

STORM WATER PLAN (SWP)



Name of Facility:

Physical Address:

Mailing Address:

Facility Contact:

Facility Contact Email:

Facility Contact Phone Number:

Date:

Last Revision:

INTRODUCTION

This Storm Water Plan (SWP) is written in accordance with the State of Delaware *Regulations Governing Storm Water Discharges Associated with Industrial Activities*. The goal of the SWP is to improve water quality by reducing the pollutants contained in storm water discharges from the facility. The SWP has been prepared to provide guidance, practices and implementation procedures that will be used to prevent and/or control the discharge of pollutants in storm water runoff.

Titles of each section in this document are hyperlinked to their location in subsection [§9.0](#) within 7 DE Admin. Code 7201 Regulations Governing the Control of Water Pollution.

Additional information is available at:

[Industrial Stormwater Runoff - DNREC \(delaware.gov\)](#)

CERTIFICATION

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquire of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Signature

Print Name

Title

Date

STORM WATER PLAN

GENERAL REQUIREMENTS

Facilities covered under the State of Delaware *Regulations Governing Storm Water Discharges Associated with Industrial Activities* must develop a Storm Water Plan (SWP). The SWP must be consistent with regulatory requirements and fully implemented as specified and updated as necessary to maintain compliance with permit requirements.

The SWP shall include the following information:

Facility Description	§9.1.5.7.1-2	<input type="checkbox"/>
Pollution Prevention Team	§9.1.5.7.3.3	<input type="checkbox"/>
Site Map	§9.1.5.7.2.2	<input type="checkbox"/>
Outfall Identification	§9.1.6	<input type="checkbox"/>
Inventory of Industrial Materials	§9.1.5.7.2.3	<input type="checkbox"/>
Inventory of Spills and Leaks	§9.1.5.7.2.4	<input type="checkbox"/>
Industrial Material Management <ul style="list-style-type: none"> ➤ Good Housekeeping Practices ➤ Preventative Maintenance Program ➤ Spill Prevention and Response Measures ➤ Minimizing Exposure ➤ Erosion Control Practices ➤ Best Management Practices ➤ Additional Requirements for Salt Storage ➤ Management of Runoff ➤ Off-Site Vehicle Tracking 	§9.1.5.7.3	<input type="checkbox"/>
Inspection Program <ul style="list-style-type: none"> ➤ Routine Inspections ➤ Comprehensive Site Evaluations ➤ Secondary Containment Inspections 	§9.1.5.7.4	<input type="checkbox"/>
Monitoring Data <ul style="list-style-type: none"> ➤ Quarterly Visual Monitoring ➤ Analytical Monitoring ➤ Record Keeping 	§9.1.5.7.5 and §9.1.4	<input type="checkbox"/>
Employee Training	§9.1.5.7.6	<input type="checkbox"/>
Non-Storm Water Certification	§9.1.5.7.7	<input type="checkbox"/>
Facility Security	§9.1.5.7.8	<input type="checkbox"/>
Additional Requirements Under SARA III S313	§9.1.5.7.9	<input type="checkbox"/>

Records of all information required by the SWP (i.e. monitoring results, inspection reports, and any other documentation of compliance with subsection [§9.0](#) within 7 DE Admin. Code 7201 Regulations Governing the Control of Water Pollution) shall be maintained on-site and made available upon request for a minimum of five (5) years.

The SWP shall be amended whenever:

1. there is a change in the design, construction, operation, or maintenance of activities associated with industrial activities conducted at the facility, which has a significant effect on the potential for the discharge of pollutants to the waters of the State.
2. the SWP proves to be ineffective in eliminating or significantly minimizing pollutants from Industrial Materials identified in [§9.1.5.7.2.3](#), or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity;
3. any sources or potential sources of pollution identified as a result of a facility's Inspection Program pursuant to [§9.1.5.7.2.4](#); or
4. notified by this Department that the SWP does not adequately address the requirements of subsection [§9.0](#), persons subject to this Subsection shall amend the SWP and submit these amendments to this Department within 30 days of notification. The notification from the Department shall list and describe deficiencies of the SWP. The Department may grant additional time for amending the SWP. This extension must be obtained from the Department in writing

In no event shall failure to complete or update a SWP in accordance with this Part relieve any persons covered under subsection [§9.0](#) of responsibility to implement actions required to protect the waters of the State, complete any actions that would have been required by such Storm Water Plan and to comply with all conditions of subsection [§9.0](#).

If a continued transport of substantial amounts of Industrial Material through a facility's storm water discharges persists, the Department may require treatment of the contaminated storm water discharges along with limits for contaminant levels. If treatment of the contaminated storm water discharges or limits for contaminant levels is required, permit coverage through an individual NPDES Storm Water Permit may be required.

The Storm Water Plan must comply with any other plans developed for the facility to control discharges of Industrial Materials into the environment.

Table of Contents

INTRODUCTION	2
CERTIFICATION	2
STORM WATER PLAN	3
GENERAL REQUIREMENTS	3
FACILITY DESCRIPTION	7
SPILL PREVENTION TEAM	8
SITE MAP	9
INVENTORY OF INDUSTRIAL MATERIALS	10
INVENTORY OF SPILLS AND LEAKS.....	11
INDUSTRIAL MATERIAL MANAGEMENT	12
GOOD HOUSEKEEPING PRACTICES	13
PREVENTATIVE MAINTENANCE PROGRAM	14
SPILL PREVENTION AND RESPONSE MEASURES.....	15
MINIMIZING EROSION AND SEDIMENTATION	17
MINIMIZING EXPOSURE	18
BEST MANAGEMENT PRACTICES (BMPs).....	19
ADDITIONAL REQUIREMENTS FOR SALT STORAGE.....	21
MANAGEMENT OF RUNOFF	22
OFF-SITE VEHICLE TRACKING.....	23
INSPECTION PROGRAMS	24
ROUTINE INSPECTIONS	24
COMPREHENSIVE SITE EVALUATIONS	25
SECONDARY CONTAINMENT INSPECTIONS	26
MONITORING.....	27
QUARTERLY VISUAL MONITORING.....	28
ANALYTICAL MONITORING: BENCHMARK MONITORING and EFFLUENT LIMITATIONS.....	29
SAMPLING GUIDELINES	30
EMPLOYEE TRAINING.....	31
NON-STORM WATER CERTIFICATION	32
FACILITY SECURITY	33
APPENDIX A.....	34

SITE MAP INSTRUCTIONS.....	34
APPENDIX B.....	40
SECTOR SPECIFIC BMPS	40
APPENDIX C.....	41
ROUTINE INSPECTION FORM	41
APPENDIX D.....	48
COMPREHENSIVE SITE EVALUATION FORM	48
APPENDIX E.....	55
QUARTERLY VISUAL MONITORING FORM.....	55
APPENDIX F.....	57
SECTOR SPECIFIC ANALYTICAL REQUIREMENTS	57

SPILL PREVENTION TEAM

Please identify the specific individuals, by name or by title, which are responsible for implementing spill response procedures. Personnel identified as the spill response team are responsible for follow-up inspections to ensure that spills have been properly handled to meet environmental and safety standards.	
SPILL PREVENTION TEAM	
DNREC Spill Hotline	800-662-8802
EPA Spill Hotline	800-424-8802
Local Emergency Agency (Fire, Police, Ambulance)	911
(Other local Emergency)	
TEAM LEADER	
NAME:	
TITLE:	
PHONE NUMBER:	
EMAIL ADDRESS:	
RESPONSIBILITIES:	
TEAM MEMBERS	
NAME:	
TITLE:	
PHONE NUMBER:	
EMAIL ADDRESS:	
RESPONSIBILITIES:	
NAME:	
TITLE:	
PHONE NUMBER:	
EMAIL ADDRESS:	
RESPONSIBILITIES:	
NAME:	
TITLE:	
PHONE NUMBER:	
EMAIL ADDRESS:	
RESPONSIBILITIES:	

SITE MAP

You are to develop a facility map that identifies the following:
Detailed instructions and an example site map are included in **Appendix A**

The facility's property boundary, scale, north arrow, and legend	
The size of the property in acres	
All outfalls, receiving waterbodies and indication of any Total Maximum Daily Loads (TMDLs) established for the receiving waters	
Built structures and boundaries of impervious surfaces	
Locations of structural control measures	
Location of storm water conveyances including ditches, pipes, swales, discharge points and sampling locations	
Arrows indicating the direction of storm water flow	
Any municipal separate storm sewer system (MS4) structures present on the property	
Location of potential pollutant sources, such as fueling stations; vehicle and equipment maintenance and or cleaning areas; loading/unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; processing and storage areas; access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; the location of transfer of substances in bulk; and machinery	
Location and description of non-storm water discharges	
Location and sources of run-on to the property from adjacent properties that contain pollutants	
Location and source of runoff from adjacent property containing significant quantities of pollutants of concern to the facility (an evaluation of how the quality of the storm water running onto the facility impacts the storm water discharges may be included).	
Location of where major spills or leaks have occurred.	

***Insert your facility site map after this page.**

INDUSTRIAL MATERIAL MANAGEMENT

The Storm Water Plan shall describe storm water management controls appropriate for a facility and implementation of such controls. The appropriateness for implementing controls listed in the SWP must reflect identified potential sources of pollutants at the facility. The SWP must describe the location of existing non-structural and structural controls selected for the areas where industrial materials or activities are exposed to storm water. For areas where controls are not currently in place, the SWP must describe appropriate controls that will be used to control pollutants in storm water discharges.

The description of storm water management controls must, at a minimum, address the following and provide a reasonable schedule for implementing such controls

- Good Housekeeping Practices
- Preventative Maintenance Program
- Spill Prevention and Response
- Minimizing Exposure
- Erosion and Sedimentation Control Practices
- Best Management Practices
- Additional Requirements for Salt Storage
- Management of Runoff
- Off-Site Vehicle Tracking

EPA has prepared [sector specific fact sheets](#) that address the required Industrial Material Management materials. The following worksheets shall address each of the required controls.

PREVENTATIVE MAINTENANCE PROGRAM

The SWP shall include a program that identifies qualified facility personnel to conduct inspections and maintenance of storm water management devices as well as inspections, testing, maintaining, and repairing facility equipment and systems to avoid breakdowns and failures that may result in the exposure of industrial materials to storm water. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. The SWP shall include the schedule/frequency for completing each maintenance task.

PREVENTATIVE MAINTENANCE SCHEDULE

LOCATION OR EQUIPMENT	SCHEDULE OR FREQUENCY	NAME OR TITLE OF RESPONSIBLE PERSONNEL

ADDITIONAL INFORMATION (if any)

MINIMIZING EROSION AND SEDIMENTATION

You must evaluate the facility's risk for soil erosion. At a minimum, the SWP must include a narrative description of whether there is reasonable potential for soil erosion (of a significant amount) to occur. Where reasonable potential exists, the permittee must include practices/programs to prevent or minimize the potential for soil erosion on-site.

EROSION AND SEDIMENT CONTROL BMPS	
BMPs	SCHEDULE OR FREQUENCY
ADDITIONAL INFORMATION (if any)	

MINIMIZING EXPOSURE

Where practicable, industrial materials and activities should be protected by storm resistant shelters to prevent exposure to rain, snow, snowmelt, or runoff.

INDUSTRIAL MATERIAL/ACTIVITY	STORM RESISTANT SHELTER

ADDITIONAL INFORMATION (if any)

INSPECTION PROGRAMS

The SWP shall include documentation of procedures to assure compliance with the inspection program requirements as outlined in Subsection 9.1.5.7.4 Inspections, of the regulation. Facility personnel are required to conduct routine inspections; comprehensive site evaluations; and secondary containment inspections.

ROUTINE INSPECTIONS

The facility shall conduct routine inspections of the equipment, outfalls, and areas of the facility designated in the SWP. The SWP shall identify the frequency for which these inspections are conducted. At a minimum, routine inspections shall be conducted once per quarter. These inspections shall ensure the proper operation of plant equipment and storm water controls. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained with the SWP. Any deficiencies noted shall be corrected as soon as practicable, but no later than 14 days after the inspection.

See **Appendix C** for an example routine inspection checklist.

COMPREHENSIVE SITE EVALUATIONS

Persons subject to this Part shall conduct comprehensive site evaluations. The comprehensive site evaluations shall be used to assess the effectiveness of the current SWP. The evaluation(s) are in addition to the routine inspections required by this Part. The evaluations may substitute for a routine inspection if it is conducted during the regularly scheduled routine inspection. The comprehensive site evaluations shall be conducted for the frequency indicated in the table below:

Industrial Activity Code	Compliance Evaluation Frequency
Sectors A, B, G, H, I, J, O, T, V, W, X, Y, Z, and AD	Annually
Sectors C, D, E, F, P, Q, R, S, U, AA, AB, and AC	Semi-annually [Evaluations shall be conducted once in the fall (September-November) and once during the spring (April-June)]
Sectors M and N	Quarterly [Evaluations shall be conducted at least once in each of the following three-month periods: January through March, April through June, July through September, and October through December]

The evaluations shall be conducted by one or more qualified employees or contractor personnel, who are familiar with the industrial activities performed at the facility and the elements of the SWP, and shall evaluate:

- Areas identified in the Inventory of Industrial Materials of the SWP.
- Structural controls, including their maintenance and effectiveness.
- Non-structural controls, including good housekeeping measures and spill prevention.
- Storm water outfalls and reasonably accessible areas immediately downstream of each storm water outfall that is authorized under the regulations; and
- Records required by the regulation.

Records of each evaluation shall be maintained, indicating the following: date and time of the inspection; person(s) responsible for conducting inspection; findings of the inspection; and any corrective actions taken. Persons subject to this Part must correct any deficiencies noted during the inspection as soon as practicable, but no later than 14 days after the inspection.

*For your use an example of a checklist that may be used to document this evaluation is provided at the end of this document.

See **Appendix D** for an example comprehensive site inspection checklist.

MONITORING

Storm water must be sampled according to the instructions outlined in [§9.1.4.2 Sampling Procedures and Conditions](#) of the regulation. Permittees are not required to sample outside of regular business hours or during unsafe conditions. There are three individual and separate categories of monitoring requirements [Visual Monitoring, Benchmark Monitoring and Effluent Limitations] to which a facility may be subject. The monitoring requirements applicable to a facility depend on the types of industrial activities conducted at the facility.

Monitoring requirements and limitations are applied discharge by discharge at facilities with co-located activities. Where storm water from the co-located activities are commingled, the monitoring requirements and limitations are additive. Where more than one numeric limitation for a specified parameter applies to a discharge, compliance with the more restrictive limitation is required.

Permittees who believe that two or more outfalls discharge storm water substantially identical may test the discharge of one such outfall and report that the quantitative data also applies to the substantially identical outfalls.

The Secretary may provide written notification to any facility, including those otherwise exempt from sampling requirements, requiring additional storm water monitoring.

When the permittee is unable to collect samples or perform visual examinations within a specific sampling period due to adverse climatic conditions, the permittee shall collect a substitute sample from a separate qualifying event in the next sampling period. Adverse weather conditions are those that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

When the permittee is unable to conduct the required monitoring at an inactive or unstaffed facility, the permittee may seek a Department approved waiver from the monitoring requirements as long as the facility remains inactive and unstaffed. The facility must maintain the Department approval letter with its Storm Water Plan ([§9.1.5](#)).

Waivers from Benchmark Monitoring requirements are available to facilities whose discharges are below benchmark monitoring concentration values. On both a parameter by parameter and outfall by outfall basis, the permittee may petition the Department, after the completion of 4 consecutive sampling events, to be exempted from the subsequent 4 sampling events as long as the permittee provides verification that the following conditions have been met. However, a facility that conducts a significant process change must continue monitoring and may not use previous monitoring to demonstrate consistent attainment:

- Samples were collected in four (4) consecutive monitoring periods and the parameter concentrations were below the benchmark monitoring concentration values indicated; and
- A waiver request is submitted and approved by the Department. The waiver request should include supporting monitoring data for 4 consecutive monitoring periods and a certification that based on current potential pollutant sources and Best Management Practices (BMPs) used, discharges from the facility are reasonably expected to be essentially the same (or cleaner) compared to when the monitoring for the 4 consecutive periods was completed.

Following the sampling suspension, sampling shall resume as specified in the Regulation.

QUARTERLY VISUAL MONITORING

All facilities required to monitor storm water discharges must perform and document quarterly visual examinations of storm water discharges associated with industrial activities from each storm water outfall. The examination(s) must be made at least once in each of the following three-month periods: January through March, April through June, July through September, and October through December. The examination must document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen and other obvious indicators of storm water pollution. The examination must be performed during daylight hours and must be made of samples collected within the first thirty (30) minutes of when runoff or snowmelt begins discharging from the facility. The permittee shall also allow for two (2) full days of standard operating activities at the facility since the last rainfall event that resulted in runoff from the facility. If no storm event resulted in runoff from the facility during a monitoring quarter, the permittee is excused from visual monitoring for that quarter **PROVIDED** that documentation is included with the monitoring records indicating that no runoff occurred.

See **Appendix E** for an example quarterly visual monitoring form.

ANALYTICAL MONITORING: BENCHMARK MONITORING and EFFLUENT LIMITATIONS

Analytical monitoring is required for the industry sectors or sub-sectors that are determined to have a high potential to discharge a pollutant at concentrations of concern. Facilities conducting industrial activities shall analyze grab samples for the parameters identified in the Table specific to each Industry Sector found in [§9.1.4.3.2 Analytical Monitoring](#) of the regulation on a semi-annual basis. Monitoring shall be completed at least once in each of the following six-month periods: January through June and July through December. Industry-specific monitoring requirements and limitations are applied discharge by discharge at facilities with co-located activities. Where indicated, monitored results shall be compared to Numeric Effluent Limitations or Benchmark Monitoring Concentration values. The Numeric Effluent Limitations and Benchmark Monitoring Concentrations are requirements applicable to a facility and depend on the types of industrial activities generating storm water runoff from the facility. The discharge of pollutants at a level more than that identified and authorized by a specified Numeric Effluent Limitation shall constitute a violation of this Part. The Benchmark Monitoring Concentration values represent target pollutant concentrations for a facility to achieve through implementation of its Storm Water Plan (SWP) {[§9.1.5.](#)}. Analytical results that exceed Benchmark Monitoring Concentration values are not a violation of this Part as these values are not Numeric Effluent Limitations. However, results that exceed a Benchmark Monitoring Concentration value are indications that the storm water discharge could potentially cause, or contribute to causing, water quality impairment in the receiving waterbody. The Benchmark Monitoring Concentration values are also viewed as a level, that if below, the discharge presents little potential for water quality concern.

Records of all analytical monitoring shall include the following:

- The date, exact place, and time of sampling or measurements.
- The name(s) of the individual(s) who performed the sampling or measurements as well as the procedures used for sample collection and preservation.
- The date and time when the analysis of the samples took place along with the name of the individual(s) who performed the analysis.
- References and written procedures, when available, for the analytical techniques or methods used.
- The results of such analyses, including the bench sheets, instrument read-outs, computer disks or tapes, used to determine these results.
- A filled Benchmark Monitoring Summary table from **Appendix F** detailing each analytical result on a per-outfall basis; and
- These records shall be kept for a minimum of five (5) years.

In the event that analytical results exceed Benchmark Monitoring Concentration values or Numeric Effluent Limitations, the facility shall investigate the cause for such exceedance and the results of this investigation shall be documented. The results of the investigation shall identify potential sources of pollution, additional Best Management Practices (BMPs) necessary, revisions to the Industrial Material Management Section of the SWP or identify other areas of the SWP that may require revision in order to meet the goal of the Benchmark Monitoring Concentration values. Background concentrations of specific pollutants may also be considered during the investigation.

SAMPLING GUIDELINES

A grab sample shall be collected from a storm water discharge resulting from a storm event that is greater than 0.1 inches of magnitude and that occurs at least 72 hours from the previously measured (greater than 0.1-inch rainfall) storm event. The required 72-hour interval is waived where a preceding measurable storm event did not result in a measurable discharge from the facility. The grab sample shall be taken within the first thirty (30) minutes of a storm water discharge. If it is not practicable to take the sample during the first 30 minutes, sample during the first hour of discharge and indicate why a grab sample during the first 30 minutes was impracticable. The permittee shall also allow for two (2) full days of standard operating activities at the facility since the last rainfall event that resulted in runoff from the facility.

For discharges from holding ponds or other impoundments with a 24-hour or greater retention capability, grab samples of the discharge may be obtained at any time.

Sampling is conducted to capture storm water with the greatest exposure to significant sources of pollution. Each distinct point of discharge (outfall) off-site must be sampled and analyzed separately if activities and site conditions that may pollute the storm water are likely to result in discharges that will significantly vary in the concentration or type of pollutants. All samples, except storm water discharges from coal piles, are to be taken as close to the point of discharge as reasonably practical and can be achieved safely. Storm water from coal piles is sampled before the storm water from the coal pile commingles with storm water for other sources.

Samples shall be representative of the monitored discharge. Sample collection and analysis must be conducted according to test procedures approved under [40 CFR Part 136](#), or an alternative method approved by the Department.

See **Appendix F** for analytical tables based on sector codes.

NON-STORM WATER CERTIFICATION

The SWP shall include measures to identify and eliminate the discharge of process wastewater, domestic wastewater, non-contact cooling water and other illicit discharges to storm water drainage systems or to surface waters of the State. Additional information can be found under [§9.1.7 Non-storm Water Discharges](#) of the regulation.

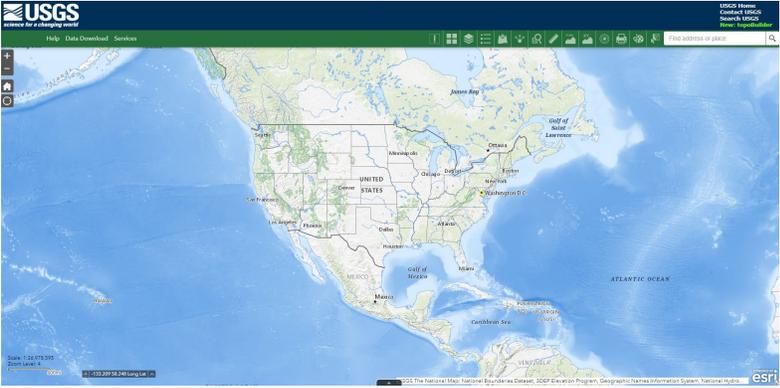
CERTIFICATION	
I _____ (Responsible Official), certify that no non-storm water discharges to the storm water system exist at the _____ (name of facility).	
<hr style="border: none; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: center;">Name and Official Title</p>	<hr style="border: none; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: center;">Telephone Number and Email</p>
<hr style="border: none; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: center;">Signature</p>	<hr style="border: none; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: center;">Date Signed</p>

APPENDIX A
SITE MAP INSTRUCTIONS

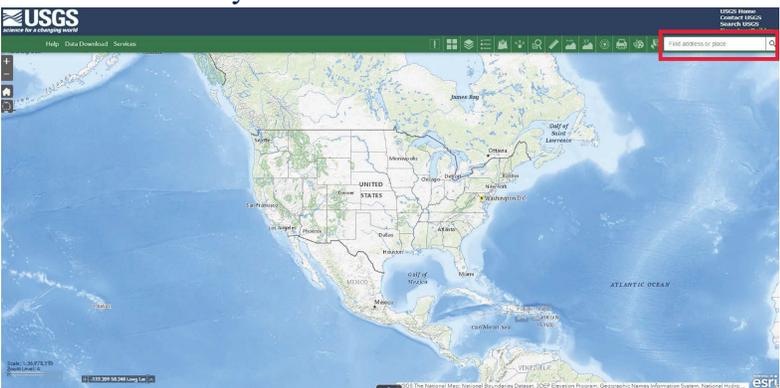
The following is a guide on creating a site map, which includes free programs. Please note that this is not an exhaustive list, and alternative options are available should you have access to them.

1. Creation of base map

a. Go to the [USGS National Map](#)



b. Enter in the facility site address



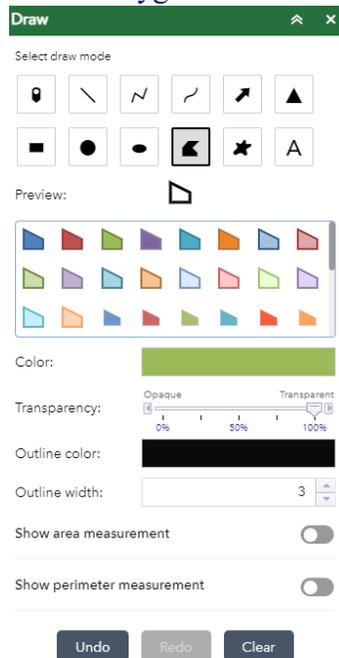
c. Change base map to Topographic



d. Select Draw



e. Select Polygon



- i. Increase the transparency to 100%
 - ii. Change the outline color to black
 - iii. Change the outline width to 3
- f. Place the polygon on your facility's property boundary. Double click to finish polygon.
- i. Use your computer's built-in snipping tool to take a snapshot of the Facility. Be sure to include any nearby water sources. This is your base map.

