

**COMPLIANCE EVALUATION INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5**

Purpose: NPDES Compliance Evaluation Inspection

Facility:

Rock Island Arsenal (RIA)
1 Rock Island Arsenal
Rock Island, Illinois, 61299

NPDES Permit: ILR001154

Date of Inspection: August 1 - 2, 2023

EPA Inspectors:

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Eric Small, Physical Scientist, (312) 886-6680

Rock Island Arsenal Representatives:

Diana Gilbert, Stormwater Program Manager, (309) 782-3604
Laura St. Louis, Environmental Coordinator, (309) 782-5366
Sandra Black, Environmental Protection Specialist, (309) 782-2801

Report Prepared By:

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I. INTRODUCTION

The purpose of the report is to describe, evaluate and document the Rock Island Arsenal's compliance with the Clean Water Act (CWA) and its National Pollutant Discharge Elimination System (NPDES) permit.

II. BACKGROUND

On August 1 - 2, 2023, EPA conducted a Clean Water Act Compliance Evaluation Inspection at the Rock Island Arsenal facility, a federal facility, as part of an announced multi-media inspection.

Rock Island Arsenal (RIA) holds a stormwater National Pollutant Discharge Elimination System (NPDES) Stormwater Permit for Industrial Activity (Appendix C) since 1994. According to the Stormwater Pollution Prevention Plan, the industrial activities present at the facility are: abrasive blasting, electroplating, foundry, industrial furnaces, hazardous waste generation and storage, heat treatment and forging, machining, print shop, rubber coating, salt storage, surface coating, test firing, vehicle maintenance, welding and woodworking. In addition to its stormwater permit, RIA is permitted to discharge pretreated industrial wastewater from Buildings 212 and 299 under an Industrial User Permit with the City of Rock Island, Illinois and the National Categorical Pretreatment Standard 40 Code of Federal Regulations (CFR) 433 Metal Finishing regulations.

III. OPENING CONFERENCE

On August 1 - 2, 2023, Eric Small and I (CWA EPA Inspectors) arrived at the Rock Island Arsenal facility as part of a U.S. EPA multi-media inspection focusing on Clean Water Act, Safe Drinking Water Act and underground storage tanks inspections. I was joined by Cher Benisek, Thomas Swenson, Joan Rogers, and Arturo Cisneros all of U.S. EPA and Andrew Holloway and Sneha Patel of Illinois EPA. We met with Rock Island Arsenal Garrison environmental representatives Laura St. Louis, Environmental Coordinator, Diana Gilbert, Stormwater Program Manager and Sandra Black, Environmental Protection Specialist. At the Opening Conference we were joined by the Garrison leadership representatives of Dan Mitchell, Garrison Commander, Eric Brown, Garrison Sargent Major and Gary Koski, Director of Public Works. A full list of the individuals present is listed in Table 1.

Cher Benisek introduced the scope and objectives of the multimedia inspection and explained that as part of the inspections EPA would take photographs and asked if anything discussed was Confidential Business Information. Each EPA Inspector then showed their inspector credentials to the Rock Island Arsenal Garrison representatives present.

Rock Island Arsenal
CEI Inspection - August 1 - 2, 2023

Table 1.

Name	Title/Organization	Phone	Email	Present		
				Opening Confer	Closing Confer	CWA Site Walkthrough
Val Dooling	Inspector/EPA	312-886-7167	Dooling.Valerie@epa.gov	Yes	Yes	Yes
Cher Benisek	Inspector/EPA	440-250-1710	Benisek.Cher@epa.gov	Yes	Yes	No
Eric Small	Inspector/EPA	312-886-6680	Small.Eric@epa.gov	Yes	Yes	Yes
Diana Gilbert	Stormwater Programs	309-782-3604	Diana.L.Gilber12civ@army.mil	Yes	Yes	Yes
Laura St. Louis	Environmental Coordinator	309-782-5366	Laura.R.Stlouisciv@army.mil	Yes	Yes	Yes
Sandra Black	Environmental Protection Specialist	309-782-2801	Sandra.L.Black13.ciu@army.mil	Yes	Yes	Yes
Dan Mitchell	Garrison Commander	309-782-7722	Daniel.DMitchell.alil@army.mil	Yes	Yes	No
Gary Koski	Director DPW	309-782-3825	Gary.R.Koski.civ@army.mil	Yes	Yes	No
Eric Brown	Garrison Sargent Major	210-996-4796	James.c.Brown42@army.mil	Yes	Yes	No
Arturo Cisneros	Inspector/EPA	312-886-7447	Cineros.Arturo@epa.gov	Yes	No	No
Joan Rogers	Inspector/EPA	312-886-2785	Roger.Joan@epa.gov	Yes	Yes	No
Thomas Swenson	Inspector/EPA	312-886-5265	Swenson.Thomas@epa.gov	Yes	Yes	No
Andrew Holloway	Env. Engineer	815-987-2388	Andrew.Holloway@illinois.gov	Yes	Yes	No
Sneh Patel	Env. Engineer	847-294-4362	Sneh.Patel@illinois.gov	Yes	Yes	No

IV. STORMWATER DISCUSSION

The RIA has been a military installation since the last 1800 and has had multiple uses. Previously, it had a prisoner of war camp during the Civil War, a hospital during World War I and had temporary warehouses during World War II. Currently, the Army Garrison owns most of the land on the RIA with Veterans Affairs and U.S. Army Corps of Engineers owning parts of the island and a total of eight tenants operate on the island.

The RIA first applied for and received its NPDES Permit for Stormwater Discharges from Industrial Activity in 1994. Its most recent Notice of Intent submission was on July 17, 2023. There are 14 outfalls on the island that convey stormwater to the Mississippi River and each correspond to a unique drainage area.

According to the Stormwater Pollution Prevention Plan (SWPPP), the RIA is located on 155 acres within five industrial activity zones. Electroplating processes and foundry building are located in Zone 2. Hazardous waste generation is located in Zones 2 and 5. Test firing is located in Zone 5. The SWPPP states that in all zones there is industrial activity which requires sector specific testing. Appendix C lists all additional sector benchmarks monitoring, indicator monitoring and additional requirements that are applicable at all outfalls. The RIA has not changed any of its processes or zones from the last NPDES inspection which occurred in 2018.

The RIA is located on the Mississippi River and has intermittent flooding each year. During flood times, the Garrison erects Hesco flood barriers in areas on the north, northwest and southwest that are in expected flood zones. During the flooding events, the stormwater outfalls are closed to prevent elevated river water from flowing into the stormwater system.

