Permittee shall conduct an initial performance test due 180 calendar days after permit issuance every 60 months thereafter to measure emissions at the STRU 25 outlet. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into

SI ID	Sequence	Requirements
		the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 18, 320, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date will not reset the test due date for future testing as required by this permit or within a Notice of Compliance letter. Testing conducted more than 60 days prior to the performance test due date satisfies this test due date requirement but will reset future performance test due dates based on the performance test date. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1]
STRU 25	7	Cobalt: The Permittee shall conduct an initial performance test due 180 calendar days after permit issuance every 60 months thereafter to measure emissions at the STRU 25 outlet. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 18, 320, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date will not reset the test due date for future testing as required by this permit or within a Notice of Compliance letter. Testing conducted more than 60 days prior to the performance test due date satisfies this test due date requirement but will reset future performance test due dates based on the performance test date. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1]
STRU 25	8	Chromium, Hexavalent (as Cr): The Permittee shall conduct an initial performance test due 180 calendar days after permit issuance every 60 months thereafter to measure emissions at the STRU 25 outlet. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the

SI ID	Sequence	Requirements
		permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 18, 320, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date will not reset the test due date for future testing as required by this permit or within a Notice of Compliance letter. Testing conducted more than 60 days prior to the performance test due date satisfies this test due date requirement but will reset future performance test due dates based on the performance test date. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1]
STRU 25	9	Nickel, Total (as Ni): The Permittee shall conduct an initial performance test due 180 calendar days after permit issuance every 60 months thereafter to measure emissions at the STRU 25 outlet. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Method 18, 320, or other method approved by MPCA in the performance test plan approval. Testing conducted during the 60 days prior to the performance test due date will not reset the test due date for future testing as required by this permit or within a Notice of Compliance letter. Testing conducted more than 60 days prior to the performance test due date satisfies this test due date requirement but will reset future performance test due dates based on the performance test date. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1]
STRU 25	10	Air Flow Rate: The Permittee shall conduct an initial performance test due 180 calendar days after permit issuance and every 60 months thereafter to verify air flow rate at the STRU 25 outlet. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. The performance test shall be conducted with the Building Exhaust Fan operating at air flow rates ranging from 15,000 cfm to 100,000 cfm using a method approved by MPCA in the performance test plan approval.

SI ID	Sequence	Requirements
		Testing conducted during the 60 days prior to the performance test due date will not reset the test due date for future testing as required by this permit or within a Notice of Compliance letter. Testing conducted more than 60 days prior to the performance test due date satisfies this test due date requirement but will reset future performance test due dates based on the performance test date. [Minn. R. 7007.0800, subp. 4, Minn. R. 7017.2020, subp. 1]
STRU 25	11	The Permittee must limit Cadmium <= 0.0000518 pounds per hour. [Minn. R. 7007.0080, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
STRU 25	12	The Permittee must limit Cobalt <= 0.0000140 pounds per hour. [Minn. R. 7007.0080, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
STRU 25	13	The Permittee must limit Chromium, Hexavalent (as Cr) <= 0.000196 pounds per hour. [Minn. R. 7007.0080, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
STRU 25	14	The Permittee must limit Nickel, Total (as Ni) <= 0.000133 pounds per hour. [Minn. R. 7007.0080, subp. 2(A) & (B), Minn. R. 7009.0020-7009.0090, Minn. Stat. 116.07, subd. 4a(a)]
STRU 25	15	Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the building exhaust fan equipment components. The Permittee shall maintain a written record of these inspections and deviations from proper operation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subps. 4-5]

Attachment 3 – Performance Tests Notices of Compliance

MINNESOTA POLLUTION CONTROL AGENCY

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April 27, 2020

David Birkemeir
Co-operative Plating Co
1605 Iglehart Avenue
Saint Paul, MN 55104

RE: Verification of Test Results for the February 25, 2020 through February 26, 2020 Cadmium, Chromium, Hexavalent Chromium, Cobalt, Nickel, Zinc Performance Test of the Wet Scrubber - High Efficiency (TREA 2) Pursuant to the January 8, 2020 agreement to test

Dear Mr. Birkemeir:

Minnesota Pollution Control Agency (MPCA) staff reviewed the final test report for the performance test conducted on April 10, 2020, at Co-operative Plating Co (Regulated Party) located in Saint Paul, Minnesota.

The MPCA staff has determined that the test results demonstrate the following under test conditions:

Summary of performance test results

Emission unit tested	Limitation basis	Pollutant and emission limit	Test result	Compliance status
TREA 2 Condition #1	NA: Test conducted for emission factor determination	Cadmium (Cd): Pounds per hour (lb/hr). No applicable limit. Test conducted for emission factor determination	Cd: 0.00175 lb/hr	Verified
		Chromium (Cr): No applicable limit. Test conducted for emission factor determination	Cr: 0.00030 lb/hr	Verified
		Cobalt (Co): No applicable limit. Test conducted for emission factor determination	Co: ≤ 0.00001 lb/hr	Verified
		Nickle (Ni): No applicable limit. Test conducted for emission factor determination	Ni: 0.00095 lb/hr	Verified
		Zinc (Zn): No applicable limit. Test conducted for emission factor determination	Zn: 0.00111 lb/hr	Verified
		Hexavalent Chromium (Hex Cr): No applicable limit. Test conducted for emission factor determination	Hex Cr: 0.00014 lb/hr	Verified

Emission unit tested	Limitation basis	Pollutant and emission limit	Test result	Compliance status
TREA 2 Condition #2	NA: Test conducted for emission factor determination	Cd: No applicable limit. Test conducted for emission factor determination	Cd:0.00091 lb/hr	Verified
		Cr: No applicable limit. Test conducted for emission factor determination	Cr: 0.00009 lb/hr	Verified
		Co: No applicable limit. Test conducted for emission factor determination	Co: ≤ 0.0001 lb/hr	Verified
		Ni: No applicable limit. Test conducted for emission factor determination	Ni: 0.00017 lb/hr	Verified
		Zn: No applicable limit. Test conducted for emission factor determination	Zn: 0.00078 lb/hr	Verified
		Hex Cr: No applicable limit. Test conducted for emission factor determination	Hex Cr: 0.000083 lb/hr	Verified

Testing of TREA 2 was conducted at two different conditions. Testing was conducted with the scrubber not operating (Condition #1) and with the scrubber operating (Condition #2). Testing at Condition #2 was conducted with a water flow rate of 133 gallons per minute and a differential pressure of 0.9 inches of water; the differential pressure of the scrubber with the demister was 1.4 inches of water.

In addition, please be advised of the following:

1. The operating conditions met the worst-case operating condition as defined in the approved test plan. Therefore, no new operating limit is applicable pursuant to Minn. R. 7017.2025, subp. 3. However, please be aware that should operations change such that the current definition of worst-case becomes outdated, the MPCA may require a performance test at the new worst-case condition.

2. The Emission Inventory rule, Minn. R. 7019.3000 to 7019.3100, requires the calculation of emissions based on an established hierarchy. In the absence of Continuous Emission Monitor data meeting the requirements of Minn. R. 7019.3040, the next method of calculation, a performance test, must be used. When a performance test for particulate matter, particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers, carbon monoxide, nitrogen oxides, sulfur oxides, volatile organic compounds or lead is conducted and meets the requirements of Minn. R. 7017.2001 to 7017.2060, the results must be used to calculate emissions, unless specified otherwise by Minn. R. 7019.3000 to 7019.3100. It is the Company's responsibility to ensure the results of performance tests are accounted for in their annual emission inventory submittal. Note that the final decision to approve the emission factor for any given inventory year will be made by the Emission Inventory Coordinator.

If you have questions or comments regarding the content of this letter, please contact Marc Severin at 651-757-2716.

Your continued cooperation is appreciated.

Sincerely,

Marc Severin

This document has been electronically signed.

Marc Severin
Environmental Specialist
Industrial Division

MAS:se

cc: Activity ID REP20200001@187

MINNESOTA POLLUTION CONTROL AGENCY

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September 9, 2020

VIA EMAIL

David Birkemeier, President & CEO
Co-operative Plating Co.
1605 Iglehart Avenue
Saint Paul, MN 55104

RE: Verification of Test Results for the July 14, 2020 Cadmium Performance Test of the Wet Scrubber (TREA 2) Pursuant to Air Emission Permit Number 05300499-002 and as response to the April 27, 2020 Verification of Test Result Letter

Dear Mr. Birkemeier:

Minnesota Pollution Control Agency (MPCA) staff reviewed the final test report for the performance test conducted on July 14, 2020, at Co-operative Plating Co (Regulated Party) located in Saint Paul, Minnesota.

The MPCA staff has determined that the test results demonstrate the following under test conditions:

Summary of performance test results

Emission unit tested	Limitation basis	Pollutant and emission limit	Test result	Compliance status
TREA 2	NA: Test conducted for emission factor determination	Cadmium (Cd): Pounds per hour (lb/hr). No applicable limit. Test conducted for emission factor determination	Cd: 0.000029 lb/hr	Verified

The Regulated Party tested while conducting plating operations at the highest level. The Wet Scrubber (TREA 2) was operating with a total water flow of 123 gallons per minute and a differential pressure of 2.5 inches of water column; the differential pressure of TREA 2 with the demister was 3.2 inches of water column. These parameters are within the ranges defined in the approved test plan.

In addition, please be advised of the following:

The Emission Inventory rule, Minn. R. 7019.3000 to 7019.3100, requires the calculation of emissions based on an established hierarchy. In the absence of Continuous Emission Monitor data meeting the requirements of Minn. R. 7019.3040, the next method of calculation, a performance test, must be used. When a performance test for particulate matter, particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers, carbon monoxide, nitrogen oxides, sulfur oxides, volatile organic compounds or lead is conducted and meets the requirements of Minn. R. 7017.2001 to 7017.2060, the results must be used to calculate emissions, unless specified otherwise by Minn. R. 7019.3000 to 7019.3100. It is the Company's responsibility to ensure the results of performance tests are accounted for in their annual emission inventory submittal. Note that the final decision to approve the emission factor for any given inventory year will be made by the Emission Inventory Coordinator.

If you have questions or comments regarding the content of this letter, please contact Marc Severin at 651-757-2716.

Your continued cooperation is appreciated.

Sincerely,

Marc Severin

This document has been electronically signed.

Marc Severin
Environmental Specialist
Industrial Division

MAS:se

cc: Rae Schulte, MPCA
Activity ID REP20200002@187

Attachment 4 – Chromium Emissions Speciation for Selected Source Categories March, 2011

TO: Ted Palma**,** HEID
FROM: Chuck French and Anne Pope, SPPD

DATE: March 11, 2011

SUBJECT: Chromium Emissions Speciation for Selected Source Categories

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I. Purpose

This document provides a summary of the available chromium speciation data for selected source categories addressed in 2005 NATA and the rationale for the chromium speciation values used in the preliminary inhalation risk analyses.

II. Background

Chromium compounds occur in nature and are found primarily in the earth's crust. The largest source of chromium is the ore mineral chromite, $FeCr_2O_4$ or $MgCr_2O_4$, where magnesium can substitute for iron (Guertin, 2005). Chromium can also be found in small concentrations in certain types of igneous rocks, coal, tar, asphalt, and crude oil (Guertin, 2005). Chromium exists in several different oxidation states, but the most stable and most commonly found are hexavalent chromium (+6 valence state) (or Cr VI) and trivalent chromium (+3 valence state) (Cr III) (ATSDR, 2008).

Chromium compounds are used in a variety of industrial applications and operations. They are used in alloys, such as stainless steel; paint pigments; refractory bricks that line furnaces and kilns; wood preservatives; production and processing of insoluble salts; in leather tanning; as catalysts for halogenation, alkylation, and catalytic cracking of hydrocarbons; as fuel and propellant additives; and more (Guertin, 2005). Many of these applications use substances containing CrVI compounds, including various chromates, dichromates, and chromic acid. In addition, some industrial processes may produce chromium emissions, wherein the hexavalent state is favored in an oxidizing alkaline environment, and the trivalent state is favored in a reducing acidic environment (Guertin, 2005).

Cr VI, including its compounds, is classified by U.S. EPA as "a known human carcinogen by the inhalation route of exposure" because there is sufficient scientific evidence that inhalation exposure to this form of chromium increases the risks of cancer in humans (EPA, 1998). Because carcinogenicity by the oral route of exposure cannot be determined based on the information available, it is not classified as to the human carcinogenicity from this route of exposure (EPA, 1998). Cr VI has an inhalation cancer potency value of 0.012 per microgram per cubic meter ($\mu g/m^3$), which means that inhaling Cr VI in air at an average concentration of 1 $\mu g/m^3$ daily for a lifetime poses an estimated increased risk of cancer of 12,000 in a million (EPA, 1998). This inhalation cancer potency value is among the highest values of the hazardous air pollutants (HAP)

listed in the Clean Air Act. On the other hand, trivalent chromium (Cr III) is "not classified as to its human carcinogenicity," as no data are available on the carcinogenic potential of chromium (III) compounds alone (EPA, 1998). Therefore, it has no cancer potency value for inhalation or ingestion exposures and is not evaluated for cancer effects in risk assessments.