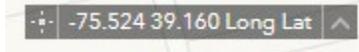


ii. Note:

1. Scale in the bottom left of the USGS map. This scale will change based on how zoomed in and out you are. What is important is the ratio that is present. This will need to be noted on your legend



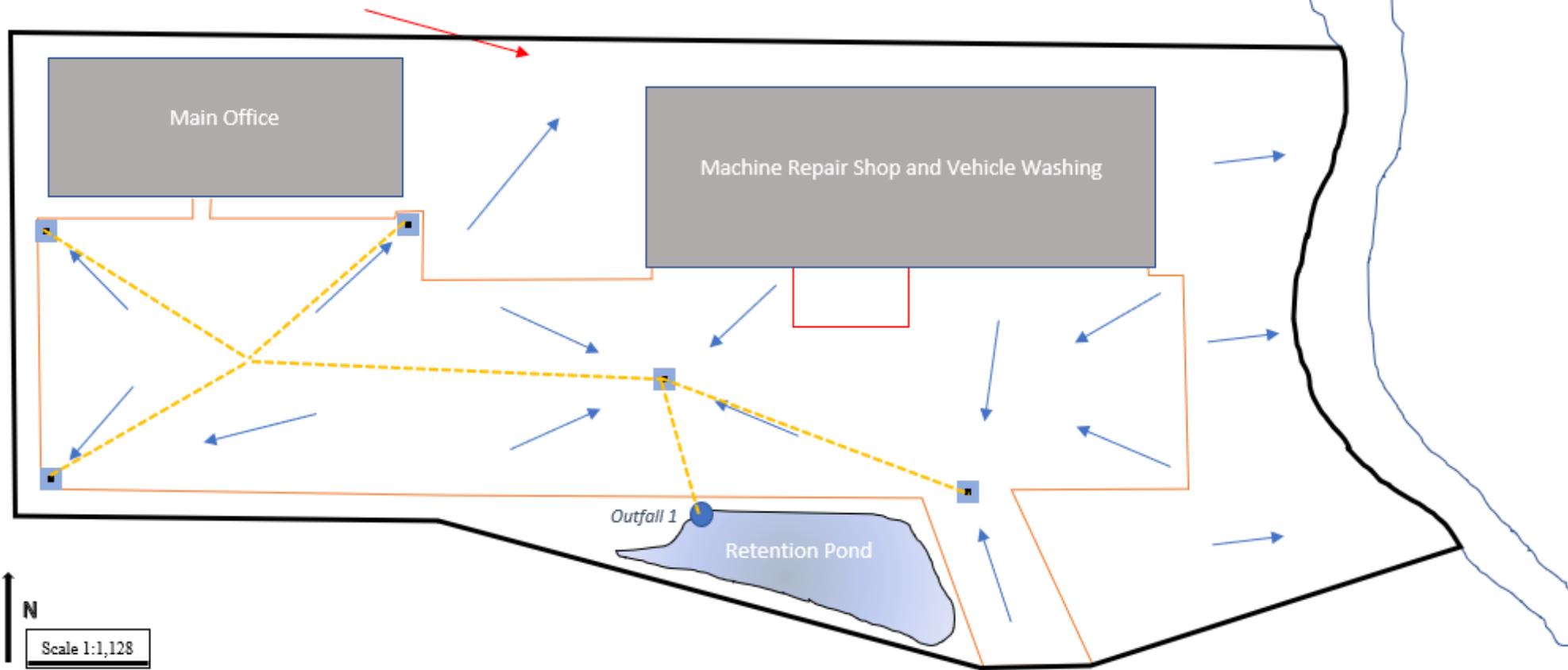
2. Latitude and Longitude of the site, this is next to the scale in the bottom left of the USGS map.



iii. If you do not know your property's area in acres, perform this step

1. Turn on show area measurement
2. Select units to be in acres
3. Redraw the facility's property boundary

2. Adding details to base map – Use a PDF editor or writing software of your preference. Alternatively, print the base map previously created and manually draw on it. An example Site Map is presented on the following page, demonstrating that it can be accomplished using Google Docs' "Draw a Shape" and "Insert Table" features without incurring any cost. The Site Plan must include the following information:
 - a. The facility's property boundary, scale, north arrow
 - i. If an accurate scale is not able to be made, note that the site map is "Not to scale".
 - b. All outfalls, receiving waters and indication of any [Total Maximum Daily Loads \(TMDLs\)](#) established for the receiving waters
 - i. [Mapping tool to see TMDLs on a per outfall basis](#)
 - ii. [Summary of TMDLs by Watershed](#)
 - c. Built structures and boundaries of impervious surfaces
 - d. Locations of structural control measures
 - e. Location of storm water conveyances including ditches, pipes, swales, discharge points and sampling locations
 - f. Arrows indicating the direction of storm water flow
 - g. Any municipal separate storm sewer system (MS4) structures present on the property
 - h. Location of potential pollutant sources, such as fueling stations; vehicle and equipment maintenance and or cleaning areas; loading/unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; processing and storage areas; access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; the location of transfer of substances in bulk; and machinery
 - i. Location and description of non-storm water discharges
 - j. Location and sources of run-on to the property from adjacent properties that contain pollutants
 - k. Location and source of runoff from adjacent property containing significant quantities of pollutants of concern to the facility (an evaluation of how the quality of the storm water running onto the facility impacts the storm water discharges may be included).



Legend

- Property Boundary
- Jane Doe River
- Boundary of Impervious Surfaces
- Loading/Unloading Area
- - - Stormwater Conveyance System
- Outfall
- Building Footprint
- Storm Drain
- ↑ Direction of Stormwater Flow
- ↑ Direction of Runoff from Adjacent Property

SITE NAME
ADDRESS
TAX PARCEL

Notes:

TMDLs – Jane Doe River is the only waterbody the Site discharges to. No TMDLs are associated with Saint Jones River at the time this SWP has been created.
 Machine Repair Shop and Vehicle Washing building operate on a separate water conveyance system from the stormwater system.
 No MS4 structures are connected to the Site.
 No non-stormwater discharges occur at the Site.

APPENDIX B

SECTOR SPECIFIC BMPS

Sector A: Timber Product Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Log storage and handling	Exposure of lumber to precipitation	Bark and wood debris, total suspended solids (TSS), and leachates (which can contain high levels of TSS and biochemical oxygen demand (BOD))
Untreated lumber and residue generation activities and untreated wood materials storage	Exposure of lumber and residues to precipitation	Bark and wood debris, TSS, and leachates (which can contain high levels of TSS and BOD)
Wood surface protection activities and chemicals and surface protected materials storage	Spills from surface protection areas and storage and mixing tank areas; treated wood drippage, transport, and storage; and fugitive emissions from spraying	Chemicals (used for surface protection), BOD, chemical oxygen demand (COD), and TSS
Wood preservation activities and chemicals and preserved wood material storage	Drippage after pressurized treatment; washing after preservation: spills and leaks from process equipment and preservative tanks; fugitive emissions; and kick-back	Chemicals (specific toxics dependent on the preserving formulations used), BOD, TSS, oil, and grease
Wood assembly/fabrication activities and final fabricated wood product storage	Exposure of lumber, residues, and vehicles/equipment to precipitation	BOD, TSS, oil, and grease
Equipment/vehicle maintenance, repair, and storage	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, COD, and benzene
Vehicle fueling	Diesel fuel	Diesel, gasoline, oil

Best Management Practices (BMPs)

Pollutant Source	BMPs
Log, lumber, and wood product storage areas	<ul style="list-style-type: none"> • Divert stormwater around storage areas with vegetated swales, and/or berms. A properly designed vegetated swale can also provide infiltration benefits. • Locate storage areas on stable, well-drained soils with slopes of 2–5 percent to prevent ponding and to convey stormwater leachate to treatment. Sloping should be limited to prevent erosion. Slopes should be stabilized. • Line storage areas with crushed rock or gravel or porous pavement to promote infiltration, minimize discharge, and provide sediment and erosion control. • Practice good housekeeping measures such as frequent removal of debris, bark, and wood waste. Cleanup methods may include mobile sweepers, scrapers, brow logs, or scoops. • Use properly designed basins for collection, containment, and recycling of log spraying materials. • Use sedimentation measures such as silt fence to control sediment from leaving storage area. • Cover piles to prevent contact with stormwater (use roofs, canopies, soils, sheds, etc.). • For solid wastes use covered containers such as dumpsters or garbage cans that are durable, corrosion resistant, non-absorbent, and/or non-leaking.
Residual storage areas	<ul style="list-style-type: none"> • Locate stored residues away from drainage pathways and surface waters. • Avoid contamination of residues with oil, solvents, chemically treated wood, trash, etc. • Limit storage time of residues to prevent degradation and generation of leachates. • Divert stormwater around residue storage areas with vegetated swales, and/or berms. • Consolidate piles to minimize surface areas exposed to precipitation. • Spray surfaces with water to reduce windblown dust and residue particles. • Place materials on raised pads of compacted earth, clay, shale, or stone and collect and properly treat contaminated runoff and leachate. • Cover and/or enclose stored residues to prevent contact with precipitation using silos, van trailers, shed, roofs, buildings, or tarps. • Limit slopes of storage areas to minimize velocities of runoff which may transport residues. Keep slopes stabilized. • Use check dams in drainage ways. • Use steel or plastic drums that are rigid and durable, corrosion resistant, nonabsorbent, watertight, and equipped with a close-fitting cover. • Train employees in proper residuals management.

Pollutant Source	BMPs
<p>Loading and unloading areas; material handling areas</p>	<ul style="list-style-type: none"> • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Cover loading and unloading areas and perform these activities on an impervious pad at a dock with a door skirt. • Enclose material handling systems for wood wastes. • Cover materials entering and leaving areas. • Provide good housekeeping measures to limit debris. • Provide dust control. When controlling dust, sweep and/or apply water or materials which will not impact surface or ground water. • Provide paving in spill-prone areas to enable easy collection of spilled materials. • For rail transfer, use a drip pan installed within the rails to collect spillage from the tank. • Train employees in spill prevention and control.
<p>Chemical storage areas</p>	<ul style="list-style-type: none"> • Provide secondary containment around chemical storage areas. If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Properly dispose of chemicals that are no longer in use. • Provide fluid level indicators. • Inventory fluids to identify leakage. • Locate storage areas away from high traffic areas and surface waters. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Cover and/or enclose chemical storage areas. • Provide drip pads/pans to allow for recycling of spills and leaks. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Train employees in spill prevention and control.
<p>Liquid fuel storage areas</p>	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Use secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge.

Pollutant Source	BMPs
Liquid fuel storage areas (continued)	<ul style="list-style-type: none"> • Use double-walled tanks. • Keep liquid transfer nozzles/hoses in secondary containment area. • Include overflow protection. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with stormwater). • Clearly label drum with its contents
Wood surface protection and preserving activities	<ul style="list-style-type: none"> • Extend drip time in process areas before moving to storage areas. • Pave and berm areas used by equipment that has come in contact with treatment chemicals. • Dedicate equipment that is used for treatment activities to that specific purpose to prevent the tracking of treatment chemicals to other areas on the site. • Locate treatment chemical loading and unloading areas away from high traffic areas where tracking of the chemical may occur. • Provide drip pads under conveyance equipment from treatment process areas. • Provide frequent visual inspections of treatment chemical loading and unloading areas during and after activities occur to identify any spills or leaks needing cleanup. • Cover and/or enclose treatment areas or apply log treating chemicals on impervious containment pad. • Provide containment in treated wood storage areas. • Cover storage areas to prevent contact of treated wood products with precipitation. • Elevate stored, treated wood products to prevent contact with run-on/runoff. • Store freshly treated logs on impervious containment pad, in a building or under a roof. • Do not vent volatile or mist-laden exhaust containing log treating chemicals to the outside without proper collection or filtration. • Inspect processing areas, transport areas, and treated wood storage areas monthly to assess usefulness of practices to minimize the deposit of treatment chemicals on unprotected soils and in areas that will come in contact with stormwater discharges.
Vehicle and equipment maintenance, storage, and repair areas	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Prevent and contain spills and drips. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside

Pollutant Source	BMPs
Vehicle and equipment maintenance, storage, and repair areas (continued)	<ul style="list-style-type: none"> • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Clean without using liquid cleaners whenever possible. • Conduct all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility do not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.

Sector B: Paper and Allied Products Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Material Handling and Storage	Equipment storage Storage of materials in tanks, either below or above ground Storage of cylinders used to contain industrial gases Storage of empty or full drums Material handling and warehousing Loading/unloading Bagging of materials/products Blending and mixing of chemicals Packaging of chemicals Crushing, milling, shredding, granulation, and grinding of materials Distribution of products	Pollutant dependent upon those at particular facility
Vehicle Fueling and Maintenance	Vehicle fueling Vehicle maintenance	TSS, TDS, oil and grease, gasoline, diesel, acid, coolant
Waste Treatment, Disposal, and Cleanup	Washing of drums Waste dumpster or compactor Hazardous waste temporary storage or operation of RCRA treatment, storage, or disposal facility Landfills or temporary refuse site Wastewater treatment	Pollutant dependent upon those at particular facility
Manufacturing Process Components	Thermal oxidation Cooling towers Steam boilers Hot oil system for cooling/heat exchange Use of machinery to process materials	Pollutant dependent upon those at particular facility
Miscellaneous Activities	Plant yard and areas of past industrial activity Access roads and rail tracks	TSS

Best Management Practices (BMPs)

Pollutant Source	BMPs
Material handling and storage	<ul style="list-style-type: none"> • Cover handling and storage areas with roofs, covers, or other appropriate forms of protection. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Store materials on concrete pads to allow for cleanup of spills or leaks. • Provide secondary containment for storage tanks and drum storage. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks. • Locate storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Maintain an inventory of fluids to identify leakage. • Provide fluid level indicators. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. Portable containers/drums • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label drum with its contents. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in spill prevention and control and proper materials management. • Empty containment units with manually operated pumps or ejectors. • If facility drainage is not engineered as listed above, equip the final discharge point of all facility sewers to prevent discharge in the event of an uncontrolled spill.

Pollutant Source	BMPs
Loading and unloading areas	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk from truck or rail cars: Hose connection points at storage containers to be inside containment areas. Drip pans used in areas which are not in containment area where spillage may occur. • Enclose material handling systems. • Cover materials entering and leaving areas. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques
Manufacturing Process Components	<ul style="list-style-type: none"> • Use curbing, dikes, and gutters to contain and collect spills. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods where appropriate. Sweep up absorbents as soon as spilled substances have been absorbed. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, and cleanup.
Vehicle maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations.

Pollutant Source	BMPs
Vehicle maintenance (continued)	<ul style="list-style-type: none"> • Store batteries and other significant materials inside. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented and maintained. • Train employees on waste control disposal procedures.
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in an uncovered area, conduct fueling operations on a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed.

Pollutant Source	BMPs
Vehicle and equipment fueling (continued)	<ul style="list-style-type: none">• Do not “top off” fuel tanks.• Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures.• Collect stormwater runoff and provide treatment or recycling.• Provide curbing or posts around fuel pumps to prevent collisions from vehicles.• Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur.• Inspect the fueling area for leaks and spills.• Train personnel on vehicle fueling BMPs

Sector C: Chemical and Allied Products Manufacturing and Refining

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Material Handling and Storage	Equipment storage Storage of materials in tanks, either below or above ground Storage of cylinders used to contain industrial gases Storage of empty or full drums Material handling and warehousing Loading/unloading Bagging of materials/products Blending and mixing of chemicals Packaging of chemicals Crushing, milling, shredding, granulation, and grinding of materials Distribution of products	Pollutant dependent upon those at particular facility
Vehicle Fueling and Maintenance	Vehicle fueling Vehicle maintenance	TSS, TDS, oil and grease, gasoline, diesel, acid, coolant
Waste Treatment, Disposal, and Cleanup	Washing of drums Waste dumpster or compactor Hazardous waste temporary storage or operation of RCRA treatment, storage, or disposal facility Landfills or temporary refuse site Wastewater treatment	Pollutant dependent upon those at particular facility
Manufacturing Process Components	Thermal oxidation Cooling towers Steam boilers Hot oil system for cooling/heat exchange Use of machinery to process materials	Pollutant dependent upon those at particular facility
Miscellaneous Activities	Plant yard and areas of past industrial activity Access roads and rail tracks	TSS

Best Management Practices (BMPs)

Pollutant Source	BMPs
Material handling and storage	<ul style="list-style-type: none"> • Cover handling and storage areas with roofs, covers, or other appropriate forms of protection. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Store materials on concrete pads to allow for cleanup of spills or leaks. • Provide secondary containment for storage tanks and drum storage. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks. • Locate storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Maintain an inventory of fluids to identify leakage. • Provide fluid level indicators. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. Portable containers/drums • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label drum with its contents. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in spill prevention and control and proper materials management. • Empty containment units with manually operated pumps or ejectors. • If facility drainage is not engineered as listed above, equip the final discharge point of all facility sewers to prevent discharge in the event of an uncontrolled spill.

Pollutant Source	BMPs
Loading and unloading areas	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. Where liquid or powdered materials are transferred in bulk from truck or rail cars: <ul style="list-style-type: none"> • Hose connection points at storage containers to be inside containment areas. • Drip pans used in areas which are not in containment area where spillage may occur. • Enclose material handling systems. • Cover materials entering and leaving areas. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Manufacturing Process Components	<ul style="list-style-type: none"> • Use curbing, dikes, and gutters to contain and collect spills. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods where appropriate. Sweep up absorbents as soon as spilled substances have been absorbed. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, and cleanup.
Vehicle maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations.

Pollutant Source	BMPs
Vehicle maintenance (continued)	<ul style="list-style-type: none"> • Store batteries and other significant materials inside. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water • Inspect the maintenance area regularly to ensure BMPs are implemented and maintained. • Train employees on waste control disposal procedures.
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in an uncovered area, conduct fueling operations on a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed.

Pollutant Source	BMPs
Vehicle and equipment fueling (continued)	<ul style="list-style-type: none">• Do not “top off” fuel tanks.• Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures.• Collect stormwater runoff and provide treatment or recycling.• Provide curbing or posts around fuel pumps to prevent collisions from vehicles.• Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur.• Inspect the fueling area for leaks and spills.• Train personnel on vehicle fueling BMPs

Sector D: Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturers

Pollutants of Concern

Activity	Pollutant Source	Pollutant
<i>Asphalt Paving and Roofing Materials</i>		
Outdoor stockpiling of materials	Exposure of aggregate (sand, stone, limestone, gravel, etc.) to precipitation	Total suspended solids (TSS), total dissolved solids (TDS) biochemical oxygen demand (BOD5), chemical oxygen demand (COD), oil and grease (O&G), benzene, methylene blue active substances (MBAS), metals, pH
Storage of materials in above-ground tanks	Leakage from tanks	TSS, TDS, BOD5, COD, O&G, benzene, MBAS, metals, pH
Transport of materials by a conveyor or front-end loader	Exposed materials and potential spills	TSS, TDS, BOD5, COD, O&G, benzene, MBAS, metals, pH
<i>Lubricating Oils and Greases</i>		
Storage of raw materials	Spills and leaks of materials from tank farms or 55-gallon drums	Petroleum or synthetic-based stocks and various additives, O&G, pH
Vehicle and equipment maintenance	Parts cleaning, waste disposal of rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluids, brake fluids, coolants, lubricants, degreasers, spent solvents	Gas/diesel fuel, fuel additives, oil/lubricants, heavy metals, brake fluids, transmission fluids, chlorinated solvents, arsenic
Vehicle and equipment fueling	Spills and leaks during fuel transfer, spills due to “topping off” tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids,	Gas/diesel fuel, fuel additives, oil, lubricants, heavy metals

Best Management Practices (BMPs)

Pollutant Source	BMPs
Material storage, handling, and processing	<ul style="list-style-type: none"> • Cover material storage and handling areas with an awning, tarp, or roof. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs; and revegetating areas used for stockpiling in order to slow runoff. • Use curbing, diking, or channelization around material storage, handling, and processing areas to divert run-on around areas where it can come into contact with material stored or spilled on the ground. • Utilize secondary containment measures such as dikes or berms around asphalt storage tanks and fuel oil tanks. • Use dust collection systems (i.e., baghouses) to collect airborne particles generated as a result of material handling operations or aggregate drying. • Promptly dispose of waste materials from dust collection systems and other operations. • Remove spilled material and dust from paved portions of the facility by shoveling and sweeping on a regular basis. • Utilize catch basins to collect potentially contaminated stormwater. • Develop and implement spill prevention plans to prevent contact of runoff with spills of significant materials. • Clean material handling equipment and vehicles to remove accumulated dust and residue on a regular basis. • Use a detention pond or sedimentation basin to reduce suspended solids. • Use an oil/water separator to reduce the discharge of oil/grease. • Maintain up-to-date material inventory. • Maintain dry, clean floors and ground surfaces. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in good housekeeping, spill prevention and control, and materials management procedures.
Storage of Petroleum, synthetic-based stocks, and additives	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. <p><i>Aboveground Storage Tanks</i></p> <ul style="list-style-type: none"> • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection.

Pollutant Source	BMPs
Storage of Petroleum, synthetic-based stocks, and additives (continued)	<p><i>Portable Containers/drums</i></p> <ul style="list-style-type: none"> • Keep liquid transfer nozzles/hoses in secondary containment area. • Keep liquid transfer nozzles/hoses in secondary containment area. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label drum with its contents.
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, containment trenches, curbing or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles • Discourage “topping off” of fuel tanks. • Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Train employees on vehicle fueling BMPs.
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials indoors. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle onsite. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on proper waste control and disposal procedures.

Sector E: Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
<i>Glass Manufacturing</i>		
Storage of materials	Exposed or spilled sand, soda ash, limestone, cullet, and petroleum products	Total suspended solids (TSS), chemical oxygen demand (COD), oil and grease (O&G), pH, lead
<i>Clay Product Manufacturing</i>		
Storage of materials	Exposed ceramic parts, pyrophyllite ore, shale, ball clay, fire clay, kaolin, tile, silica, graphite, coke, coal, brick, sawdust, waste oil, and used solvents	TSS, COD, O&G, pH, lead, aluminum, zinc
Material handling, including loading and unloading	Exposed ceramic parts, liquid chemicals, ammonia, waste oil, used solvents, pyrophyllite ore, shale, ball clay, fire clay, kaolin, tile, alumina, silica, graphite, coke, coal, olivine, magnesite magnesium carbonate, brick, sawdust, and wooden pallets	TSS, COD, BOD, TKN, O&G, pH, lead, aluminum, zinc
Forming/drying clay products	Clay, shale, slag, cement, and lime	TSS, pH
<i>Cement Manufacturing</i>		
Storage of materials	Exposed kiln dust, limestone, shale, coal, clinker, gypsum, clay, slag, and sand	TSS, pH, COD, potassium, sulfate
Material handling	Exposed kiln dust, limestone, shale, coal, clinker, gypsum, clay, slag, anhydrite, and sand	TSS, pH, COD, potassium, sulfate, O&G
Mixing concrete	Settled dust and ground limestone, cement, oyster shell, chalk, and clinker	TSS, pH
<i>Concrete Product Manufacturing</i>		
Storage of materials	Exposed aggregate (sand and gravel), concrete, shale, clay, limestone, slate, slag, and pumice	TSS, COD, pH
Material handling	Exposed aggregate, concrete, shale, clay, limestone, slate, slag, and pumice as well as spills or leaks of cement, fly ash, admixtures and baghouse settled dust	TSS, COD, pH, lead, iron, zinc
Mixing concrete	Spilled aggregate, cement, and admixture	TSS, pH, COD, lead, iron, zinc
Casting/forming concrete products	Concrete, aggregate, form release agents, reinforcing steel, latex sealants, and bitumastic coatings	TSS, pH, O&G, COD, BOD
Vehicle and equipment washing	Residual aggregate, concrete, admixture, O&G in wash water	TSS, pH, COD, O&G

Activity	Pollutant Source	Pollutant
<i>Gypsum Manufacturing</i>		
Storage of materials	Exposed gypsum rock, synthetic gypsum, recycled gypsum and wallboard, stucco, perlite ore/expanded perlite, and coal	TSS, COD, pH
Material handling	Exposed or spilled gypsum rock, synthetic gypsum, recycled gypsum and wallboard, stucco, perlite ore/expanded perlite, and coal	TSS, pH, COD
Crushing/grinding of gypsum rock	Exposed or spilled gypsum rock and dust	TSS, pH
<i>All Facilities</i>		
Equipment/vehicle maintenance	Leaks or spills of gasoline, diesel, fuel, and fuel oil	O&G, BOD, COD
	Parts cleaning	COD, BOD, O&G, pH
	Waste disposal of solvents, oily rags, oil and gas filters, batteries, coolants, and degreasers	O&G, lead, iron, zinc, aluminum, COD, pH
	Fluid replacement including lubricating fluids, hydraulic fluid, oil transmission fluid, radiator fluids, solvents, and grease	O&G, arsenic, lead, cadmium, chromium, COD, benzene
	Vehicle fueling	Gas/diesel fuel, fuel additives

Best Management Practices (BMPs)

Pollutant Source	BMPs
Storing dry bulk materials including sand, gravel, clay, cement, fly ash, kiln dust, and gypsum	<ul style="list-style-type: none"> • Store materials in an enclosed silo or building. • Cover material storage pile with a tarp or awning. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs to limit run-on and to slow runoff. • Install sediment basins, silt fence, vegetated filter strips, or other sediment removal measures downstream/downslope. • Only store washed sand and gravel outdoors.
Handling bulk materials including sand, gravel, clay, cement, fly ash, kiln dust, and gypsum	<ul style="list-style-type: none"> • Use dust collection systems (e.g., bag houses) to collect airborne particles generated as a result of handling operations. • Promptly dispose of waste materials from dust collection systems and other operations. • Remove spilled material and settled dust from paved portions of the facility by shoveling and sweeping on a regular basis. • Periodically clean material handling equipment and vehicles to remove accumulated dust and residue. • Install sediment basins, silt fence, vegetated filter strips, or other sediment removal measures downstream/downslope. • Train employees in good housekeeping, spill prevention and control, and materials management.
Mixing operations	<ul style="list-style-type: none"> • Use dust collection systems (e.g., bag houses) to collect airborne particles generated as a result of mixing operations. • Remove spilled material and settled dust from the mixing area by shoveling and sweeping on a regular basis. • Clean exposed mixing equipment after mixing operations are complete. • Install sediment basins, silt fence, vegetated filter strips, or other sediment removal measures downstream/downslope. • Train employees in good housekeeping, spill prevention and control, and materials management procedures.
Dust collection	<ul style="list-style-type: none"> • Schedule maintenance of dust collection system and baghouse. • Regularly remove and recycle or dispose of collected dust to minimize exposure to precipitation.
Pouring and curing pre-cast concrete products	<ul style="list-style-type: none"> • Pour and cure precast products in a covered area. • Clean forms in a designated area designed to prevent the discharge of waste materials. • Clean forms before storing outdoors.
Vehicle fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in an uncovered area, conduct fueling operations on a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections.