The last dry weather storm sampling event to evaluate the need for unauthorized non-stormwater discharges was from 2013. Ms. Gilbert stated that there is one scheduled to occur within the year. The November 2013 results indicated that the sanitary sewer was not infiltrating or tied into the storm sewer network. There were higher counts of magnesium, herbicide and fecal coliform counts which indicated road salt, weed killers and animal feces.

Monitoring

The SWPPP lists applicable SIC codes: 9711, 24, 27, 30, 33, 35. A two-digit standard industrial classification (SIC) code is listed in the SWPPP for some industries and a four-digit SIC code for others. Illinois ILR10 Permit Attachment 2 Sector Specific Requirements determines which sector requirements are applicable using four digit SIC codes. See Table s which is adapted from Illinois ILR10 Permit Attachment 2 Sector Specific Requirements in which multiple subsectors could apply for each of the two-digit SIC codes 24, 33, and 34.

Table 2.

SIC Code Listed on RIA SWPPP	ILR10 Attachment 2		
	Subsector	SIC Code or Activity Code	Activity Represented
	Sector A: Timber Products		
24	A1	2421	General Sawmills and Planing Mills
	A2	2491	Wood Preserving
	A3	2411	Log Storage and Handling
	A4	2426	Hardwood Dimension and Flooring Mills
		2429	Special Product Sawmills, Not elsewhere Classified
		2431-2439, except 2434	Milwork, Veneer, Plywood and Structural Wood
		2448	Wood Pallets and Skids
		2449	Wood Containers, Not elsewhere classified
		2451, 2452	Wood Buildings and Mobile Homes
		2493	Reconstituted Wood Products
		2499	Wood Products, not else where Classified
		2441	Nailed and Lock Corner Wood Boxes and Shook
	Sector X: Printing and Publishing		
27	X1	2711 - 2796	Printing, Publishing, and Allied Industries
	Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries		
30	Y1	3011	Tires and Inner Tubes
		3021	Rubber and Plastics Footwear
		3052, 3053	Gaskets, Packing and Sealing Devices, and Rubber and Plastic Hoses and Belting
		3061, 3069	Fabricated Rubber Products, Not elsewhere Classified
		3081 - 3089	Miscellaneous Plastics Products
	Sector F: Primary Metals		
33	F1	2212-3317	Steel Works, Blast Furnaces and Rolling and Finishing Mills
	F2	3321-3325	Iron and Steel Foundries
	F3	3351-3357	Rolling, Drawing and Extruding of Nonferrous Metals
	F4	3363-3369	Nonferrous Foundries (Castings)
	F5	3331-3339	Primary Smelting and Refining of Nonferrous Metals
		3341	Secondary Smelting and Refining of Nonferrous Metals
		3398, 3399	Miscellaneous Primary Metal Products
	Sector AA: Fabricated Metal Products		
34	AA1	3411 - 3499 (except 3479)	Fabricated Metal Products, Except Machinery and Transportation Equipment and coating, Engraving and Allied Services
	AA2	3479	Fabricated Metal Coating and Engraving

According to the SWPPP, benchmark testing is conducted at all 14 outfalls for chemical oxygen demand (COD), total suspended solids (TSS), total aluminum, total zinc, total copper, total iron, nitrate plus nitrite and water hardness. All benchmark requirements and all sector specific requirements, including benchmark and indicator monitoring that are applicable to RIA according to the NPDES Illinois ILR00 Attachment 1 are listed in Appendix C. Additionally, the receiving water for stormwater is the Mississippi River, which is impaired for mercury, polychlorinated biphenyls (PCB) and fecal coliform, but does not have any total maximum daily load (TMDL) established. RIA also tests PCBs and mercury, but fecal coliform is not tested as it is not a byproduct of any manufacturing process.

Table 3 lists all 2021 and 2022 yearly average samples that exceeded sector specific benchmarks. Of the 14 outfalls, approximately 50% of outfalls surpassed aluminum benchmarks and over 50% of outfalls surpassed nitrate plus nitrite benchmarks in both years.

Table 3

Sampling Name	Outfall ID	Analyte	Benchmark (mg/L)	2022 Average (mg/L)	2021 Average (mg/L)
Outfall D93	1	Nitrate + Nitrite	0.68	1.4	
Outfall D92	2	Aluminum	1.1	1.5	
Outfall D98	3	COD	120	123	
		Nitrate + Nitrite	0.68	1.1	
		TSS	100	162	
		Aluminum	1.1	10.9	
Outfall D105	4	TSS	100		413
		Aluminum	1.1		2.03
		Nitrate + Nitrite	0.68	1.0	0.98
Outfall F14	5	Nitrate + Nitrite	0.68	2.08	1.38
		Aluminum	1.1	0.98	2.29
Sluice Gate 295	6	Nitrate + Nitrite	0.68	0.88	1.39
Pump Station 295	7	Aluminum	1.1		1.24
		Nitrate + Nitrite	0.68	0.8	1.1
Outfall E56	8	Nitrate + Nitrite	0.68		0.73
		TSS	100	670	131
		Aluminum	1.1	2.32	1.4
Outfall 127	9	Nitrate + Nitrite	0.68	1.43	1
		Aluminum	1.1	1.16	4.7
Outfall C39	10	TSS	100		605
		Nitrate + Nitrite	0.68	0.92	
		Aluminum	1.1	2.4	6.01
Outfall C45	11	TSS	100		140
		Nitrate + Nitrite	0.68	1.0	1.7
		Aluminum	1.1		1.75
Sluice Gate and Catch Basin SE	13	Nitrate + Nitrite	0.68	2.0	1.5
		TSS	100	2001	
		Aluminum	1.1	19	
		Zinc	0.23	2.0	
A20 Sluice Gate	14	TSS	100		187
		Nitrate + Nitrite	0.68	1.0	
		Aluminum	1.1		5.8

Ms. Gilbert acknowledged that some sampling had exceeded benchmark levels are stated that they are reviewing whether control measures modifications are necessary. Ms. Gilbert stated that as part of the dry weather sampling test, she expects natural background pollutant levels could contribute to the exceedance of the benchmark, but at this time that has not been characterized or ruled out as a pollutant source.

V. STORMWATER SITE VISIT

On August 2, 2023, at 8:00 am, EPA CWA Inspectors and Ms. Gilbert visited stormwater controls located in yards outside the fueling station, hazardous waste storage, former coal pile, foundry yard, salt storage dome, outdoor Jeep storage area, and dumpster storage area. The sample monitoring points for outfalls 5, 6, 7 and 13, and Outfalls 10 and 11 were also visited.