For non-carcinogenic effects, Cr VI has a Reference Concentration for Chronic Inhalation Exposure (RfC) inhalation value of 0.0001 per milligram per cubic meter (mg/m^3), which means that a person inhaling Cr VI in air at an average concentration of 0.0001 mg/m^3 or less daily is likely to be without an appreciable risk of deleterious effects during a lifetime (EPA, 1998). On the other hand, data are considered to be inadequate for development of an RfC for Cr III due to the lack of a relevant toxicity study addressing respiratory effects of Cr III (EPA, 1998). Therefore, it has no non-cancer dose-response value for inhalation and is not evaluated for non-cancer effects in risk assessments. Thus, when estimating the increased risk of cancer due to chromium emissions, the determination of the percent Cr VI versus Cr III, is a major factor for estimating the extent and magnitude of the risks.

A preliminary risk assessment was conducted based on data extracted from EPA's 2005 National-Scale Air Toxics Assessment (NATA) National Emissions Inventory (NEI). While chromium emissions are sometimes reported in the NEI as the specific compound emitted (e.g., potassium dichromate, strontium chromate, etc.) they can also be reported to the NEI as a general category of emissions such as "chromium & compounds," or "chromium." As the toxicity of these compounds is largely dependent on the oxidation state, it is an important factor in evaluating the health effects from exposure to chromium compounds. Where the specific compound or oxidation state of chromium is reported, the appropriate dose response value may be applied for the purposes of risk assessment. However, for generically reported chromium emissions, there is no information provided regarding the oxidation state of the chromium. For the source categories with generically reported chromium emissions, available data were examined to determine the proportions of emissions that would likely be in the Cr VI and Cr III oxidation states. Preliminary "speciation profiles" were developed from this effort and applied in the preliminary risk analyses.

III. General Approach for Developing Speciation Profiles for Source Categories

The available chromium speciation data were examined for source categories. The available chromium speciation data ranged from no data available at all for a few source categories, to speciated data for individual emission point types for source categories. For several source categories, speciation data were available at a facility-wide level for one or more facilities in the source category.

In general, the data were examined and evaluated, and the speciation profile determined to be most appropriate for each source category was chosen according to a hierarchy in the quality of the data. Where available, emission point-specific speciation

data from that source category was given the highest weighting. Next in the hierarchy, overall emissions speciation data that represented the profile for an entire facility (as opposed to individual emission points at the facility) were considered. If data for a particular source category were unavailable or very limited, then we reviewed available data and information about chromium emissions from other similar industrial source categories or similar processes. In some cases, we also considered the NEI default chromium speciation values for a source category or emission point type when source category data were not available or limited.

Since the available chromium speciation data are sparse for most source categories, a conservative approach was applied in determining an appropriate profile. For example, if available data indicated a range of percentages for Cr VI, the higher end of the range was generally selected. Also, in general, an overall maximum value (or upper end value) was selected to be applied source category-wide to all emission points and at all facilities with generically reported chromium emissions.

While we believe the conservative approach applied in determining chromium speciation profiles to use for the preliminary risk analyses is appropriate, the chromium speciation profiles will be re-evaluated considering data received from information collection requests (ICR) under CAA Section 114, public comments received in response to proposed rule-making, and any relevant emissions test data that EPA may obtain from other efforts. Depending upon the amount and quality of data available during this re-evaluation, a less conservative approach may be applied. In addition, where available, emission point type-specific chromium speciation profiles may be applied. Any revised chromium speciation values will be applied in the risk analyses performed for the purposes of developing residual risk standards.

The following sections describe the data, analyses, assumptions, and conclusions regarding chromium speciation for selected source categories included in the 2005 NATA with generically reported chromium emissions.

IV. Chromium Speciation for Specific Source Categories

1. Coal Boilers

Chromium is naturally present as a trace element in coal. When coal is burned, chromium is released to the atmosphere. The quantity of chromium emitted is dependent on many factors including the concentration of chromium in the coal, control device efficiency and type of boiler. Based on source test data from 7 units, an assumption of 12% hexavalent chromium is used for coal boilers in 2005 NATA modeling. The 7 units included 4 utility boilers and 3 industrial boilers. The average hexavalent chromium for the 4 utility boilers was 11 % and the range for the 4 tests was 0.4 % to 23%. (1998 EPA "Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress. U.S. EPA #453/R-98-004. February 1998). As part of the development of industrial boiler rule in 2000, hexavalent chromium was measured at 3 industrial boiler units. The average hexavalent chromium for the 3 industrial boilers

was 12% (Emissions database compiled November 30, 2000, in support of National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and process Heaters, Final Rule, 69FR55217 September 13, 2004) Because of the limited number of units tested, the utility and industrial boiler data sets were combined and the more conservative value of 12% was used as a default in the 2005 NATA.

2. Ferroalloys Production

Ferroalloys are alloys of iron and one or more other elements, such as chromium, manganese, and/or silicon. Ferroalloy production occurs when an electric arc furnace (EAF) is charged with raw materials to begin smelting the ores. The molten product is "tapped" or poured from the furnace. Raw material and product handling (e.g., crushing and screening operations) also occur as part of the ferroalloy production process. Emissions of chromium compounds may be caused by chromium present in the EAF feedstocks (coal and ore) and/or the refractory linings of the furnaces.

The ANPRM data set for the ferroalloys production source category includes one facility with chromium emissions (out of a total of three facilities), which are reported generically as "chromium & compounds" and "chromium" emissions.

During the development of the MACT for ferroalloys, there was a ferrochromium (FeCr) plant (Macalloy) located at Charleston, South Carolina. This facility was a potential major source of HAP, but closed down before the MACT standard was promulgated. A letter addressed to Conrad Chin (Environmental Engineer, U.S. EPA) from the South Carolina Department of Health and Environmental Control (DHEC) dated December 19, 1996, contains a table that provides Cr VI emissions data from electric arc furnaces (EAF) no. 15 and no. 14 of the Macalloy facility (South Carolina DHEC, 1996). Based on these data, Cr VI comprises approximately 2 percent of the total chromium emissions from the EAFs.

We do not have speciated chromium emissions data for other Ferroalloys production processes (e.g., for ferromanganese or silicomanganese). However, we do have some data for EAFs used for steel production. We believe that steel production EAFs, particularly EAF melting processes, are somewhat similar to ferroalloy processes, in that similar feedstocks are used and the EAF would include similar refractory linings. Therefore, we also reviewed the chromium data for the melting process from steel production EAFs for possible application to the ferroalloy category. We have Cr VI data for the baghouse dust from EAF melting for one steelmaking facility. These data include 9 samples of EAF melting baghouse dust that ranged from 0.8 percent to 2.5 percent Cr VI; the average of these data was 1.5 percent; and, the median was 1.4 percent (Consumers Energy, Laboratory Services, 2004). These data, all from a single plant, are not from emissions stack test data but rather are from analyses of EAF baghouse dust (i.e., we assumed that captured baghouse dust concentrations are the same as the dust concentrations emitted from the baghouse). We believe the EAF melting data from the baghouse dust is appropriate for ferroalloy production because the steel production EAF melting is similar to ferroalloys processing.

Based on these data, and assuming that captured baghouse dust concentrations are the same as the dust concentrations emitted from the baghouse, the estimated Cr VI emissions from one closed ferroalloy facility were 2 percent of the total chromium emissions generated by the EAF, and emissions of Cr VI are a maximum of 2.5 percent of EAF total chromium emissions at one steel production facility. Applying a conservative approach, we have assumed that 3 percent of the total chromium emissions from ferroalloys production facilities are Cr VI, and that 97 percent are Cr III, and this speciation profile was used in the preliminary risk analysis for generically reported chromium emissions.

3. Oil Boilers

Chromium is naturally present as a trace element in oil. When oil is burned, chromium is released to the atmosphere. The quantity of chromium emitted is dependent on many factors including the concentration of chromium in the oil, control device efficiency and type of boiler. Based on source test data from 7 units, an assumption of 18% hexavalent chromium is used for coal boilers in 2005 NATA modeling. The average hexavalent chromium for the 7 utility boilers was 18 %, and the range for the 7 tests was 5 % to 34%. (1998 EPA "Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress. U.S. EPA #453/R-98-004. February 1998).

4. Pesticide Active Ingredient Production

Pesticide Active Ingredient (PAI) Production facilities manufacture active ingredients in insecticides, herbicides, fungicides, and related products. Typically, the active ingredients are subsequently formulated with inert ingredients to create end-product pesticides for application.

Emissions of chromium compounds are generally not expected from facilities in this source category. However, chromium emissions are included in the ANPRM data set for one facility (out of a total of 18 facilities), and are reported generically as "chromium & compounds" and "chromium" emissions.

We have no data for the PAI facility reporting chromium emissions that would provide a chromium speciation profile or information to develop such a profile. Consequently, we considered using chromium speciation data from source categories with similar processes. However, as chromium emissions appear to be unique to one PAI facility and are not necessarily emitted by a specific process used within this industry or other industries, a process-type comparison between facilities or industries was not appropriate in this case. We next considered the NEI default chromium speciation profiles. The NEI does not have a default chromium speciation profile specific to the MACT code for PAI production (0911), but there is a NEI default chromium speciation profile specific to the SCC for these emissions (30190013) of 4 percent Cr VI and 96

percent Cr III. Considering that all the chromium emissions for this source category are from one facility and one emissions point classified by this SCC, we applied the NEI default chromium speciation profile to these generically reported chromium emissions. Therefore the speciation profile used in the preliminary risk analysis was 4 percent Cr VI and 96 percent Cr III.

5. Phosphoric Acid and Phosphate Fertilizer Production

Phosphoric acid production facilities produce phosphoric acid by reacting phosphate rock with sulfuric acid. Phosphate fertilizer production facilities react phosphoric acid or phosphate rock with other materials to create a fertilizer product. These operations are generally co-located, as phosphoric acid manufacturing facilities provide feedstock for phosphate fertilizer production facilities, and much of the phosphoric acid produced in the U.S. is consumed in the manufacture of fertilizers. Chromium emissions from these source categories originate from native chromium that is present in the phosphate rock ore.

The ANPRM data set for these facilities includes emissions for both source categories together. Of the 15 facilities in the ANPRM data set for the phosphoric acid and phosphate fertilizer production source categories, 2 facilities report "chromium" emissions.

We have no emissions data specific the facilities reporting these chromium emissions or to the phosphoric acid or phosphate fertilizer production industries that would provide a chromium speciation profile or information to develop such a profile for these processes. As such, we considered using chromium speciation data from source categories with similar processes. Another facility type that produces inorganic chemicals and that also processes ore containing chromium compounds are chromium chemicals production facilities. We have emissions tests from 1996 and 2000 for two facilities that manufacture chromium chemicals, which include chromium speciation measurements. The estimates of chromium speciation were 20 percent Cr VI and 80 percent Cr III for one facility and 21 percent Cr VI and 79 percent Cr III for the other facility (METCO 1996 and 2000). We expect that ores used for chromium chemicals manufacturing would have much higher levels of total chromium than phosphate rock ores. However, the speciation of the chromium that is in the ores used by these industries and that is emitted through the ore processing and production of the inorganic chemicals could be similar.

In the absence of chromium speciation data specific to phosphoric acid and phosphate fertilizer production facilities, we applied a conservative approach and assumed that the proportion of Cr VI emissions from phosphate fertilizer and phosphoric acid production facilities is similar to the upper end of the proportion of Cr VI emissions from chromium chemical production facilities. As the proportion of Cr VI measured at two of these facilities was 20 percent and 21 percent, and considering the possible differences in the ores used in by the chromium chemical production facilities and the ores used by phosphoric acid and phosphate fertilizer production facilities, we

conservatively assumed a value of 25 percent of the total chromium emissions from phosphoric acid and phosphate fertilizer production facilities are Cr VI, and that 75 percent are Cr III. This speciation profile was used in the preliminary risk analysis for generically reported chromium emissions for these source categories.

6. Pulp and Paper Production

The pulp and paper production source category includes any facility engaged in the production of pulp and/or paper, including integrated mills (where pulp alone or pulp and paper or paperboard are manufactured on-site), non-integrated mills (where paper or paperboard are manufactured, but no pulp is manufactured on-site), and secondary fiber mills (where waste paper is used as the primary raw material). The pulp and paper production operations (e.g., pulping, bleaching, and chemical recovery) are addressed in three MACT standards as follows:

- **MACT I** (40 CFR 63, subpart S) - regulates hazardous air pollutant (HAP) emissions from the pulp production areas and bleaching operations at chemical pulp mills (Kraft, sulfite, semi-chemical, and soda wood pulping processes)
- **MACT II** (40 CFR 63, subpart MM) - regulates HAP emissions from the chemical recovery combustion areas of chemical pulp mills (kraft, sulfite, semi-chemical, and soda pulping processes)
- **MACT III** (40 CFR 63, subpart S) - regulates HAP emissions from pulp and paper production areas of pulp mills using mechanical, secondary fiber, and non-wood pulping, and papermaking systems at all mills

Emissions of chromium and other metallic HAP are not expected from MACT I and III sources (other than for supplemental or in-process fuel use), but are expected from many of the MACT II chemical recovery combustion sources (e.g., direct contact evaporator (DCE) and nondirect contact evaporator (NDCE) recovery furnaces) at kraft, soda, sulfite, and stand-alone semichemical pulp mills; and lime kilns and smelt dissolving tanks at kraft and soda pulp mills.