Pollutant Source	BMPs
Vehicle fueling (continued)	<ul style="list-style-type: none"> • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices. • Keep spill cleanup materials readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage “topping off” of fuel tanks. • Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Train personnel on vehicle fueling BMPs.
Vehicle and equipment washing	<ul style="list-style-type: none"> • Confine vehicle and equipment washing to designated areas outside of drainage pathways, away from surface waters and that drain to recycle ponds or process wastewater treatment systems. • Clean wash water residue from portions of the site that drain offsite. • Train employees on proper procedure for washing vehicles and equipment including a discussion of the appropriate location for vehicle washing. •
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials indoors.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented • Train employees on proper waste control and disposal procedures.

Sector F: Primary Metals Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Material storage and handling	Metal product stored outside such as foundry returns, scrap metal, turnings, fines, ingots, bars, pigs, wire including materials coated with oil to prevent corrosion or residual chemicals from cleaning or treating	Residual or protective oil and grease, metals, total suspended solids (TSS), chemical oxygen demand
	Residual or protective oil and grease, metals, total suspended solids (TSS), chemical oxygen demand	pH (limestone)
	Storage of poles, bins, or material handling of coke or coal	(COD)
	Storage or handling of casting sand or refractory (from piles, hoppers, or bins)	TSS, pH, metals, phenolic compounds
	Leaks and spills of acids or solvents from drums or tanks	TSS, pH, toxicity depending on material
Vehicle and equipment fueling and maintenance	Vehicle fueling and maintenance or outdoor storage tanks and drums of gas, diesel, kerosene, lubricants, solvents	Oil and grease, diesel, gasoline, TSS, antifreeze
Waste materials (handling, storage, and disposal)	Slag or dross stored or disposed of outside in poles or drums	Metals, pH
	Fly ash, particulate emissions, dust collector sludges and solids, baghouse waste	TSS
	Storage and disposal of waste sand or refractory rubble in poles outside	TSS, metals, misc. "wet" sand additives
	Machining waste fines, turnings, oil, borings, gates, sprues, scale	TSS, metals, Oil, and grease
	Obsolete equipment stored outside	Oil and grease, metals
	Landfilling or open pit disposal of wastes on-site	Metals, cyanide, cadmium, arsenic, hexavalent chromium, or halogenated or chlorinated solvents

Activity	Pollutant Source	Pollutant
Furnace operations and pollution control equipment	Losses during charging of coke ovens or sintering plants and from particulate emissions	TSS, particulates, metals, volatiles, pH
	Fugitive emissions from poorly maintained or malfunctioning baghouses, scrubbers, electrostatic precipitators, cyclones	TSS, metals
	Wastewater treatment operations exposed to precipitation	TSS, metals
	Particulate emissions from blast furnaces, electric arc furnaces, induction furnaces	TSS, Oil and grease, ammonia-N, cyanide, phenolic compounds, dissolved iron, toxic organic pollutants, metals (depending on operation)
Rolling, casting, and finishing operations	Exposure of wastewater used for cooling or descaling related to rolling	Oil and grease, pH, TSS, metals, COD
	Storage of products outside after painting, pickling, or cleaning operations	pH, solvents, metals
	Casting cooling or shakeout	TSS, metals
	Losses of particulate matter from machining operations (grinding, drilling, boring, cutting)	Metals, TSS, Oil and grease
Plant yards	Areas of the facility with unstabilized soils subject to erosion and sediment loss	TSS
Illicit discharges	Improper connection of floor, sink, or process wastewater drains to storm sewers	Dependent on source

Best Management Practices (BMPs)

Pollutant Source	BMPs
Metal product storage (outside) such as foundry returns, scrap metal, turnings, fines, ingots, bars, pigs, wire	<ul style="list-style-type: none"> • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Provide temporary cover (e.g., tarps) for the storage area. • Minimize material storage through effective inventory and shipping controls. • Minimize run-on from adjacent properties with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Stabilize areas with exposed soil with diversion dikes, berms, curbing, concrete pads, etc.
Storage or handling of fluxes	<ul style="list-style-type: none"> • Store fluxes in covered hoppers, silos, or indoors and protect from wind-blown losses. • Stabilize areas surrounding storage and material handling areas. • Establish schedule for sweeping on a regular basis.
Storage piles, bins, or material handling of coke and coal	<ul style="list-style-type: none"> • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Where possible store coke and coal under cover or indoors and protect from wind-blown losses. • Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs to limit run-on and to slow runoff. • Trap particulates originating in coke or coal storage or handling areas with filter fabric fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch basin filters, retention/detention basins or equivalent. • Minimize quantities of coke or coal stored on-site through implementation of effective inventory control. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Train employees in good housekeeping measures.
Storage or handling of casting sand	<ul style="list-style-type: none"> • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Store raw sand in silos, covered hoppers, or indoor whenever possible. • Cover storage pile with tarp or awning. • Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs to limit run-on and to slow runoff. • Install sediment basins, silt fence, vegetated filter strips, or other sediment removal measures downstream/downslope. • Minimize quantities of sand stored onsite through implementation of effective inventory control.

Pollutant Source	BMPs
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbent as soon as spilled substance have been absorbed. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage topping off of fuel tanks. • Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Train personnel on vehicle fueling BMPs
Vehicle maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside.

Pollutant Source	BMPs
Vehicle maintenance (continued)	<ul style="list-style-type: none"> • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures
Vehicle and equipment storage and parking	<ul style="list-style-type: none"> • Store vehicles and equipment inside. • Install berms and dikes in storage areas. • Use absorbents and dry cleanup. • Clean pavement surface to remove oil and grease. • Use drip pans under all vehicles and equipment waiting for maintenance. • Cover the storage area with a roof. • Inspect the storage yard for filling drip pans and other problems regularly. • Train employees on procedures for storage and inspection items.
Storage tanks or drums of gas, diesel, kerosene, lubricants, solvents	<ul style="list-style-type: none"> • Store tanks and drums inside when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label drum with its contents. • Establish regular inspection of all tanks and drums for leaks, spills, corrosion, damage, etc. • Use dry cleanup methods when possible • Utilize effective inventory control to reduce the volume of chemicals stored on-site. • Prepare and train employees in dealing with spills and leaks properly.

Pollutant Source	BMPs
Slag or dross stored or disposed of in piles or drums	<ul style="list-style-type: none"> • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Collect waste waters used for granulation of slag and direct to a treatment facility. (These are not allowed under this section.) • Store slag and dross indoors, under cover, or in sealed containers. • Establish regular disposal of slag or dross to minimize quantities stored and handled on-site. • Minimize run-on to slag storage areas with diversion dikes, berms, curbing, or vegetated swales. • Trap particulates originating in slag storage areas with silt fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, and/or retention/detention basins or equivalent.
Fly ash, particulate emissions, dust collector sludges and solids, baghouse dust	<ul style="list-style-type: none"> • Store all dusts and sludges indoors to prevent contact with precipitation or losses due to wind. • Establish regular disposal schedule to minimize quantities stored and handled on-site. • Inspect all residue hauling vehicles for proper covering over the load, adequate gate sealing, and overall integrity of the body or container.
Storage and disposal of waste sand or refractory rubble in piles	<ul style="list-style-type: none"> • Move piles under cover or tarps whenever possible. • Establish regular disposal schedule to minimize quantities stored on-site. • Stabilize areas of waste product storage and perform regular sweeping of area.
Scrap processing activities (shredding etc.)	<ul style="list-style-type: none"> • Schedule frequent cleaning of accumulated fluids and particulate residue around all scrap processing equipment. • Conduct routine preventive maintenance of equipment per original manufacturer's equipment (OME) recommendations. Replace worn or malfunctioning parts. • Conduct periodic maintenance and clean out of all sumps, oil/water separators, media filters. Dispose of residual waste materials properly, e.g., according to RCRA. • Provide alarm, pump shutoff, or sufficient containment for hydraulic reservoirs in the event of a line break. • Provide site gages or overflow protection devices for all liquid and fuel storage reservoirs and tanks. • Provide containment bins or equivalent for shredded material, especially lightweight materials such as fluff (preferably at the discharge of these materials from the air classification system). • Where practicable, locate process equipment (e.g., balers, briquetters, small compactors) under cover. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Provide cover for hydraulic equipment and combustion engines. Erosion and Sediment Control • Stabilize high traffic areas around processing equipment (e.g., concrete pads, gravel, and pavement) where practicable.

Pollutant Source	BMPs
Scrap processing activities (shredding etc.) [continued]	<ul style="list-style-type: none"> • Site process equipment on elevated concrete pads or provide runoff diversion structures, berms, containment trenches or surface grading around process equipment. Discharge runoff from within bermed areas to a sump, oil/water separator, media filter or discharge to sanitary sewer. • Provide dry cleanup materials (e.g., dry-absorbents, drip pans, etc.) to prevent contact of hydraulic fluids, oils, fuels, etc., with stormwater runoff. • Provide training to equipment operators on how to minimize run-on to scrap processing areas. • Schedule frequent inspections of equipment for signs of spills, leakage of contents, oil, fuel, hydraulic fluids. • Establish and implement spill prevention and response procedures, including employee training.
Storage of machining waste – fines, turnings, oil, borings, gates, sprues, scale	<ul style="list-style-type: none"> • Store all wastes indoors or in sealed drums, covered dumpsters, etc. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Stabilize areas of waste product storage and perform regular sweeping and cleaning of any residues. • Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present. • Minimize run-on from adjacent properties and stabilized areas with diversion dikes, berms, curbing, concrete pads, etc.
Storage of obsolete equipment	<ul style="list-style-type: none"> • Where possible, dispose of unused equipment properly, or move indoors. • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Cover obsolete equipment with a tarp, awning, or roof. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Place equipment on a concrete pad. • Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present
Material handling equipment such as conveyors, trucks, pallets, hoppers, etc.	<ul style="list-style-type: none"> • Schedule frequent inspections of equipment for signs of spills or leakage. • Inspect for accumulation of particulate matter on and around equipment and clean. Where possible cover these areas to prevent losses to wind and precipitation. • Store pallets, hoppers, etc. which have residual materials on them under cover, with tarps, or inside.
Charging of coke ovens or sintering plants.	<ul style="list-style-type: none"> • Cover any exposed areas related to furnace charging/material handling activities. • Stabilize areas around all material handling areas and establish regular sweeping. • Route runoff from particulate generating operations to sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent.
Blast furnaces, electric arc furnaces, induction furnaces and	<ul style="list-style-type: none"> • Use dust collection systems (e.g., bag houses) to collect airborne particles generated as a result of handling operations. • Promptly dispose of waste materials from dust collection systems and other operations.

Pollutant Source	BMPs
emissions control equipment including baghouses, scrubbers, electrostatic precipitators, cyclones	<ul style="list-style-type: none"> • Remove spilled material and settled dust from paved portions of the facility by shoveling and sweeping on a regular basis • Periodically clean material handling equipment and vehicles to remove accumulated dust and residue. • Route runoff from particulate generating operations to sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent. • Establish schedule for inspection and maintenance of all pollution control equipment—check for any particulate deposition from leaks, spills, or improper operation of equipment. • Train employees in good housekeeping, inspection and maintenance of emission control equipment, spill prevention and control.
Storage of products outside after machining, painting, pickling, or cleaning operations	<ul style="list-style-type: none"> • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters • Store all materials inside or under cover whenever possible. • Prevent run-on to product storage areas through curbs, berms, dikes, etc. • Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present. • Remove residual chemicals from intermediate or finished products before storage or transport outside. • Stabilize storage areas and establish sweeping schedule.
Casting cooling or shakeout operations exposed to precipitation or wind	<ul style="list-style-type: none"> • Perform all pouring, cooling, and shakeout operations indoors in areas with roof vents to trap fugitive particulate emissions. • Recycle into process as much casting sand as possible.
Landfilling or open pit disposal of wastes on-site	<p><i>Application of fertilizers, herbicides, pesticides</i></p> <ul style="list-style-type: none"> • Conform to all applicable Federal, State, and local regulations when using these products. • Strictly follow recommended application rates and methods (i.e., do not apply in excess of vegetative requirements). • Have materials such as absorbent pads easily accessible to clean up spills. • Provide protected storage areas for pesticides, herbicides, fertilizer, and other significant materials. • Inspect and maintain all containers used for outdoor chemical materials storage to prevent leaking. • Train employees in proper application procedures and spill response. <p><i>Exposure of waste at open face</i></p> <ul style="list-style-type: none"> • Minimize the area of exposed open face as much as is practicable. • Divert flows around open face using structural measures such as dikes, berms, swales, and pipe slope drains. • Inspect erosion and sedimentation controls every 7 days. • Maintain the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary to minimize the effects of settlement, sinking and erosion). <p><i>Uncontrolled leachate</i></p> <ul style="list-style-type: none"> • Frequently inspect leachate collection system and landfill for leachate leaks.

Pollutant Source	BMPs
Landfilling or open pit disposal of wastes on-site (continued)	<ul style="list-style-type: none"> • Maintain landfill cover and vegetation. • Maintain leachate collection system. • Maintain all elements of leachate collection and treatment systems to prevent commingling of leachate with stormwater <p><i>Waste tracking</i></p> <ul style="list-style-type: none"> • Clean wheels and exterior of trucks or other equipment as necessary to minimize waste tracking (but contain any wash waters [process wastewaters]).
Areas of the facility with unstabilized soils subject to erosion	<ul style="list-style-type: none"> • Minimize run-on from adjacent properties and stabilized areas to areas with exposed soil with diversion dikes, berms, vegetated swales, etc. • Stabilize all high traffic areas including all vehicle entrances, exits, loading, unloading, and vehicle storage areas. • Conduct periodic sweeping of all traffic areas. • Trap sediment originating in unstabilized areas using silt fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/ detention basins or equivalent. • Inspect and maintain all BMPs on a regular basis. • Provide employee training on proper installation and maintenance of sediment and erosion controls.
Illicit connections to storm sewers	<ul style="list-style-type: none"> • Inspect and test all floor, sink, and process wastewater drains for proper connection to treatment facilities and remove any improper connections to storm sewer or receiving waters.

Sector G: Metal Mining (Ore Mining and Dressing) Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Site preparation	Road construction Removal of overburden Removal of waste rock to expose the metal	Dust, TSS, TDS, turbidity
Mineral extraction	Blasting activities	Dust, TSS, nitrate/nitrite
Beneficiation activities	Milling	Dust, TSS, TDS, pH, turbidity, fines, heavy metals
	Flotation	Dust, TSS, TDS, pH, turbidity, fines, chemical reagents, acids, heavy metals
	Gravity concentration	TSS, TDS, pH, turbidity, heavy metals
	Amalgamation	Dust, TSS, TDS, pH, turbidity, heavy metals, mercury
	Waste rock storage	Dust, TSS, TDS, pH, turbidity, heavy metals
	Raw material loading	Dust, TSS, TDS, turbidity, heavy metals
	Process materials unloading	Diesel fuel, oil, gasoline, chemical reagents
	Raw waste material transportation	Dust, TSS, TDS, turbidity, heavy metals
Leaching	Heap leach piles	Dust, TSS, TDS, pH, turbidity, heavy metals, cyanide
Other activities	Sedimentation pond upsets	TSS, TDS, turbidity, pH, heavy metals
	Sedimentation pond sludge removal and disposal	Dust, TSS, TDS, turbidity, pH, heavy metals
	Air emission control device cleaning	Dust, TSS, TDS, turbidity, metals
Equipment/vehicle fueling and maintenance	Fueling activities	Gas/diesel fuel, oil
	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, and degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, chemical oxygen demand (COD), and benzene
Reclamation activities	Site preparation for stabilization	Dust, TSS, TDS, turbidity, heavy metals

Best Management Practices (BMPs)

Pollutant Source	BMPs
Haul Roads and/or Access Roads	<ul style="list-style-type: none"> • Construction of haul roads should be supplemented by BMPs that divert runoff from road surfaces, minimize erosion, and direct flow to appropriate channels for discharge to treatment areas. • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels, gutters, culverts, rolling dips and road sloping, and/or roadway water deflectors. • Use check dams, rock outlet protection, level spreaders, stream alternation and drop structures for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, and vegetated buffer strips for sediment control and collection. • Keep as much vegetation as possible when building roads and seed as necessary. Stabilize soil via willow cutting establishment. • Place as far as possible from natural drainage areas, lakes, ponds, wetlands, or floodplains • Width and grade of roads should be as small as possible to meet regulatory requirements and designed to match the natural contours of the area. • Frequently inspect all stabilization and structural erosion control measures and perform all necessary maintenance and repairs.
Pits/Quarries or Underground Mines	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters to control runoff and run-on. • Use serrated slopes, benched slopes, contouring, and stream alteration to direct uncontaminated discharges away from a pit or quarry. • Install sediment settling ponds, straw bale barrier, and siltation berms. • Keep as much vegetation as possible when excavating and seed as necessary to minimize the amount of exposed soils.
Overburden, Waste Rock, and Raw Material Piles	<ul style="list-style-type: none"> • Overburden, topsoil, waste rock, raw material, or intermediate and final product stockpiles should be located away from surface waters and other sources of run-on, as well as geologically unstable areas. • Install dikes, curbs, and berms for discharge diversions to control runoff and run-on. • Install conveyance systems such as channels and gutters to control runoff and run-on. • Use serrated slopes, benched slopes, contouring, and stream alteration around piles for sediment control and runoff dispersion. • Install plastic matting, plastic netting, erosion control blankets, mulch straw, sediment/settling ponds, silt fences, siltation berms, and/or compaction for sediment control and collection. • Stabilize and recontour piles as necessary
Reclamation	<ul style="list-style-type: none"> • Vegetate as many piles as possible (involves topsoiling, seedbed preparation, and/or seeding). • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters.

Pollutant Source	BMPs
Reclamation (continued)	<ul style="list-style-type: none"> • Use check dams, rock outlet protection, level spreaders, stream alternation, drop structures, serrated slopes, drain fields, benched slopes, contouring, and stream alteration for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, biotechnical stabilization, silt fences, siltation berms, brush sediment barriers, and vegetated buffer strips for sediment control and collection. • Recontouring and vegetation should be performed to stabilize soils and prevent erosion in mined out portions or inactive areas of the site as active mining moves to new areas (includes topsoiling, seedbed preparation, seeding, and willow cutting establishment). • If a quarry is being converted into a reservoir or recreational area, disturbed areas above the quarry rim must still be reclaimed. • Use overburden and topsoil stockpiles to fill in a pit or quarry (when practical).
Equipment/vehicle maintenance	<ul style="list-style-type: none"> • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. Management of Runoff • Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility do not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if available and allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures. • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside.

Pollutant Source	BMPs
Equipment/vehicle maintenance (continued)	<ul style="list-style-type: none"> • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
Fueling activities	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. • Perform inspection and preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area to detect problems before they occur. • Train personnel on fueling procedures in the SWPPP. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage “topping off” of fuel tanks

Sector H: Coal Mines and Coal Mining-Related Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Road and Rail Construction and Maintenance Active Site	Surface grading and exposure of soils	Dust, Total suspended solids (TSS), Total dissolved solids (TDS), turbidity, pH and oil and grease
Raw or Waste Material Transportation	Material spills	Dust, TSS, TDS, turbidity, sulfates, and iron
Mining and Processing Activities at Inactive Coal Mines	Raw Material Storage	Dust, TSS, TDS, turbidity, pH sulfates, iron
	Overburden Storage	Dust, TSS, TDS, turbidity, sulfates, iron, pH
	Disposal Areas	Dust, TSS, TDS, turbidity, pH, oil & grease
	Surface and Underground Mines	Dust, TSS, TDS, turbidity, pH sulfates, iron
	Materials Handling and Loading/ Unloading	Dust, TSS, TDS, turbidity, pH sulfates, iron
Equipment/Vehicle Maintenance	Fueling Activities	Diesel fuel, gasoline, oil, chemical oxygen demand (COD)
	Parts cleaning	Solvents, oil, heavy metals, acid/ alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, decreases	Oil, heavy metals, solvents, acids, COD
Reclamation Activities	Site preparation for stabilization	Dust, TSS, TDS, turbidity, pH

Best Management Practices (BMPs)

Pollutant Source	BMPs
Site preparation: haul roads and access roads	<ul style="list-style-type: none"> • Construction of haul roads should be supplemented by BMPs that divert runoff from road surfaces, minimize erosion, and direct flow to appropriate channels for discharge to treatment areas. • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels, gutters, culverts, rolling dips and road sloping, and roadway water deflectors. • Install turnouts (i.e., extensions of roadside ditches) to direct stormwater into well stabilized areas. • Use check dams, rock outlet protection, level spreaders, stream alternation, and drop structures for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, and vegetated buffer strips for sediment control and collection. • Keep as much vegetation as possible when building roads and seed as necessary. • Place as far as possible from natural drainage areas, lakes, ponds, wetlands, or floodplains. • Width and grade of roads should be as small as possible to meet regulatory requirements and designed to match the natural contours of the area. • Frequently inspect all stabilization and structural erosion control measures and perform all necessary maintenance and repairs.
Mineral extraction: Pits/quarries or underground mines	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions to control run-off and run-on. • Install conveyance systems such as channels and gutters to control run-off and run-on. • Use serrated slopes, benched slopes, contouring, and stream alteration to avoid discharge from, a pit. • Install sediment ponds, check dams, straw bale barrier, and siltation berms. • Keep as much vegetation as possible when excavating and seed as necessary to minimize the amount of exposed soils.
Mineral extraction and processing: Overburden, waste rock, and raw material piles	<ul style="list-style-type: none"> • Overburden, topsoil, raw material, intermediate and final product stockpiles should be located away from surface waters and other sources of run-on, as well as geologically unstable areas. • Install dikes, curbs, and berms for discharge diversions to control run-off and run-on. • Install conveyance systems such as channels and gutters to control run-off and run-on. • Use serrated slopes, benched slopes, contouring, and stream alteration around piles for runoff dispersion. • Install plastic matting and netting, erosion control blankets, mulch straw, and/or compaction to control erosion. • Stabilize and recontour piles as necessary. • Vegetate as many piles as possible, even if temporary (involves topsoiling, seedbed preparation, and/or seeding).

Pollutant Source	BMPs
Mineral extraction and processing (continued)	<ul style="list-style-type: none"> • Install sediment/settling ponds, silt fences, and siltation berms to control sediment transport.
Reclamation	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters. • Use check dams, rock outlet protection, level spreaders, stream alternation, drop structures, serrated slopes, benched slopes, contouring, and stream alteration for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, biotechnical stabilization, silt fences, siltation berms, brush sediment barriers and vegetated buffer strips for sediment control and collection. • Recontouring and vegetation should be performed to stabilize soils and prevent erosion in mined out portions or inactive areas of the site as active mining moves to new areas (includes topsoiling, seedbed preparation, and seeding). • If a quarry is being converted into a reservoir or recreational area, disturbed areas above the quarry rim must still be reclaimed. • Use containment (capping, plugging, and grouting). • Use overburden and topsoil stockpiles to fill in a pit/quarry (when practical).
Fueling activities	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (not asphalt which is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing the fuel area down. Follow established practices for sweeping up absorbents as soon as spilled substances have been absorbed. • Perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area to detect and correct potential problems, including routine maintenance on equipment. • Train personnel on fueling procedures established in the SWPPP. • Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress. • Discourage “topping off” of fuel tanks.

Pollutant Source	BMPs
Equipment/vehicle maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be pumped to a wastewater treatment system or removed from the site by a licensed waste hauler. • Use drip plans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. Promptly transfer used fluids to the appropriate waste container(s); do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the amount of hazardous materials used and amount of waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains and/or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible where proper control of oil leaks/spills is maintained and exposure to stormwater is prevented. • Watch vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycle runoff. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on waste control and disposal procedures identified in the SWPPP.

Sector I: Oil and Gas Extraction Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Construction of: Access roads Drill pads Mud/Reserve pits Personnel quarters Surface impoundments Storage tanks Pipelines	Soil/dirt, leaking equipment, and vehicles	Soil/dirt, leaking equipment, and vehicles
Well drilling	Drilling fluid*, lubricants, mud, cuttings, and produced water	TSS, TDS, oil and grease, chemical oxygen demand (COD), chlorides, barium, naphthalene, benzene, lead, arsenic, fluoride
Well completion/ stimulation	Fluids (used to control pressure in well), cement, residual oil, acids, surfactants, solvents, produced water, and sand	TSS, TDS, oil and grease, COD, acid, acetone, toluene, ethanol, xylenes
Production	Produced water, oil, waste sludge, tank bottoms, acids, oily debris, and emulsions	Chlorides, TDS, oil, and grease, TSS, pH, benzene, phenanthrene, barium, arsenic, lead, antimony
Vehicle and equipment cleaning and repairing	Cleaning solvents, lubricants, and chemical additives	TSS, TDS, oil and grease, pH
Site closures	Residual muds and oily debris	TSS, TDS, oil and grease, pH
Vehicle fueling	Diesel fuel	TSS, TDS, oil, and grease

Best Management Practices (BMPs)

Pollutant Source	BMPs
Construction	<ul style="list-style-type: none"> • Limit the amount of land disturbed during construction of access roads and facilities and preserve existing vegetation. • Implement erosion and sediment controls such as vegetated swales, diversion berms, or dikes to limit or isolate land disturbance and process areas to retain/detain flows and limit stormwater run-on in these areas. • Divert stormwater away from contaminated areas. • Inspect the area regularly to ensure BMPs are implemented and maintained.
Well drilling	<ul style="list-style-type: none"> • Use diking and other forms of containment and diversion around storage tanks, oil drums, acid, production chemicals and liquids, reserve pits, and impoundments. • Use diking and other forms of containment and diversion around material handling and processing areas. • Use porous pads under drum and tank storage areas. • Use covers and/or lining for waste reserve and sludge pits to avoid overflows and leaks. • Use drip pans, catch basins, or liners during handling of materials such as tank bottoms. • Re-use collected stormwater for industrial process or as an irrigation source. • Develop and implement spill plans for pipelines, tanks, drums, etc. • Recycle oily wastes, drilling fluids and other materials on-site, or dispose offsite. • Use oil • water separators. • Inspect the area regularly to ensure BMPs are implemented and maintained.
Well completion	<ul style="list-style-type: none"> • Utilize diking and other forms of containment and diversion around storage tanks, oil drums, acid, production chemicals and liquids, reserve pits, and impoundments. • Use diking and other forms of containment and diversion around material handling and processing areas. • Use porous pads under drum and tank storage areas. • Use covers and/or lining for waste reserve and sludge pits to avoid overflows and leaks. • Use drip pans, catch basins, or liners during handling of materials such as tank bottoms. • Reinject or treat produced water instead of discharging it. • Re-use collected stormwater for industrial process or as an irrigation source. • Develop and implement spill plans for pipelines, tanks, drums, etc. • Recycle oily wastes, drilling fluids and other materials on-site, or dispose of offsite. • Use oil water separators. • Inspect the area regularly to ensure BMPs are implemented and maintained.