The hazardous waste storage building is located in Industrial Zone 1 and discharges to Outfall 5. All hazardous waste is stored indoors and I did not see any stored outdoors. Ms. Gilbert stated that a rubber inlet plug to protect the inlet from hazardous material spills is located at the building in case of a spill which escapes the facility. Also, the employees perform weekly inspections of the hazardous waste area.

We also viewed the sampling point for Outfall 5 which is the nearest upstream valve. The location of Outfall 5 is beyond the fence line in a marshy area and was not accessible. Ms. Gilbert stated that all stormwater inspections take place at this monitoring point and not the actual outfall.

We next viewed the fueling station which is outside of the drainage area of Outfall 5. The fueling area is open for Garrison employees and a limited number of others, but not for outside contractors. Fuel is stored in a double walled above ground storage tank. According to Ms. Gilbert, the entire fueling area acts as secondary containment and a spill kit is present, if needed.

In Industrial Zone 2, we walked south on Sylvan Drive along the south end of the former coal pile. Ms. Gilbert pointed out yellow markers indicating monitoring wells. In an earlier conversation, I spoke with Scott Adner, Physical Scientist, who was familiar with the former coal piles. Mr. Adner stated that the coal pile is a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site with nested groundwater wells monitoring for metals and semi volatiles. In 2019 - 2020, the site was excavated and filled with clean gravel. Ms. Gilbert stated that in the next year, this area will be used for solar and reciprocating internal combustion engine (RICE) generator installation. After completion of the initial excavation, older aerial photographs identified a larger coal pile that expands the CERCLA site into three other areas which have not yet been excavated. According to Mr. Adler, there are currently nine monitoring wells and he is expecting on adding 28 more at multiple depths. South of the former coal pile area, we viewed the valves upstream of Outfalls 6 and 7 which serve as the sampling monitoring points. Ms. Gilbert stated that the outfalls are located beyond the fenceline in a marshy area and are not accessible.

We drove to the foundry yard on the west of the foundry building. At this location a dumpster for sand mold waste is located under a canopy roof. We observed some sand molds that were on the ground, outside of the roof. Ms. Gilbert spoke with foundry staff who stated that the procedure is to let the sand cool on the ground first then transfer it under roof to the dumpster. They assured us that all the sand that was observed had only been placed there that morning and would be removed by the end of the day. I asked Ms. Gilbert if the protocols change when wet weather is expected, and she stated that the foundry staff do not put the hot waste sand molds outside on the ground during wet weather. There was a nearby inlet with a drain filter to keep sand from entering the stormwater system. I observed there was sand and some debris on the filter. Ms.

Gilbert stated that JMTC is assigned to replace the inlet filter as needed. Also, in the foundry yard, I observed a sign for "Emission Control Dust" hazardous waste accumulation area. I saw some barrels labeled hazardous waste and I did not observe secondary containment for the hazardous waste in this area. Ms. Gilbert stated that the dry scrubbers for the foundry building and for Building 299 are indoors.

We viewed dumpster storage areas south of multiuse Building 299. I observed that many of these dumpsters were open or did not have lids. At this site only wood pallets had been discarded into the dumpsters. We also viewed the storage area that is identified as outdoor Jeep storage. I saw vehicles, trailers and other miscellaneous dry storage located there. Ms. Gilbert stated that in 2029 this will be phased out as a storage area and a structure is expected to be built.

We drove to the salt storage dome that is north of the outdoor Jeep storage. At this location I viewed some erosion, white staining on the ground and salt spillage in the loading area. Ms. Gilbert stated there is already an approved regrading project for later this year to repair the erosion.

Flow from Industrial Zones 3 and 4 discharge to Outfalls 10 and 11. There was recent construction at these two outfalls to separate a previously combined outfall into two separate discharge points. Although construction has been completed, the NPDES Stormwater Permit for Construction Activity is still active since the vegetative cover has not reached sufficient percentage to close out the permit. Ms. Gilbert stated that the first round of seeding did not take, and another round of seeding will be scheduled. Both Outfalls 10 and 11 were easily accessible and had new riprap. Stormwater samples are collected at the outfalls and not at the valve upstream like at the other outfalls we visited. I observed some flow in each of the two outfalls. Since it was dry weather, Ms. Gilbert was not sure where it was originating but stated that there is a dry weather sampling event scheduled within the year which could identify the source.

Earlier in the day, near the office, I had observed a utility crew working at a utility manhole near the office. Ms. Gilbert stated that since the island has such a high-water table, sitting water in the utility and communication manholes have to be pumped weekly. When asked where the water is discharged to, Ms. Gilbert stated that it is discharged to a stormwater manhole, although this particular utility manhole was in a different discharge area.

Ms. Gilbert stated that there is boat storage and launch for rescue on the Mississippi River. There is no cleaning or fueling or maintenance for the boat on the installation. There is minor vehicle maintenance in Zone 3; oil changes could occur here, but not major repairs. Neither the boat storage nor vehicle maintenance areas were viewed as part of the facility site visit.

Next, we drove to the historic weapons test range in Industrial Zone 5. No test weapons are discharged outdoors anymore and the firing range is currently indoors. I viewed the sampling point for Outfall 13 which is the nearest upstream pump since the outfall is not accessible. Near this location, I noticed a discharge pipe that was installed at the edge of the island and there was a hose line depression in the grass leading up to the discharge pipe. Ms. Gilbert stated that this discharge point was in use during flood events when Outfall 13 was closed to prevent inundation of floodwater into the stormwater system. A temporary sump pump was used at the last flood

event to pump out stormwater in low lying areas to the discharge point. On the stormwater inlet leading to Outfall 13, I noticed sediment and vegetation on the inlet. Ms. Gilbert stated that this inlet did not have a filter.

Ms. Gilbert stated that the sidewalk snowplows can harm vegetation and create erosional areas throughout the entire island. In areas where this occurs, straw wattles are installed at the inlet to prevent sediment from entering the stormwater system. I viewed one such inlet near the office.

We completed the stormwater portion of the facility site visit on August 2, 2023 at 11:46 am.

VI. PRETREATMENT DISCUSSION

RIA is an Industrial User of the City of Rock Island, Illinois and is regulated under an Industrial User Permit with the City of Rock Island, Illinois and the National Categorical Pretreatment Standard 40 Code of Federal Regulations (CFR) 433 Metal Finishing regulations.