Three ANPRM data sets were created for pulp and paper facilities. The contents of the data sets are based on the process MACT codes assigned to NEI records: (1) emissions regulated by MACT I and MACT III, (2) emissions regulated by MACT II, and (3) emissions from other pulp and paper sources at pulp and paper mills that are not specifically identified as being regulated by MACTs I, II, or III or other MACTs. Of the 168 facilities in the MACT I and III pulp and paper ANPRM data set, six facilities report "chromium & compounds" emissions, six report emissions of "chromium," and one reports emissions of Cr VI; of the 141 facilities in the MACT II pulp and paper ANPRM data set, 22 facilities report "chromium & compounds" emissions, 23 report emissions of "chromium," 30 report emissions of Cr VI, 21 report emissions of Cr III, two report emissions of chromic acid (VI), one reports emissions of calcium chromate, one reports emissions of sodium chromate, and one reports emissions of sodium dichromate; and of the 107 facilities in the "other sources" pulp and paper ANPRM data set, one facility reports "chromium & compounds" emissions, 3 report emissions of "chromium," one

reports emissions of Cr VI, and one reports emissions of Cr III. The generically reported "chromium" and "chromium & compounds" emissions comprise over 99 percent of all the reported chromium emissions in the MACT I and III data set; approximately 38 percent of all the reported chromium emissions from the MACT II data set; and over 99 percent of all the reported chromium emissions from the "other sources" data set.

Some data were available from the industry to characterize emissions from MACT II emissions sources at pulp and paper facilities. The National Council for Air and Stream Improvement (NCASI) has produced a technical bulletin, *Technical Bulletin (TB) 858*, that contains emissions factors and summaries of emission test results for total chromium and Cr VI for some MACT II emissions sources (NCASI, 2003). For emissions sources in which several total chromium and Cr VI emission test results were presented, we selected the median value for each, based upon assuming all non-detects were half of the detection limits, which is a common approach used to estimate emissions when samples are below detection limit. We then divided the Cr VI emissions by the total chromium emissions to determine the approximate percentage of Cr VI. In other instances, only total chromium emissions data were presented, and we could not determine chromium speciation from this information. For these emissions sources, the general NEI default chromium speciation was assigned (34 percent Cr VI and 66 percent Cr III). We have no emissions data specific to the MACT I and III or "other" sources at pulp and paper facilities that could be used to develop a chromium speciation profile for the generically reported "chromium" or "chromium & compounds" emissions. However, the NEI has default chromium speciation profiles specific to many of the SCCs for these emissions sources, and we applied these NEI default chromium speciation profiles to these emissions. Table 1 shows the chromium speciation applied to each type of emission point at pulp and paper facilities and the source of the speciation data. These speciation profiles were used in the preliminary risk analysis for generically reported chromium emissions.

Table 1. Pulp and Paper Chromium Speciation

Pulp and Paper Process Units	**Emissions Source(s)**	**SCC**	**Estimated % Cr VI**	**Basis**
MACT I and III - Pulp and bleach systems at kraft, soda, sulfite, and semichemical pulping mills	unknown operations, fuel use – unknown fuel, and pulping not classified operations	30700X99	100	NEI default
	fuel use - unknown fuel	3079XXXX	34	General NEI default
	Fuel Fired Equipment: Natural Gas: Process Heaters, Fuel Fired Equipment: Natural Gas: Incinerators, In-Process Fuel Use: Natural Gas, General	30790003 30790013 39000699	4	NEI default
	wastewater	30700121	19	NEI

				default
	causticizing	30700122	25	NEI default
MACT II - Chemical recovery combustion sources at kraft, soda, sulfite, and stand-alone semichemical pulping mills	smelt dissolving tank	30700105	100	NCASI
	unknown operations, neutral sulfite semichemical pulping, and pulping not classified	30700X99	100	NEI default
	recovery furnace/indirect contact evaporator	30700110	75	NCASI
	lime kiln (with ESP), MgO recovery system, NH3 recovery system, Na recovery system, and fluid bed reactor	30700106,30700221, 30700222, 30700223, 30700303	34	General NEI default
	recovery furnace/direct contact evaporator	30700104	25	NCASI
	incineration of sludge	50300506	19	NEI default
	process heater – oil, incinerator – oil, lime kiln burning oil	30790001, 30790002, 30790011, 30790012, 39000403, 39000503	18	NEI default
	lime kiln (with wet scrubber)	30700106	10	NCASI
	process heater – natural gas, incinerator - natural gas, incinerator - process gas, lime kiln burning natural gas, in process fuel use – natural gas	30790003, 30790013, 30790014, 39000603, 39000699	4	NEI default
	unknown operations	39999999	100	NEI default
Other, non-MACT processes	incineration and incineration of sludge	50300107, 50300506	19	
	fuel use – natural gas and in process fuel use – natural gas	39000699	4	

7. Secondary Aluminum Production

Secondary aluminum production facilities recover aluminum from scrap materials such as beverage cans, foundry returns, dross, and other aluminum scrap. These facilities conduct the following operations: (1) preprocessing of scrap aluminum, including size reduction and removal of oils, coatings, and other contaminants, (2) furnace operations including melting, in-furnace refining, fluxing, and tapping, (3) additional refining, by means of in-line fluxing, and (4) cooling of dross.

Emissions of chromium compounds may be caused by chromium present in the furnace feedstock ((i.e., the scrap aluminum) and/or the refractory linings of the furnaces. Secondary aluminum feedstock may contain chromium from impurities in the scrap metal (such as auto parts) and from contamination of oils, grease, paints and lubricants on the aluminum scrap being fed into the furnace. Additionally, refractory linings of various parts of the furnace and its appendages contain chromium compounds or chromium ore, which is emitted from the furnace along with the other metal HAP emissions.

Of the 180 facilities in the ANPRM data set for the secondary aluminum production source category, 70 facilities report "chromium" emissions, 9 report emissions of "chromium & compounds," 5 report emissions of Cr VI, and 2 report emissions of Cr III. The generically reported "chromium" and "chromium & compounds" emissions comprise over 99 percent of all the reported chromium emissions from the source category.

We have no emissions data specific to the secondary aluminum industry that could be used to develop a chromium speciation profile for the generically reported "chromium" or "chromium & compounds" emissions from secondary aluminum production processes. We have reports from tests conducted at secondary aluminum facilities for which total chromium emissions were measured, but these tests did not measure the Cr VI fraction of the total chromium emissions. Because the types of metal being recycled vary significantly from one facility to another, and because of lack of data for these facilities, it is not possible, at this time, to use industry-specific data to estimate chromium speciation for the overall industry. We considered using chromium speciation data from facilities in source categories that have similar processes or equipment, such as wool fiberglass facilities. Facilities in both the wool fiberglass and the secondary aluminum source categories use furnaces that have linings made of refractory material containing chromium. Due to these refractory materials, melt furnaces have been identified as one of the primary sources of chromium emissions from wool fiberglass production. While chromium emissions for these furnaces may be similar for both source categories, there is uncertainty about the amount of Cr VI that is in the scrap aluminum feed, and this speciation could vary depending on the specific characteristics of the scrap material. Considering the Cr VI speciation profile for wool fiberglass melt furnaces ranges from 5 percent to 95 percent (see the wool fiberglass section for more information about this speciation range), the uncertainty of the chromium speciation of the scrap feed material, and in applying a conservative approach, we have assumed that 100 percent of the total chromium emissions from secondary aluminum production facilities are Cr VI, and that 0 percent are Cr III. This speciation profile was used in the preliminary risk analysis for generically reported chromium emissions.

8. Secondary Lead Smelting

Secondary lead smelting facilities use blast, rotary, reverberatory, and/or electric furnaces to recover lead metal from lead-bearing scrap materials, primarily lead-acid batteries. Processes at these facilities include: (1) breaking lead acid batteries and

separating the lead-bearing materials from the other materials, including the plastic case material and acid electrolyte, (2) melting lead metal and reducing lead compounds to lead metal in the smelting furnace, and (3) refining and alloying the lead to customer specifications. While it has been established that emissions of chromium from these facilities occur, the source of these emissions is not known.

The ANPRM data set for the secondary lead smelting source category includes 15 facilities with chromium emissions (out of a total of 15 facilities). The dataset includes records for "chromium" emissions for these facilities.

The data available on speciated chromium emissions from secondary lead smelters is limited to test data from one facility in California (Exide). However, as operations at this facility are considered typical for the source category, chromium emissions are expected to be similar at other smelters. In October 1991 and February 1992, Exide sampled baghouse dusts from multiple emissions points (EC/R, 2006). In the four emissions source types examined at the facility - a blast furnace, material storage unit, reverberatory furnace, and rotary dryer, total chromium and Cr VI were measured. The concentration of total chromium in the sampled dust ranged from 20 to 120 mg/kg. The concentration of Cr VI was below the detection limit of 0.25 mg/kg in each of the samples. If we assume Cr VI is one-half the detection limit (0.125 mg/kg), which is a common approach used to estimate emissions when samples are below detection limit, the range of the percent of Cr VI would be 0.1 percent (0.125 mg/kg ÷ 120 = 0.001) to 0.6 percent (0.125 mg/kg ÷ 20 mg/kg = 0.00625), depending on the amount of total chromium assumed (EC/R, 2006).

Based on these data, and assuming that captured baghouse dust concentrations are the same as the dust concentrations emitted from the baghouse, the estimated range of Cr VI emissions for secondary lead smelters are from 0.1 percent to 0.6 percent of the total chromium emissions generated. Applying a conservative approach, we have assumed that 1 percent of the total chromium emissions from secondary lead smelters are Cr VI, and that 99 percent are Cr III. This speciation profile was used in the preliminary risk analysis for generically reported chromium emissions.

9. Wood Furniture (Surface Coating)

The Wood Furniture Manufacturing industry encompasses the manufacture of a range of wood and wood-based products, including kitchen cabinets, residential furniture, office furniture and fixtures, partitions, shelving, lockers, and other wood furniture. The MACT standard for this source category covers the finishing, gluing, cleaning, and wash off operations at wood furniture manufacturing facilities. Emissions of chromium compounds from these facilities may be caused by the use of varnishes, glazes, paints, and other coatings that contain chromium.

Of the 644 facilities in the ANPRM data set for the wood furniture surface coating source category, 48 facilities report "chromium & compounds" emissions, 13 report emissions of "chromium," and 10 report emissions of Cr III. The generically reported

"chromium" and "chromium & compounds" emissions comprise approximately 22 percent of all the reported chromium emissions from the source category.

To determine whether there could be Cr VI emissions from these facilities, EPA contacted representatives from the industry trade association (American Furniture Manufacturers Association) and two of the primary coating suppliers (Kazoo Nobel and Valspar). Based on these oral communications, we conclude that no product formulations for coatings used in the wood furniture industry contain Cr VI compounds. Therefore, we have assumed that 0 percent of the total chromium emissions from wood furniture manufacturing (surface coating) facilities are Cr VI, and that 100 percent are Cr III. This speciation profile was used in the preliminary risk analysis for generically reported chromium emissions.

10. Wool Fiberglass Production

Wool fiberglass is manufactured in a process that forms thin fibers from molten glass using raw materials such as sand, feldspar, sodium sulfate, anhydrous borax, boric acid, or other materials. A typical wool fiberglass manufacturing line consists of the following processes: (1) preparation of molten glass; (2) formation of fibers into a wool fiberglass mat; (3) curing the binder-coated fiberglass mat; (4) cooling the mat; and (5) backing, cutting, and packaging the finished product. According to the North American Insulation Manufacturers Association (NAIMA), Cr VI emissions are generated primarily from high temperature erosion and corrosion of refractory materials that contain chromium and some chromium is also generated from tramp chromium materials in the batch (Crane, 2008). Melt furnaces and all riser/channel/conditioner/forehearth systems that are constructed from chromium-bearing refractory materials emit Cr VI (Crane, 2008).

Of the 35 facilities in the ANPRM data set for the wool fiberglass production source category, 24 facilities report "chromium & compounds" emissions, 5 report emissions of "chromium," 3 report emissions of Cr VI, and 1 reports emissions of Cr III. The generically reported "chromium" and "chromium & compounds" emissions comprise over 95 percent of all the reported chromium emissions from the source category.

Information provided by NAIMA reports estimated percentages of Cr VI relative to total chromium emissions for the equipment that generates chromium emissions at wool fiberglass production facilities. This information is based on stack sampling conducted over the past several years and compiled by NAIMA (Crane, 2008). Table 2 summarizes this information.

Table 2. Cr VI as a Percent of Total Chromium Emissions for Chromium Emissions Sources at Wool Fiberglass Production Facilities

Chromium Emissions Source Type	Cr VI Percent of Total Chromium Emissions
Melt furnace - OxyFuel unit with a precipitator	95%

Melt furnace - OxyFuel unit with electric-boost and a precipitator	85%
Melt furnace - electric (TECO, Intech, Western Fiberglass Hot Spot, etc.)	5%
Melt furnace - hot top other than an OxyFuel unit	75%
Channel/forehearth - sealed, un-vented electric	40%
Channel/forehearth - gas fired and vented	60%
Channel/forehearth - hybrid using burner and electric resistance heating	75%
Channel/forehearth - cooled without added heating	30%

In addition to this data, information provided to EPA by the Kansas Department of Health and Environment, indicates that one facility, Owens Corning in Kansas City, KS estimates Cr VI makes up 76 to 77 percent of total chromium emissions from melt furnaces and conditioning processes (Edmiston-Bennett, 2008).

Based on these data, the estimated Cr VI emissions range from 5 percent to 95 percent of the total chromium emissions from melt furnaces and range from 30 percent to 75 percent of the total chromium emissions from channel/forehearths. As our data do not indicate the specific type of equipment used by facilities, and given the wide variation in the estimated chromium speciation, we have applied a conservative approach and assumed that 100 percent of the total chromium emissions from all emission points emitting chromium at wool fiberglass production facilities are Cr VI, and that 0 percent are Cr III. This speciation profile was used in the preliminary risk analysis for generically reported chromium emissions.