Pollutant Source	BMPs
<p>Vehicle and equipment cleaning and maintenance</p>	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • Prevent and contain spills and drips. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or grassed swales other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.

Pollutant Source	BMPs
Vehicle fueling	<p><i>Stationary fueling areas</i></p> <ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. • Do not “top-off” fuel tanks. • Use spill and overflow protection devices. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. <ul style="list-style-type: none"> • Train personnel on vehicle fueling BMPs. <p><i>Mobile fueling areas</i></p> <ul style="list-style-type: none"> • Use drip pan under the transfer hose. • Use fueling hoses with check valves to prevent hose drainage after filling. • Ensure the fueling vehicle is equipped with a manual shutoff valve. • Do not allow topping off of the fuel in the receiving equipment. • Train personnel on vehicle fueling BMPs.

Sector J: Mineral Mining and Processing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Site Preparation	Road construction Removal of overburden Removal of waste rock to expose the mineral body	Dust, total suspended solids (TSS), total dissolved solids (TDS), turbidity
Mineral Extraction	Blasting activities	Dust, TSS
Mineral Processing Activities	Rock sorting	Dust, TSS, TDS, turbidity, fines
	Rock crushing	Dust, TSS, TDS, turbidity, fines
	Rock washing	TSS, TDS, turbidity, pH
	Rock material storage	Dust, TSS, TDS, turbidity
	Waste rock storage	Dust, TSS, TDS, turbidity, pH
	Raw material loading	Dust, TSS, TDS, turbidity
	Processing materials unloading	Diesel/gas fuel, oil, lime
	Raw or waste material transportation	Dust, TSS, TDS, turbidity
Other Activities	Fueling activities	Diesel/gas fuel, oil
	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil, arsenic, lead, cadmium, chromium, benzene, TCA, TCE, PAHs, solvents
Reclamation Activities	Site preparation for stabilization	Dust, TSS, TDS, turbidity
	Fertilizers	Nitrogen, phosphorus

Best Management Practices (BMPs)

Pollutant Source	BMPs
Site preparation: General	<ul style="list-style-type: none"> • Install temporary or permanent discharge diversions to prevent uncontaminated (or less contaminated) flows from contacting sources of pollutants. • Install dikes, curbs, and berms for discharge diversions. • Use check dams, rock outlet protection, level spreaders, stream alternation and drop structures for runoff dispersion. • Install temporary or permanent diversions to direct contaminated flows to sediment ponds or other treatment facilities. • Install conveyance systems such as channels, gutters, culverts, rolling dips and road sloping, and/or roadway water deflectors. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, and vegetated buffer strips for sediment control and collection.
Site preparation: Haul and access roads	<ul style="list-style-type: none"> • Construction of haul roads should be supplemented by BMPs that divert runoff from road surfaces, minimize erosion, and direct flow to appropriate channels for discharge to treatment areas. • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels, gutters, culverts, rolling dips and road sloping, and/or roadway water deflectors. • Use check dams, rock outlet protection, level spreaders, stream alternation and drop structures for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, and vegetated buffer strips for sediment control and collection. • Keep as much vegetation as possible when building roads and seed as necessary. Stabilize soil via willow cutting establishment. • Place as far as possible from natural drainage areas, lakes, ponds, wetlands, or floodplains • Width and grade of roads should be minimal and should be designed to match the natural contours of the area. • Frequently inspect all stabilization and structural erosion control measures and perform all necessary maintenance and repairs.
Mineral extraction: Pits/quarries or underground mines	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters. • Use serrated slopes, benched slopes, contouring, and stream alteration to direct uncontaminated discharges away from a pit or quarry. • Install sediment settling ponds, straw bale barrier, and siltation berms. • Keep as much vegetation as possible when excavating and seed as necessary to minimize exposed soils.
Mineral extraction and processing: Overburden, waste rock, and raw material piles	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters. • Overburden, topsoil, waste rock, raw material, or intermediate and final product stockpiles should be located away from surface waters and other sources of water, as well as geologically unstable areas. • Use serrated slopes, benched slopes, contouring, and stream alteration around piles for sediment control and collection.

Pollutant Source	<ul style="list-style-type: none"> • BMPs
Mineral extraction and processing: Overburden, waste rock, and raw material piles (continued)	<ul style="list-style-type: none"> • Install plastic matting, plastic netting, erosion control blankets, mulch straw, compaction, sediment/settling ponds, silt fences, and siltation berms for sediment control and collection • Stabilize and recontour (if necessary) piles. • Vegetate as many piles as possible (involves topsoiling, seedbed preparation, and/or seeding).
Reclamation	<ul style="list-style-type: none"> • Install dikes, curbs, and berms for discharge diversions. • Install conveyance systems such as channels and gutters. • Use check dams, rock outlet protection, level spreaders, stream alternation, drop structures, serrated slopes, benched slopes, contouring, and stream alteration for runoff dispersion. • Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, biotechnical stabilization, silt fences, siltation berms, brush sediment barriers and vegetated buffer strips for sediment control and collection. • Recontouring and vegetation should be performed to stabilize soils and prevent erosion in mined out portions or inactive areas of the site as active mining moves to new areas (includes topsoiling, seedbed preparation, seeding, willow cutting establishment). • If a quarry is being converted into a reservoir or recreational area, disturbed areas above the quarry rim must still be reclaimed. • Use overburden and topsoil stockpiles to fill in a pit or quarry (when practical).
Equipment/vehicle maintenance	<ul style="list-style-type: none"> • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if available and allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside.

Pollutant Source	BMPs
Equipment/vehicle maintenance (continued)	<ul style="list-style-type: none"> • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.
Fueling activities	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. • Perform inspection and preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area to detect problems before they occur. • Train personnel on proper fueling procedures. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage “topping off” of fuel tanks.

Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Bulk Liquid/Solid Transfer	Spills during transfer of chemicals between above ground storage tank and drums or other containers.	Acids, solvents, ammonia, hydroxides, detergents, fuels
	Spills during transfer of chemicals between above ground storage tank and drums or other containers	Total suspended solids (TSS), chemical oxygen demand (COD) pH, biological oxygen demand (BOD)
	Outdoor storage or handling of chemicals Unloading of chemicals and other hazardous materials Leaks and spills of acids or solvents from drums or tanks	Organic and inorganic compounds.
Hazardous Material Storage	Spills or leaks Residual hazardous material due to poor housekeeping	Organic and inorganic compounds
Waste Handling & Disposal	Chemical mixing	Mixed waste which can limit recyclables
Vehicle and equipment fueling and maintenance	Vehicle fueling and maintenance activities, outdoor storage tanks, and drums of gas, diesel, kerosene, lubricants, solvents	Oil and grease (O&G), diesel, gasoline, TSS, antifreeze
Oil and grease (O&G), diesel, gasoline, TSS, antifreeze	Storage of pesticides and other chemicals Application of chemicals	Pesticides, oxygen-demanding substances, sediments, nutrients, organics, and toxicants
Illicit discharges	Improper connection of floor, sink, or process wastewater drains to storm sewers	Dependent on source

Best Management Practices (BMPs)

Pollutant Source	BMPs
Hazardous Material Storage	<ul style="list-style-type: none"> • Confine storage of hazardous materials to designated areas. • Storage of hazardous materials should be indoors or in a covered area. • Store hazardous materials according to the manufacturer by installing concrete or non-absorbing berms around each specific hazardous material to avoid mixing wastes. • Ensure sufficient aisle space to ease inspections and handling. • Store hazardous materials away from high-traffic areas. • Implement inspection schedule for storage areas to detect problems before they occur. • Inspect all containers prior to placing in hazardous materials storage areas. • Store drums of hazardous material on spill pallets. • ASTs of hazardous materials should be stored within secondary containment equipped with self-bailers, shutoff valve, and sumps. • Use dry cleanup methods instead of washing the areas down. • Train employees on proper storage techniques.
Bulk liquid/solid transfer areas	<ul style="list-style-type: none"> • Confine transferring activities to a designated area. • Performing transfer activities indoors or in a covered area. • Install an impervious or concrete pad under area for bulk transfer activities with area sloped toward sump or detention pond. • During transfer activities of hazardous materials always close drains using drain seals, drain guards, drain plugs, or a shutoff valve. • After drum use, washout should drain directly into a clarifier. • Place track pans or popup pool containers under tankers before transfer activities occur to prevent uncontained spills. • Avoid transferring bulks materials in the rain. • Inspect the transfer areas to detect problems before they occur. • Inspect all containers prior to transferring activities of hazardous materials. • Use dry cleanup methods instead of washing the areas down. • Train employees on proper bulk transfer techniques.
Bulk storage areas	<ul style="list-style-type: none"> • Confine bulk storage to a designated area. • Store hazardous bulk materials indoors or in a covered area. • Cover bulk materials with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). • Implement schedule to conduct inspections of the bulk storage areas to detect problems before they occur. • Inspect all containers prior to storage of outside bulk materials. • Store outside bulk materials within secondary containment either using concrete berms or other non-absorbing materials. • Berm, curb, or dike outside bulk storage areas. • Use dry cleanup methods instead of washing the areas down. • Train employees on proper outside bulk storage of hazardous material techniques.

Pollutant Source	BMPs
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices including gutter guards, basin guard, and curb guards. • Keep spill cleanup material readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on into fueling area with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Direct stormwater from fueling area into detention pond or filtering system. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Implement procedures for sweeping up absorbents as soon as spilled substance have been absorbed. • Fuel pumps should be protected from collisions by installing curbing or posts. • Discourage “topping off” of fuel tanks. • Implement inspection schedule of preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Train employees as well as any outside contractor, the proper fueling techniques.
Vehicle maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Implement preventive measures to avoid spills and drips. • Conduct all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Use dry cleanup methods instead of washing the areas down. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain inventory of materials. • Eliminate or reduce quantity of hazardous materials and waste by substituting nonhazardous or less hazardous materials.

Pollutant Source	BMPs
Vehicle maintenance (continued)	<ul style="list-style-type: none"> • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside or if stored outdoors, cover with tarps, and stored on spill pallets • Dispose of oily rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility do not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Vehicle and equipment storage and parking	<ul style="list-style-type: none"> • Store vehicles and equipment indoors. • Install berms and dikes in storage areas. • Use absorbents and dry cleanup methods. • Clean pavement surface to remove oil and grease. • Use drip pans under all vehicles and equipment waiting for maintenance. • Cover the storage area with a roof. • Inspect the storage yard for filling drip pans and other problems regularly. • Train employees on procedures for storage and inspection items.
Outdoor unloading and loading	<ul style="list-style-type: none"> • Confine loading/unloading activities to a designated area. • Performing loading/unloading activities indoors or in a covered area. • Cover loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). • Close storm drains during loading/unloading activities in surrounding areas. • Avoid loading/unloading materials in the rain. • Inspect the unloading/loading areas to detect problems before they occur. • Inspect all containers prior to loading/unloading of any raw or spent materials. • Berm, curb, or dike loading/unloading areas. • Use dry cleanup methods instead of washing the areas down.

Sector L: Landfills and Land Application Sites

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Cover crop management	Applied chemicals	Fertilizers, pesticides, and herbicides
Outdoor chemical storage	Exposure of chemical material storage areas to precipitation	Various chemicals stored
Waste transportation	Waste tracking on-site and haul road, solids transport on wheels and exterior of trucks or other equipment	TSS, total dissolved solids (TDS), turbidity, floatable
Leachate collection	Uncontrolled leachate (commingling of leachate with runoff or run-on)	Iron, TSS, biochemical oxygen demand (BOD), ammonia, alpha terpineol, benzoic acid, p-Cresol, phenol, zinc, pH
Landfill operations	Exposure of waste at open face	BOD, TSS, TDS, turbidity
Exposed soil from excavating cells/trenches	Erosion	TSS, TDS, turbidity
Exposed stockpiles of cover material		
Inactive cells with final cover but not finally stabilized		
Daily or intermediate cover placed on cells or trenches		
Haul roads (including vehicle tracking of sedimentation)		
Vehicle/equipment maintenance	Fueling activities	Diesel fuel, gasoline, oil
	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, chemical oxygen demand (COD), and benzene

Best management Practices (BMPs)

Pollutant Source	BMPs
Application of fertilizers, pesticides, and herbicides	<ul style="list-style-type: none"> • Observe all applicable Federal, State, and local regulations when using these products. • Strictly follow recommended application rates and methods (i.e., do not apply in excess of vegetative requirements). • Have materials such as absorbent pads easily accessible to clean up spills. • Inspect and maintain all containers used to prevent leaking. • Implement employee training program for proper application and spill prevention. • Store drums and containers indoors when possible.
Chemical material storage areas	<ul style="list-style-type: none"> • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Locate material storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Clearly label drums with their contents. • Maintain an inventory of fluids to identify leakage. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Have materials such as absorbent pads easily accessible to clean up spills. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in spill prevention and control and proper materials management.
Exposure of waste at open face (Landfills only)	<ul style="list-style-type: none"> • Minimize the area of exposed open face as much as is practicable. • Divert flows around open face using structural measures such as dikes, berms, swales, or pipe slope drains. • Maintain the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary to minimize the effects of settlement, sinking, and erosion). • Regularly inspect erosion and sediment controls. • Minimize the area of exposed open face as much as is practicable. • Divert flows around open face using structural measures such as dikes, berms, swales, or pipe slope drains.

Pollutant Source	BMPs
Exposure of waste at open face (Landfills only) [continued]	<ul style="list-style-type: none"> • Maintain the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary to minimize the effects of settlement, sinking, and erosion). • Regularly inspect erosion and sediment controls
Waste tracking and solids transport on wheels and exterior of trucks or other equipment from on-site/offsite or haul roads.	<ul style="list-style-type: none"> • Clean wheels and exterior of trucks or other equipment as necessary to minimize waste tracking (but contain any wash waters). • Establish procedures such as rumble strips and gravel apron to minimize offsite tracking
Uncontrolled leachate	<ul style="list-style-type: none"> • Divert flows around site using structural measures such as dikes, berms, or swales. • Frequently inspect leachate collection system and landfill for leachate leaks. • Maintain landfill cover and vegetation. • Maintain leachate collection system. • Maintain all elements of leachate collection and treatment systems to prevent commingling of leachate with stormwater.
Erosion from: Excavating cells/ trenches Stockpiles of cover material Inactive cells with final cover but not finally stabilized Daily or intermediate cover placed on cells or trenches Haul road	<ul style="list-style-type: none"> • Implement structural controls such as dikes, swales, silt fences, filter berms, sediment traps and ponds, outlet protection, pipe slope drains, check dams, and terraces to convey runoff, to divert stormwater flows away from areas susceptible to erosion, and to prevent sediments from entering water bodies. • Confine stockpiling to areas outside of drainage pathways and away from surface waters • Stabilize soils with temporary seeding, mulching, and placing geotextiles on the inactive portions of stockpiles • Leave vegetative filter strips along streams. • Keep as much vegetation as possible when building roads and seed as necessary and appropriate. • Construct vegetated swales along road. • Stabilize haul roads and entrances to landfill with gravel or stone. • Clean wheels and body of trucks or other equipment as necessary to minimize sediment tracking (but contain any wash waters). • Frequently inspect all stabilization and structural erosion control measures and perform all necessary maintenance and repairs.
Vehicle/equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling.

Pollutant Source	BMPs
Vehicle/equipment fueling (continued)	<ul style="list-style-type: none"> • Use spill and overflow protection devices. • Keep spill cleanup materials readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing the fuel area down. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. • Regularly inspect and perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress. • Discourage “topping off” of fuel tanks. Mobile fueling areas • Use drip pan under the transfer hose. • Use fueling hoses with check valves to prevent hose drainage after filling. • Ensure the fueling vehicle is equipped with a manual shutoff valve. • Do not allow topping off of the fuel in the receiving equipment. • Train personnel on fueling BMPs
Vehicle/equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip plans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number of hazardous materials used and amount of waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills.

Pollutant Source	BMPs
Vehicle/equipment maintenance (continued)	<ul style="list-style-type: none"> • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Use drip plans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Store batteries and other significant materials inside. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number of hazardous materials used and amount of waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycle the runoff. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.

Sector M: Automobile Salvage Yards

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Vehicle Dismantling	Oil, anti-freeze, batteries, gasoline, diesel fuel, hydraulic fluids, electrical switches	Oil and grease, ethylene glycol, heavy metals, mercury
Used Parts Storage	Batteries, chrome bumpers, wheel balance weights, tires, rims, filters, radiators, catalytic converters, engine blocks, hub caps, doors, drivelines, galvanized metals, mufflers	Sulfuric acid, galvanized metals, oil and grease, heavy metals, petroleum hydrocarbons, total suspended solids (TSS)
Outdoor Vehicle and Equipment Storage	Leaking engines, chipping/corroding bumpers, chipping paint, galvanized metal	Oil and grease, arsenic, organics, heavy metals, total suspended solids (TSS)
Vehicle and Equipment Maintenance	Parts cleaning	Chlorinated solvents, oil and grease, heavy metals, acid/alkaline wastes
	Waste disposal of greasy rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluids, radiator fluids, degreasers	Oil, heavy metals, chlorinated solvents, acid/alkaline wastes oil, heavy metals, chlorinated solvents, acid/alkaline wastes, ethylene glycol
	Spills of oil, degreasers, hydraulic fluids, transmission fluid, and radiator fluids	Oil, arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
	Fluids replacement, including oil, hydraulic fluids, transmission fluid, and radiator fluids	Oil, arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
Vehicle, Equipment, and Parts Washing Areas	Washing and steam cleaning waters	Oil and grease, detergents, heavy metals, chlorinated solvents, phosphorus, salts, suspended solids
Liquid Storage in Above Ground Storage Tanks	External corrosion and structural failure Installation problems Spills and overfills due to operator error	Fuel, oil and grease, heavy metals, materials being stored
Illicit Connection to Storm Sewer	Sanitary water	Bacteria, biochemical oxygen demand (BOD), suspended solids
	Floor drains	Oil and grease, heavy metals, chlorinated solvents, fuel, ethylene glycol
	Vehicle wash waters	Oil and grease, detergents, metals, chlorinated solvents, phosphorus, suspended solids
	Radiator flushing wastewater	Ethylene glycol
	Leaking underground storage tanks	Materials stored or previously stored

Best management Practices (BMPs)

Pollutant Source	BMPs
Dismantling and vehicle maintenance	<ul style="list-style-type: none"> • Installation of a consolidated processing area, including a covered and bermed impermeable concrete surface equipped with a drain, where all fluids are drained. • Drain all fluids from vehicles upon arrival at the site. Segregate the fluids and properly store or dispose of them. • Drain oil filters (and all vehicle parts) before disposal or recycling. • Inspect vehicles for leaks as soon as possible once they arrive on-site. Inspect vehicles quarterly for signs of leakage. Check for unwanted material that could have been placed in the vehicle. • When pulling parts from vehicles in the yard, employ a catch sled or tray to recover the majority of fluids which will be released. Place drip pans, large plastic sheets, or canvas under vehicles or equipment during maintenance and dismantling activities. Where drip pans are used, they should not be left unattended to prevent accidental spills. • Engine oil should be drained and stored in clearly labeled tanks or containers. Tanks and containers must be kept in good operating condition, free of any visible spills or leaks, structural damage, or deterioration. • Remove battery as soon as feasible after vehicle enters the facility. • Promptly transfer used fluids to the proper container. • Empty and clean drip pans and containers; do not leave full drip pans or other open containers around the shop. • Remove all mercury switches as soon as possible making sure not to puncture the mercury container during removal. Ship switches to End of Life Vehicle Solutions (ELVS). • Maintain an organized inventory of materials used in the maintenance shop. • Designate one person to keep track of parts in the yard. As soon as a hulk is salvaged to its minimum extent, it should be processed for shredding to minimize the dripping of fluids and clutter in the yard. • Nonhazardous substances that are contaminated with a hazardous substance are considered a hazardous substance. • Store cracked batteries in a nonleaking secondary container. • Keep waste streams separate (e.g., waste oil and mineral spirits). • Recycle anti-freeze, gasoline, used oil, mineral spirits, windshield washer fluid, and solvents. • Label and track the recycling of waste material (e.g., used oil, spent solvents, and batteries). • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Know where your sumps and drains discharge to. Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets. • Plug floor drains that are connected to the storm or sanitary sewer. If necessary, install a sump that is pumped regularly. • Screen out sludges and solids before they reach the waste sump. Use an absorbent pad around the perimeter of sumps to prevent unwanted hazardous materials from entering. •

Pollutant Source	BMPs
Dismantling and vehicle maintenance (continued)	<ul style="list-style-type: none"> ● Prohibit the practice of hosing down the shop floor, using dry cleanup methods, and/or collecting the stormwater runoff from the maintenance area and providing treatment. ● Treat stormwater discharges with devices such as oil-water separators.
Outdoor vehicle, equipment, and parts storage	<ul style="list-style-type: none"> ● Cover all storage areas with a permanent cover (e.g., roofs) or temporary cover (e.g., canvas tarps). ● Store lead parts in a covered container that is capable of handling the excessive weight of lead. If storing lead tire weights with batteries, make sure weights are not placed under batteries or allowed to roll around as that could puncture batteries. ● Install curbing, berms, or dikes around storage areas. ● Install berms or drainage ditches on the property line. ● Install berms for uncovered outdoor storage of oily parts, engine blocks, and above ground liquid storage. ● Install filtering devices and oil/water separators. ● Use drip pans, large sheets of plastic, or canvas under all vehicles and equipment waiting for and during maintenance. ● Store mercury switches in covered, leak-proof containers in a way that prevents the glass capsule from breaking. (Manage mercury switches as hazardous waste. Containers should be labeled with “Hazardous Waste Spent Mercury Switches”) ● Use secondary containment for stored liquids such as oil, gas, and antifreeze, as well as for lead acid batteries. ● Tank storage should be secured and locked. ● Do not stockpile old tires as they are both a fire hazard and a breeding ground for mosquitoes and rodents. Use indoor tire racks. ● Confine storage of parts, equipment, and vehicles to designated areas. ● Vehicles of similar make and model should be located in a common area. Vehicles whose parts have higher demand should be in a common area and easily accessible. ● Repair malfunctioning equipment that is responsible for any leak or spill as soon as possible. ● Store batteries on impervious surfaces. Store batteries inside on a pallet or outside in a leak proof container. Curb, dike, or berm this area.
Vehicle, equipment, and parts washing areas	<ul style="list-style-type: none"> ● Designate an area for cleaning activities. ● Perform all parts cleaning operations indoors or cover and berm outside cleaning areas. ● Clean parts using minimal amounts of solvents or detergents. ● Recycle and reuse cleaning fluids where practical. ● Use phosphate-free biodegradable detergents. ● Use detergent-based or water-based cleaning systems in place of organic solvent degreasers. ● Contain steam cleaning wash waters or discharge under an applicable NPDES permit. ● Ensure that wash waters drain well. ● Inspect cleaning area regularly. ● Install curbing, berms, or dikes around cleaning areas. ● Remove or deploy airbags prior to crushing or other maintenance activities.

Pollutant Source	BMPs
Vehicle, equipment, and parts washing areas (continued)	<ul style="list-style-type: none"> • Be certain all fluids have been drained from vehicle prior to crushing. • Fluid should be collected in a covered container, tested, and disposed of accordingly
Vehicle crushing activities	<ul style="list-style-type: none"> • Capture crusher fluids to prevent spillage. Collect this mixture of fluids in a spill-proof covered container and dispose of it properly. It should not be allowed to drain onto the ground. Keep the drain within the crusher clean so that the fluids do not collect and overflow from the crusher onto the ground. • Installation of an engineering fabric, such as geotextiles, followed by gravel, or a bermed impermeable concrete surface would be ideal as a foundation under the crusher. • Develop a preventative maintenance program that involves timely inspections and/or maintenance of the crusher and facility equipment and vehicles. • Keep the crusher equipment clean.
Automotive wastes	<ul style="list-style-type: none"> • Fuel • Drain fuel tanks, using air or hand pumps, into double-walled storage tanks. “Good” fuels can be reused on-site; “bad” fuels must be disposed of. • Antifreeze • Reclaim and re-use, if possible. • Freon (CFCs) • Voluntarily recapture, in anticipation of new regulations. • Used motor oil • Drain and store in double-walled tanks. Re-use on-site or send offsite for refining/fuel blending. Accepted practice to leave oil in the engine during storage. Oil filters should drain for 24-hours. Empty filters return to vehicle for scrap metal reclamation. • Other fluids and oils • Drain as completely as mechanically possible. Do not burn used oil unless approved. • Asbestos Brake Shoes and Clutches • If handled, should be wetted down to prevent asbestos particulates from becoming airborne. • Mercury switches • Remove promptly and avoid breakage. Store as hazardous waste. • Do not use vehicle fluids, oil, or fuels for dust or weed control.
Liquid storage in above ground containers	<ul style="list-style-type: none"> • Maintain good integrity of all storage containers. • Install safeguards (such as diking, berming, or permanent secondary containment) against accidental releases at the storage area. • Valves on permanent secondary containment should be kept in the “off” position and locked at all times, except when collected water is removed. • Inspect storage tanks to detect potential leaks and perform preventive maintenance. • Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container.