Building 212 and Building 299 each have pretreatment units after its categorical metal finishing industrial process. After pretreatment, the process wastewater combines with the building's domestic wastestream and then is sent to the RIA pumphouse where it joins with all other wastestreams before being sent to the City of Rock Island sewer system. The Garrison owns all buildings and utilities including sewer pipes and also holds the NPDES Permits, but its tenants own the machines, processes and operate the pretreatment units. Joint Manufacturing and Technology Center (JMTC) operates a black oxide, nickel and zinc plate shop and pretreatment unit in Building 212 and the U.S. Navy operates a cartridge case facility and pretreatment unit in Building 299.

VII. PRETREATMENT SITE VISITS

Joint Manufacturing and Technology Center (JMTC) Facility

As part of the pretreatment site visit, the CWA Inspectors met with JMTC security and received clearance at 11:15 am on August 1, 2023. For both pretreatment sites, CWA Inspectors, Ms. Gilbert and Ms. Black were present. At the pretreatment unit of the plating line, we met with Troy Hemphill, JMTC Operator and Class K Wastewater Operator. Mr. Hemphill has been in his position for two years, and he stated that he is the only wastewater operator at this pretreatment unit which does not have a backup.

Mr. Hemphill described the five industrial plating lines, or Phases, which create wastewater:

Phase I: hexavalent chromium

Phase Ib: phosphating (includes black oxide) and hexavalent meta-seal

Phase II: hexavalent chromium, zinc and cadmium

Phase III: hexavalent chromium, anodizing and hard coat

Phase IV: trivalent chromium

Wastewater can be processed on automatic or manual. On the automatic cycle, hexavalent chromium to trivalent chromium conversion occurs. Mr. Hemphill estimated that the amount of wastewater processed is around 12,000 gallons per week, but production is not constant and based on contracted work. In addition to wastewater from the primary lines there can be wastewater from condensate or water treatment reverse osmosis discharge water, and spills are also routed to the pretreatment units. There is a separate sump in the pretreatment area that receives wastewater from secondary containment wastewater that is discharged via gravity. Previously, there was an event when the secondary containment sump received too much water and the entire pretreatment area was under 1-2 feet of water which caused some pumps to need to be replaced.

The treatment system consists of metal batch tanks, sludge tanks, a filter press separator, and effluent tanks. The treatment system can run in automatic or manual mode and the operator identifies which way it is operating. The operator uses cup and bench test to determine necessary treatment. Treatment depends on the plating lines and the wastewater which is produced, but generally consists of a metal precipitation, solids removal and neutralization. Each metal batch tank has options of addition of sodium hydroxide, ferric chloride or sulfuric acid to each tank. Conversion of hexavalent to trivalent chromium is done through acidification and sodium metabisulfite addition. Flocculation is achieved through ferric chloride or polymer additions.

The filter press produces F listed hazardous waste and is operated on both manual or automatic operations. Recycled water from the filter press is routed back to the metal batch tank. The operator will run the water through an additional filtration system prior to discharging to the effluent tanks. All treated wastewater remains in the effluent tanks until the operator turns on a pump to release it to the sewer; therefore, in the case of power failure, the wastewater will not automatically be discharged to the sewer. Grab sampling and 3-day composite samples of final effluent wastewater are collected from the effluent tanks for compliance with the City of Rock Island pretreatment permit. The black oxide solidifies into a “cement-like mass” in the sludge tanks and it must be cleaned out every 5 years. The operator is expecting this to occur in September.

We completed the JMTC portion of the facility site visit on August 1, 2023 at 2:20 PM.

Quad City Cartridge Case Facility

At the pretreatment unit of the cartridge case facility, we met with Dave Charlson, Facilities Technician and Class K Wastewater Operator. For this pretreatment unit, Mr. Charlson is the backup operator while the main operator is out on leave.

At this facility there is a zinc phosphating line and a “soap and coat” line. At the time of the inspection there is no electroplating process, but Mr. Charlson stated that it is possible that electroplating could return. The phosphating process occurs as part of the heat treat line. For the pretreatment units, wastewater first flows into an equalization tank then moves to tanks for acidification and precipitation of metals. The pretreatment unit has little flow and Mr. Charlson stated that to take 24-hour composite samples for its City of Rock Island pretreatment permit, they must save up wastewater to be able to discharge for 24 hours. The average discharge volume is 8000 gallons per month, or one batch each month. There is an oil water separator and Mr. Charlson stated that all oil water separators and grease traps are cleaned and inspected by the City of Rock Island as part of its basic operational contract.

We completed the Quad City Cartridge Case Facility portion of the facility site visit at 2:20 PM.

VIII. CLOSING CONFERENCE

At 3:30 PM we began a closing conference with the same EPA and Garrison representatives present as at the Opening Conference.

EPA noted the following areas of concern:

Stormwater Areas of Concern:

1. In 2021 and 2022, approximately 50% or more of yearly average samples of the 14 outfalls exceeded sector specific aluminum and nitrate plus nitrate benchmarks.
2. There was vegetative or industrial debris on the Zone 5 and foundry stormwater inlets.
3. Barrels labeled hazardous waste were located in the foundry yard and near the stormwater inlet and no secondary containment was present.
4. The practices that are used for flooding and high-water table are not listed in the SWPPP. The two practices observed are:
 - a. Pumping out sitting water in the utility and communication manholes weekly to the stormwater system.
 - b. Stormwater discharge through a temporary discharge point in use during flood events such as the discharge point at Outfall 13.
5. The SWPPP lists two digit applicable SIC codes: 24, 27, 30, 33, 35, but a four digit SIC code is necessary to determine which sector requirements are applicable.

Pretreatment Area of Concern:

1. The JMTC wastewater operator is the only wastewater operator at this pretreatment unit and does not have a backup.

The inspection and closing conference ended at 4:15pm and EPA CWA Inspection left the facility.

Documents received during the inspection:

Maps of Facility Areas and Industrial Drainage Zones
Stormwater Pollution Prevention Plan dated October 2022
Rock Island Arsenal Major Tenant Leadership
Environmental Division Staff
Garrison Command Structure
USAG RIA Organization Structure

Appendix A: Inspection Photo Log

Rock Island Arsenal
EPA Inspection August 1-2, 2023
All photos taken by Eric Small, Physical Scientist, U.S. EPA
Camera: RICOH WG-4 GPS



1: RIMG0036

Description: Polymer storage and mixing tanks for pretreatment units. The three tanks are located within secondary containment.