D. Summary of Chromium Speciation Profiles for Selected 2005 NATA Categories

The following table presents a summary of the estimated percent Cr VI and Cr III used in the 2005 NATA preliminary inhalation risk analyses for each source category, along with the data used to support these estimates.

Table 3. Summary of Chromium Emissions Speciation for Selected Source Categories in the 2005 NATA

Source Category	% Cr VI	% Cr III	Basis for speciation
Coal Boilers	12	88	Source test data
Ferroalloys Production	3	97	Source category test data, surrogate source category test data
Pesticide Active Ingredient Production	4	96	NEI SCC default
Phosphate Fertilizer and Phosphoric Acid	25	75	Surrogate source category test data

Source Category	% Cr VI	% Cr III	Basis for speciation
Production			
Pulp and Paper Production	4 to 100 depending on type of process unit	0 to 96 depending on type of process unit	Industry data, NEI SCC defaults
Secondary Aluminum Production	100	0	Surrogate source category test data
Secondary Lead Smelting	1	99	Source category test data
Wood Furniture (Surface Coating)	0	100	Discussion with trade association and coatings suppliers
Wool Fiberglass Production	100	0	Trade association reported estimates

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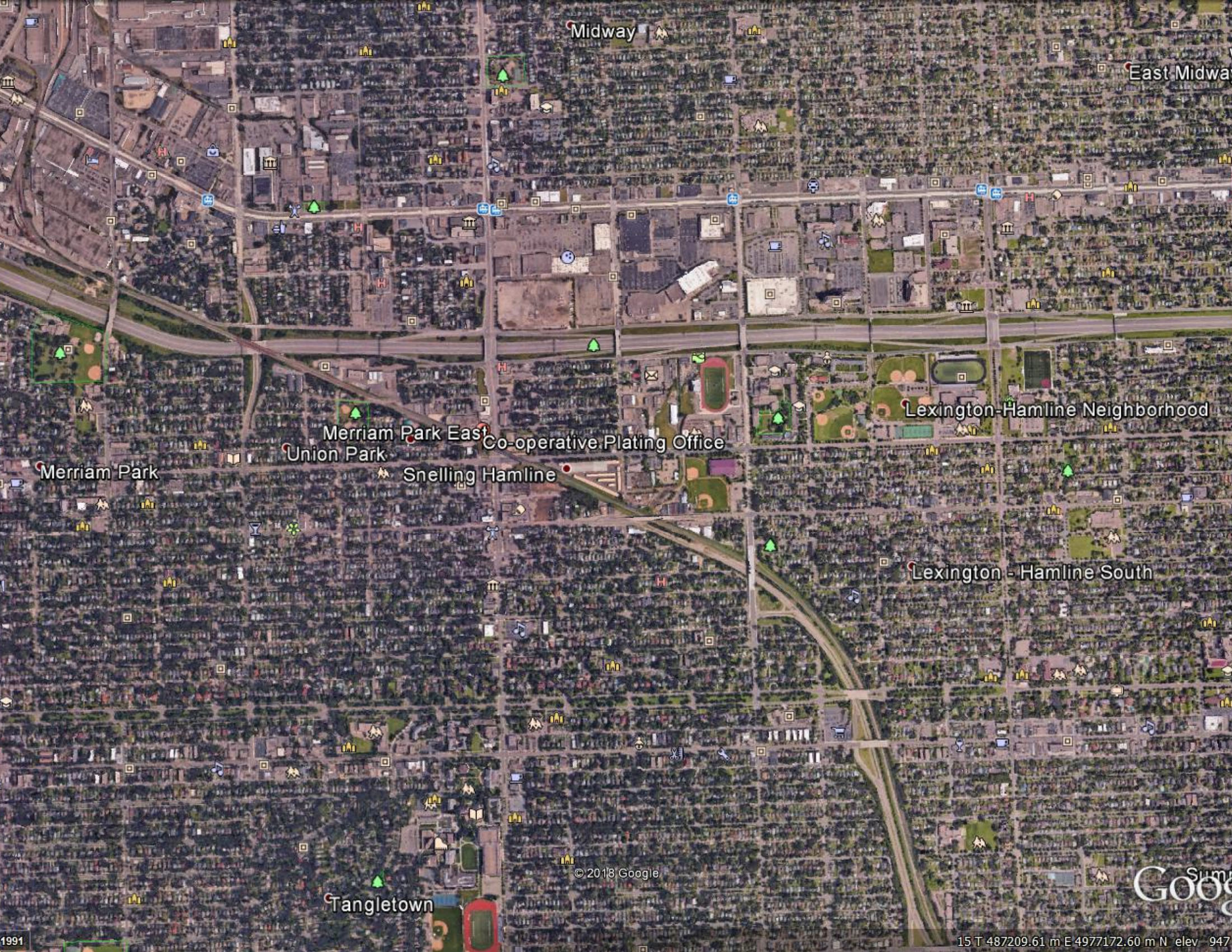
Attachment 5 – AERA Additional Information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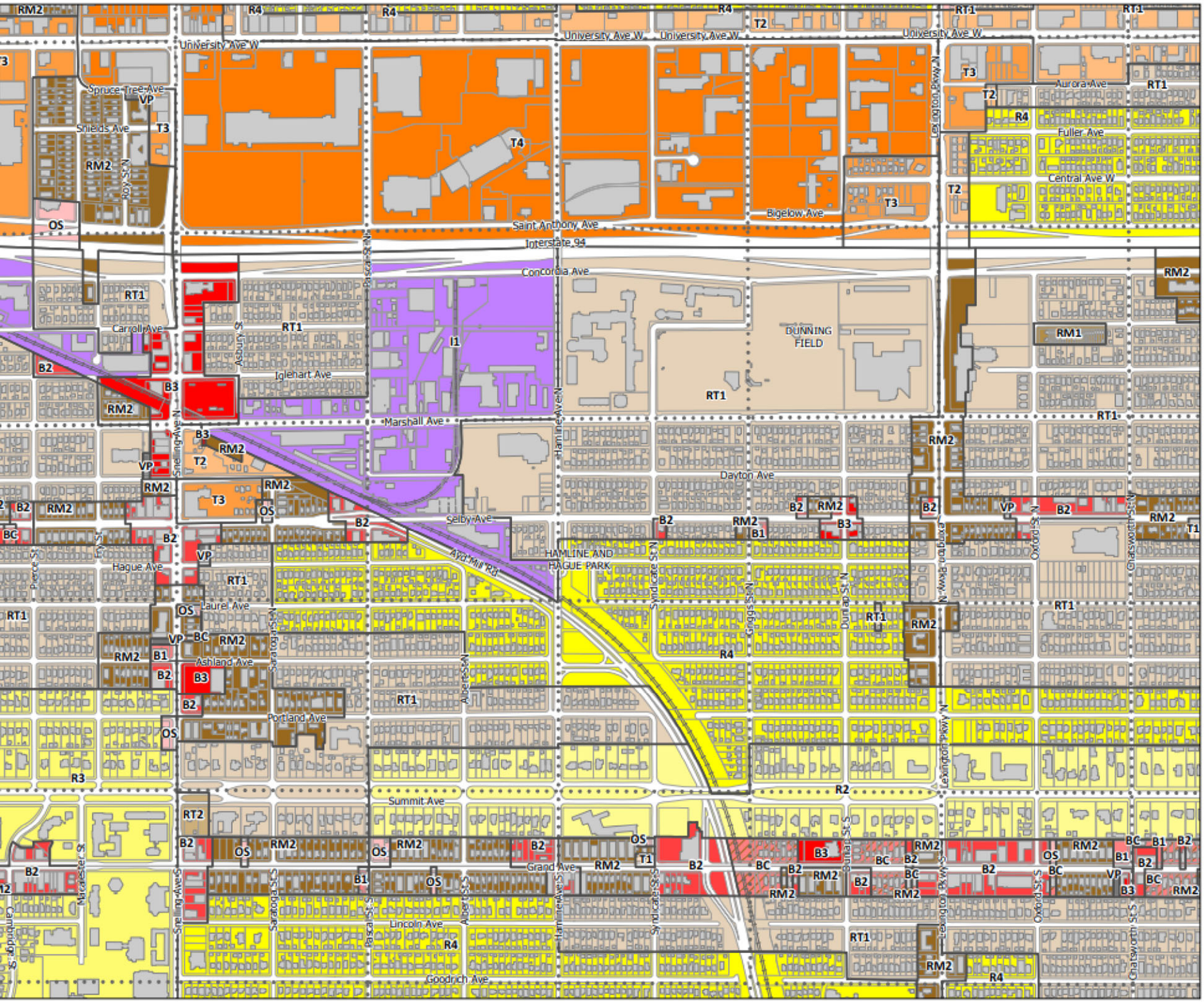

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- R4 One-Family
- RT1 Two-Family
- RT2 Townhouse
- RM1 Multiple-Family
- RM2 Multiple-Family
- RM3 Multiple-Family
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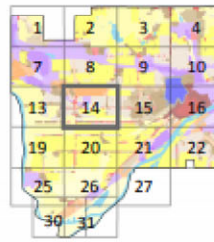

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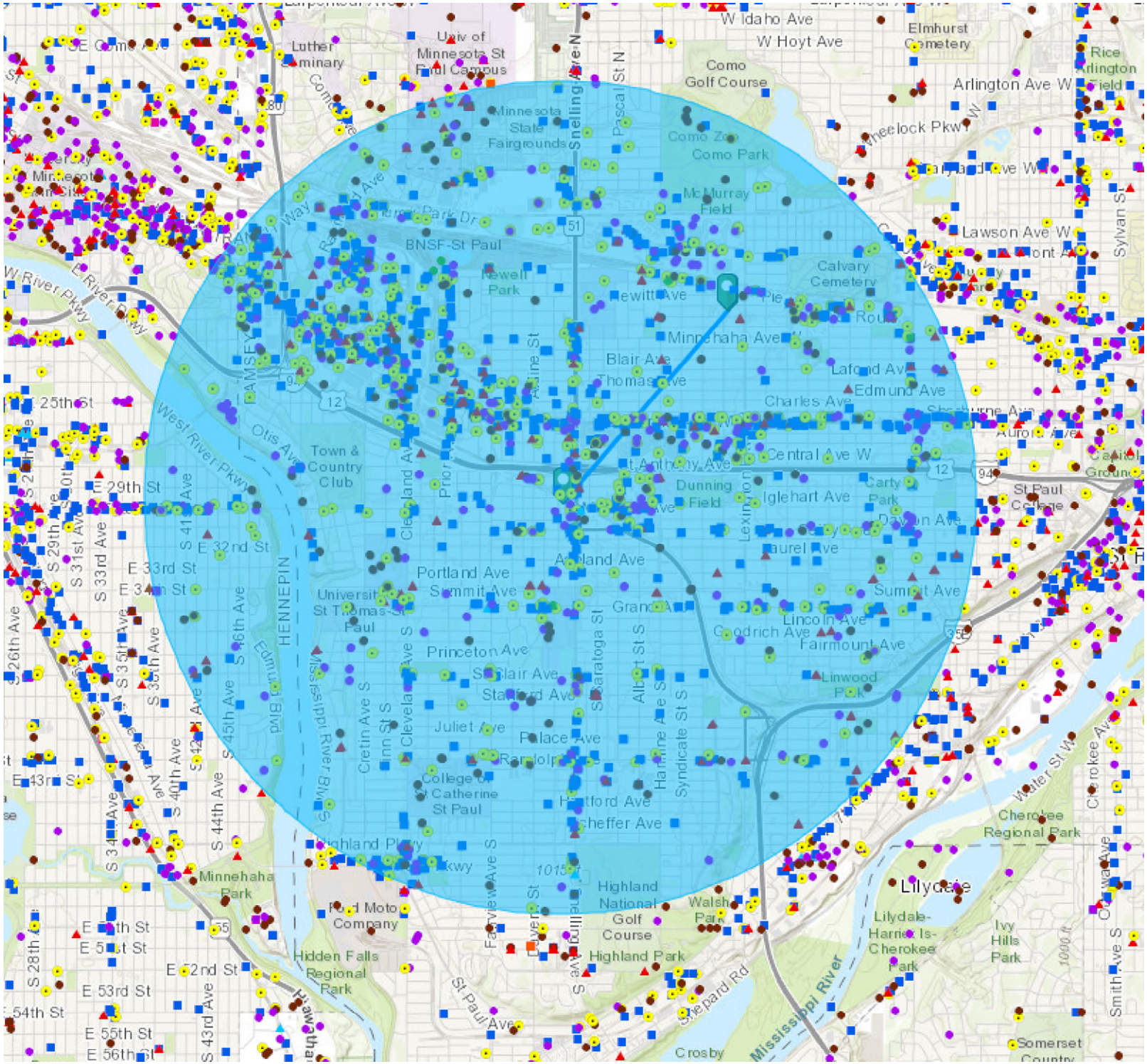
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Elmhurst Cemetery
Como Golf Course
Arlington Ave W
Wheelock Pkwy
Como Park
Lawson Ave W
Sylvan St
Minnesota State Fairgrounds
Snelling Ave N
Pascal St N
McMurray Field
BNSF-St Paul
Newell Park
Calvary Cemetery
Hewitt Ave
Minnehaha Ave W
Blair Ave
Thomas Ave
Lafond Ave
Edmund Ave
Charles Ave
Aurora Ave
Capitol Ground
St Paul College
Central Ave W
Dunning Field
Iglehart Ave
Carty Park
Dayton Ave
Laurel Ave
Aldine St
Prior St
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Lilydale-Harriet Is-Cherokee Park
Ivy Hills Park
Cherokee Regional Park
Water St W
Cherokee Ave
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Mississippi River
Somerset Country
1015 ft
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RASS version: 2019-01

The Risk Analysis Screening Spreadsheet (RASS) has several linked **input** and **output** worksheets that produce screening risk values. The worksheet tabs are color-coded as follows:

Input pages

Outputs

Data and updates

The following worksheets are included in this risk calculation workbook:

Readme: General overview and instructions on spreadsheet use.