Pollutant Source	BMPs
Illicit connection to storm sewer	<ul style="list-style-type: none">• Plug all floor drains if it is unknown whether the connection is to storm sewer or sanitary sewer systems. Alternatively, install a sump that is pumped regularly.• Perform dye testing to determine if interconnections exist between sanitary water system and storm sewer system.• Update facility schematics to accurately reflect all plumbing connections.• Install a safeguard against vehicle wash waters and parts cleaning waters entering the storm sewer unless permitted.• Maintain and inspect the integrity of all underground storage tanks; replace when necessary

Sector N: Scrap Recycling and Waste Recycling Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Stockpiling and storage of materials (including loading and unloading)	Leaking of various fluids from used automotive engines, radiators, brake fluid reservoirs, transmission housings, other vehicle parts, and lead-acid from batteries Deterioration/corrosion of materials	PCBs, oil and grease, lubricants, paint pigments or additives, heavy metals, ionizing radioactive isotopes, transmission and brake fluids, fuel, battery acid, lead acid, antifreeze, benzene, chemical residue, heating oil, petroleum products, solvents, ionizing radioactive isotopes, infectious/bacterial contamination, asbestos, metals, total Kjeldahl nitrogen (TKN), battery acid, oily wastes, chemical residue
Material processing: Air pollution equipment (including incinerators, furnaces, wet scrubbers, filter houses, and bag houses)	Normal equipment operations that include the collection and disposal of filter bag material and ash, process wastewater from scrubbers, accumulation of particulate matter around leaking joint connections, malfunctioning pumps, and motors (e.g., leaking gaskets, seals, or pipe connections, leaking oil-filled transformer casings)	Hydraulic fluids, oils, fuels, grease, and other lubricants, accumulated particulate matter, chemical additives, and PCBs from oil-filled electrical equipment.
Material processing: Combustion engines	Spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections, worn gaskets, leaking transmissions, crankcases, and brake systems (if applicable), leaking battery casings and/or corroded terminals	Accumulated particulate matter, oil/lubricants, gas/diesel fuel, fuel additives, antifreeze (ethylene glycol), battery acid, and products of incomplete combustion
Material processing: Material handling systems (forklifts, cranes, and conveyors)	Spills and leaks from fuel tanks, hydraulic and oil reservoirs due to malfunction parts (e.g., worn gaskets and parts, leaking hose connections, and faulty seals). Damaged or faulty electrical switches (mercury filled). Damaged or leaking battery casings, including exposed corroded battery terminals. Damaged or worn bearing housings	Hydraulic fluids, oils, fuels and fuel additives, grease, and other lubricants, accumulated particulate matter, chemical additives, mercury, lead, battery acid

Activity	Pollutant Source	Pollutant
Material processing: Stationary scrap processing facilities (balers, briquetters, shredders, shearers, compactors, engine block/ cast iron breakers, wire chopper, turnings crusher)	Leaks from hydraulic reservoirs, hose, and fitting connections, worn gaskets, spills or leaks from fuel tanks, particulates/residue from scrap processing, malfunctioning pumps, and motors (e.g., leaking gaskets, seals, or pipe connections, leaking oil-filled transformer casings)	Heavy metals (e.g., zinc, copper, lead, cadmium, chromium) and hydraulic fluids, PCBs
Material processing: Hydraulic equipment and systems, balers/briquetter, shredders, shearers, compactors, engine block/ cast iron breaker, wire chopper, turnings crusher	Particulate/residue from material processing, spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections/fittings, leaking gaskets	Hydraulic fluids/oils, lubricants, particulate matter from combustion engines, PCBs (oil-filled electrical equipment components), heavy metals (nonferrous, ferrous)
Material processing: Electrical control systems (transformers, electrical switch gear, motor starters)	Oil leakage from transformers, leakage from mercury float switches, faulty detection devices	PCBs, mercury (float switches), ionizing radioactive material (fire/smoke detection systems)
Material processing: Torch cutting	Residual/accumulated particulates	Heavy metal fragments, fines
Material handling systems	Spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections/fittings, leaking gaskets	Accumulated particulate matter (ferrous and nonferrous metals, plastics, rubber, other), oil/lubricants, PCBs (electrical equipment), mercury (electrical controls), lead/battery acids

Activity	Pollutant Source	Pollutant
Vehicle maintenance	Parts cleaning, waste disposal of rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluids, brake fluids, coolants, lubricants, degreasers, spent solvents	Gas/diesel fuel, fuel additives, oil/lubricants, heavy metals, brake fluids, transmission fluids, chlorinated solvents, arsenic
Vehicle fueling	Spills and leaks during fuel transfer, spills due to “topping off” tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids, engine coolants	Gas/diesel fuel, fuel additives, oil, lubricants, heavy metals
Vehicle and equipment cleaning and washing	Washing and steam cleaning	Solvent cleaners, oil/lubricants/additives, antifreeze (ethylene glycol)
Drum/individual container storage and handling	Leaks or spills due to faulty container/ drum integrity (e.g., leaking seals or ports). Container materials incompatible with waste material. Improper stacking and storage of containers	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Return and fill stations	Leaks, spills, or overflows from tanker truck transfer of wastes and hose drainage. Leaking pipes, valves, pumps, worn or deteriorated gaskets or seals	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Storage tank operations	Overfill of storage tanks, leaking pipes, valves, worn or deteriorated pumps seals. Leaking underground storage tanks.	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Unknowing acceptance of nonrecyclable materials and/or small quantities of household hazardous wastes	Inbound recyclable materials	Dependent on material
Outdoor material storage	Deterioration of wastepaper and unprocessed aluminum beverage containers	Biochemical oxygen demand (BOD)
Processing and storage	Illicit connections or improper dumping to floor drains discharging to a storm sewer system Washing down tipping floor areas	Dependent on material

Best management Practices (BMPs)

Pollutant Source	BMPs
Inbound recyclable and waste material control	<ul style="list-style-type: none"> • Provide information/education to suppliers of scrap and recyclable waste materials on draining and properly disposing of residual fluids (e.g., from vehicles and equipment engines, radiators and transmissions, oil filled transformers, and individual containers or drums), prior to delivery to your facility. • Create a written list of materials that will not be accepted at the facility and materials that will be accepted but require special handling procedures. • Train employees engaged in the inspection and acceptance of inbound recyclable materials. • Inspect incoming materials for items on the prohibited materials/ special handling list. Have truck drivers picking up loads offsite conduct preliminary inspections for items on the list before hauling. • Check incoming scrap materials for potential fluid contents and batteries. • Drain all fluids from vehicles upon arrival at the site. Segregate the fluids and properly store or dispose of them. Drain fluids only in designated area over impervious surfaces or drip pans. Contain the area to prevent stormwater run-on and runoff. Cover area with roofs or tarps. • Keep waste streams separate (e.g., waste oil and mineral spirits). • Store liquid wastes, including used oil, in materially compatible and non-leaking containers and disposed or recycled in accordance with RCRA. Nonhazardous substances that are contaminated with a hazardous substance are considered a hazardous substance. • Recycle antifreeze, gasoline, used oil, mineral spirits, and solvents. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Drain oil filters before disposal or recycling. • Store cracked batteries in a nonleaking secondary container. • Promptly transfer used fluids to the proper container. Do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets • Plug floor drains that are connected to the storm or sanitary sewer. If necessary, install a sump that is pumped regularly. • Inspect the maintenance area regularly for proper implementation of control measures. • Filter stormwater discharges with devices such as oil/water separators. • Train employees on proper waste control and disposal procedures. • Establish and implement procedures to educate auto scrap providers of need to remove mercury switches from hood and trunk lighting units and anti-lock brake system units.

Pollutant Source	BMPs
Outside scrap material storage: (liquids)	<ul style="list-style-type: none"> • Use drip pans under all vehicles and equipment waiting for processing. • Store batteries on impervious surfaces. Curb, dike, or berm this area. • Confine storage to designated areas. • Cover all storage areas with a permanent (e.g., roofs) or temporary cover (e.g., canvas tarps). • Install diversion devices such as curbing, berms, containment trenches, culverts, or dikes around storage areas. • Install oil/water separators, sumps, and dry absorbents for areas where potential sources of residual fluids are stockpiled (e.g., automobile engine storage areas). • Inspect the storage yard for filled drip pans and other problems regularly. • Train employees on procedures for storage and inspection items.
Scrap material storage: (bulk solid materials)	<ul style="list-style-type: none"> • Minimize runoff from coming into areas where significant materials are stored (e.g., diversion structures such as curbing, berms, containment trenches, surface grading, and elevated concrete pads) or other equivalent measure. • Use adsorbents or collect leaks or spills of oil, fuel, transmission, and brake fluids (e.g., dry absorbent, drip pans). • Locate spill pans under stored vehicles. • Install media filters such as catch basin and sand filters. • Install oil/water separator in storage areas with vehicle transmissions and engines. • Provide nonrecyclable waste storage bins and containers. • Conduct periodic inspections. Conduct preventative maintenance as necessary. • Provide equipment operator training to minimize damage to controls (e.g., curbing and berms).
Other storage: (lightweight materials)	<ul style="list-style-type: none"> • Maintain good integrity of all storage containers. • Install safeguards (such as diking or berming) against accidental releases. • Inspect storage tanks to detect potential leaks and perform preventive maintenance. • Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks. • Train employees on proper filling and transfer procedures.
Scrap processing operations	<ul style="list-style-type: none"> • Provide containment bins or equivalent for shredded material, especially lightweight materials such as fluff (preferably at the discharge of these materials from the air classification system). • Provide cover over hydraulic equipment and combustion engines. Provide dry-cleanup materials (e.g., dry-adsorbents, drip pans, etc.) to prevent contact of hydraulic fluids, oils, fuels, etc., with stormwater runoff. • Site process equipment on elevated concrete pads or provide runoff diversion structures around process equipment, berms, containment trenches surface grading, or other equivalent measure. Discharge runoff from within bermed areas to a sump, oil/water separator, media filter, or discharge to sanitary sewer. • Stabilize high traffic areas (e.g., concrete pads, gravel, and pavement around processing equipment) where practicable.

Pollutant Source	BMPs
Scrap processing operations (continued)	<ul style="list-style-type: none"> • Provide alarm, pump shutoff, or sufficient containment for hydraulic reservoirs in the event of a line break. • Provide site gages or overflow protection devices for all liquid and fuel storage reservoirs and tanks. • Schedule frequent cleaning of accumulated fluids and particulate residue around all scrap processing equipment. • Schedule frequent inspections of equipment for spills or leakage of fluids, oil, fuel, and/ or hydraulic fluids due to malfunctioning, worn, or corroded parts or equipment. • Conduct routine preventive maintenance of equipment per original manufacturer's equipment (OME) recommendations. Replace worn or malfunctioning parts. • Conduct periodic maintenance and clean out of all sumps, oil/water separators, and/or media filters. Dispose of residual waste materials properly (e.g., according to RCRA). • Install retention/detention ponds or basins, sediment traps, vegetated swales, or strips for pollutant settling/filtration. • Establish spill prevention and response procedures, including employee training. • Provide training to equipment operators on how to minimize exposure of runoff to scrap processing areas.
Scrap lead acid battery program	<ul style="list-style-type: none"> • Store batteries indoors on an impervious surface. Raise batteries off the floor with pallets or store in covered, leak-proof containers. • Separate all scrap batteries from other scrap materials. • Establish procedures for the collection, storage, handling, and disposition of cracked or broken batteries in accordance with applicable Federal regulations (e.g., RCRA). • Establish special handling procedures for cracked or broken batteries. Neutralize acid leaks with sodium carbonate, soda ash, or other absorbent materials. • Establish inspection and acceptance procedures for scrap lead-acid batteries. Provide supplier training on acceptance practices for scrap batteries. • Provide employee training on the safe handling, storage, and disposition of scrap batteries.
Supplies for Process Equipment	<ul style="list-style-type: none"> • Locate storage drums containing liquids, including oils and lubricants indoors. Alternatively, site palletized drums and containers on an impervious surface and provide sufficient containment around the materials. Provide sumps and/or oil/water separators, if necessary. • Conduct periodic inspections of containment areas and containers/drums for corrosion. • Perform preventive maintenance of BMPs, as necessary. • Instruct employees on proper material handling and storage procedures.
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. • Maintain an organized inventory of materials used in the maintenance shop. • Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for re-use.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number or amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, other storm drains, or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible where proper control of oil leaks/spills is maintained and exposure to stormwater is prevented. • Watch vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and providing treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge wash water to a storm drain or surface water. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.
Vehicle fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (not asphalt which is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections.

Pollutant Source	BMPs
Vehicle fueling (continued)	<ul style="list-style-type: none"> ● Use fueling hoses with check valves to prevent hose drainage after filling. ● Use spill and overflow protection devices. ● Clean up spills and leaks immediately. ● Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. ● Collect stormwater runoff and provide treatment or recycling. ● Use dry cleanup methods for fuel area rather than hosing the fuel area down. ● Perform preventive maintenance on storage tanks to detect potential leaks before they occur. ● Inspect the fueling area to detect problems before they occur. ● Train personnel on proper fueling procedures. ● Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress. ● Discourage “topping off” of fuel tanks.
Outdoor vehicle parking and storage	<ul style="list-style-type: none"> ● Cover vehicle and equipment storage areas. ● Use drip pans under all equipment and vehicles waiting maintenance. ● Conduct inspections of storage and parking areas for leaks and filled drip pans. ● Provide employee training.
Vehicle and equipment washing	<ul style="list-style-type: none"> ● Designate an area for cleaning activities. ● Use detergent or water-based cleaning systems in place of organic solvent degreasers. ● Use phosphate-free biodegradable detergents. ● Avoid washing parts or equipment outside. ● Use auto shutoff valves on washing equipment. ● Provide vehicle wash rack with dedicated sediment trap and oil/water separator. ● Install curbing, berms, or dikes around cleaning areas. ● Inspect cleaning area regularly. ● Train employees on proper washing procedures. ● Contain steam cleaning wash waters. Discharge to sanitary sewer in compliance with POTW pre-treatment standards, dispose via licensed waste hauler, or discharge under an applicable NPDES permit.
Vehicle and equipment painting (where applicable)	<ul style="list-style-type: none"> ● Conduct sanding and painting in nonexposed areas (e.g., under cover) in accordance with OSHA standards. ● Minimize over spraying. ● Clean up accumulated particulate matter. ● Dispose or recycle paint, solvents, and thinner properly. ● Keep paint and solvents away from traffic areas. ● Conduct periodic inspections of paint spraying areas. ● Provide training on control procedures for employees.
Erosion and sediment control	<ul style="list-style-type: none"> ● Minimize run-on from adjacent properties using diversion dikes, berms, or equivalent. ● Trap sediment at down gradient locations and outlets serving unstabilized areas. This may include filter fabric fences, gravel outlet protection, sediment traps, vegetated or riprap swales, vegetated strips, diversion structures, catch-basin filters, and retention/ detention basins or equivalent.

Pollutant Source	BMPs
Erosion and sediment control (continued)	<ul style="list-style-type: none"> • Stabilize all high traffic areas, including all vehicle entrances and exit points. Conduct periodic sweeping of all traffic areas. Conduct inspections of BMPs. • Perform preventative maintenance as needed on BMPs. • Provide employee training on the proper installation and maintenance of erosion and sediment controls.
Individual drum/container storage	<ul style="list-style-type: none"> • Ensure container/drums are in good condition. Store waste materials in materially compatible drums. Use containers that meet National Fire Protection Association (NFPA) guidelines. • Put individual containers on pallets. Limit stack height of individual containers/drums. Provide straps, plastic wrap, or equivalent around stacked containers to provide stability. • Label/mark drums. Segregate hazardous and flammable wastes. Comply with NFPA guidelines for segregation of flammable wastes. • Provide adequate clearance to allow material movement and access by material handling equipment. • Provide semipermanent or permanent cover over wastes. • Establish clean up procedures, including the use of dry adsorbents, in the event of spills or leaks. Prohibit washing down of material storage areas. Disconnect or seal all floor drains from storm sewer system. • Provide secondary containment, dikes, berms, containment trench, sumps, or other equivalent measure, in all storage areas. Provide proper sizing of containment with sufficient capacity for precipitation. • Develop SPCC procedures for all liquid container storage areas. Ensure employees are familiar with SPCC procedures. Schedule/conduct periodic employee training.
Bulk liquid storage	<ul style="list-style-type: none"> • Use welded pipe connections versus flange connections. Inspect all flange gaskets for deterioration. • Apply corrosion inhibitors to exposed metal surfaces. • Provide high level alarms for storage tanks. • Provide redundant piping, valves, pumps, motors, as necessary, at all pumping stations. Provide manually activated shutoff valves in the event of spill. Install visible and/or audible alarms in the event of a spill. • Install manually activated drainage valves, or equivalent, versus flapper-type drain valves. • Provide adequate security against vandalism and tampering. • Provide secondary containment around all bulk storage tanks, including berms, dikes, surface impoundments, and/or equivalent. Ensure surfaces of secondary containment areas are adequately sealed to prevent leaks. • Provide stationary boxes around all return and fill stations to eliminate/minimize hose drainage and minor waste transfer spills.
Waste transfer areas	<ul style="list-style-type: none"> • Provide cover over liquid waste transfer areas. • Provide secondary containment or equivalent measures around all liquid waste transfer facilities. • Establish cleanup procedures for minor spills including the use of dry absorbents or a wet vacuum system. • Train employees on proper transfer procedures and spill response.

Pollutant Source	BMPs
Illicit connection to storm sewer	<ul style="list-style-type: none"> ● Plug all floor drains if it is unknown whether the connection is to storm sewer or sanitary sewer systems. Alternatively, install a sump that is pumped regularly. ● Perform dye testing to determine if interconnections exist between sanitary water system and storm sewer system. ● Update facility schematics to accurately reflect all plumbing connections. ● Install a safeguard against vehicle wash waters and parts cleaning waters entering the storm sewer unless permitted. ● Maintain and inspect the integrity of all underground storage tanks, replace when necessary. ● Train employees on proper disposal practices for all materials. ● Install a safeguard against vehicle wash waters and parts cleaning waters entering the storm sewer unless permitted. ● Maintain and inspect the integrity of all underground storage tanks, replace when necessary. ● Train employees on proper disposal practices for all materials.

Sector O: Steam Electric power Generating Facilities, Including Coal Handling Areas

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Above ground liquid storage tanks	External corrosion and structural failure Installation problems Spills due to operator error Failure of piping systems Leaks or spills during pumping of liquids from barges, trucks, rail cars to a storage facility	Fuel, oil, and grease (O&G), heavy metals, ammonia, chloride, sodium hydroxide, and other materials being stored
Vehicle and equipment maintenance	Parts cleaning	Oil and grease (O&G), heavy metals, chlorinated solvents, acid/alkaline wastes, ethylene glycol
	Spills of oil, degreasers, hydraulic fluids, transmission fluid, radiator fluids	Oil and grease (O&G), arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
	Fluids replacement	Oil and grease (O&G), arsenic, heavy metals, organics, fuel
Fueling operations	Spills and leaks during fuel delivery Spills caused by “topping off” fuel tanks Leaking storage tanks Allowing rainfall on the fuel area or stormwater to run onto the fuel area	Fuel, oil, and grease (O&G), heavy metals
Coal handling areas	Coal storage Fugitive dust emissions from coal handling Spills during delivery Offsite tracking of coal dust	Suspended solids, copper, iron, aluminum, nickel, and trace metals
Ash handling areas, ash landfills	Spills during transfer of ash to landfills Offsite tracking of ash	Suspended solids, chromium, copper, iron, zinc, oil and grease, aluminum
Scrapyards, refuse sites	Discarded material	Fuel, oil, and grease (O&G), heavy metals

Best management Practices (BMPs)

Pollutant Source	BMPs
Coal pile management	<ul style="list-style-type: none"> • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Use properly designed basins for collection, containment, and recycling of pile spraying materials. • Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. • Train employees in good housekeeping measures
Fugitive dust emissions	<ul style="list-style-type: none"> • Establish procedures to minimize offsite tracking of coal dust. • Use specially designed tires. • Wash vehicles before they leave the site in a designated area where wash water can be controlled.
Delivery vehicles	<ul style="list-style-type: none"> • Develop procedure for the inspection of all vehicles arriving on the plant site and ensure overall integrity of the body or container. • Control leakage or spillage from vehicles or containers and ensure that proper protective measurements.
Fuel oil unloading areas	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Use containment curbs in unloading areas. • Use spill and overflow protection (drip pans, drip diapers, etc.) beneath fuel oil connectors. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, and cleanup. • Personnel familiar with spill prevention and response procedures should be present during unloading to ensure that any leaks or spills are immediately contained and cleaned up.
Chemical loading/unloading areas	<ul style="list-style-type: none"> • Cover chemical loading/unloading areas and store chemicals indoors, when possible. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Use containment curbs at chemical loading/unloading areas. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, and cleanup. • Personnel familiar with spill prevention and response procedures should be present during unloading to ensure that any leaks or spills are immediately contained and cleaned up. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container.

Pollutant Source	BMPs
Miscellaneous loading/unloading	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Regularly sweep area to minimize debris on the ground.
Liquid storage tanks	<ul style="list-style-type: none"> • Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation). Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Locate storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Maintain an inventory of fluids to identify leakage. • Provide fluid level indicators. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Use dry cleanup methods. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Train employees in spill prevention and control and proper materials management.
Large bulk fuel storage	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place.
Above ground tanks	<ul style="list-style-type: none"> • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area.

Pollutant Source	BMPs
Above ground tanks (continued)	<ul style="list-style-type: none"> • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Train employees in spill prevention and control.
Oil bearing equipment switchyards	<ul style="list-style-type: none"> • Construct level grades and gravel surfaces to retard flows and limit the spread of spills. • Collect stormwater runoff in perimeter ditches.
Residue hauling vehicles	<ul style="list-style-type: none"> • Inspect all residue hauling vehicles for proper covering over the load, adequate gate sealing, and overall integrity of the body or container. • Repair vehicles lacking in the above qualities.
Ash loading areas	<ul style="list-style-type: none"> • Clear the ash building floor and immediately adjacent roadways of spillage, debris, and excess water before each loaded vehicle departs
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> ● Use berms, curbs, or grassed swales other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. ● Collect the stormwater runoff from the cleaning area and provide treatment or recycling. ● Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. ● Inspect the maintenance area regularly to ensure BMPs are implemented. ● Train employees on waste control and disposal procedures.
Material storage areas	<ul style="list-style-type: none"> ● Store materials indoors. ● Cover material with a temporary covering made of polyethylene, polyurethane, polypropylene, or hypalon. ● Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. ● Construct an enclosure or build a berm around the area. ● Regularly sweep area to minimize debris on the ground. ● Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Fueling operations	<ul style="list-style-type: none"> ● Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. ● When fueling in uncovered area, use a concrete pad (not asphalt, which is not chemically resistant to the fuels being handled). ● Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. ● Use fueling hoses with check valves to prevent hose drainage after filling. ● Keep spill cleanup materials readily available. ● Clean up spills and leaks immediately. ● Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. ● Collect stormwater runoff and provide treatment or recycling. ● Provide curbing or posts around fuel pumps to prevent collisions from vehicles. ● Use dry cleanup methods for fuel area rather than hosing the fuel area down. ● Perform preventive maintenance on storage tanks to detect potential leaks before they occur. ● Inspect the fueling area to detect problems before they occur. ● Discourage “topping off” of fuel tanks. ● Train personnel on vehicle fueling BMPs.

Sector P: Motor Freight Transportation Facilities, passenger Transportation Facilities, petroleum Bulk Oil Stations and Terminals, Rail Transportation Facilities, and United States Postal Service Transportation Facilities.

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Fueling	Spills and leaks during fuel delivery Spills caused by “topping off” fuel tanks Rainfall falling on the fuel area or stormwater running onto the fuel area Hosing or washing down fuel area Leaking storage tanks	Fuel, oil, heavy metals
Vehicle washing and maintenance	Parts cleaning	Chlorinated solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of greasy rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluid, radiator fluids, degreasers	Oil, heavy metals, chlorinated solvents, acid/alkaline wastes, ethylene glycol
	Waste disposal of greasy rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluid, radiator fluids, degreasers	Oil, arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
	Fluids replacement, including oil, hydraulic fluids, transmission fluid, radiator fluids	Oil, arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
	Washing or steam cleaning	Oil, detergents, heavy metals, chlorinated solvents, phosphorus, salts, suspended solids
Outdoor vehicle and equipment storage and parking	Leaking vehicle fluids including hydraulic lines and radiators, leaking, or improperly maintained locomotive on-board drip collection systems, brake dust	Oil, hydraulic fluids, arsenic, heavy metals, organics, fuel
Painting areas	Paint and paint thinner spills	Paint, spent chlorinated solvents, heavy metals
	Spray painting	Paint solids, heavy metals
	Sanding or paint stripping	Dust, paint solids, heavy metals
	Paint clean up	Paint, spent chlorinated solvents, heavy metals
Railroad locomotive sanding	Loading traction sand on locomotives	Sediment
Liquid storage in above ground storage	External corrosion and structural failure Installation problems Spills and overfills due to operator error Failure of piping systems (pipes, pumps, flanges, couplings, hoses, and valves)	Oil, grease, heavy metals, materials being stored
Petroleum loading/unloading	Spills and overfills due to operator error	Oil, grease

Best management Practices (BMPs)

Pollutant Source	BMPs
Fueling	<p><i>Stationary fueling areas</i></p> <ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should cover extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (not asphalt, which is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur, and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. Clean up spills and leaks immediately. • Minimize/eliminate run-on to fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress. • Discourage “topping off” of fuel tanks. <p><i>Mobile fueling area</i></p> <ul style="list-style-type: none"> • Use drip pan under the transfer hose. Use fueling hoses with check valves to prevent hose drainage after filling. • Ensure the fueling vehicle is equipped with a manual shutoff valve. • Discourage “topping off” of fuel tanks. • Train personnel on vehicle fueling BMPs.
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer. If necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids into appropriate containers for waste disposal or re-use prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. Wash water should also generally be treated as a waste material and disposed of appropriately. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a storm sewer system.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. Liquid wastes should be collected in a properly labeled container and disposed of by a licensed waste hauler or other appropriate method. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Request and keep manifests of all waste materials hauled away from your facility. • Perform all cleaning operations indoors or under cover when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drain other than to sanitary sewers or treatment facilities. Notable discharges to sanitary sewer systems must be done in compliance with rules and policies of the POTW operator. • If operations are outside and exposed to stormwater, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water.
Outdoor vehicle and equipment storage and parking	<ul style="list-style-type: none"> • Store vehicles and equipment indoors when possible. • Cover the storage area with a roof. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Use drip pans under all vehicles and equipment waiting for maintenance. • Use absorbents for dry cleanup for spills and leaks. • Clean pavement surface to remove oil and grease without using large amounts of water.