Location: JMTC Pretreatment Unit

Date/Time: August 1, 2023 12:17 PM



2: RIMG0037

Description: Mixing and storage tanks within the pretreatment system. On the left foreground are three batch tanks and sludge tanks are in the center back. Samples can be collected via the spigot on each tank once the tank is 30% full. There is a drain under the spigot that drains back to the start of the pretreatment system.

Location: JMTTC Pretreatment Unit

Date/Time: August 1, 2023 12:21 PM

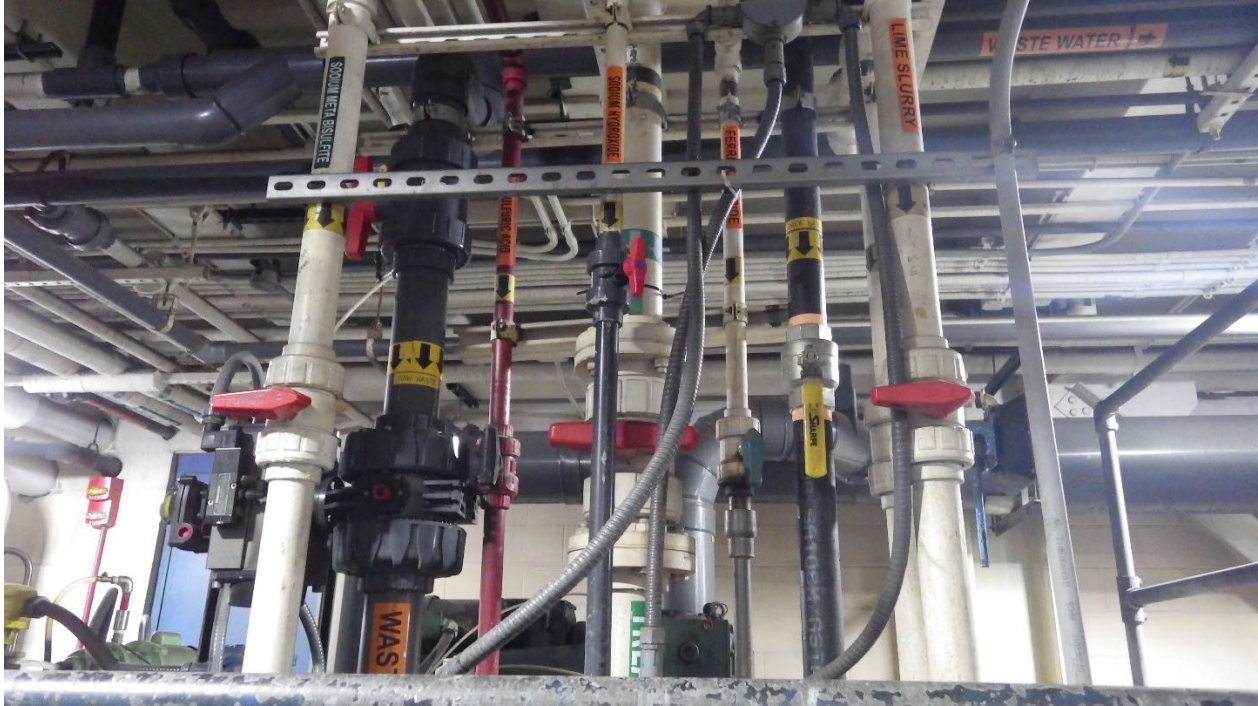


3: RIMG0038

Description: Sump in the pretreatment area that receives wastewater from a secondary containment area via gravity. Previously, there was an event when the secondary containment sump received too much water and the entire pretreatment area was under 1-2 feet of water which caused some pumps to need to be replaced.

Location: JMTC Pretreatment Unit

Date/Time: August 1, 2023 12:34 PM



4: RIMG0039

Description: Valves on the metals batch tanks that allow sodium metabisulfite, sodium hydroxide, lime slurry, ferric chloride and sulfuric acid additions. Each of the three batch tanks have the same valves.

Location: JMTC Pretreatment Unit

Date/Time: August 1, 2023 12:44 PM



5: RIMG0040

Description: Primary pump that receives wastewater from the plating units above and pumps it to the JMTC Plating Unit

Location: JMTC plating area located upstream of the pretreatment unit

Date/Time: August 1, 2023 12:54 PM

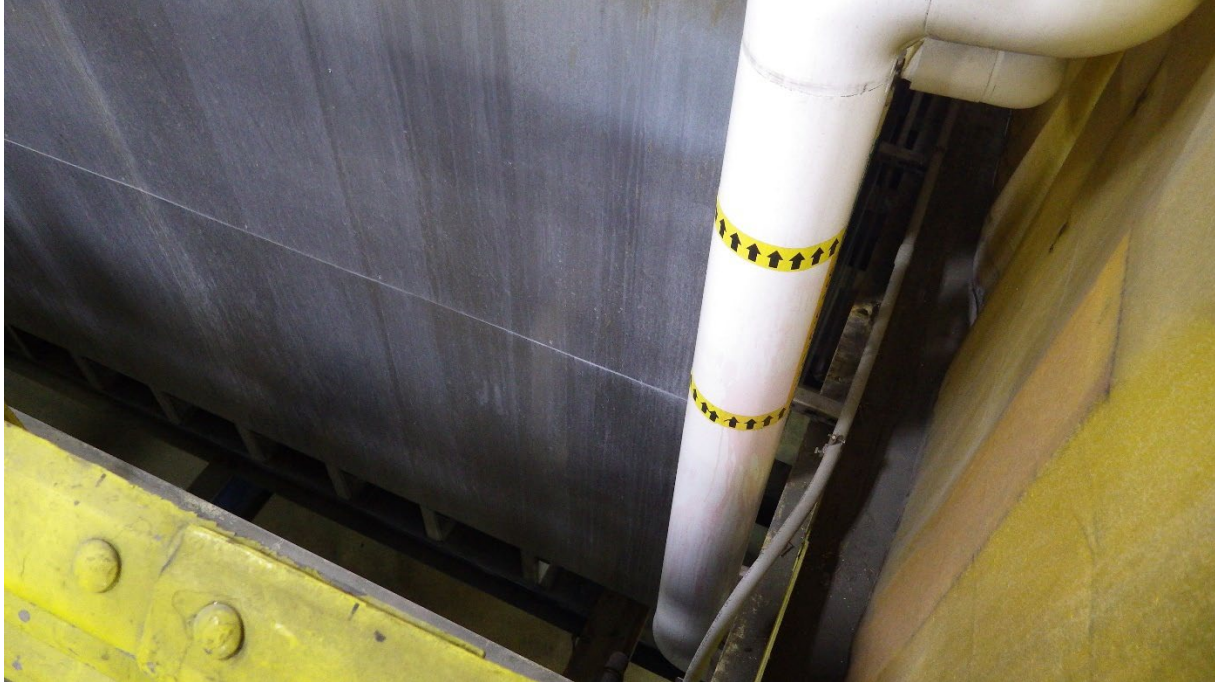


6: RIMG0041

Description: One of the plating lines that discharge to the JMTC Pretreatment Unit. Wastewater is designed to overflow the units and fall into the primary confinement area below.