Remediation Emission Calculator: Input site information, system parameters, chemicals, CAS numbers, and analytical results in the yellow-shaded cells. For site-specific modeling, you must additionally enter the AERMOD calculated dispersion factors in the StkDisp tab. Once the site emissions have been estimated in this worksheet, enter the chemical specific emission rates for pounds per hour or tons per year in the Emissions (start here) worksheet. If more that ten chemicals are of itnerest at the site, copy the additional rows needed.

Emissions (input): The user enters facility information in the yellow area at the top of the spreadsheet. The user also inputs emission rates for each chemical listed that is potentially emitted from the facility. User enters short-term chemical emission rates in pounds per hour and long-term chemical emission rates in tons per year for each chemical found on the spreadsheet that is emitted or is potentially emitted at the facility. These rates must be individually calculated and entered; the spreadsheet does not calculate one from the other**.** Brief guidance on merging stacks can be found below.

StkDisp (input): The user inputs stack height and receptor distance in the top portion of the screen to use the dispersion factor look-up tables (Disp Tables worksheet). Brief guidance on merging stacks can be found below. Results from the automated lookup process can be over-written by manually entering dispersion factors from more refined dispersion modeling into the lower half of the worksheet.

Summary (output): Summarizes results from spreadsheet analysis. Individual chemical screening hazard quotients and cancer risks are summed to obtain a total screening hazard index for acute, subchronic and chronic noncancer inhalation effects and a total screening incremental inhalation cancer risk. Total hazard indices and cancer risks for indirect (non-inhalation) pathways are also shown. Land use plans and actual receptors in the vicinity of the facility determine whether both farmer and resident risks are considered. If receptor information is not available, facility risks are assumed to be those for the farmer scenario.

RiskCalcs (output): Air concentrations are compared to noncancer acute and chronic inhalation health benchmarks (IHBs) in the ToxValue worksheet to estimate screening inhalation hazard quotients and are multiplied by the inhalation unit risk factors to estimate screening incremental inhalation cancer risks. The resulting inhalation chronic hazard quotients and incremental cancer risks are multiplied by multimedia factors for a farmer and a resident to obtain screening level risks from indirect (non-inhalation) pathways. The total risks for inhalation and indirect pathways are then computed for individual chemicals and for the overall pathways. This page has been designed to automatically highlight those cells in which the chemical has a noncancer hazard quotient above 0.1 or a cancer risk above 10^-6.

Concs (output): Hourly, 3-hour, 24-hour, monthly and annual air concentrations representing maximum crieria pollutant and air toxics concentrations at or beyond the receptor distance selected in the StkDisp worksheet are calculated by multiplying dispersion factors (µg/m3 per g/s) and emission rates. **Note: "Acute" trichloroethylene non cancer health impacts are estiamted from the 24 hour dispersion information. The toxicity value is for short term (24 hour) and not an hourly exposures.**

ToxValues: (reference) A list of inhalation health benchmark values used in the acute, subchronic noncancer, chronic nonchancer and cancer inhalation risk calculations.

MPSFactors (reference): Multipliers applied to inhalation risks to compute screening level ingestion hazard quotients and cancer risks for persistent bioaccumulative toxic chemicals. These multipliers were derived using the Industrial Risk Assessment Program software, which incorporates algorithms found in USEPA's July 1998 Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities.

Disp Tables (reference): Conservative dispersion factors dependent on the stack height and receptor distance input in the StkDisp worksheet. These hourly, 3-hour, 8-hour, 24-hour, monthly and annual factors are used to estimate the maximum air concentrations at or beyond the receptor distance selected. Dispersion factor units are $\mu g/m^3$ per g/s.

IHB Updates (reference): Inventory of changes made to existing inhalation health benchmarks or the addition of new benchmarks tracked by date and person making update.

Updates (reference): Updates are occasionally made to the RASS as errors are found or minor improvements are warranted. Such alterations in the worksheet are noted in the worksheet by date and location of change.

Combining Stacks with Similar Dispersion Characteristics

To accommodate multiple stacks more efficiently, it may be helpful to group stacks with similar dispersion characteristics such as stack height, stack diameter, exit velocity, exit temperature, and proximity to similarly sized buildings. "Similar" means stacks are located within approximately 100 meters of each other near similar sized buildings and stack parameters vary less than 20 percent.*

Combining Stacks for Use with Look-Up Table

Create different groups of stacks by combining those with similar heights in each group. Within each group, select the shortest stack height in the group. The look-up table reflects generally worst-case conditions for other parameters (i.e., stack diameter, stack exit velocity, stack exit temperature, and stack-to-building geometry).

* (See EPA document titled “Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised”. Pages 2-2 and 2-3 offer a more complex method for combining similar stacks. However, it must be repeated for each pollutant – this can be tedious if there are many pollutants (i.e., it uses individual stack emission rates and stack parameters). It may be useful for refined follow-up reviews (e.g., risk driver pollutants), but not the initial screening.)

RASS 45,000 cfm AERA

Inputs may be made in yellow cells
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Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future Actual):	

CAS # or MPCA #	Chemical Name		Total Annual Emissions	Stack(s)#1		Stack(s)#2		Stack(s)#3			
				Wet Scrubber		New Fan Stack		Boiler			
			(tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
106-94-5	Bromopropane, 1-		6.500000			3.59	6.5				
7440-43-9	Cadmium		0.000335	2.23136E-05	9.77336E-05	2.39364E-05	0.000104841	0.00003	0.000132		
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		0.000616	5.00548E-05	0.00021924	9.05702E-05	0.000396697				
18540-29-9	Chromium (Hexavalent) (particulate)		0.000012					2.72195E-06	1.19221E-05		
7440-48-4	Cobalt		0.000059	6.0307E-06	2.64145E-05	6.4693E-06	2.83355E-05	0.000001	0.000004		
100-41-4	Ethyl benzene		0.000020					0.000005	0.00002		
7440-02-0	Nickel		0.003282	0.000102522	0.000449046	0.00061674	0.00270132	0.00003	0.000132		
108-88-3	Toluene		0.001955					0.000446	0.001955		
79-01-6	Trichloroethylene		0.087600			0.02	0.0876				
Ethanol Specific											

Inputs may be made in yellow cells*
RASS version: 2019-01

		Wet Scrubber	New Fan Stack	Boiler					
Lookup table	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
Stack height (m)	required for lookup (1-99 m)								
Distance to property line or receptor (m)	required for lookup (10-10000m)								
1-hr dispersion value from Table	automatic lookup	405.228	607.88097	2545.631					
3-hr dispersion value from Table	automatic lookup								
8-hr dispersion value from Table	automatic lookup								
24-hr dispersion value from Table	automatic lookup	253.0261	255.40652	733.1501					
Monthly dispersion value from Table	automatic lookup	49.57342	57.14528	186.5696					
Annual dispersion value from Table	automatic lookup	34.3779	29.05537	114.7543					

Batch Process (or other)	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
1-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	405.228	607.88097	2545.631					
3-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
8-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
24-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	253.0261	255.40652	733.1501					
Monthly dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	49.57342	57.14528	186.5696					
Annual dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	34.3779	29.05537	114.7543					

*Batch process (i.e., "Disperse") or other screening or refined air dispersion modeling is run separately and dispersion values are entered manually.
If the the batch process cells are filled in they are used preferentially over the lookup table values.

RASS version: 2019-01
No Inputs Allowed on this Page

Air Toxics Screen																
Total Inhalation Screening Hazard Indices and Cancer Risks				Total Indirect Pathway Screening Hazard Indices and Cancer Risks						Total Multipathway Screening Hazard Indices and Cancer Risks						
Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	
3.E-01	1.E-01	6.E-01	1.E-05		1.E-07					6.E-01	1.E-05	6.E-01	1.E-05	6.E-01	1.E-05	Rounded value for final reporting
1.E+00	1.E+00	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	<<<Guidance Level
OK	OK	OK	OK		OK					OK	OK	OK	OK	OK	OK	<<<OK or REFINE?
3.3E-01	1.3E-01	6.4E-01	1.1E-05		1.5E-07					6.4E-01	1.1E-05	6.4E-01	1.1E-05	6.4E-01	1.1E-05	Calculated value for transparency and further calculation

Safety Factor: 25%

Air Toxics Endpoint Refinement			
Total Inhalation Screening Hazard Indices and Cancer Risks			
Endpoint	Acute	Subchronic Noncancer	Chronic Noncancer
Respiratory	5.6E-03	4.8E-02	6.0E-01
Reproductive/ developmental/ endocrine/ fetotoxicity	3.3E-01	0.0E+00	3.7E-02
Blood/ hematological	0.0E+00	0.0E+00	2.2E-01
Neurological	3.9E-06	2.7E-03	1.6E-05
Eyes	3.9E-06	0.0E+00	0.0E+00
Digestive	0.0E+00	0.0E+00	0.0E+00
Bone & teeth		0.0E+00	0.0E+00
Cardiovascular	0.0E+00	0.0E+00	0.0E+00
Kidney		0.0E+00	3.1E-02
Liver	0.0E+00	0.0E+00	0.0E+00
Skin	0.0E+00	0.0E+00	0.0E+00
Ethanol specific	0.0E+00		0.0E+00
	9.9E-01	9.9E-01	9.9E-01
	OK	OK	OK

<<<Guidance Level
<<<OK or REFINE?

Note: The hazard index (HI) against which facility risks are compared for acute, sub-chronic and chronic non-cancer risks is 1. The cancer risk against which facility risks are compared is 1 E-5 (or 1 chance in 100,000). These facility risk guidelines are risk management-based. They are not discrete indicators of observed adverse effect. If a risk estimate falls below facility risk guidelines, the MPCA may conclude that the assessed health effects from the proposed action are unlikely to occur, or will be negligible. A risk estimate that exceeds a guideline triggers further careful consideration.

Some pollutants have more than one endpoint and are included in multiple endpoints totals

Ceiling Values Exceeded?	
Benzene	no
Bromopropane, 1-	no
Butadiene, 1,3-	no
Carbon disulfide	no
Cellosolve Acetate	no
Chloroform	no
2-ethoxyethanol	no
Ethylbenzene	no
Ethyl chloride	no
2-methoxyethanol	no
Trichloroethylene	no
Arsenic	no
Carbon tetrachloride	no
Mercury	no
Propylene oxide	no

No Inputs Allowed on This Page

RASS version: 2019-01

scrubber only 6.12E-06 1.34E-05

deg boilor only 7.29E-06

CAS # or MPCA #	Chemical Name	Inhalation Screening Hazard Quotients and Cancer Risks for Individual Substances				Chronic Screening Non-inhalation Pathway Hazard Quotients and Cancer Risks for Individual Substances						Chronic Screening Total Hazard Quotients and Cancer Risks (Inhalation + Non-inhalation) for Individual Substances					
		Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer
Total		**3.33E-01**	**1.3E-01**	**6.4E-01**	**1.09E-05**		**1.5E-07**					**6.4E-01**	**1.1E-05**	**6.4E-01**	**1.1E-05**	**6.4E-01**	**1.1E-05**
106-94-5	Bromopropane, 1-	5.5E-03	2.7E-03	2.7E-01								2.7E-01		2.7E-01		2.7E-01	
7440-43-9	Cadmium			3.1E-02	1.0E-06							3.1E-02	1.0E-06	3.1E-02	1.0E-06	3.1E-02	1.0E-06
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		4.8E-02	6.9E-02	6.9E-06		1.4E-07					6.9E-02	7.0E-06	6.9E-02	6.9E-06	6.9E-02	6.9E-06
18540-29-9	Chromium (Hexavalent) (particulate)		6.4E-05	3.9E-04	4.9E-07		9.8E-09					3.9E-04	5.0E-07	3.9E-04	4.9E-07	3.9E-04	4.9E-07
7440-48-4	Cobalt		5.3E-03	1.1E-02	5.7E-07							1.1E-02	5.7E-07	1.1E-02	5.7E-07	1.1E-02	5.7E-07
100-41-4	Ethyl benzene	1.6E-07	1.2E-08	6.6E-08	1.7E-10							6.6E-08	1.7E-10	6.6E-08	1.7E-10	6.6E-08	1.7E-10
7440-02-0	Nickel	5.6E-03		2.2E-01	1.6E-06							2.2E-01	1.6E-06	2.2E-01	1.6E-06	2.2E-01	1.6E-06
108-88-3	Toluene	3.9E-06	2.1E-06	1.6E-05								1.6E-05		1.6E-05		1.6E-05	
79-01-6	Trichloroethylene	3.2E-01	7.2E-02	3.7E-02	3.7E-07							3.7E-02	3.7E-07	3.7E-02	3.7E-07	3.7E-02	3.7E-07