Pollutant Source	BMPs
Outdoor vehicle and equipment storage and parking (continued)	<ul style="list-style-type: none"> • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Inspect the storage yard for filling drip pans and regularly to ensure BMPs are implemented. • Train employees on procedures for storage and inspection items.
Locomotive sanding areas	<ul style="list-style-type: none"> • Cover sand storage piles. • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include sweepers, scrapers, or scoops. • Use properly designed basins for containment and collection, • Use control measures such as berms, silt fences, waddles, or sediment traps to control sediment from leaving storage area. • Inspect the area regularly to ensure BMPs are implemented. • Train employees on BMP inspection and maintenance procedures.
Painting areas	<ul style="list-style-type: none"> • Confine activities to designated areas outside drainage pathways and away from surface waters. • Enclose, cover, or contain painting activities to the maximum extent practical to prevent overspray from reaching surface waters. • Hang plastic barriers or tarpaulins during blasting or painting operations to contain debris • Prohibit uncontained spray-painting activities. • Prohibit spray painting activities during windy conditions which render containment ineffective. • Use spray equipment that delivers more paint to the target and less overspray. • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. • Have absorbent and other cleanup items readily available for immediate cleanup of spills. • Allow empty paint cans to dry before disposal. • Store paint and paint thinner away from traffic areas to avoid spills. • Recycle paint, paint thinner, and solvents. • Establish and implement effective inventory control to reduce paint waste, including tracking date received and expiration dates. • Store waste paint, solvents, and rags in covered containers to prevent evaporation to the atmosphere. • Use solvents with low volatility and coatings with low VOC content; use high transfer efficiency coating techniques such as brushing and rolling to reduce overspray and solvent emissions. • Inspect painting procedures to ensure that they are conducted properly. • Train employees on proper sanding, painting, and spraying techniques. • Wash paint brushes, rollers and other equipment in utility sinks or other locations where wash water is treated or hauled. Do not wash equipment outside on pavement or into storm drains.

Pollutant Source	BMPs
Vehicle washing	<ul style="list-style-type: none"> • Avoid washing parts or equipment outside. • Confine activities to designated areas outside drainage pathways and away from surface waters. • If washing outdoors, cover the cleaning operation and ensure that all wash waters drain to the intended collection system. • Use phosphate-free biodegradable detergents. • Contain and recycle wash waters. • Collect stormwater runoff from the cleaning area and provide treatment or recycling. • Inspect cleaning area regularly to ensure BMPs are implemented and maintained. • Train employees on proper washing procedures.
Liquid storage in above ground storage tanks	<ul style="list-style-type: none"> • Store materials inside. • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Clearly label drum with its contents. • Train employees on proper filling and transfer procedures.
Cold weather activities	<ul style="list-style-type: none"> • Minimize salt and abrasive application. • When abrasives are necessary, use uncontaminated sand or ash. • Train employees on salt and abrasive application.
Improper connections to storm sewer (illicit connections)	<ul style="list-style-type: none"> • Plug all floor drains connected to sanitary or storm sewer or if connection is unknown. Alternatively, install a sump that is pumped regularly. • Perform smoke or dye testing to determine if interconnections exist between sanitary water system and storm sewer system. • Update facility schematics to accurately reflect all plumbing connections. • Install a safeguard against vehicle wash waters entering the storm sewer unless permitted. • Inspect and maintain the integrity of all underground storage tanks; replace when necessary. • Train employees on BMP disposal practices for all materials.

Pollutant Source	BMPs
Petroleum loading/ unloading	<ul style="list-style-type: none">• Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters.• Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on.• Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks.• Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials.• Provide overhangs at truck loading/unloading docks.• Slope the impervious concrete floor to collect spills and leaks and convey them to proper containment and treatment.• For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank.• For transfer to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area.• Regularly sweep area to minimize debris on the ground.• Develop and implement spill prevention, containment, and countermeasure (SPCC) plans.• Train employees in spill prevention, control, cleanup, and transfer techniques.

Sector Q: Water Transportation Facilities with Vehicle Maintenance Shops and/or Equipment Cleaning Operations

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Pressure washing	Wash water	Paint solids, heavy metals, suspended solids, debris
Surface preparation, paint removal, sanding	Sanding, mechanical grinding, abrasive blasting, paint stripping	Spent abrasives, paint solids, heavy metals, solvents, dust, debris
Painting	Paint and paint thinner spills, overspray, paint stripping, sanding, and paint cleanup	Paint solids, spent solvents, heavy metals, dust, debris
Drydock operation and maintenance	Sanding, mechanical grinding, abrasive blasting, paint stripping, building materials	Spent abrasives, paint solids, heavy metals, solvents, dust, low density waste (floatable)
Engine maintenance and repairs	Parts cleaning: waste disposal of greasy rags, used lubricants, coolants, and batteries; fluid spills; fluid replacement	Spent solvents, oil, heavy metals, ethylene glycol, acid/alkaline wastes, detergents, rags, batteries, loose parts
Material handling: Transfer Storage Disposal	Fueling: spills, leaks, and hosing area	Fuel, oil, heavy metals
	Liquid storage in above ground storage: spills and overfills, external corrosion, failure of piping systems	Fuel, oil, heavy metals, material being stored
	Waste material storage and disposal: paint solids, solvents, trash, and spent abrasives and petroleum products	Paint solids, heavy metals, spent solvents, oil, trash
Shipboard processes improperly discharged to storm sewer or into receiving water	Process and cooling water, sanitary waste, bilge, and ballast water	Biochemical oxygen demand (BOD), bacteria, suspended solids, oil, fuel, trash

Best management Practices (BMPs)

Pollutant Source	BMPs
Vessel cleaning (in the water)	<ul style="list-style-type: none"> • When possible, remove boat from water and perform cleaning where debris can be captured and properly disposed. • Avoid in-the-water hull scraping and any abrasive process that occurs underwater that may remove anti-fouling paint from the boat hull. • When washing above the waterline: detergents and cleaning compounds used should be phosphate-free and biodegradable and amounts should be kept to a minimum. • Prohibit the use of traditional sudsing cleaners that must be rinsed off and the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye. • Educate employees on negative impacts of traditional cleaners and supply biodegradable spray type cleaners that do not require rinsing. • Control all equipment, supplies, and trash.
Engine parts washing	<ul style="list-style-type: none"> • Parts washing should be done in a container or parts washer with a lid to prevent evaporation. The parts should be rinsed or air dried over the parts cleaning container. • Prevent and contain spills and drips. Water soluble engine washing fluid should be treated in the same manner as other industrial wastewaters and either recycled or disposed of by a licensed waste hauler.
Surface preparation, sanding, and paint removal	<ul style="list-style-type: none"> • Confine activities to designated areas outside drainage pathways and away from surface waters. • Enclose, cover, or contain blasting and sanding activities to the extent practical to prevent abrasives, dust, and paint chips, and equipment from reaching storm sewers or receiving water. • Hang plastic barriers or tarpaulins to contain debris. • Where feasible, cover drains, trenches, and drainage channels to prevent entry of blasting debris to the system. • Prohibit un-contained blasting or sanding activities performed over open water. • Where sanding is conducted in the water, cover the water near the vessel with floating traps or surround the immediate area with floating booms and remove debris with a skimmer. • Prohibit blasting or sanding activities performed during windy conditions which render containment ineffective. • Bottom paint removal should be conducted over an impermeable surface such as sealed asphalt or cement (not over open ground) with a retaining berm so that the wastewater can be contained. • Collect bottom paint residues for disposal by a licensed waste hauler. • Inspect and clean sediment traps to ensure the interception and retention of solids prior to entering the drainage system. • Use vacuum sanding systems to collect sanding dust as it is created. • Sweep accessible areas of the drydock to remove and properly dispose of debris and spent sandblasting material prior to flooding. • Collect spent abrasives routinely and store under a cover to await proper disposal.

Pollutant Source	BMPs
Surface preparation, sanding, and paint removal (continued)	<ul style="list-style-type: none"> • Store and re-use/recycle used strippers. Solvent strippers, particularly stripping baths, can generally be reused several times before their effectiveness is diminished. • Use environmentally sensitive chemical paint strippers. • Inspect the area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Painting	<ul style="list-style-type: none"> • Confine activities to designated areas outside drainage pathways and away from surface waters. • Enclose, cover, or contain painting activities to the maximum extent practical to prevent overspray and related debris/equipment from reaching surface waters. • Hang plastic barriers or tarpaulins during blasting or painting operations to contain debris • Prohibit uncontained spray-painting activities over open water. • Prohibit spray painting activities during windy conditions which render containment ineffective. • Use spray equipment that delivers more paint to the target and less overspray. • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. • Have absorbent and other cleanup items readily available for immediate cleanup of spills. • Allow empty paint cans to dry before disposal. • Store paint and paint thinner away from traffic areas to avoid spills. • Recycle paint, paint thinner, and solvents. • Establish and implement effective inventory control to reduce paint waste, including tracking date received and expiration dates. • Store waste paint, solvents, and rags in covered containers to prevent evaporation to the atmosphere. • Use solvents with low volatility and coatings with low VOC content; use high transfer efficiency coating techniques such as brushing and rolling to reduce overspray and solvent emissions. • Train employees on proper painting and spraying techniques.
Drydock maintenance	<ul style="list-style-type: none"> • Clean and maintain drydock on a regular basis to minimize the potential for pollutants in the stormwater runoff. • Sweep accessible areas of the drydock to remove and properly dispose of debris and spent sandblasting material prior to flooding. • Collect wash water to remove solids and metals for disposal by a licensed waste disposal company. Clean the remaining areas of the dock after a vessel has been removed and the dock raised. • Remove waste, including floatable and other low-density waste (wood, plastic, insulations, etc.), and place in closed containers for disposal. • Have absorbent materials and oil containment booms readily available to contain/clean up any spills.
Drydock operations	<ul style="list-style-type: none"> • Control all equipment, supplies, and waste. • Use plastic barriers beneath the hull, between the hull and drydock walls for containment. • Use plastic barriers hung from the flying bridge of the drydock, from the bow or stern of the vessel, or from temporary structures for containment.

Pollutant Source	BMPs
Drydock operations (continued)	<ul style="list-style-type: none"> • Weight the bottom edge of the containment tarpaulins or plastic sheeting during a light breeze. • When sandblasting (scuppers, railings, freeing ports, ladders, and doorways), use plywood and/ or plastic sheeting to cover open areas between decks. • Install tie rings or cleats, cable suspension systems, or scaffolding to make implementation containment easier. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Vehicle and equipment fueling	<p>Stationary fueling areas</p> <ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. <p>Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering.</p> <ul style="list-style-type: none"> • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. <p>BMPs. Mobile fueling areas</p> <ul style="list-style-type: none"> • Use drip pan under the transfer hose. • Use fueling hoses with check valves to prevent hose drainage after filling. • Ensure the fueling vehicle is equipped with a manual shutoff valve. • Do not allow topping off of the fuel in the receiving equipment. Train personnel on vehicle fueling BMPs.
Engine maintenance and repairs	<ul style="list-style-type: none"> • Conduct maintenance and repair operations over land, avoid repairs conducted over water whenever possible. • Move work indoors, if possible, or create temporary work enclosures using heavy-gauge polypropylene plastic stretched over a tubular metal frame (or comparable materials). Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities.

Pollutant Source	BMPs
Engine maintenance and repairs (continued)	<ul style="list-style-type: none"> • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and providing treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge wash water to a storm drain or to surface water. • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container. • Empty drip pans once they become full and dispose of the contents properly. • Cover and contain waste until it can be disposed, recycled, or reused. • Use suction-style oil pumps to drain crankcase oil and use absorbent pads to remove oil from bilges. • Engine test tanks should never be drained to surface waters or septic systems. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Inspect the maintenance area regularly to ensure BMPs are implemented. Train employees on waste control and disposal procedures.
Engine and parts storage	<ul style="list-style-type: none"> • Store on an impervious surface such as sealed asphalt or cement, and cover to avoid contact with stormwater. • Use drip pans to prevent oil and grease from leaking onto the open ground. • Secure engines and parts.
Storing liquid fuels	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. Above ground tank

Pollutant Source	BMPs
Storing liquid fuels (continued)	<ul style="list-style-type: none"> • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. Portable containers/drums • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label containers with its contents.
Material handling: Storing chemicals	<ul style="list-style-type: none"> • Store containerized materials (fuels, paints, solvents, etc.) in a protected, secure location and away from drains. • Clearly label all containers. • Specify which materials are stored indoors and use containment/enclosure for those stored outdoors. • Store reactive, ignitable, or flammable liquids in compliance with the local fire code. • Identify potentially hazardous materials, their characteristics, and use. • Implement an inventory control plan to control excessive purchasing, storage, and handling of potentially hazardous materials. • Keep records to identify quantity, receipt date, service life, users, and disposal routes. • Secure and carefully monitor hazardous materials to prevent theft, vandalism, and misuse of materials. • Use temporary containment where required by portable drip pans. • Use spill troughs for drums with taps. • Store used lead-acid batteries on an impervious surface, under cover, protected from weather and freezing. If a battery is dropped treat it as if it is cracked. Neutralize acid spills, such as with baking soda, and dispose of the resulting waste as hazardous. Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in spill prevention and control and proper materials management.

Pollutant Source	BMPs
Designated material mixing areas	<ul style="list-style-type: none"> • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters. Locate designated areas preferably indoors or under a shed. • If spills occur: • Stop the source of the spill immediately. • Contain the liquid until cleanup is complete. • Deploy oil containment booms if the spill may reach surface water. • Cover the spill with absorbent material. • Keep the area well ventilated. • Dispose of cleanup materials in the same manner as the spilled material. • Do not use emulsifier or dispersant.
Shipboard process water handling	<ul style="list-style-type: none"> • Keep process and cooling water used aboard ships separate from sanitary wastes to minimize disposal costs for the sanitary wastes. • Keep process and cooling water from contact with spent abrasives and paint to avoid discharging these pollutants. • Inspect connecting hoses for leaks.
Shipboard sanitary waste disposal	<ul style="list-style-type: none"> • Discharge sanitary wastes from the ship being repaired to the yard's sanitary system or dispose of by a commercial waste disposal company. • Develop and implement spill plans. • Train employees in appropriate material transfer procedures, including spill prevention and containment activities.
Material	<ul style="list-style-type: none"> • Anti-freeze: Re-use or dispose to a sanitary sewer (if permitted) or by a waste transporter permitted to handle this waste. • Used lead-acid batteries: Disposal by an approved recycler. • Waste oil: Removed by a permitted waste oil transporter or used in a waste oil heater on-site. • Oil filters: Crush or puncture and hot drain by placing the filter in a funnel over an appropriate waste collection container to allow the excess petroleum product to drain into the container. Drained filters should be collected and recycled when possible. Only filters that have been crushed or hot-drained to remove all excess oil may be disposed of as solid waste. • Mercury lamps and switches: Spent fluorescent bulbs, other mercury lamps, and mercury switches are hazardous waste. They should be stored safe from breakage and recycled or disposed as hazardous waste. • Fiber reinforced plastic (epoxy and polyester resins) Small amounts of unused resins may be catalyzed prior to disposal as solid waste. However, catalyzation is not an acceptable method of disposing of outdated or unneeded resin stores. These materials must be treated as hazardous waste and disposed of by a licensed waste disposal company. • Common solvents such as acetone or methylene chloride evaporate easily and should be kept in covered containers. • Glue and adhesives: Residual amounts of glues and adhesives remaining in empty caulking tubes may be disposed of as solid waste. All other glue and adhesive related wastes must undergo a determination for hazardous waste characteristics. Non-hazardous glues and adhesives in liquid form cannot be disposed of as solid waste and should be used for their originally intended purpose.

Pollutant Source	BMPs
Material (continued)	<ul style="list-style-type: none"> • Paints, waste diesel, kerosene, and mineral spirits: Disposal should be performed by a licensed waste transporter. These waste products should not be allowed to evaporate; poured on the ground; disposed of in storm sewers, septic systems, or POTWs; or discharged to surface waters. • Waste gasoline: When possible, filter and use as fuel. It should not be allowed to evaporate; poured on the ground; disposed of in storm sewers, septic systems, or sanitary sewers; or discharged to surface waters. It should be removed from site by a licensed waste transporter. • Trash and other solid waste: All trash and solids should be contained and disposed of appropriately in covered trash cans or recycling receptacles. • Plastic barriers and tarpaulins: Properly store plastic barriers and tarpaulins for reuse or disposal.
Bilge and ballast water	<ul style="list-style-type: none"> • Collect and dispose of bilge and ballast waters which contain oils, solvents, detergents, or other additives to a licensed waste disposal company.

Sector R: Ship and Boat Building or Repair Yards

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Pressure washing	Wash water	Paint solids, heavy metals, suspended solids
Surface preparation, paint removal, sanding	Sanding, mechanical grinding, abrasive blasting, paint stripping	Spent abrasives, paint solids, heavy metals, solvents, dust
Painting	Paint and paint thinner spills, spray painting, paint stripping, sanding, paint cleanup	Paint solids, spent solvents, heavy metals, dust
Engine maintenance and repairs	Parts cleaning; waste disposal of greasy rags, used lubricants, coolants, and batteries; fluid spills; fluid replacement	Spent solvents, oil, heavy metals, ethylene glycol, acid/ alkaline wastes, detergents
Material handling: Transfer Storage Disposal	Fueling: spills, leaks, and hosing area	Fuel, oil, heavy metals
	Liquid storage in above ground storage: spills and overfills, external corrosion, failure of piping systems	Fuel, oil, heavy metals, material being stored
	Waste material storage and disposal: paint solids, solvents, trash, and spent abrasives and petroleum products	Paint solids, heavy metals, spent solvents, oil
Shipboard processes improperly discharged to storm sewer or into receiving water	Process and cooling water, sanitary waste, bilge, and ballast water	Biochemical oxygen demand (BOD), bacteria, suspended solids, oil, fuel

Best management Practices (BMPs)

Pollutant Source	BMPs
Pressure washing	<ul style="list-style-type: none"> • Collect discharge water and remove all visible solids before discharging to a sewer system, or where permitted, to a drainage system, or receiving water. • Perform pressure washing only in designated areas where wash water containment can be effectively achieved. • Use no detergents or additives in the pressure wash water. • Direct deck drainage to a collection system sump for settling and/or additional treatment. • Implement diagonal trenches or berms and sumps to contain and collect wash water at marine railways. • Use solid decking, gutters, and sumps at lift platforms to contain and collect wash water for possible reuse.
Surface preparation, sanding, and paint removal	<ul style="list-style-type: none"> • Confine activities to designated areas outside drainage pathways and away from surface waters. • Enclose, cover, or contain blasting and sanding activities to the extent practical to prevent abrasives, dust, and paint chips from reaching storm sewers or receiving water. • Hang plastic barriers or tarpaulins to contain debris. • Where feasible, cover drains, trenches, and drainage channels to prevent entry of blasting debris to the system. • Prohibit un-contained blasting or sanding activities performed over open water. • Where sanding is conducted in the water, cover the water near the boat with floating traps or surround the immediate area with floating booms and remove debris with a skimmer. • Prohibit blasting or sanding activities performed during windy conditions which render containment ineffective. • Prohibit discharge of bottom paint residues to surface waters or land. • Conduct bottom paint removal over an impermeable surface such as sealed asphalt or cement (not over open ground) and use a retaining berm so that the wastewater can be contained. • Collect bottom paint residues for disposal by a licensed waste hauler. • Inspect and clean sediment traps to ensure the interception and retention of solids prior to entering the drainage system. • Use vacuum sanding systems to collect sanding dust as it is created. • Sweep accessible areas of the drydock to remove debris and spent sandblasting material prior to flooding. • Collect spent abrasives routinely and store under a cover to await offsite disposal. • Store and reuse/recycle used strippers. Solvent strippers, particularly stripping baths, can generally be reused several times before their effectiveness is diminished. • Use environmentally sensitive chemical paint strippers. • Inspect area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.

Pollutant Source	BMPs
Painting	<ul style="list-style-type: none"> • Confine activities to designated areas outside drainage pathways and away from surface waters. • Enclose, cover, or contain painting activities to the maximum extent practical to prevent overspray. • Hang plastic barriers or tarpaulins during blasting or painting operations to contain debris • Prohibit uncontained spray-painting activities over open water. • Prohibit spray painting activities during windy conditions which render containment ineffective. • Use effective spray equipment that delivers more paint to the target and less overspray. • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. • Have absorbent and other cleanup items readily available for immediate cleanup of spills. • Allow empty paint cans to dry before disposal. • Keep paint and paint thinner away from traffic areas to avoid spills. • Recycle paint, paint thinner, and solvents. • Establish and implement effective inventory control to reduce paint waste, including tracking date received and expiration dates. • Store waste paint, solvents, and rags in covered containers to prevent evaporation to the atmosphere. • Use solvents with low volatility and coatings with low VOC content; use high transfer efficiency coating techniques such as brushing and rolling to reduce overspray and solvent emissions. Train employees on proper painting and spraying techniques.
Drydock maintenance	<ul style="list-style-type: none"> • Clean and maintain drydock on a regular basis to minimize the potential for pollutants in the stormwater runoff. • Sweep accessible areas of the drydock to remove debris and spent sandblasting material prior to flooding. • Collect wash water to remove solids and metals for disposal by a licensed waste disposal company. • Clean the remaining areas of the dock after a vessel has been removed and the dock raised. • Remove floatable and other low-density waste (wood, plastic, insulations, etc.), and place in closed containers for disposal. • Have absorbent materials and oil containment booms readily available to contain/cleanup any spills.
Drydock activities	<ul style="list-style-type: none"> • Use plastic barriers beneath the hull, between the hull and drydock walls for containment. • Use plastic barriers hung from the flying bridge of the drydock, from the bow or stern of the vessel, or from temporary structures for containment. • Weight the bottom edge of the containment tarpaulins or plastic sheeting during a light breeze. • When sandblasting (scuppers, railings, freeing ports, ladders, and doorways), use plywood and/or plastic sheeting to cover open areas between decks. • Install tie rings or cleats, cable suspension systems, or scaffolding to make implementation containment easier.

Pollutant Source	BMPs
Drydock activities (continued)	<ul style="list-style-type: none"> • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Non-drydock activities	<ul style="list-style-type: none"> • Hang tarpaulin from the boat, fixed, or floating platforms to reduce pollutants transported by wind. • Pave or tarp surfaces under marine railways. • Clean railways before the incoming tide. • Haul vessels beyond the high tide zone before work commences or halt work during high tide. • Place plastic sheeting or tarpaulin underneath boats to contain and collect waste and spent materials and clean and sweep regularly to remove debris. • Use fixed or floating platforms with appropriate plastic or tarpaulin barriers as work surfaces and for containment when work is performed on a vessel in the water to prevent blast material or paint overspray from contacting stormwater or the receiving water. • Vacuum or sweep, rather than hose, to remove debris present on the dock.
Engine maintenance and repairs	<ul style="list-style-type: none"> • Conduct maintenance and repair operations over land, avoid repairs conducted over water whenever possible. • Move work indoors, if possible, or create temporary work enclosures using heavy gauge polypropylene plastic stretched over a tubular metal frame (or comparable materials). • Conduct the cleaning operations in an area with a concrete floor with no floor drainage; if necessary, install a sump that is pumped regularly. Collected wastes should be treated or disposed of by a licensed waste hauler. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Use suction-style oil pumps to drain crankcase oil and use absorbent pads to remove oil from bilges. • Engine test tanks should never be drained to storm sewer, surface waters or septic systems. • Collect the stormwater runoff from the cleaning area and providing treatment or recycling. • Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. • Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials.

Pollutant Source	BMPs
Engine maintenance and repairs (continued)	<ul style="list-style-type: none"> • Eliminate or reduce the number or amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Material handling and storage	<ul style="list-style-type: none"> • Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation). • Store permanent tanks in a paved area surrounded by a dike system which provides sufficient containment for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank. • Store containerized materials (fuels, paints, solvents, etc.) indoors where possible. Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Locate storage areas away from high traffic areas and surface waters. • Identify potentially hazardous materials, their characteristics, and use. • Clearly label drum with its contents. • Store reactive, ignitable, or flammable liquids in compliance with the local fire code, local zoning codes, and the National Electric Code. • Control excessive purchasing, storage, and handling of potentially hazardous materials. • Keep records to identify quantity, receipt date, service life, users, and disposal routes. • Secure and carefully monitor hazardous materials to prevent theft, vandalism, and misuse of materials. • Properly dispose of chemicals that are no longer in use. • Use temporary containment and portable drip pans where required. • Use spill troughs for drums with taps. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in proper storage, use, cleanup, and disposal of materials.