Location: JMTC plating area located upstream of the pretreatment unit

Date/Time: August 1, 2023 1:00 PM



7: RIMG0042

Description: View downward next to the plating unit from Photo 6. Wastewater is designed to overflow the plating unit and flow downward to the primary confinement area below, which is pumped to the JMTC pretreatment unit.

Location: JMTC Plating Unit located upstream of the pretreatment unit

Date/Time: August 1, 2023 1:00 PM



8: RIMG0045

Description: Double walled above ground fuel storage tank located in the fueling station.

Location: Fueling station

Date/Time: August 2, 2023 9:01 AM



9: RIMG0046

Description: Southern view of the valve upstream of Outfall 5 where compliance samples are collected. The actual outfall is located in the marshy area beyond the fenceline and was not accessible during the inspection.

Location: Compliance sampling collection point for Outfall 5

Date/Time: August 2, 2023 9:10 AM



10: RIMG0047

Description: Non-vegetated area beyond the railroad tracks is the location of the former coal pile which is now a CERCLA groundwater monitoring site. Ms. Gilbert stated that the plan for this area is to install solar and RICE generators.

Location: Former coal pile

Date/Time: August 2, 2023 9:15 AM



11: RIMG0048

Description: Pumphouse and valves upstream of Outfalls 6 and 7. The compliance samples for Outfalls 6 and 7 are collected at the grate next to the pumphouse. In the right rearground is the fenceline and the actual outfalls are located in the marshy area beyond the fenceline and were not accessible at the time of the inspection.

Location: Compliance sample point for Outfalls 6 and 7

Date/Time: August 2, 2023 9:21 AM



12: RIMG0049

Description: In the foundry yard hot sand molds are left to cool (right) and by the end of the day will be placed into the dumpsters that are covered by a canopy (left).

Location: Foundry yard

Date/Time: August 2, 2023 9:46 AM



13: RIMG0051

Description: Waste sand molds that are left in the foundry yard to cool prior to moving them to the dumpsters underroof. The stormwater inlet is located in the center rear ground.

Location: Foundry yard

Date/Time: August 2, 2023 9:48 AM



14: RIMG0052

Description: Stormwater inlet located in the foundry yard, near the sand molds. The inlet has a drain filter that is assigned to JMTC for periodic inspection and replacement. At the time of the inspection, sand and debris were present on the filter and inlet.

Location: Foundry yard

Date/Time: August 2, 2023 9:52 AM



15: RIMG0053

Description: Barrels labeled hazardous waste that were located in the foundry yard and near the stormwater inlet from photo 14. No secondary containment was present.

Location: Foundry yard

Date/Time: August 2, 2023 10:05 AM



16: RIMG0054

Description: Dumpsters and waste storage located in Industrial Zone 2. Dumpsters were not covered at the time of the inspection. The dumpsters were full of wood pallets.

Location: Dumpster storage

Date/Time: August 2, 2023 10:53 AM



17: RIMG0055

Description: Erosion area present near the salt storage dome. Some salt staining was present near the erosional area. Salt spillage was present near the salt loading area.

Location: Salt storage dome

Date/Time: August 2, 2023 11:05 AM



18: RIMG0056

Description: Erosion and white salt staining on a stormwater pathway leading to the stormwater inlet. This photo is the flow pathway downstream of Photo 17.

Location: Salt storage dome

Date/Time: August 2, 2023 11:06 AM



19: RIMG0057

Description: Outfalls 10 and 11. Construction had recently finished on these two outfalls to separate them and make them more accessible. At the time of the inspection, both outfalls had some flow.

Location: Outfalls 10 and 11

Date/Time: August 2, 2023 11:12 AM



20: RIMG0058

Description: Valves upstream of Outfalls 10 and 11. This photograph is taken above the outfalls shown in Photo 19 and shows the receiving waters of the Mississippi River. The construction permit was still active since the vegetative cover had not taken.

Location: Outfalls 10 and 11

Date/Time: August 2, 2023 11:19 AM



21: RIMG0059

Description: Vegetative cover near the valves for Outfalls 10 and 11 shows in Photo 20.

Location: Outfall 10 and 11

Date/Time: August 2, 2023 11:19 AM



22: RIMG0060

Description: Valve upstream of Outfall 13 in and the compliance sample point. The outfall is located beyond the fenceline and was not accessible.

Location: Outfall 13

Date/Time: August 2, 2023 11:31 AM



23: RIMG0061

Description: Discharge pipe that was installed under the fenceline near Outfall 13 and a hose line in the grass leading to the discharge pipe. Ms. Gilbert stated that this point had been used to pump out stormwater during the last flood event when the outfalls valves were closed to prevent flooding entering the stormwater system.

Location: Outfall 13

Date/Time: August 2, 2023 11:35 AM



24: RIMG0062

Description: Stormwater inlet in a low lying area of Industrial Zone 5. Ms. Gilbert stated that a sump pump was place in this area during the last flood event and pumped to the discharge point on Photo 23. At the time of the inspection, there was grass and debris on the inlet and an inlet filter was not in use.

Location: Industrial Zone 5 near Outfall 13

Date/Time: August 2, 2023 11:37 AM



25: RIMG0063

Description: Stormwater inlet near the Garrison offices. Ms. Gilbert stated that the snowplows tear up the grass which contributes to sediment entering the stormwater system. In places like this inlet, a straw waddle is used to prevent erosion from leaving the grass, and a drain filter is used in the inlet.

Location: Garrison offices

Date/Time: August 2, 2023 1:23 PM



8: RIMG0064

Description: Processing area where drains in the floor are designed as secondary containment and to route wastewater to the pretreatment unit.