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		**Total - all stacks**					**Stack(s)#1**					**Stack(s)#2**					**Stack(s)#3**				
CAS # or MPCA #	**Chemical Name**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**
106-94-5	Bromopropane, 1-	2.7E+02	0.0E+00	1.2E+02	1.1E+01	5.4E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E+02	0.0E+00	1.2E+02	1.1E+01	5.4E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7440-43-9	Cadmium	1.3E-02	0.0E+00	4.3E-03	1.0E-03	6.2E-04	1.1E-03	0.0E+00	7.1E-04	1.4E-04	9.7E-05	1.8E-03	0.0E+00	7.7E-04	1.7E-04	8.8E-05	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols	9.5E-03	0.0E+00	4.5E-03	9.6E-04	5.5E-04	2.6E-03	0.0E+00	1.6E-03	3.1E-04	2.2E-04	6.9E-03	0.0E+00	2.9E-03	6.5E-04	3.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
18540-29-9	Chromium (Hexavalent) (particulate)	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05
7440-48-4	Cobalt	1.1E-03	0.0E+00	4.9E-04	1.1E-04	6.3E-05	3.1E-04	0.0E+00	1.9E-04	3.8E-05	2.6E-05	5.0E-04	0.0E+00	2.1E-04	4.7E-05	2.4E-05	3.2E-04	0.0E+00	9.2E-05	2.1E-05	1.3E-05
100-41-4	Ethyl benzene	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05
7440-02-0	Nickel	6.2E-02	0.0E+00	2.6E-02	5.8E-03	3.1E-03	5.2E-03	0.0E+00	3.3E-03	6.4E-04	4.4E-04	4.7E-02	0.0E+00	2.0E-02	4.4E-03	2.3E-03	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
108-88-3	Toluene	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		Total - all stacks					Stack(s)#1					Stack(s)#2					Stack(s)#3				
CAS # or MPCA #	Chemical Name	C (1-hr)	C (3-hr)	C (24-hr)	C (monthly)	C (annual)	C (1-hr)	C (3-hr)	C (24-hr)	C (monthly)	C (annual)	C (1-hr)	C (3-hr)	C (24-hr)	C (monthly)	C (annual)	C (1-hr)	C (3-hr)	C (24-hr)	C (monthly)	C (annual)
79-01-6	Trichloroethylene	1.5E+00	0.0E+00	6.4E-01	1.4E-01	7.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00	0.0E+00	6.4E-01	1.4E-01	7.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethanol Specific																					

RASS 100,000 cfm Fan Vent Only AERA

Inputs may be made in yellow cells
RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future Actual):	

CAS # or MPCA #	Chemical Name		Total Annual Emissions	Stack(s)#1		Stack(s)#2		Stack(s)#3	
				Wet Scrubber		New Fan Stack		Boiler	
			(tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
106-94-5	Bromopropane, 1-		6.500000			3.59	6.5		
7440-43-9	Cadmium		0.000335	0	0	4.63E-05	0.000202575	0.00003	0.000132
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		0.000767	0	0	1.75E-04	0.0007665		
18540-29-9	Chromium (Hexavalent) (particulate)		0.000012					2.72195E-06	1.19221E-05
7440-48-4	Cobalt		0.000059	0	0	1.25E-05	0.00005475	0.000001	0.000004
100-41-4	Ethyl benzene		0.000020					0.000005	0.00002
7440-02-0	Nickel		0.005344	0	0	1.19E-03	0.0052122	0.00003	0.000132
108-88-3	Toluene		0.001955					0.000446	0.001955
79-01-6	Trichloroethylene		0.087600			0.02	0.0876		
Ethanol Specific									

Inputs may be made in yellow cells*
RASS version: 2019-01

		Wet Scrubber	New Fan Stack	Boiler					
Lookup table	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
Stack height (m)	required for lookup (1-99 m)								
Distance to property line or receptor (m)	required for lookup (10-10000m)								
1-hr dispersion value from Table	automatic lookup	405.228	364.1816	2545.631					
3-hr dispersion value from Table	automatic lookup								
8-hr dispersion value from Table	automatic lookup								
24-hr dispersion value from Table	automatic lookup	253.0261	144.0348	733.1501					
Monthly dispersion value from Table	automatic lookup	49.57342	25.95314	186.5696					
Annual dispersion value from Table	automatic lookup	34.3779	11.99428	114.7543					
Batch Process (or other)	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
1-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	405.228	364.1816	2545.631					
3-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
8-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
24-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	253.0261	144.0348	733.1501					
Monthly dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	49.57342	25.95314	186.5696					
Annual dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	34.3779	11.99428	114.7543					

*Batch process (i.e., "Disperse") or other screening or refined air dispersion modeling is run separately and dispersion values are entered manually.
If the the batch process cells are filled in they are used preferentially over the lookup table values.

RASS version: 2019-01
No Inputs Allowed on this Page

Air Toxics Screen																
Total Inhalation Screening Hazard Indices and Cancer Risks				Total Indirect Pathway Screening Hazard Indices and Cancer Risks						Total Multipathway Screening Hazard Indices and Cancer Risks						
Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	
2.E-01	7.E-02	4.E-01	6.E-06		8.E-08					4.E-01	6.E-06	4.E-01	6.E-06	4.E-01	6.E-06	Rounded value for final reporting
1.E+00	1.E+00	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	<<<Guidance Level
OK	OK	OK	OK		OK					OK	OK	OK	OK	OK	OK	<<<OK or REFINE?
1.9E-01	6.6E-02	3.5E-01	6.2E-06		7.6E-08					3.5E-01	6.3E-06	3.5E-01	6.2E-06	3.5E-01	6.2E-06	Calculated value for transparency and further calculation

Safety Factor: 25%

Air Toxics Endpoint Refinement			
Total Inhalation Screening Hazard Indices and Cancer Risks			
Endpoint	Acute	Subchronic Noncancer	Chronic Noncancer
Respiratory	5.8E-03	2.9E-02	3.3E-01
Reproductive/ developmental/ endocrine/ fetotoxicity	1.8E-01	0.0E+00	1.5E-02
Blood/ hematological	0.0E+00	0.0E+00	1.6E-01
Neurological	3.9E-06	1.2E-03	1.6E-05
Eyes	3.9E-06	0.0E+00	0.0E+00
Digestive	0.0E+00	0.0E+00	0.0E+00
Bone & teeth		0.0E+00	0.0E+00
Cardiovascular	0.0E+00	0.0E+00	0.0E+00
Kidney		0.0E+00	2.5E-02
Liver	0.0E+00	0.0E+00	0.0E+00
Skin	0.0E+00	0.0E+00	0.0E+00
Ethanol specific	0.0E+00		0.0E+00
	9.9E-01	9.9E-01	9.9E-01
	OK	OK	OK

<<<Guidance Level
<<<OK or REFINE?

Ceiling Values Exceeded?	
Benzene	no
Bromopropane, 1-	no
Butadiene, 1,3-	no
Carbon disulfide	no
Cellosolve Acetate	no
Chloroform	no
2-ethoxyethanol	no
Ethylbenzene	no
Ethyl chloride	no
2-methoxyethanol	no
Trichloroethylene	no
Arsenic	no
Carbon tetrachloride	no
Mercury	no
Propylene oxide	no

Note: The hazard index (HI) against which facility risks are compared for acute, sub-chronic and chronic non-cancer risks is 1. The cancer risk against which facility risks are compared is 1 E-5 (or 1 chance in 100,000). These facility risk guidelines are risk management-based. They are not discrete indicators of observed adverse effect. If a risk estimate falls below facility risk guidelines, the MPCA may conclude that the assessed health effects from the proposed action are unlikely to occur, or will be negligible. A risk estimate that exceeds a guideline triggers further careful consideration.

Some pollutants have more than one endpoint and are included in multiple endpoints totals

No Inputs Allowed on This Page

RASS version: 2019-01

scrubber only 6.12E-06 1.34E-05

deg boilor only 7.29E-06

CAS # or MPCA #	Chemical Name	Inhalation Screening Hazard Quotients and Cancer Risks for Individual Substances				Chronic Screening Non-inhalation Pathway Hazard Quotients and Cancer Risks for Individual Substances						Chronic Screening Total Hazard Quotients and Cancer Risks (Inhalation + Non-inhalation) for Individual Substances					
		Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer
Total		**1.91E-01**	**6.6E-02**	**3.5E-01**	**6.20E-06**		**7.6E-08**					**3.5E-01**	**6.3E-06**	**3.5E-01**	**6.2E-06**	**3.5E-01**	**6.2E-06**
106-94-5	Bromopropane, 1-	3.3E-03	1.2E-03	1.1E-01								1.1E-01		1.1E-01		1.1E-01	
7440-43-9	Cadmium			2.5E-02	8.4E-07							2.5E-02	8.4E-07	2.5E-02	8.4E-07	2.5E-02	8.4E-07
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		2.9E-02	3.3E-02	3.3E-06		6.6E-08					3.3E-02	3.4E-06	3.3E-02	3.3E-06	3.3E-02	3.3E-06
18540-29-9	Chromium (Hexavalent) (particulate)		6.4E-05	3.9E-04	4.9E-07		9.8E-09					3.9E-04	5.0E-07	3.9E-04	4.9E-07	3.9E-04	4.9E-07
7440-48-4	Cobalt		3.1E-03	5.3E-03	2.9E-07							5.3E-03	2.9E-07	5.3E-03	2.9E-07	5.3E-03	2.9E-07
100-41-4	Ethyl benzene	1.6E-07	1.2E-08	6.6E-08	1.7E-10							6.6E-08	1.7E-10	6.6E-08	1.7E-10	6.6E-08	1.7E-10
7440-02-0	Nickel	5.8E-03		1.6E-01	1.1E-06							1.6E-01	1.1E-06	1.6E-01	1.1E-06	1.6E-01	1.1E-06
108-88-3	Toluene	3.9E-06	2.1E-06	1.6E-05								1.6E-05		1.6E-05		1.6E-05	
79-01-6	Trichloroethylene	1.8E-01	3.3E-02	1.5E-02	1.5E-07							1.5E-02	1.5E-07	1.5E-02	1.5E-07	1.5E-02	1.5E-07

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		**Total - all stacks**					**Stack(s)#1**					**Stack(s)#2**					**Stack(s)#3**			
CAS # or MPCA #	**Chemical Name**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**
106-94-5	Bromopropane, 1-	1.6E+02	0.0E+00	6.5E+01	4.9E+00	2.2E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E+02	0.0E+00	6.5E+01	4.9E+00	2.2E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7440-43-9	Cadmium	1.2E-02	0.0E+00	3.6E-03	8.6E-04	5.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-03	0.0E+00	8.4E-04	1.5E-04	7.0E-05	9.6E-03	0.0E+00	2.8E-03	7.1E-04
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols	8.0E-03	0.0E+00	3.2E-03	5.7E-04	2.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-03	0.0E+00	3.2E-03	5.7E-04	2.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
18540-29-9	Chromium (Hexavalent) (particulate)	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-04	0.0E+00	2.5E-04	6.4E-05
7440-48-4	Cobalt	8.9E-04	0.0E+00	3.2E-04	6.2E-05	3.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.7E-04	0.0E+00	2.3E-04	4.1E-05	1.9E-05	3.2E-04	0.0E+00	9.2E-05	2.1E-05
100-41-4	Ethyl benzene	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-03	0.0E+00	4.6E-04	1.1E-04
7440-02-0	Nickel	6.4E-02	0.0E+00	2.4E-02	4.6E-03	2.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-02	0.0E+00	2.2E-02	3.9E-03	1.8E-03	9.6E-03	0.0E+00	2.8E-03	7.1E-04
108-88-3	Toluene	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.1E-02	1.0E-02
79-01-6	Trichloroethylene	9.2E-01	0.0E+00	3.6E-01	6.5E-02	3.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-01	0.0E+00	3.6E-01	6.5E-02	3.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Ethanol Specific																				

RASS 40,000 cfm Fan Vent Scrubber Offline AERA

Inputs may be made in yellow cells
RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future Actual):	

CAS # or MPCA #	Chemical Name		Total Annual Emissions	Stack(s)#1		Stack(s)#2		Stack(s)#3	
				Wet Scrubber		New Fan		Boiler	
			(tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
106-94-5	Bromopropane, 1-		6.500000			3.59	6.5		
7440-43-9	Cadmium		0.000339	2.71E-05	1.08E-04	2.47E-05	9.88E-05	0.00003	0.000132
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		0.000785	1.03E-04	4.12E-04	9.33E-05	3.73E-04		
18540-29-9	Chromium (Hexavalent) (particulate)		0.000012					2.72195E-06	1.19221E-05
7440-48-4	Cobalt		0.000060	7.33E-06	2.93E-05	6.67E-06	2.67E-05	0.000001	0.000004
100-41-4	Ethyl benzene		0.000020					0.000005	0.00002
7440-02-0	Nickel		0.005472	6.99E-04	2.80E-03	6.36E-04	2.54E-03	0.00003	0.000132
108-88-3	Toluene		0.001955					0.000446	0.001955
Ethanol Specific									

Inputs may be made in yellow cells*
RASS version: 2019-01

		Wet Scrubber	New Fan	Boiler					
Lookup table	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
Stack height (m)	required for lookup (1-99 m)								
Distance to property line or receptor (m)	required for lookup (10-10000m)								
1-hr dispersion value from Table	automatic lookup	405.228	441.1	2545.631					
3-hr dispersion value from Table	automatic lookup								
8-hr dispersion value from Table	automatic lookup								
24-hr dispersion value from Table	automatic lookup	253.0261	263.84	733.1501					
Monthly dispersion value from Table	automatic lookup	49.57342	58.35	186.5696					
Annual dispersion value from Table	automatic lookup	34.3779	34.74	114.7543					
Batch Process (or other)	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
1-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	405.228	441.1	2545.631					
3-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
8-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
24-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	253.0261	263.84	733.1501					
Monthly dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	49.57342	58.35	186.5696					
Annual dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	34.3779	34.74	114.7543					

*Batch process (i.e., "Disperse") or other screening or refined air dispersion modeling is run separately and dispersion values are entered manually.
If the the batch process cells are filled in they are used preferentially over the lookup table values.