Pollutant Source	BMPs
Bulk liquid storage and containment	<ul style="list-style-type: none"> • Maintain good integrity of all storage tanks. • Inspect storage tanks to detect potential leaks and perform preventive maintenance. • Inspect piping systems (pipes, pumps, flanges, couplings, hoses, valves) for failures or leaks. • Train employees on filling and transfer procedures.
Designated material mixing areas	<ul style="list-style-type: none"> • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters. Locate designated areas preferably indoors or under a shed. • If spills occur: <ul style="list-style-type: none"> • Stop the source of the spill immediately. • Contain the liquid until cleanup is complete. • Deploy oil containment booms if the spill may reach a surface water. • Cover the spill with absorbent material. • Keep the area well ventilated. • Dispose of cleanup materials in the same manner as required by the spilled material. • Do not use emulsifier or dispersant.
Shipboard process water handling	<ul style="list-style-type: none"> • Keep process and cooling water used aboard ships separate from sanitary wastes to minimize disposal costs for the sanitary wastes. • Keep process and cooling water from contact with spent abrasives and paint to avoid discharging these pollutants. • Inspect connecting hoses for leaks.
Shipboard sanitary waste disposal	<ul style="list-style-type: none"> • Discharge sanitary wastes from the ship being repaired to the yard's sanitary system or dispose of by a commercial waste disposal company. • Use appropriate material transfer procedures, including spill prevention and containment activities. • Train employees in appropriate material transfer procedures, including spill prevention and containment activities.
Bilge and ballast water	<ul style="list-style-type: none"> • Collect and dispose of bilge and ballast waters which contain oils, solvents, detergents, or other additives to a licensed waste disposal company.

Sector S: Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Activity Pollutant Source Pollutant Aircraft deicing/ anti-icing	Runoff of spent deicing chemicals (e.g., ethylene glycol or propylene glycol) from aircraft exteriors	Biochemical oxygen demand (BOD)
Runway deicing/ anti-icing	Runoff of spent deicing chemicals (e.g., ethylene or propylene glycol, urea, potassium or sodium acetate, potassium, or sodium formate) from deicing areas	BOD, nitrogen, ammonia
Aircraft servicing	Spills or leaks during servicing	Engine oil, hydraulic fluid, fuel, lavatory waste
Aircraft fueling	Spills and leaks during fuel transfer, spills due to "topping off" tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks	Jet fuel, fuel additives, oil, lubricants, heavy metals
Aircraft, ground vehicle, and equipment maintenance and washing	Spills and leaks during maintenance	Engine oils, hydraulic fluids, transmission oil, radiator fluids, and chemical solvents
	Disposal of waste parts	Batteries, oil, fuel filters, oily rags
	Spent wash water	TSS, metals, fuel, hydraulic fluid, oil, lavatory waste
Runway maintenance	Materials removed from runway surface	Tire rubber, oil and grease, paint chips, jet fuel
	Chemicals used to clean the runway surface	Chemical solvents

Best management Practices (BMPs)

Pollutant Source	BMPs
Deicing/anti-icing aircraft	<ul style="list-style-type: none"> • Establish a centralized aircraft deicing station with containment of surface and subsurface drainage. • To reduce deicing fluid applied: • Forced-air deicing systems • Computer-controlled fixed-gantry systems • Infrared technology • Hot water • Varying glycol content to air temperature • Enclosed basket deicing trucks • Mechanical methods • Solar radiation • Hangar storage • Aircraft covers • Thermal blankets for MD-80s and DC-9s • Apply deicing fluid and anti-icer to planes on deicing pads if available. • Apply anti-icer to aircraft that will be parked overnight to make it easier to remove accumulated snow and ice in the morning. • Apply anti-icer to aircraft immediately after deicing to provide extended hold-over time prior to take-off. • Ensure that stormwater inlets are blocked when deicing/anti-icing during dry weather. • Use mechanical vacuum systems or other devices to collect aircraft deicing runoff from the apron surface for proper disposal. • Dispose collected aircraft deicing runoff to sanitary sewage facility (if allowed by sewer authority), on-site treatment, or recycle (resell or reuse). • Use portable tanks, retention, and detention ponds for temporary storage of collected deicing runoff. • Collect contaminated runoff in a wet pond for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations). • Recover and recycle/dispose of unused deicing fluids in deicing trucks. • Recover deicing materials when applied during non-precipitation events (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains, etc.) to prevent materials from later contaminating stormwater.
Deicing/anti-icing runways and pads	<ul style="list-style-type: none"> • Evaluate and optimize present chemical application rates • Use sand where possible to enhance friction. • Plow and broom runways prior to application of deicing chemicals. • Heat solid deicers and sand prior to application. • Install and calibrate devices to meter the amount of pavement deicer being applied. • Emphasize anti-icing operations which minimize the need to deice. • Install runway ice detection systems (“pavement sensors”) to monitor pavement temperatures. • Pre-wet with liquid deicers to improve adhesion of solid deicers to the iced surface. • Use deicers which have less of an environmental impact (e.g., sodium formate and potassium acetate as opposed to urea and glycol).

Pollutant Source	BMPs
Deicing/anti-icing runways and pads (continued)	<ul style="list-style-type: none"> • Ensure proper handling and disposal of unused deicing chemicals in vehicles. • Use ice detection systems. • Use airport traffic flow strategies and departure slot allocation systems.
Aircraft, ground vehicle, and equipment maintenance areas (including aircraft service areas)	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • Prevent and contain spills and drips. • Do all cleaning at a centralized station so the solvents stay in one area. • Remove any parts that are dipped in liquid slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Transfer used fluids to the proper container promptly; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Prohibit pouring liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on a concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling.

Pollutant Source	BMPs
Aircraft, ground vehicle, and equipment maintenance areas (including aircraft service areas) [continued]	<ul style="list-style-type: none"> • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.
Aircraft, ground vehicle, and equipment cleaning areas	<ul style="list-style-type: none"> • Perform all cleaning operations indoors. • Confine activities to designated areas outside drainage pathways and away from surface waters. • If washing outdoors, cover the cleaning operation and ensure that all wash waters drain to the intended collection system. • Use phosphate-free biodegradable detergents. • Contain and recycle wash waters. • Collect stormwater runoff from the cleaning area and provide treatment or recycling. • Inspect cleaning area regularly to ensure BMPs are implemented and maintained. • Train employees on proper washing procedures.
Aircraft, ground vehicle, and equipment storage areas	<ul style="list-style-type: none"> • Store aircraft, ground vehicles and equipment indoors. • Cover the storage area with a roof. • Store aircraft, ground vehicles, and equipment awaiting maintenance in designated areas only. • Park leaking deicing trucks in contained areas. • Install perimeter drains, berms, and dikes around storage areas to limit runoff. • Use absorbents for dry cleanup for spills and leaks. • Use drip pans under all vehicles and equipment for the collection of fluid leaks. • Clean pavement surface to remove oil and grease without using large amounts of water. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Inspect the storage yard for filling drip pans regularly to ensure BMPs are implemented. • Train employees on procedures for storage and inspection items.
Material storage areas	<ul style="list-style-type: none"> • Store materials indoors. • Maintain good integrity of all storage containers (e.g., used oils, hydraulic fluids, spent solvents, waste aircraft fuel). • Create a centralized storage area for waste materials. • Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge.

Pollutant Source	BMPs
Material storage areas (continued)	<ul style="list-style-type: none"> • Locate storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers. • Maintain an inventory of fluids to identify leakage. • Provide fluid level indicators. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Train employees in spill prevention and control and proper materials management.
Airport fuel system and fueling areas	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel to tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). • Develop and implement a system to report any spill exceeding 5 feet in any direction or which has entered the storm drainage system. • Use drip pans and absorptive materials beneath aircraft during fueling operations where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Insure that storm water valves, plugs and similar appurtenances are closed during fuel transfer operations. • Provide spill kits on all fuel trucks, at fueling stations, in each hangar and at strategic locations. Each kit should have at a minimum, loose absorbent, pigs, broom, and shovel. Store used materials in individual sealed container and labeled to ensure proper handling and disposal as a hazardous material. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Use dry cleanup methods for fuel areas rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. • Use spill and overflow protection devices. • Minimize run-on of stormwater into the fueling area by grading the area such that stormwater only runs off. • Collect stormwater runoff and provide treatment or recycling. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills.

Pollutant Source	BMPs
Airport fuel system and fueling areas (continued)	<ul style="list-style-type: none"> • Do not allow “topping off” of the fuel in the receiving equipment. • Train personnel on vehicle fueling BMPs.
Storing liquid fuels	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if allowed by the sewer authority) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. Above ground tanks • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. Portable containers/drums • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • Clearly label drum with its contents.
Deicing chemical loading areas	<ul style="list-style-type: none"> • Store bulk aircraft deicing fluids in contained areas. • Load deicing trucks in contained areas.

Sector T: Treatment Works

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Preparation of chemical, biological and physical treatment processes	Spills and leaks of process chemicals and materials	Disinfectants, polymers and coagulants, alum, ferric chloride, soda ash, lime, sodium aluminate, sodium hypochlorite, caustic soda, chlorine, sodium bisulfite.
Soil amending and grass fertilizing	Over fertilizing	Commercial brands of balance fertilizers (6-6-6, 8-8-8 or 12-12-12), commercial sludge-based products, nitrogen, other nutrients, phosphorous, ammonia. Aluminum sulfate, liquid chlorine, liquid polymer, fuel, oil.
Liquid storage in above ground storage	External corrosion and structural failure Installation problems Spills and overfills due to operator error Failure of piping systems (pipes, pumps, flanges, couplings, hoses, and valves) Leaks or spills during pumping of liquids from barges, trucks, or rail cars to a storage facility	Aluminum sulfate, liquid chlorine, bisulfite, liquid polymer, fuel, oil.
Pest control	Large quantities of pesticide application, pesticide storage	Diazanon, malathion, amdro, dimethylphthalate, diethyl phthalate, dichlorvos, carbaryl, skeetal, batex, liquid copper
Sludge drying beds	Sludge	Nitrate, TDS, TSS, ammonia, fecal pathogens.
Sludge storage piles	Sludge	Nitrate, TDS, TSS, ammonia, fecal pathogens.
Sludge transfer	Sludge, vehicles, transfer equipment	Nitrate, TDS, TSS, oil, fuel, hydraulic fluids, ammonia, fecal pathogens
Septage transfer	Solid and liquid sanitary waste, vehicles	Nitrate, TDS, TSS, oil, fuel, hydraulic fluids, ammonia, fecal pathogens
Incineration	Ash impoundments/piles	Heavy metals, TDS, TSS
Equipment/vehicle maintenance and storage	Spills and leaks of lubricants and coolants	solvents, acids, oil, grease, arsenic, lead, cadmium, chromium, chemical oxygen demand (COD), and benzene
Miscellaneous	Grit and scum piles from clarifiers, screens, exposed soil	TSS, heavy metals, fecal coliform, nitrate

Best management Practices (BMPs)

Pollutant Source	BMPs
Preparation of chemical, biological and physical treatment process	<ul style="list-style-type: none"> • Store process chemicals inside buildings. • Use drip pans under drums and equipment where feasible. Regularly inspect the storage yard for filled drip pans and other problems. • Train employees on procedures for storing and inspecting chemicals.
Soil amending and grass fertilizing	<ul style="list-style-type: none"> • Use the appropriate amount of fertilizer. • Train employees in timing and quantity to avoid overfertilization.
Liquid storage in above ground storage containers	<ul style="list-style-type: none"> • Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/ testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Locate storage areas away from high traffic areas and surface waters. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Maintain an inventory of fluids to identify leakage. • Provide fluid level indicators. • Properly dispose of chemicals that are no longer in use. • Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Train employees on proper storage and transfer procedures.
Pest control	<ul style="list-style-type: none"> • Apply pesticides only if needed. • Train employees in techniques to minimize pesticide application.
Sludge drying beds	<ul style="list-style-type: none"> • Ensure drying bed is draining properly (e.g., check for clogging). • Avoid overfilling drying bed. • Grade the land to divert flow around drying bed. • Berm, dike, or curb drying bed areas. • Cover drying beds.
Sludge storage piles	<ul style="list-style-type: none"> • Confine storage of sludge to a designated area outside drainage pathways and as far from any receiving water body as possible. • Store sludge on an impervious surface (e.g., concrete pad). • Grade the land to divert flow around storage piles. • Berm, dike, or curb sludge storage piles. • Use control measures such as silt fence or waddles to control sediment from leaving storage area. • Cover sludge storage piles.
Sludge transfer	<ul style="list-style-type: none"> • Conduct transfer operations over an impervious surface to enable easy collection of spilled materials. • Promptly remove any sludge spilled during transfer.

Pollutant Source	BMPs
Sludge transfer (continued)	<ul style="list-style-type: none"> • Avoid transferring sludge during rain events. • Grade the land to divert flow around transfer areas. • Berm, curb, or dike transfer areas. • Cover loading area and perform this activity on an impervious pad to enable easy collection of spilled materials. • Avoid locating transfer operations near receiving water bodies.
Incineration-ash impoundments/piles	<ul style="list-style-type: none"> • Line ash impoundments with clay (or other type of impervious material). • Ensure ash impoundments will hold maximum volume of ash and a 10 year, 24-hour rain event. • Curb, berm, or dike ash storage areas. • Avoid locating ash storage areas near receiving waterbodies.
Equipment/vehicle maintenance and storage	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.

Pollutant Source	BMPs
Equipment/vehicle maintenance and storage (continued)	<ul style="list-style-type: none"> • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Use berms, curbs, or grassed swales other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the treatment works, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees in waste control and disposal procedures.
Miscellaneous	<ul style="list-style-type: none"> • Dispose of grit/scum at a licensed landfill. • Dispose of screenings daily. • Maximize vegetative cover to stabilize soil and reduce erosion. • Routing stormwater to the treatment works. • Cover compost piles. • Cover exposed materials at septage or hauled waste receiving stations.

Sector U: Food and Kindred Products Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Raw material unloading/ product loading	Container defects (bags, drums, bottles, crates) Spills and leaks during unloading/loading (tanks, rail cars) Failed connections (hoses and couplings) Washdown of unloading/loading area	Biochemical oxygen demand (BOD), total suspended solids (TSS), oil and grease, pH, nitrogen (TKN)
Liquid storage containers (i.e., above ground storage tanks)	Failed piping and connections (couplings, flanges, hoses, and valves) External corrosion and structural failure Spills and overflows due to operator error	BOD, TSS, oil and greases, pH
Liquid storage containers (drums, carboys, and gallon jugs)	Outside containers Open containers External corrosion of the containers Operator handling and transporting Spills and leaks from damaged containers	BOD, TSS, oil and greases, pH
Solid storage containers (soils, holding bins, fiber drums, etc.)	Dust and particulates Operator handling and transporting Spills and leaks	BOD, TSS, pH
Air emissions	Oven emissions Vents Fine solids handling	BOD, TSS, oil and greases, pH
Solid waste	Dumpsters and trash cans	BOD, TSS, oil and greases, pH, copper, manganese
Spent equipment, scraps, etc.		BOD, TSS, oil and greases, pH, copper, manganese
Wastewater	Treatment processes (e.g., hydraulic overflow) Outside piping and connections (couplings, flanges, hoses, valves, and pumps)	BOD, TSS, oil and greases, pH, fecal coliform
Pest control	Outside application of pesticides, rodenticides, and insecticides	Miscellaneous insecticides, rodenticides, pesticides, etc., TKN
Illicit connections to the storm sewer	Process wastewaters Process floor drains Sanitary sewers USTs	BOD, TSS, oil and greases, pH

Best management Practices (BMPs)

Pollutant Source	BMPs
Raw material unloading/product loading	<ul style="list-style-type: none"> • Situate loading/unloading areas indoors or in a covered area. • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Ensure that a facility representative is present during unloading/loading activities. • Close storm drains during loading/unloading activities in surrounding area. • Use a dead-end sump where materials could be directed. • Use rubber seals in truck loading dock areas to contain spills. • Inspect all containers for leaks or damage prior to unloading/loading of any raw or spent materials. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Drain hoses back into truck, railcar, etc. after loading/unloading materials. • Install high level alarm on tanks to prevent overfilling. • Use dry cleanup methods rather than washing the areas down. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Train employees in spill prevention, control, cleanup, and proper materials management techniques. • Train employees on proper unloading/loading techniques. • Initiate an inventory control for all raw and spent materials.
Liquid storage	<ul style="list-style-type: none"> • Cover and/or enclose storage areas to minimize exposure of tanks and the collection of stormwater inside the curbed/diked area. • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/ water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. • Surround above-ground liquid storage tanks with curbs/dikes to provide secondary containment storage. The enclosed volume should be the greater of either 10% of the total tank volume or 110% of the volume contained in the largest tank. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position.

Pollutant Source	BMPs
Liquid storage (continued)	<ul style="list-style-type: none"> ● Institute protocols for checking/testing stormwater in containment areas prior to discharge. ● Install impervious surface for the floor of the storage area and slope it to a lined sump for the collection of spills. ● Use drip pans when loading and unloading liquid materials and place at locations where spillage may occur (hose connections, hose reels, filler nozzles, and opened tanks/drums). ● Bulkhead liquid storage tanks indoors (i.e., tank outlets located inside buildings). ● Inspect the external condition (corrosion, leaks) of the containers. ● Inspect the general area around the containers. ● Use double-walled tanks. ● Develop and implement spill plans. ● Train employees in spill prevention, control, proper storage, handling, and transportation techniques (e.g., filling and transferring contents)
Liquid storage (drums, carboys, and gallon jugs)	<ul style="list-style-type: none"> ● Store containers indoors when possible. ● Store containers, including empty or used containers, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). ● Store containers, including empty or used containers, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). ● Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). ● Clearly label containers with its contents. ● Ensure that all containers are closed (e.g., valves shut, lids and manways sealed, caps closed). ● Wash containers indoors before storing empty containers outdoors. ● If outside or in a covered area, minimize run-on of stormwater into a storage area by grading area to ensure that stormwater runs “off” and not “on.” ● Maintain an inventory control of all raw and spent materials. ● Employ measures to protect against spillage from the overflows (e.g., high level sensors, alarms). ● Train employees in spill prevention and control.
Waste management wastewater	<ul style="list-style-type: none"> ● Develop a leak prevention program for valves, pumps, and piping equipment. ● Inspect the outside pipe connections (couplings, valve seals and gaskets, flanges, etc.) of the treatment system for leaks, corrosion, and poor maintenance upkeep. ● Use dry cleanup methods
Waste management solid waste (paper, wood pellets, scrap metals, refuse, etc.)	<ul style="list-style-type: none"> ● Inspect the general area around the solid waste storage (e.g., look for signs of leaching). ● Store waste so that it is physically contained (dumpsters, drums, bags). Store waste in an enclosed/covered area. ● If outside or in a covered area, minimize exposure to stormwater by grading the area to ensure that stormwater runs “off” and not “on.”

Pollutant Source	BMPs
Waste management solid waste (paper, wood pellets, scrap metals, refuse, etc.) [continued]	<ul style="list-style-type: none"> • Ensure hazardous waste disposal practices are performed in accordance with federal, state, and local requirements. • Route trash compactor leakage to treatment system or sanitary sewer.
Waste management air emissions	<ul style="list-style-type: none"> • Clean around vents and stacks to atmosphere from process and storage areas. • Place tubs around vents and stacks for easy collection of settling particles. • Remove fugitive dust accumulations on ledges, walls, floors, and equipment. If you use compressed air to clean up dust, shut down your machinery and other potential ignition sources. • Inspect air emission control systems (e.g., baghouses) regularly and repair and replace as necessary. • Route overflows/condensates from process vents to on-site treatment system or to the sanitary sewer. • Minimize free-fall height to reduce fugitive-dust losses. • Locate fabric dust-filter collectors outside the facility if possible. If fabric dust-filter collectors are inside the facility, place them in an area protected by an explosion protection system.
Pest control	<ul style="list-style-type: none"> • Follow manufacturer’s directions for application of pest control materials to site. • Time application for dry weather conditions. • Store partially full containers indoors or undercover. • Apply insecticides during breeding months. • Protect rat bait houses from stormwater.
Improper connections to the storm sewer	<ul style="list-style-type: none"> • Perform smoke or dye testing to determine if interconnections exist between the sanitary and storm sewers. • Plug all floor drains leading to storm sewers. • Update facility schematics to accurately reflect all plumbing connections.
Meat products operation of meat packaging plants including animal holding pens (beef, chicken)	<ul style="list-style-type: none"> • Enclose/cover fowl hanging area. • Enclose/cover the animal holding pens. • Grade the areas around the animal holding pens to ensure stormwater “runs off” and not “on” to the holding pen. And regularly inspect area around animal holding pens for stormwater runoff or run-on. • Store materials from cleanup activities in appropriate containers in an enclosed/ covered area. • Area for trailers holding empty bird cages should have stormwater run on/runoff controls in place. • Use mechanical sweepers around site to clean up fugitive feathers, dust, and manure. • Decrease total lot area when animal numbers are low to decrease total stormwater runoff. • Direct run-off to storage lagoons and holding ponds until it can be land applied or evaporated or discharged to a municipal treatment system. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable.

Pollutant Source	BMPs
Meat products operation of meat packaging plants including animal holding pens (beef, chicken) [continued]	<ul style="list-style-type: none"> • Train employees on proper material (i.e., hide, hair, feathers, and animal parts) cleanup procedures around and within the animal holding pens.
Manure management	<ul style="list-style-type: none"> • Place animal manure in grassy area as far as possible from water courses so seepage has a chance to be filtered and absorbed by the grass before entering creek or stream. For land with a slope of greater than one percent, plant a dense, sod forming grass at least 20 feet wide around the downgradient side of any manure stockpile. • Use grass filter strips, filter fencing, or straw bales to filter solids and nutrients from runoff. • Store manure in bermed or covered areas.
Dairy products manufacturing and storage of packaged dairy products (including spoiled and broken product containers)	<ul style="list-style-type: none"> • Store aged/spoiled dairy products in enclosed storage area on an impervious or contained pad and under a roof or canopy where possible. • Use dry cleanup methods instead of washing the areas down. • Ensure that all aged/spoiled products (e.g., bottles, cartons, plastic containers) are disposed of in a proper manner (bagged, covered). • Keep foam from going into sewers because it contains milk solids. Common sources of excessive foaming are open-type separators, splashing when filling tanks, air sucked in through leaky connections in lines under partial vacuum, through leaky packing and through faulty rotary seals or pumps. • Inspect storage area for leaks and spills and to monitor housekeeping and runoff prevention practices. • Train employees on spill prevention, control, and proper disposal methods for all aged/spoiled dairy products.
Canned frozen and preserved fruits, vegetables, and frozen specialties fruit and vegetable storage and disposal	<ul style="list-style-type: none"> • Store all fruits and vegetables in appropriate containers (e.g., bins, bushels, baskets, buckets) and in enclosed/covered areas. • Minimize fruit and vegetable storage time outdoors. • Store empty fruit and vegetable containers in an enclosed/covered area. • Use particulates emission control systems for all cooking processes to reduce particulate matter. • Inspect all fruit and vegetable storage areas to monitor BMP implementation. • Train employees on proper handling/disposal methods for fresh/rotten fruits and vegetables.
Grain mills grain handling, storage, and mixing	<ul style="list-style-type: none"> • Store all grain in appropriate containers (e.g., silos, hoppers) in an enclosed/covered area. • Use a vacuum control system in all grain mixing areas to minimize fugitive dust. • Inspect the general area around the grain storage to monitor BMP implementation. • Train employees on grain handling procedures.
Bakery products ingredient storage and mixing	<ul style="list-style-type: none"> • Store all ingredients (e.g., corn sweeteners, flour, shortening, syrup, vegetable oils) in appropriate containers (e.g., tanks, drums, bags) in an enclosed/covered area. • Inspect ingredient storage areas for BMP implementation.

Pollutant Source	BMPs
Bakery products baking process	<ul style="list-style-type: none"> ● Remove flour/oil dust accumulation around ventilation exhaust systems. ● Install an air emission control system for all baking processes to reduce particulate matter.
Sugar and confectionery sugar handling	<ul style="list-style-type: none"> ● Use a vacuum control system in all granular and powdered processing areas.
Fats and oils storage and disposal	<ul style="list-style-type: none"> ● Store all fats and oils, (e.g., butcher shop materials, hair, hide, tallow, bone meal, and offal) in enclosed/covered areas. ● Ensure all fats and oils are physically contained. ● Inspect all fats and oils storage areas for BMP implementation.
Beverages materials storage and mixing	<ul style="list-style-type: none"> ● Ensure grain is stored in enclosed/covered area. ● Use a particulates emission control system for all grain handling and brewing processes. ● Protect reusable beverage containers that are stored outdoors from stormwater contact.

Sector V: Textile Mills, Apparel, and Other Fabric Product Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Outdoor material loading/ unloading	Wooden pallets, spills/leaks from material handling equipment, raw materials, finished products, solvents, dyes	Total suspended solids (TSS), pH, oil and grease, chemical oxygen demand (COD), biochemical oxygen demand (BOD5), heavy metals
Raw material storage and handling	Wool, cotton, synthetics, rayon, other fibers, coal/wood piles, fuels, oil, and/or lubricants	BOD5, COD, TSS, pH, oil and grease, lead, chromium, and/or benzene
Storage and handling of materials for dyeing	Dyes, dye preservatives, and/or pigments	Copper, phenols, lead, chromium, zinc, aluminum, and/or acids
Storage and handling of materials for scouring and cleaning	Wool, scouring agents, and/or detergents	BOD5, COD, TSS, oil and grease, sulfides, phenols, pH, and/or chromium
Storage and handling of materials for bleaching, printing, finishing, and other activities	Dyes, bleaches, detergents, finishing agents, and/or printing products	BOD5, COD, TSS, oil and grease, sulfides, phenols, pH, chromium, chromium peroxide, and/or acids
Vehicle and equipment fueling	Spills and leaks during fuel transfer, spills due to “topping off” tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids, engine coolants	Gas/diesel fuel, fuel additives, oil, lubricants, heavy metals

Best management Practices (BMPs)

Pollutant Source	BMPs
Outdoor material loading and unloading	<ul style="list-style-type: none"> • Confine loading/unloading activities to a designated area outside drainage pathways and away from surface waters. • Load/unload indoors or in a covered area. • Cover loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). • Close storm drains during loading/unloading activities in surrounding areas. • Avoid loading/unloading materials in the rain. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Install an oil/water separator in catch basins. • Inspect all containers prior to loading/unloading of any raw or spent materials. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Dead-end sump where spilled materials could be directed. • Use dry cleanup methods instead of washing the areas down. • Train employees on proper loading/unloading techniques and spill prevention and response.
Chemical storage	<ul style="list-style-type: none"> • Store materials indoors when possible. • Store permanent tanks in a paved area surrounded by a dike system which provides sufficient containment for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Plainly label and store all containerized materials (e.g., fuels, petroleum products, solvents, dyes, etc.) in a protected area, away from drains. • Implement an inventory control plan to prevent excessive purchasing of potentially hazardous substances. • Ensure that empty drums/containers that are being stored are clean and there is no contact of residuals with precipitation/runoff. Collect and dispose of wash water from these cleanings properly. • Store reactive, ignitable, or flammable liquids in compliance with the local fire code, and the National Electric Code. • Regularly clean chemical storage areas. • Restrict access to the chemical storage areas. • Insert filters in adjacent catch basins.