Location: Quad City Cartridge Case Facility

Date/Time: August 2, 2023 1:42 PM



26: RIMG0065

Description: Wash tunnel that is designed to discharge to the floor drains and then to the pretreatment units.

Location: Quad City Cartridge Case Facility

Date/Time: August 2, 2023 1:43 PM

Appendix B: Aerial image of Rock Island Arsenal with stormwater outfalls

Note: Aerial image with stormwater outfalls taken from Rock Island Arsenal's Stormwater Pollution Prevention Plan. Images do not represent conditions observed and are only to be used as reference.



- 1 Outfall D93 (Manhole D93)
- 2 Outfall D92 (Manhole D92)
- 3 Outfall D98 (Manhole D98)
- 4 Outfall D105
- 5 Outfall F14 (Catch Basin)
- 6 Outfall 295 (Sluice Gate) (SWO 201)
- 7 Pump Station 295

- 8 Outfall E56
- 9 Outfall 127 (Manhole 127) (SWO 102)
- 10 Outfall C39 (Manhole C39)
- 11 Outfall C45 (Manhole C45)
- 12 Sluice Gate #3 at Test Track (SWO 101)
- 13 Sluice Gate and Catch Basin SE (SWO 001)
- 14 Sluice Gate And Outfall (SWO 002)

Appendix C: NPDES Permit Sector Specific Requirements

SIC Code	Subsector	Sector Specific Indicator Monitoring	Sector Specific Benchmarks	Additional Requirements
(Attachment 2 Table 2-1)	(Attachment 1, Sector Specific Requirements)	(Attachment 1, Sector Specific Requirements for Industrial Activity)	(Attachment 1, Sector Specific Requirement for Industrial Activity)	(Attachment 1, Sector Specific Requirement for Industrial Activity)
Present at RIA	Sectors of Industrial			
2441	A4		COD 120.0 mg/L	A.3.1 Good Housekeeping
2448	A4		TSS 100.0 mg/L	A.4.1 SWPPP Drainage Areas Site Map
2449	A4			A.4.2 SWPPP Inventory of Exposed Materials
				A.4.3 SWPPP Description of Stormwater Management Controls
				A.4.5 Additional Inspection Requirements
2759	X1	COD		X.2.1 Good Housekeeping Measures
2782	X1	TSS		X.2.2 Employee Training
		pH		X.3.1 Additional SWPPP Requirements
3061	Y1		Zinc HD	Y.2.1 Controls for Rubber Manufacturers
				Y.3 Additional SWPPP Requirements
3312	F1	PAH	Aluminum	F.2.1 Good Housekeeping Measures
3324	F2	COD	Zinc	F.3.1 SWPPP Drainage Areas Site Map
3365	F4	TSS	TSS	F.3.2 SWPPP Inventory of Exposed Material
3369	F4	pH	Copper	F.4 Additional Inspection Requirements
3398	F5			
3444	AA1		Aluminum	AA.2.1 Good Housekeeping Measures
3462	AA1		Zinc	AAA.2.2 Spill Retention and Response Procedures
3463	AA1		Nitrate plus Nitrite	AAA.2.3 Spills and Leaks
3469	AA1			AA.3.1 SWPPP Drainage Area Site Map
3471	AA1			AA.3.2 SWPPP Potential Pollutant Sources
3484	AA1			AA.4.1 Additional Inspection Requirements
3495	AA1			
3499	AA1			

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Permit Citation	Additional Good Housekeeping Measures
A.3.1	In areas where storage loading and unloading and material handling occur perform good housekeeping to minimize the discharge of wood debris, leachate generated from decaying wood materials, and the generation of dust.
X.2.1.1	Plainly label and store all containerized materials (e.g. skids, pallets, solvents, bulk inks, hazardous waste, empty drums, portable and mobile containers of plant debris, wood crates, steel racks and fuel oil) in a protected area, away from drains. Minimize contamination of the stormwater from such storage areas. Also consider an inventory control plan to prevent excessive purchasing of potentially hazardous substances.
X.2.1.2	Minimize contamination of stormwater from material handling operations and areas (e.g. blanket wash, mixing solvents, loading and unloading materials) through implementation of control measures such as the following, where determined to be feasible: using spill and overflow protection; covering fueling areas; and covering or enclosing areas where the transfer of materials may occur. When applicable, address the replacement or repair of leaking connections, valves, transfer lines, and pipes that may carry chemicals or wastewater.
X.2.1.3	Minimize contamination of stormwater from fueling areas through implementation of control measures such as the following, where determined to be feasible: covering the fueling area; using spill and overflow protection; minimizing discharges of stormwater to the fueling areas; using dry cleanup methods; and treating and/or recycling stormwater collected from the fueling area.
X.2.1.4	Minimize contamination of the stormwater from above-ground tank areas, including the associated piping and valves, through implementation of control measures such as the following, where determined to be feasible: regularly cleaning these areas; explicitly addressing tanks, piping and valves in the SPCC program; minimizing stormwater discharges from adjacent areas; restricting access to the areas; inserting filters in adjacent catch basins; providing absorbent booms in unbermed fueling areas; using dry cleanup methods; and permanently sealing drains within critical areas that may discharge to a storm drain.
F.2.1	As part of your Good Housekeeping program, you must implement a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust or debris may accumulate to minimize the discharge of pollutants in stormwater. The cleaning and maintenance program must encompass, as appropriate, areas where material loading and unloading, storage and handling and processing occur.
F.2.1	Stabilize unpaved areas using vegetation or paving where there is vehicle traffic or where material loading and unloading, storage, handling and processing occurs, unless feasible. For paved areas of the facility where particulate matter, dust or debris may accumulate, to minimize the discharge of pollutants in stormwater, implement control measure such as the following, where feasible: sweeping or vacuuming at regular intervals; and washing down the areas and collecting and/or treating and properly disposing of the washdown water. For unstabilized areas or for stabilized areas where sweeping, vacuuming, or washing down is not possible, to minimize the discharge of particulate matter, dust or debris or other pollutant in stormwater, implement stormwater management devices such as the following, where determined to be feasible: sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection, and other equivalent measure that effectively trap or remove sediment.
AA.2.1.1	Minimize the generation of and/or recover and properly manage scrap metals, fines and iron dust. Include measures for containing materials within storage handling areas.
AA.2.1.2	Minimize exposure of paint and painting equipment to stormwater.
Additional Controls	
Y.2.1	Minimize the discharge of zinc in your stormwater discharges. Possible sources of zinc reviewed and list control measures to be implemented where determined to be feasible, implement additional control measures such as the following, where determined to be feasible; using chemicals purchased in pre-weighed, sealed polyethylene bags; storing in-use materials in sealable containers, ensuring an airspace between the container and the cover to minimize "puffing" losses when the container is opened; and issuing automatic dispensing and weighing equipment.
Y.2.1.1	Ensure proper handling and storage of zinc bags at your facility through implementation of control measures such as the following, where determined to be feasible; employee training on the handling and storage of zinc bags; indoor storage of zinc bags; cleanup of zinc spills without washing the zinc into the storm drain; and the use of 2,500 pounds sacks of zinc rather than 50- to 100-pound sacks.
Y.2.1.2	Minimize discharges of zinc from dumpsters through implementation of control measures such as the following, where determined to be feasible; covering the dumpster; moving the dumpster indoors; and providing a lining for the dumpster.
Y.2.1.3	Minimize contributions of zinc to stormwater from dust collectors and baghouses. Replace or repair improperly operating dust collectors and baghouses.
Y.2.1.4	Minimize contamination of stormwater as a result of dust generation from rubber grinding operations. Where determined to be feasible, install a dust collection system.
Y.2.1.5	Minimize the potential for stormwater contamination from drips and spills of zinc stearate slurry that may be released to the storm drain. Where determined to be feasible, use alternative compounds to zinc stearate.
AA.2.2	Ensure that the necessary equipment to implement a cleanup is available to personnel.
AA.2.2.1	Maintain clean, dry, orderly conditions in metal fabricating areas. Use dry clean-up techniques where practicable.
AA.2.2.2	Keep storage areas for raw metals free of conditions that could cause or impede appropriate and timely response to spills or leakage of materials through implementation of control measures such as the following, where determined to be feasible; maintaining storage areas so that there is easy access in the event of a spill, and labeling stored materials to aid in identifying spill contents.
AA.2.2.3	Minimize the potential for stormwater contamination from metal working fluid storage areas for metal working fluids.
AA.2.2.4	Control and clean up spills of solvents and other liquid cleaners, control sand buildup and disbursement from sandblasting operations, and prevent exposure of recyclable wastes. Substitute environmentally benign cleaners when possible.
AA.2.2.5	Minimize the potential for stormwater contamination from lubricating oil and hydraulic fluid operations. Use monitoring equipment or other devices to detect and control leaks and overflows where feasible. Install perimeter controls such as dikes, curbs, grass filter strips, or equivalent measures where feasible.
AA.2.2.6	Minimize stormwater contamination and accidental spillage in chemical storage areas. Include a program to inspect containers and identify proper disposal methods.
AA.2.3	In your spill prevention and response procedures, pay attention to the following materials (at a minimum); chromium, toluene, pickle liquor, sulfuric acid, zinc and other water priority chemicals, and hazardous chemicals and wastes.