RASS version: 2019-01
No Inputs Allowed on this Page

Air Toxics Screen																
Total Inhalation Screening Hazard Indices and Cancer Risks				Total Indirect Pathway Screening Hazard Indices and Cancer Risks						Total Multipathway Screening Hazard Indices and Cancer Risks						
Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	
1.E-02	7.E-02	9.E-01	1.E-05		2.E-07					9.E-01	2.E-05	9.E-01	1.E-05	9.E-01	1.E-05	Rounded value for final reporting
1.E+00	1.E+00	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	<<<Guidance Level
OK	OK	OK	OK		OK					OK	REFINE	OK	OK	OK	OK	<<<OK or REFINE?
1.1E-02	6.9E-02	8.8E-01	1.5E-05		2.0E-07					8.8E-01	1.5E-05	8.8E-01	1.5E-05	8.8E-01	1.5E-05	Calculated value for transparency and further calculation

Safety Factor: 25%

Air Toxics Endpoint Refinement			
Total Inhalation Screening Hazard Indices and Cancer Risks			
Endpoint	Acute	Subchronic Noncancer	Chronic Noncancer
Respiratory	7.3E-03	6.1E-02	8.7E-01
Reproductive/ developmental/ endocrine/ fetotoxicity	4.0E-03	0.0E+00	6.6E-08
Blood/ hematological	0.0E+00	0.0E+00	4.1E-01
Neurological	3.9E-06	2.7E-03	1.6E-05
Eyes	3.9E-06	0.0E+00	0.0E+00
Digestive	0.0E+00	0.0E+00	0.0E+00
Bone & teeth		0.0E+00	0.0E+00
Cardiovascular	0.0E+00	0.0E+00	0.0E+00
Kidney		0.0E+00	3.2E-02
Liver	0.0E+00	0.0E+00	0.0E+00
Skin	0.0E+00	0.0E+00	0.0E+00
Ethanol specific	0.0E+00		0.0E+00
	9.9E-01	9.9E-01	9.9E-01
	OK	OK	OK

<<<Guidance Level
<<<OK or REFINE?

Ceiling Values Exceeded?	
Benzene	no
Bromopropane, 1-	no
Butadiene, 1,3-	no
Carbon disulfide	no
Cellosolve Acetate	no
Chloroform	no
2-ethoxyethanol	no
Ethylbenzene	no
Ethyl chloride	no
2-methoxyethanol	no
Trichloroethylene	no
Arsenic	no
Carbon tetrachloride	no
Mercury	no
Propylene oxide	no

Note: The hazard index (HI) against which facility risks are compared for acute, sub-chronic and chronic non-cancer risks is 1. The cancer risk against which facility risks are compared is 1 E-5 (or 1 chance in 100,000). These facility risk guidelines are risk management-based. They are not discrete indicators of observed adverse effect. If a risk estimate falls below facility risk guidelines, the MPCA may conclude that the assessed health effects from the proposed action are unlikely to occur, or will be negligible. A risk estimate that exceeds a guideline triggers further careful consideration.

Some pollutants have more than one endpoint and are included in multiple endpoints totals

No Inputs Allowed on This Page

RASS version: 2019-01

scrubber only 6.12E-06 1.34E-05

deg boilor only 7.29E-06

CAS # or MPCA #	Chemical Name	Inhalation Screening Hazard Quotients and Cancer Risks for Individual Substances				Chronic Screening Non-inhalation Pathway Hazard Quotients and Cancer Risks for Individual Substances						Chronic Screening Total Hazard Quotients and Cancer Risks (Inhalation + Non-inhalation) for Individual Substances					
		Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer
Total		**1.13E-02**	**6.9E-02**	**8.8E-01**	**1.48E-05**		**2.0E-07**					**8.8E-01**	**1.5E-05**	**8.8E-01**	**1.5E-05**	**8.8E-01**	**1.5E-05**
106-94-5	Bromopropane, 1-	4.0E-03	2.7E-03	3.2E-01								3.2E-01		3.2E-01		3.2E-01	
7440-43-9	Cadmium			3.2E-02	1.1E-06							3.2E-02	1.1E-06	3.2E-02	1.1E-06	3.2E-02	1.1E-06
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		6.1E-02	9.8E-02	9.8E-06		2.0E-07					9.8E-02	1.0E-05	9.8E-02	9.8E-06	9.8E-02	9.8E-06
18540-29-9	Chromium (Hexavalent) (particulate)		6.4E-05	3.9E-04	4.9E-07		9.8E-09					3.9E-04	5.0E-07	3.9E-04	4.9E-07	3.9E-04	4.9E-07
7440-48-4	Cobalt		5.4E-03	1.1E-02	6.2E-07							1.1E-02	6.2E-07	1.1E-02	6.2E-07	1.1E-02	6.2E-07
100-41-4	Ethyl benzene	1.6E-07	1.2E-08	6.6E-08	1.7E-10							6.6E-08	1.7E-10	6.6E-08	1.7E-10	6.6E-08	1.7E-10
7440-02-0	Nickel	7.3E-03		4.1E-01	2.9E-06							4.1E-01	2.9E-06	4.1E-01	2.9E-06	4.1E-01	2.9E-06
108-88-3	Toluene	3.9E-06	2.1E-06	1.6E-05								1.6E-05		1.6E-05		1.6E-05	

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		**Total - all stacks**					**Stack(s)#1**					**Stack(s)#2**					**Stack(s)#3**				
CAS # or MPCA #	**Chemical Name**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**
106-94-5	Bromopropane, 1-	2.0E+02	0.0E+00	1.2E+02	1.1E+01	6.5E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E+02	0.0E+00	1.2E+02	1.1E+01	6.5E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7440-43-9	Cadmium	1.2E-02	0.0E+00	4.5E-03	1.0E-03	6.4E-04	1.4E-03	0.0E+00	8.6E-04	1.5E-04	1.1E-04	1.4E-03	0.0E+00	8.2E-04	1.7E-04	9.9E-05	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols	1.0E-02	0.0E+00	6.4E-03	1.2E-03	7.8E-04	5.3E-03	0.0E+00	3.3E-03	5.9E-04	4.1E-04	5.2E-03	0.0E+00	3.1E-03	6.3E-04	3.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
18540-29-9	Chromium (Hexavalent) (particulate)	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05
7440-48-4	Cobalt	1.1E-03	0.0E+00	5.5E-04	1.1E-04	6.9E-05	3.7E-04	0.0E+00	2.3E-04	4.2E-05	2.9E-05	3.7E-04	0.0E+00	2.2E-04	4.5E-05	2.7E-05	3.2E-04	0.0E+00	9.2E-05	2.1E-05	1.3E-05
100-41-4	Ethyl benzene	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05
7440-02-0	Nickel	8.1E-02	0.0E+00	4.6E-02	9.0E-03	5.7E-03	3.6E-02	0.0E+00	2.2E-02	4.0E-03	2.8E-03	3.5E-02	0.0E+00	2.1E-02	4.3E-03	2.5E-03	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
108-88-3	Toluene	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03
Ethanol Specific																					

RASS 70,000 cfm Fan Vent Scrubber Offline AERA

Inputs may be made in yellow cells
RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future Actual):	

CAS # or MPCA #	Chemical Name		Total Annual Emissions	Stack(s)#1		Stack(s)#2		Stack(s)#3	
				Wet Scrubber		New Fan		Boiler	
			(tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
106-94-5	Bromopropane, 1-		6.500000			3.59	6.5		
7440-43-9	Cadmium		0.000339	2.00E-05	8.00E-05	3.18E-05	1.27E-04	0.00003	0.000132
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		0.000782	7.56E-05	3.02E-04	1.20E-04	4.80E-04		
18540-29-9	Chromium (Hexavalent) (particulate)		0.000012					2.72195E-06	1.19221E-05
7440-48-4	Cobalt		0.000060	5.40E-06	2.16E-05	8.60E-06	3.44E-05	0.000001	0.000004
100-41-4	Ethyl benzene		0.000020					0.000005	0.00002
7440-02-0	Nickel		0.005472	5.15E-04	2.06E-03	8.20E-04	3.28E-03	0.00003	0.000132
108-88-3	Toluene		0.001955					0.000446	0.001955
Ethanol Specific									

Inputs may be made in yellow cells*
RASS version: 2019-01

		Wet Scrubber	New Fan	Boiler					
Lookup table	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
Stack height (m)	required for lookup (1-99 m)								
Distance to property line or receptor (m)	required for lookup (10-10000m)								
1-hr dispersion value from Table	automatic lookup	405.228	364.18	2545.631					
3-hr dispersion value from Table	automatic lookup								
8-hr dispersion value from Table	automatic lookup								
24-hr dispersion value from Table	automatic lookup	253.0261	192.24	733.1501					
Monthly dispersion value from Table	automatic lookup	49.57342	37.31	186.5696					
Annual dispersion value from Table	automatic lookup	34.3779	20.52	114.7543					
Batch Process (or other)	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
1-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	405.228	364.18	2545.631					
3-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
8-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
24-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	253.0261	192.24	733.1501					
Monthly dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	49.57342	37.31	186.5696					
Annual dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	34.3779	20.52	114.7543					

*Batch process (i.e., "Disperse") or other screening or refined air dispersion modeling is run separately and dispersion values are entered manually.
If the the batch process cells are filled in they are used preferentially over the lookup table values.

RASS version: 2019-01
No Inputs Allowed on this Page

Air Toxics Screen																
Total Inhalation Screening Hazard Indices and Cancer Risks				Total Indirect Pathway Screening Hazard Indices and Cancer Risks						Total Multipathway Screening Hazard Indices and Cancer Risks						
Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	
1.E-02	5.E-02	6.E-01	1.E-05		2.E-07					6.E-01	1.E-05	6.E-01	1.E-05	6.E-01	1.E-05	Rounded value for final reporting
1.E+00	1.E+00	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	<<<Guidance Level
OK	OK	OK	OK		OK					OK	OK	OK	OK	OK	OK	<<<OK or REFINE?
1.0E-02	5.4E-02	6.2E-01	1.1E-05		1.6E-07					6.2E-01	1.2E-05	6.2E-01	1.1E-05	6.2E-01	1.1E-05	Calculated value for transparency and further calculation

Safety Factor: 25%

Air Toxics Endpoint Refinement			
Total Inhalation Screening Hazard Indices and Cancer Risks			
Endpoint	Acute	Subchronic Noncancer	Chronic Noncancer
Respiratory	6.7E-03	4.7E-02	6.1E-01
Reproductive/ developmental/ endocrine/ fetotoxicity	3.3E-03	0.0E+00	6.6E-08
Blood/ hematological	0.0E+00	0.0E+00	3.1E-01
Neurological	3.9E-06	1.7E-03	1.6E-05
Eyes	3.9E-06	0.0E+00	0.0E+00
Digestive	0.0E+00	0.0E+00	0.0E+00
Bone & teeth		0.0E+00	0.0E+00
Cardiovascular	0.0E+00	0.0E+00	0.0E+00
Kidney		0.0E+00	2.9E-02
Liver	0.0E+00	0.0E+00	0.0E+00
Skin	0.0E+00	0.0E+00	0.0E+00
Ethanol specific	0.0E+00		0.0E+00
	9.9E-01	9.9E-01	9.9E-01
	OK	OK	OK

<<<Guidance Level
<<<OK or REFINE?

Note: The hazard index (HI) against which facility risks are compared for acute, sub-chronic and chronic non-cancer risks is 1. The cancer risk against which facility risks are compared is 1 E-5 (or 1 chance in 100,000). These facility risk guidelines are risk management-based. They are not discrete indicators of observed adverse effect. If a risk estimate falls below facility risk guidelines, the MPCA may conclude that the assessed health effects from the proposed action are unlikely to occur, or will be negligible. A risk estimate that exceeds a guideline triggers further careful consideration.

Some pollutants have more than one endpoint and are included in multiple endpoints totals

Ceiling Values Exceeded?	
Benzene	no
Bromopropane, 1-	no
Butadiene, 1,3-	no
Carbon disulfide	no
Cellosolve Acetate	no
Chloroform	no
2-ethoxyethanol	no
Ethylbenzene	no
Ethyl chloride	no
2-methoxyethanol	no
Trichloroethylene	no
Arsenic	no
Carbon tetrachloride	no
Mercury	no
Propylene oxide	no

No Inputs Allowed on This Page

RASS version: 2019-01

scrubber only 6.12E-06 1.34E-05

deg boilor only 7.29E-06

CAS # or MPCA #	Chemical Name	Inhalation Screening Hazard Quotients and Cancer Risks for Individual Substances				Chronic Screening Non-inhalation Pathway Hazard Quotients and Cancer Risks for Individual Substances						Chronic Screening Total Hazard Quotients and Cancer Risks (Inhalation + Non-inhalation) for Individual Substances					
		Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer
Total		**9.98E-03**	**5.4E-02**	**6.2E-01**	**1.15E-05**		**1.6E-07**					**6.2E-01**	**1.2E-05**	**6.2E-01**	**1.1E-05**	**6.2E-01**	**1.1E-05**
106-94-5	Bromopropane, 1-	3.3E-03	1.7E-03	1.9E-01								1.9E-01		1.9E-01		1.9E-01	
7440-43-9	Cadmium			2.9E-02	9.8E-07							2.9E-02	9.8E-07	2.9E-02	9.8E-07	2.9E-02	9.8E-07
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		4.7E-02	7.3E-02	7.3E-06		1.5E-07					7.3E-02	7.4E-06	7.3E-02	7.3E-06	7.3E-02	7.3E-06
18540-29-9	Chromium (Hexavalent) (particulate)		6.4E-05	3.9E-04	4.9E-07		9.8E-09					3.9E-04	5.0E-07	3.9E-04	4.9E-07	3.9E-04	4.9E-07
7440-48-4	Cobalt		4.5E-03	9.1E-03	4.9E-07							9.1E-03	4.9E-07	9.1E-03	4.9E-07	9.1E-03	4.9E-07
100-41-4	Ethyl benzene	1.6E-07	1.2E-08	6.6E-08	1.7E-10							6.6E-08	1.7E-10	6.6E-08	1.7E-10	6.6E-08	1.7E-10
7440-02-0	Nickel	6.7E-03		3.1E-01	2.2E-06							3.1E-01	2.2E-06	3.1E-01	2.2E-06	3.1E-01	2.2E-06
108-88-3	Toluene	3.9E-06	2.1E-06	1.6E-05								1.6E-05		1.6E-05		1.6E-05	

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		**Total - all stacks**					**Stack(s)#1**					**Stack(s)#2**					**Stack(s)#3**				
CAS # or MPCA #	**Chemical Name**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**
106-94-5	Bromopropane, 1-	1.6E+02	0.0E+00	8.7E+01	7.0E+00	3.8E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E+02	0.0E+00	8.7E+01	7.0E+00	3.8E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7440-43-9	Cadmium	1.2E-02	0.0E+00	4.2E-03	9.6E-04	5.9E-04	1.0E-03	0.0E+00	6.4E-04	1.1E-04	7.9E-05	1.5E-03	0.0E+00	7.7E-04	1.4E-04	7.5E-05	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols	9.4E-03	0.0E+00	5.3E-03	9.5E-04	5.8E-04	3.9E-03	0.0E+00	2.4E-03	4.3E-04	3.0E-04	5.5E-03	0.0E+00	2.9E-03	5.2E-04	2.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
18540-29-9	Chromium (Hexavalent) (particulate)	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05
7440-48-4	Cobalt	9.9E-04	0.0E+00	4.7E-04	8.9E-05	5.5E-05	2.8E-04	0.0E+00	1.7E-04	3.1E-05	2.1E-05	3.9E-04	0.0E+00	2.1E-04	3.7E-05	2.0E-05	3.2E-04	0.0E+00	9.2E-05	2.1E-05	1.3E-05
100-41-4	Ethyl benzene	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05
7440-02-0	Nickel	7.4E-02	0.0E+00	3.9E-02	7.2E-03	4.4E-03	2.6E-02	0.0E+00	1.6E-02	2.9E-03	2.0E-03	3.8E-02	0.0E+00	2.0E-02	3.5E-03	1.9E-03	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
108-88-3	Toluene	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03
Ethanol Specific																					

RASS 100,000 cfm Fan Vent Scrubber Offline AERA

Inputs may be made in yellow cells
RASS version: 2019-01

Screening Date:

CAS # or MPCA #	Chemical Name		Total Annual Emissions	Stack(s)#1		Stack(s)#2		Stack(s)#3	
				Wet Scrubber		New Fan		Boiler	
			(tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
106-94-5	Bromopropane, 1-		6.500000			3.59	6.5		
7440-43-9	Cadmium		0.000339	1.58E-05	6.32E-05	3.60E-05	1.44E-04	0.00003	0.000132
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		0.000784	5.99E-05	2.40E-04	1.36E-04	5.44E-04		
18540-29-9	Chromium (Hexavalent) (particulate)		0.000012					2.72195E-06	1.19221E-05
7440-48-4	Cobalt		0.000060	4.28E-06	1.71E-05	9.72E-06	3.89E-05	0.000001	0.000004
100-41-4	Ethyl benzene		0.000020					0.000005	0.00002
7440-02-0	Nickel		0.005472	4.08E-04	1.63E-03	9.27E-04	3.71E-03	0.00003	0.000132
108-88-3	Toluene		0.001955					0.000446	0.001955

Inputs may be made in yellow cells*
RASS version: 2019-01

		Wet Scrubber	New Fan	Boiler					
Lookup table	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
Stack height (m)	required for lookup (1-99 m)								
Distance to property line or receptor (m)	required for lookup (10-10000m)								
1-hr dispersion value from Table	automatic lookup	405.228	364.18	2545.631					
3-hr dispersion value from Table	automatic lookup								
8-hr dispersion value from Table	automatic lookup								
24-hr dispersion value from Table	automatic lookup	253.0261	144.03	733.1501					
Monthly dispersion value from Table	automatic lookup	49.57342	25.95	186.5696					
Annual dispersion value from Table	automatic lookup	34.3779	11.99	114.7543					
Batch Process (or other)	**notes**	**Stack(s)#1**	**Stack(s)#2**		**Stack(s)#4**	**Stack(s)#5**	**Stack(s)#6**	**Stack(s)#7**	**Stack(s)#8**
1-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	405.228	364.18	2545.631					
3-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
8-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually								
24-hr dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	253.0261	144.03	733.1501					
Monthly dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	49.57342	25.95	186.5696					
Annual dispersion value from batch process or other air dispersion modeling	enter dispersion values manually	34.3779	11.99	114.7543					

*Batch process (i.e., "Disperse") or other screening or refined air dispersion modeling is run separately and dispersion values are entered manually.
If the the batch process cells are filled in they are used preferentially over the lookup table values.

RASS version: 2019-01
No Inputs Allowed on this Page

Air Toxics Screen																
Total Inhalation Screening Hazard Indices and Cancer Risks				Total Indirect Pathway Screening Hazard Indices and Cancer Risks						Total Multipathway Screening Hazard Indices and Cancer Risks						
Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	
1.E-02	4.E-02	4.E-01	9.E-06		1.E-07					4.E-01	9.E-06	4.E-01	9.E-06	4.E-01	9.E-06	Rounded value for final reporting
1.E+00	1.E+00	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	1.E+00	1.E-05	<<<Guidance Level
OK	OK	OK	OK		OK					OK	OK	OK	OK	OK	OK	<<<OK or REFINE?
1.0E-02	4.2E-02	4.4E-01	8.8E-06		1.2E-07					4.4E-01	8.9E-06	4.4E-01	8.8E-06	4.4E-01	8.8E-06	Calculated value for transparency and further calculation

Safety Factor: 25%

Air Toxics Endpoint Refinement			
Total Inhalation Screening Hazard Indices and Cancer Risks			
Endpoint	Acute	Subchronic Noncancer	Chronic Noncancer
Respiratory	6.6E-03	3.7E-02	4.3E-01
Reproductive/ developmental/ endocrine/ fetotoxicity	3.3E-03	0.0E+00	6.6E-08
Blood/ hematological	0.0E+00	0.0E+00	2.4E-01
Neurological	3.9E-06	1.2E-03	1.6E-05
Eyes	3.9E-06	0.0E+00	0.0E+00
Digestive	0.0E+00	0.0E+00	0.0E+00
Bone & teeth		0.0E+00	0.0E+00
Cardiovascular	0.0E+00	0.0E+00	0.0E+00
Kidney		0.0E+00	2.7E-02
Liver	0.0E+00	0.0E+00	0.0E+00
Skin	0.0E+00	0.0E+00	0.0E+00
Ethanol specific	0.0E+00		0.0E+00
	9.9E-01	9.9E-01	9.9E-01
	OK	OK	OK

<<<Guidance Level
<<<OK or REFINE?

Note: The hazard index (HI) against which facility risks are compared for acute, sub-chronic and chronic non-cancer risks is 1. The cancer risk against which facility risks are compared is 1 E-5 (or 1 chance in 100,000). These facility risk guidelines are risk management-based. They are not discrete indicators of observed adverse effect. If a risk estimate falls below facility risk guidelines, the MPCA may conclude that the assessed health effects from the proposed action are unlikely to occur, or will be negligible. A risk estimate that exceeds a guideline triggers further careful consideration.

Some pollutants have more than one endpoint and are included in multiple endpoints totals

Ceiling Values Exceeded?	
Benzene	no
Bromopropane, 1-	no
Butadiene, 1,3-	no
Carbon disulfide	no
Cellosolve Acetate	no
Chloroform	no
2-ethoxyethanol	no
Ethylbenzene	no
Ethyl chloride	no
2-methoxyethanol	no
Trichloroethylene	no
Arsenic	no
Carbon tetrachloride	no
Mercury	no
Propylene oxide	no

No Inputs Allowed on This Page

RASS version: 2019-01

scrubber only 6.12E-06 1.34E-05

deg boilor only 7.29E-06

CAS # or MPCA #	Chemical Name	Inhalation Screening Hazard Quotients and Cancer Risks for Individual Substances				Chronic Screening Non-inhalation Pathway Hazard Quotients and Cancer Risks for Individual Substances						Chronic Screening Total Hazard Quotients and Cancer Risks (Inhalation + Non-inhalation) for Individual Substances					
		Acute	Subchronic Noncancer	Chronic Noncancer	Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer	Farmer Noncancer	Farmer Cancer	Urban Gardener Noncancer	Urban Gardener Cancer	Resident Noncancer	Resident Cancer
Total		**1.01E-02**	**4.2E-02**	**4.4E-01**	**8.80E-06**		**1.2E-07**					**4.4E-01**	**8.9E-06**	**4.4E-01**	**8.8E-06**	**4.4E-01**	**8.8E-06**
106-94-5	Bromopropane, 1-	3.3E-03	1.2E-03	1.1E-01								1.1E-01		1.1E-01		1.1E-01	
7440-43-9	Cadmium			2.7E-02	9.1E-07							2.7E-02	9.1E-07	2.7E-02	9.1E-07	2.7E-02	9.1E-07
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols		3.7E-02	5.3E-02	5.3E-06		1.1E-07					5.3E-02	5.4E-06	5.3E-02	5.3E-06	5.3E-02	5.3E-06
18540-29-9	Chromium (Hexavalent) (particulate)		6.4E-05	3.9E-04	4.9E-07		9.8E-09					3.9E-04	5.0E-07	3.9E-04	4.9E-07	3.9E-04	4.9E-07
7440-48-4	Cobalt		3.7E-03	7.3E-03	3.9E-07							7.3E-03	3.9E-07	7.3E-03	3.9E-07	7.3E-03	3.9E-07
100-41-4	Ethyl benzene	1.6E-07	1.2E-08	6.6E-08	1.7E-10							6.6E-08	1.7E-10	6.6E-08	1.7E-10	6.6E-08	1.7E-10
7440-02-0	Nickel	6.6E-03		2.4E-01	1.7E-06							2.4E-01	1.7E-06	2.4E-01	1.7E-06	2.4E-01	1.7E-06
108-88-3	Toluene	3.9E-06	2.1E-06	1.6E-05								1.6E-05		1.6E-05		1.6E-05	

No Inputs Allowed on This Page

RASS version: 2019-01

Screening Date:	
AQ Facility ID No.:	
AQ File No.:	
Facility Name:	
Facility Location:	
SIC Code:	
Emissions type (PTE, Future A	

Air Concentrations in ug/m^3		**Total - all stacks**					**Stack(s)#1**					**Stack(s)#2**					**Stack(s)#3**				
CAS # or MPCA #	**Chemical Name**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**	**C (1-hr)**	**C (3-hr)**	**C (24-hr)**	**C (monthly)**	**C (annual)**
106-94-5	Bromopropane, 1-	1.6E+02	0.0E+00	6.5E+01	4.9E+00	2.2E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E+02	0.0E+00	6.5E+01	4.9E+00	2.2E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7440-43-9	Cadmium	1.2E-02	0.0E+00	3.9E-03	9.1E-04	5.5E-04	8.1E-04	0.0E+00	5.0E-04	9.0E-05	6.3E-05	1.7E-03	0.0E+00	6.5E-04	1.1E-04	5.0E-05	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
18540-29-9	Chromic acid mists and dissolved Cr(VI) aerosols	9.3E-03	0.0E+00	4.4E-03	7.5E-04	4.2E-04	3.1E-03	0.0E+00	1.9E-03	3.4E-04	2.4E-04	6.2E-03	0.0E+00	2.5E-03	4.1E-04	1.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
18540-29-9	Chromium (Hexavalent) (particulate)	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-04	0.0E+00	2.5E-04	6.4E-05	3.9E-05
7440-48-4	Cobalt	9.9E-04	0.0E+00	4.1E-04	7.5E-05	4.4E-05	2.2E-04	0.0E+00	1.4E-04	2.4E-05	1.7E-05	4.5E-04	0.0E+00	1.8E-04	2.9E-05	1.3E-05	3.2E-04	0.0E+00	9.2E-05	2.1E-05	1.3E-05
100-41-4	Ethyl benzene	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-03	0.0E+00	4.6E-04	1.1E-04	6.6E-05
7440-02-0	Nickel	7.3E-02	0.0E+00	3.3E-02	5.8E-03	3.3E-03	2.1E-02	0.0E+00	1.3E-02	2.3E-03	1.6E-03	4.3E-02	0.0E+00	1.7E-02	2.8E-03	1.3E-03	9.6E-03	0.0E+00	2.8E-03	7.1E-04	4.4E-04
108-88-3	Toluene	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.1E-02	1.0E-02	6.5E-03
Ethanol Specific																					