Additional Employee Training

- X.2.2 As part of your employee training program, address, at a minimum the following activities: spent solvent management, spill prevention and control, used oil management, fueling procedures, and general good housekeeping practices.

Additional SWPPP Requirements:

- A.4.1. Document in your SWPPP where any of the following may be exposed to precipitation or stormwater: processing areas, treatment chemical storage areas, treated wood and residue storage areas, wet decking areas, dry decking areas, untreated wood and residue storage areas and treatment equipment storage areas.
- A.4.2 Where such information exists, if your facility has used chlorophenolic, creosote, or chromium-copper-arsenic formulation for wood surface protection or preservation, document in your SWPPP the following: areas where contaminated soils, treatment equipment, and stored materials still remain and the management practices employed to minimize the contact of these materials with stormwater.
- A.4.3 Document measures implemented to address the following activities and sources: log, lumber and wood product storage areas; residue storage areas; loading and unloading areas; material handling areas; chemical storage areas; and equipment and vehicle maintenance, storage and repair areas. If your facility performs wood surface protection and preservation activities, address the specific control measures, including any BMPs for these activities.
- X.3.1 Description of Good Housekeeping Measures for Material Storage Areas. In connection with X.2.1.1, describe in the SWPPP the containment area or enclosure for materials stored outdoors.
- Y.3.1 Document in your SWPPP the use of zinc at your facility and the possible pathways through which zinc may be discharged in stormwater.
- F.3.1 Identify in the SWPPP where any of the following activities may be exposed to precipitation or stormwater; storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; liquid storage tanks and drums; processing areas including pollution control equipment and storage areas of raw material such as coal, coke, scrap, sand, fluxes, refractories, or metal in any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal and coke handling operations, etc., and could result in a discharge of pollutants in stormwater.
- F.3.2 Include in the inventory of materials handled at the site that potentially may be exposed to precipitation or stormwater; areas where there is the potential for deposition of particulate matter from process air emissions or losses during the material-handling activities.
- AA.3.1 Document in your SWPPP the following additional sources and activities that have potential pollutants associated with them: loading and unloading operations for paints, chemicals and raw materials; outdoor storage activities for raw materials, paints, empty containers, corn cobs, chemicals, and scrap metals; outdoor manufacturing or processing activities such as grinding, burring, degreasing, buffing and brazing; onsite waste disposal practices for spent solvents, sludge, pickling baths, shavings, ingot pieces, and refuse and waste piles.

Additional Inspection Requirements

- A.4.5 If your facility performs wood surface protection and preservation activities, inspect processing areas, transport areas and treated wood storage areas monthly to assess the usefulness of practices to minimize the deposit of treatment chemicals on unprotected soils and in areas that will come in contact with stormwater discharges.
- F.4 As part of conducting your routine facility inspection at least quarterly, address all potential sources of pollutants, including (if applicable) air pollution control equipment, for any signs of degradation that could limit their efficiency and lead to excessive emissions. Consider monitoring air flow at inlets and outlets to check for leaks or blockage in ducts. Also, inspect all process and material handling equipment for leaks, drips or the potential loss of material; and material storage areas as well as chemicals stored in tanks and drums for signs of material losses due to wind or stormwater.
- AA.4.1 At a minimum, include the following areas in all inspections; raw metal storage areas, finished product storage areas, material and chemical storage areas, spent solvents and chemical storage areas, recycling areas, loading and unloading areas, equipment storage areas, paint areas, drainage from roof and vehicle fueling and maintenance areas. Potential pollutants include chromium, zinc, lubricating oil, solvents, aluminum, oil and grease, methyl ethyl ketone, steel, and related materials.