	<ul style="list-style-type: none"> • Permanently seal drains within critical areas that may discharge to a storm drain. • Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees in spill prevention and control and proper materials management.
Pollutant Source	BMPs
	<ul style="list-style-type: none"> •
Coal pile management	<ul style="list-style-type: none"> • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Use properly designed basins for collection, containment, and recycling of pile spraying materials. • Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. • Train employees in good housekeeping measures.
Material handling: bulk liquid fuel storage	<ul style="list-style-type: none"> • Cover/enclose areas where the transfer of material may occur. • Store permanent tanks in a paved area surrounded by a dike system that provides containment for the larger of either 10 percent of the volume of all containers or 100 percent of the volume of the largest tank. • Tanks should be placed in gravel or concrete paved areas, away from natural drainage paths to waterways (such as parking lot drains). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. • Inspect storage tanks to detect potential leaks and perform preventive maintenance. • Inspect piping systems (pipes, pumps, flanges, couplings, hoses, valves) for failures or leaks. Develop and implement spill plans. • Train employees on proper filling and transfer procedures, spill prevention and control.
Material handling: containerized material storage	<ul style="list-style-type: none"> • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If storing empty chemical drums, triple-rinse containers and collect discharge waters from washings. • Clearly label drum with its contents. • Educate personnel for proper storage, use, cleanup, and disposal of materials.

Pollutant Source	BMPs
Material handling: designated material mixing areas	<ul style="list-style-type: none"> • Cover and enclose areas where the transfer of materials may occur. • Mix solvents in designated areas away from drains, ditches, and surface waters. • Never wash drums in the mix kitchen or dispose of obsolete dyes and chemicals down the drain. • When a new drum is opened, the old drum should be emptied or drained thoroughly into the new drum.
Waste management	<ul style="list-style-type: none"> • Store waste in enclosed and/or covered areas. • Store wastes in covered, leak proof containers (e.g., dumpsters, drums). • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters. • Direct runoff to on-site retention pond. • Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. • Ship all wastes to offsite licensed landfills or treatment facilities.
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (not asphalt). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing the fuel area down. Clean up spills and leaks immediately. • Discourage topping off fuel tanks. • Regularly inspect and perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Train personnel on fueling BMPs. • Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress.

Sector W: Wood and Metal Furniture and Fixture Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Wood drying	Coal	Total suspended solids (TSS), pH, cadmium, arsenic
	Saw dust	TSS, chemical oxygen demand (COD), biochemical oxygen demand (BOD5), pH
	Ash	TSS, pH
Furniture manufacturing	Sizing operations	TSS, BOD5, pH
	Painting operations	Lead, cadmium, COD
	Gluing operations	Solvents, COD, oil, and grease
	Used rags	Solvents, COD, oil, and grease
	Processing materials unloading	Diesel fuel, gasoline, oil, and grease, TSS
	Waste material transportation	TSS, BOD5, pH
	Treatment facilities	Solvents, COD, oil, and grease
	Open dumps	TSS, BOD5, oil and grease, COD
Other activities	Air emission control cleaning	TSS, pH, cadmium, lead, copper, zinc

Best management Practices (BMPs)

Pollutant Source	BMPs
Outdoor unloading and loading	<ul style="list-style-type: none"> • Confine loading/unloading activities to a designated area outside drainage pathways and away from surface waters. • Perform all loading/unloading activities in a covered or enclosed area. • Close storm drains during loading/unloading activities in surrounding areas. • Avoid loading/unloading materials in the rain. • Inspect all containers prior to loading/unloading of any raw or spent materials. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Use dry cleanup methods instead of washing the areas down. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Outdoor material storage	<ul style="list-style-type: none"> • Covering storage areas with roofs or tarps. • Confine storage of raw materials, parts, and equipment to designated areas away from high traffic, outside drainage pathways and away from surface waters. • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Direct stormwater runoff to an on-site retention pond. • Ensure that all containers are properly sealed, and valves closed. • Conduct container integrity testing and provide leak detection. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers. • Maintain an inventory of fluids to identify leakage. • Wash and rinse containers indoors before storing them outdoors. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees on proper spill prevention and response techniques. • Train employees on proper waste control and disposal.
Coal pile management	<ul style="list-style-type: none"> • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Use properly designed basins for collection, containment, and recycling of pile spraying materials.

Pollutant Source	BMPs
Coal pile management (continued)	<ul style="list-style-type: none"> • Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. • Train employees in good housekeeping measures.
Waste management	<ul style="list-style-type: none"> • Store waste in enclosed and/or covered areas. • Store wastes in covered, leak proof containers (e.g., dumpsters, drums). • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters. • Direct runoff to on-site retention pond. • Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. • Ship all wastes to offsite licensed landfills or treatment facilities.
Sawdust and particulate emission management	<ul style="list-style-type: none"> • Clean around vents and stacks. • Place tubs around vents and stacks to collect particulates. • Inspect air emission control systems regularly and repair or replace when necessary.
Vehicle and Equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries) • Store batteries and other significant materials inside. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills.

Pollutant Source	BMPs
	<ul style="list-style-type: none"> • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Surround any work areas with a berm and grade them lower than the surrounding parking lot, to prevent runoff from flowing into dirt lots or storm drains. • Provide a roof over all work areas. • Roof, pave, mound, or berm outside vehicle storage areas. • Use berms, curbs, or grassed swales other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures. • Seal floor drains if possible. If not, ensure that work area drains are connected to the sanitary sewer not the storm sewer. • Inspect the bay where the condensed steam and pressure wash overspray will be collected and treated for discharge.

Sector X: Printing and Publishing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Plate preparation	Ink (lithography, letterpress, screen printing, flexography), etch baths, and/or applying lacquer	Solvent, heavy metal, toxic waste, ink with solvents chromium, and/or lead
Printing	Ink (lithography, letterpress, screen printing, flexography), gravure	Heavy metals (dust and sludge)
Clean up	Used plates: type, die, press blankets, and rollers	Ink toxic wastes, heavy metals, solvents
Stencil preparation for screen printing	Lacquer stencil film, photo emulsion, blackout (screen filler)	Solvents, photographic processing wastes
Material handling: transfer, storage, disposal	Spills and leaks from material handling equipment	Fuel, oil, heavy metals
	Spills and leaks from above ground tanks	Fuel, oil, heavy metals, material being stored
	Solvents; trash; petroleum products	Heavy metals, spent solvents, oil
Photo processing	Developing negatives and prints	Heavy metals, spent solvents
Fueling areas	Spills and leaks during fuel transfer, spills due to “topping off” tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids, engine coolants	Gas/diesel fuel, oil, lubricants, heavy metals

Best management Practices (BMPs)

Pollutant Source	BMPs
Plate preparation	<ul style="list-style-type: none"> • Use aqueous-developed lithographic plates or wipe-on plates.
Printing	<ul style="list-style-type: none"> • Use press wipes if possible before discarding or laundering; dirty ones for the first pass, clean ones for the second pass. • Remove solvent from dirty rags by squeeze or centrifuge prior to laundering. • Set up an in-house dirty rag cleaning operation if warranted or send to approved industrial laundries, if available. • Use a dedicated press for inks with hazardous pigments/solvents. • Segregate used oil from solvents or other materials. • Use water-based inks in gravure and flexographic printing process. • Fill ink fountains with only enough ink for a run or shift; return un-emulsified inks to their containers. • Substitute fewer toxic solvents for highly aromatic solvents; use detergent solutions. • Monitor baths and accurately replenish chemicals. • Use a solvent pump can instead of pouring solvent from a jug to minimize solvent use and exposure.
Cleanup	<ul style="list-style-type: none"> • Centralize liquid solvent cleaning in one location. • Designate special areas for draining or replacing fluids. • Label sinks as to proper disposal of liquids. • Use doctor blades and squeegees to remove as much ink as possible prior to cleaning with solvent and rags. • Dry solvent-coated screens before washing them in water. • Do not clean screens over a sink or drain. • Minimize solvent use during equipment cleaning. • Substitute nontoxic or less toxic cleaning solvents. • Recover waste solvents on-site with batch distillation or utilize professional solvent recyclers. • Use counter-current washing instead of parallel rinse systems. • Use a closed-washing system. • Use equipment wash down water for making up subsequent batches. • Eliminate once-through cooling water for compressors. • Inspect the area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.
Stencil preparation for screen printing	<ul style="list-style-type: none"> • Capture excess ink from silkscreen process before washing the screen to decrease amount of ink used and cleaning emulsion used.
Photo processing	<ul style="list-style-type: none"> • Collect and properly manage fixing bath, developer, used film, photographic paper, and blackened ends of photosetting paper.
Material handling and storage	<ul style="list-style-type: none"> • Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation). • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks. • Locate storage areas away from high traffic areas and surface waters.

Pollutant Source	BMPs
Material handling and storage	<ul style="list-style-type: none"> • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers. • Handle solvents in designated areas, preferably indoors or under a shed, away from drains, ditches, and surface waters. • Identify potentially hazardous materials, their characteristics, and use. • Control excessive purchasing, storage, and handling of potentially hazardous materials. • Maintain an inventory to identify quantity, receipt date, service life, users, and disposal routes. • Return toxic material packaging to the supplier for re-use. • Keep spill kits readily available. • If spills occur stop the source of the spill immediately; contain the liquid until cleanup is complete; cover the spill with absorbent material; keep the area well ventilated; dispose of cleanup materials properly; do not use emulsifier or dispersant. • Store containerized materials (fuels, paints, inks, solvents, etc.) in a protected, secure location and away from drains. • Store reactive, ignitable, or flammable liquids in compliance with the local fire code. • Keep waste chemicals segregated to allow for reuse and recycling. • Secure and carefully monitor hazardous materials to prevent theft, vandalism, and misuse of materials. • Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks. • Use spigots or funnels to reduce spills. • Use spill troughs for drums with taps. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees on proper filling and transfer procedures. • Train employees in spill prevention and control and proper materials management including storage, cleanup, and disposal.
Aboveground storage tanks	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. • Store drums indoors when possible.

Pollutant Source	BMPs
Aboveground storage tanks (continued)	<ul style="list-style-type: none"> • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Install overflow protection devices on tank systems to warn operator or to automatically shut down transfer pumps when tanks reach full capacity.
Vehicle and equipment fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should cover extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (not asphalt). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Keep spill cleanup materials readily available. • Clean up spills and leaks immediately. • Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. • Regularly inspect and perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage “topping off” of fuel tanks in receiving equipment. • Train personnel on vehicle fueling BMPs

Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Outdoor material loading/unloading	Wooden pallets, spills/leaks from material handling equipment, solvents, resins	Total suspended solids (TSS), oil and grease, organics
Outdoor material and equipment storage	Solvents, acids and caustic, plasticizers, paint, lubricating oils, processing oils, resins, rubber compounds, mineral spirits, zinc, scrap metal, scrap plastic and rubber, plastic pellets, PVC pipe, and rags	Organics, zinc, hydrocarbons, oil and grease, acids, alkalinity

Best management Practices (BMPs)

Pollutant Source	BMPs
Outdoor material unloading/loading	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Close storm drains during loading/unloading activities in surrounding areas. • Use a dead-end sump where materials could be directed. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Place catch trays between the dock and trailer at shipping and receiving bays to capture solids. • Enclose material handling systems. • Cover materials entering and leaving areas. • Use dry cleanup methods instead of washing the areas down. • Regularly sweep area to minimize debris on the ground and dispose of materials properly. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques. • Inspect pallets for protruding nails or broken boards.
Outdoor material storage	<ul style="list-style-type: none"> • Cover storage areas with roofs or tarps. • Confine storage of raw materials, parts, and equipment to designated areas away from high traffic, outside drainage pathways and away from surface waters. • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Direct stormwater runoff to an on-site retention pond.

Pollutant Source	BMPs
Outdoor material storage (continued)	<ul style="list-style-type: none"> • Ensure that all containers are properly sealed, and valves closed. • Conduct container integrity testing and provide leak detection. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers. • Maintain an inventory of fluids to identify leakage. • Wash and rinse containers indoors before storing them outdoors. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees on proper spill prevention and response techniques. • Train employees on proper waste control and disposal.
Waste management	<ul style="list-style-type: none"> • Store waste in enclosed and/or covered areas. • Store wastes in covered, leak proof containers (e.g., dumpsters, drums). • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters. • Dispose or recycle packaging properly. • Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. • Ship all wastes to offsite licensed landfills or treatment facilities.
Particulate emission management	<ul style="list-style-type: none"> • Clean around vents and stacks. • Place tubs around vents and stacks to collect particulates. • Inspect air emission control systems regularly and repair or replace when necessary.
Material storage	<ul style="list-style-type: none"> • Store zinc bags indoors. • Use of special large volume sacks (2,500-pound sacks rather than 50 to 100-pound sacks) with less potential for releases of zinc. • Store materials in use in sealable container. • Provide an airspace between the container and the cover to minimize “puffing” losses when the container is opened. • Use automatic dispensing and weighing equipment. • Use pre-weighed bags that can be thrown directly into the mixer to reduce spillage. • Clean up spills without washing zinc into storm drains. • Train employees on proper handling and emptying of zinc bags.
Dumpsters	<ul style="list-style-type: none"> • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters.
Dust collectors or baghouses	<ul style="list-style-type: none"> • Repair or replace improperly operating baghouses. • Provide regular maintenance.
Grinding operations from which zinc dust may be released	<ul style="list-style-type: none"> • Use dust collection system or reduce the amount of dust generated.
Zinc stearate coating operations	<ul style="list-style-type: none"> • Develop a spill prevention/response plan. • Use dry cleanup methods for spills. • Use alternate compounds to zinc stearate.

Pollutant Source	BMPs
Management	<ul style="list-style-type: none"> • Conduct regularly scheduled self-evaluations to identify problem areas. • Encourage information sharing between companies. • Develop educational materials for employees, including those involved in transporting pellets.
Education and training	<ul style="list-style-type: none"> • Educate key officials and company managers regarding the fate and effects and the economic disadvantages of pellet loss. • Educate company employees regarding environmental hazards of pellet loss and employee responsibility for corrective actions. • Train pellet handlers to operate equipment, particularly forklifts, in a manner that minimizes the potential for pellet loss.
Equipment and facilities	<ul style="list-style-type: none"> • Install a containment system to capture stormwater runoff. • Implement dry cleanup procedures. • Install connecting hoses equipped with valves that will close automatically when the connection is broken. • Direct the water flow from rail hopper cars and bulk trucks through a screen to capture the pellets rather than spilling them onto the ground. • Seal expansion joints in concrete floors with a flexible material to facilitate cleanup. • Install alarms in the pellet conveying system. • Pave all pellet handling areas, including loading docks and rail sidings. • Place screening in storm drains. • Place control devices where they can be serviced without losing pellets. • Equip bag-handling stations with vacuum hoses to facilitate spill cleanup. • Use tarps or containment devices to collect pellets as they are spilled. • Install grating at doorways for wiping feet. • Modify loading systems so that transfer lines can be completely emptied, with any residual resin being contained when loading ceases. • Ensure equipment is secured and stored properly.
Operations	<ul style="list-style-type: none"> • Place portable screens underneath connection points when making and breaking all connections. • Secure outlet caps and seals before moving full or empty rail hopper cars and trucks. • Implement handling procedures that minimize punctures and pellet spillage. • Inspect pellet packaging before offloading. • Repair punctured bags immediately
Good housekeeping	<ul style="list-style-type: none"> • Implement daily and routine housekeeping and spill response procedures. • Develop standard operating procedures for containing and cleaning up spills. • Conduct routine inspections for the presence of loose pellets on the facility grounds, including parking lots, drainage areas, driveways, etc.
Packaging	<ul style="list-style-type: none"> • Use reinforced bags and containers lined with puncture-resistant material. • Minimize the use of valved bags or seal valved bags immediately after filling. • Use sealed containers instead of break bulk packaging.
Shipping	<ul style="list-style-type: none"> • Use containers for cargo shipping rather than individual pallets. • Identify the person responsible for sealing the ports on rail hopper cars and bulk trucks, and document sealing. • Close and secure the rail hopper car valve with strong wire or aircraft cable in addition to the normal sealing mechanism.

Pollutant Source	BMPs
Shipping (continued)	<ul style="list-style-type: none"> • Visually confirm that each compartment and tube of shipping vehicles is empty. • Inspect interiors of trailers and sea containers for defects that may puncture pellet packaging. Consider vandalism exposure when selecting leased track sites. • Avoid on-deck pellet storage. • Seal empty rail hopper cars and bulk trucks before returning them to shipper.
Recycling and waste disposal	<ul style="list-style-type: none"> • Store waste pellets in properly labeled containers. • Recycle or resell waste pellets. • Check broken and discarded packaging for residual pellets. • Inspect handling and storage procedures. • If an outside vendor is used for waste removal, train in material handling, spill prevention and control.

Sector Z: Leather Tanning and Finishing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Outdoor storage of fresh and brine cured hides	Fresh and brine cured hides	Salt, organic materials (manure), biochemical oxygen demand, total suspended solids (TSS).
Beamhouse processes (trimming, soak and wash, fleshing, unhairing)	Chemical storage (drums or bags)	Depilatory chemicals
	Empty containers of lime, depilatory chemicals	Calcium hydroxide, sodium sulfhydrate, or sodium sulfide
	Trim scraps, hair	BOD, COD, TSS, high pH, TKN
Tanyards (bating, pickling, tanning, wringing, splitting, shaving)	Empty chemical containers	Trivalent chromium, vegetable tannins, enzymes, pickling acids (sulfuric acid), alum, syntans, chemical deliming agents, glutaraldehyde, heavy oils
	“Blue” hides, splits, trimmings, shavings	Trivalent chromium, leather fiber and dust, suspended solids, BOD, TSS, dissolved solids
Retan and wet finishing (retanning, bleaching and coloring, fat liquoring, buffing)	Empty chemical containers	Chromium tanning agents, vegetable extract, dyes, pigments, animal or vegetable-based oils, synthetic oils made from modified mineral-based oils, sulfonated oils, spent dyes
	Leather dust containing chromium	Leather fiber, trivalent chromium, TSS, tannins
Dry finishing (application of pigment to leather surface with water based or solvent based finishes)	Emissions from spray booths and spent solvents	Pigments, solvents-acetone, pylene, glycol ether
Receiving and unloading areas	Hides	Trivalent chromium, salt
	Chemical supplies	Depilatory chemicals, trivalent chromium, vegetable tannins, enzymes, pickling acids (sulfuric acid), alum, syntans, chemical deliming agents, glutaraldehyde, heavy oils, dyes, pigments, animal or vegetable-based oils, synthetic oils, solvents, and biocides
	Leaking trucks	Oil and grease and waste materials
	Accidental spills	Chemicals listed for supplies above
Improper connections to storm sewer	Floor drains, process wastewater, cleaning and washdown of process equipment and process areas	Dependent on operations

Activity	Pollutant Source	Pollutant
Outdoor bulk chemical storage	Above ground tanks	Sulfuric acid, ferric chloride, finishing solvents (mineral spirits), hydrated lime, surfactant
Outdoor storage of coal	Coal piles	Oil & grease, TSS, copper, nickel, zinc
Waste management	Hoppers	Leather dust, scraps
	Dumpsters	Empty bags & chemical containers
	Sludge (wastewater treatment sludge stored in containers to diminish stormwater contact, awaiting offsite disposal)	Lime, pieces of leather, hair, protein-like substances, floor sweepings, trivalent chromium, biochemical oxygen demand
Vehicle and equipment maintenance	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil filters, air filters, batteries	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, brake fluid, oil, transmission fluid, coolants, and lubricants	Oil and grease, arsenic, lead, cadmium, chromium, chemical oxygen demand (COD), and benzene

Best management Practices (BMPs)

Pollutant Source	BMPs
Temporary outdoor storage of fresh or brine cured hides	<ul style="list-style-type: none"> • Store hides indoors if possible. • Cover the hides with a roof or temporary covering (e.g., polyethylene, tarpaulin etc.). • Locate storage areas away from high traffic areas and surface waters. • Minimize stormwater run-on by enclosing the area or use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the area. • Inspect area regularly for proper implementation of good housekeeping and control measures. • Train employees on waste control and disposal procedures.
Beamhouse and tanyard operations	<ul style="list-style-type: none"> • Store chemical drums & bags and empty lime & depilatory chemical containers indoors if possible. • Cover chemical drums & bags, empty lime & depilatory chemical containers and leather scraps with roof or temporary covering (e.g., tarpaulins, polyethylene) and store on elevated impermeable surface. • Install curbing, containment dikes around chemical storage, empty lime & depilatory chemical containers, and leather scrap storage area. • Avoid use of hides treated with insecticides and fungicides. Use salts or chilling methods instead. • Avoid toxic and less biodegradable antiseptics and biocides. Especially avoid those containing arsenic, mercury, lindane, and pentachlorophenol or other chlorinated substances. • Minimize the use of chrome. Use trivalent chrome rather than hexavalent. Recover and recycle chrome to the extent possible. • Reduce quantities of salt used for preservation. • Maintain an inventory of fluids to identify leakage and properly dispose of chemicals that are no longer in use. • Clean up leaks and spills immediately. • Use drip pans for leaking equipment. • All paved areas should be swept regularly, eliminate unnecessary flushing with water and label chemical drums and containers. • Inspect area regularly for leaking drums, broken bags, proper implementation of good housekeeping and control measures, (broken cracked dikes), material inventory, material storage and operation & maintenance. • Train employees on good housekeeping, proper handling of chemicals
Retan and wet finish	<ul style="list-style-type: none"> • Reduce dust through enclosure and covering. • Use nonorganic solvents for dyeing and refinishing. • Implement and maintain dust collectors (vacuum, bag & cyclone) and filter systems. • Regularly sweep paved areas, eliminate unnecessary flushing with water and label chemical drums and containers. • Train employees on good housekeeping and proper handling of chemicals.
Dry finish	<ul style="list-style-type: none"> • Use effective spray equipment that delivers more dye to the target and less overspray. • Have absorbent and other cleanup items readily available for immediate cleanup of spills.

Pollutant Source	BMPs
Dry finish (continued)	<ul style="list-style-type: none"> • Store dyes and solvents away from traffic areas to avoid spills. • Recycle paint, paint thinner, and solvents. • Establish and implement effective inventory control to reduce waste, including tracking date received and expiration dates. • Store dyes, paint, solvents, and rags in covered containers to prevent evaporation to the atmosphere. • Use solvents with low volatility and coatings with low VOC content; use high transfer efficiency coating techniques. • Inspect spray booths area regularly to ensure BMPs are implemented. • Train employees on proper spraying techniques and disposal of spent solvents.
Buffing and shaving areas	<ul style="list-style-type: none"> • Install dust collection enclosures, preventative inspection/maintenance programs.
Receiving and shipping	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Enclose material handling systems. • Cover materials entering and leaving areas. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Storage areas for raw, semi processed, or finished tannery by products	<ul style="list-style-type: none"> • Pallets and/or bales of raw, semi processed, or finished byproducts should be stored indoors or protected by polyethylene wrapping, tarpaulins, roofed storage area, or other suitable means. • Confine activities to designated areas outside drainage pathways and away from surface waters. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on and runoff.

Pollutant Source	BMPs
Storage areas for raw, semi processed, or finished tannery by products (continued)	<ul style="list-style-type: none"> • Place materials on an impermeable surface. • Minimize storage of flesh trimmings and organic materials.
Material storage areas	<ul style="list-style-type: none"> • Store materials indoors. • Install berms or dikes around storage area. • Label storage units of all materials. • Maintain containers and units in good condition. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container.
Outdoor storage of contaminated equipment	<ul style="list-style-type: none"> • Protect equipment by suitable cover. • Divert drainage to the process sewer. • Clean equipment thoroughly prior to storage.
Liquid storage in above ground tanks	<ul style="list-style-type: none"> • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks with overflow protection. • Keep liquid transfer nozzles/hoses in secondary containment area. • Clearly tag valves to avoid human error. • Install overflow protection devices on tank systems to warn operator or to automatically shut down transfer pumps when tanks reach full capacity. • Inspection of tank foundations, connections, coatings, valves, and piping systems. • Comply with existing spill prevention, cleanup, and countermeasure plans (SPCC plan) and State and Federal laws. • Perform integrity testing regularly by qualified professionals. • Train employees in spill prevention and control.
Improper connections to storm sewers	<ul style="list-style-type: none"> • Plug all floor drains connected to sanitary or storm sewers. • Perform smoke or dye testing to determine if interconnections exist between sanitary water system and storm sewer system. • Update facility schematics to accurately reflect all plumbing connections. • Install a safeguard against wash waters from processing areas entering the storm sewer unless permitted. • Train employees on proper disposal practices for all materials.
Coal piles	<ul style="list-style-type: none"> • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms.

Pollutant Source	BMPs
Coal piles (continued)	<ul style="list-style-type: none"> • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Use properly designed basins for collection, containment, and recycling of pile spraying materials. • Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. • Train employees in good housekeeping measures.
Waste management	<ul style="list-style-type: none"> • Conduct waste reduction assessment • develop guidelines for the elimination of waste generation emissions. • Minimize solids waste by recovery and reuse of hide trimmings and other wastes for manufacturing glue, gelatin, tallow, etc. • Institute industrial waste source reduction and recycling. • Move waste management activities indoors (after safety concerns are addressed) and cover waste piles, dumpsters, hoppers, place on impermeable elevated surfaces. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover trucks and inspect for leaking wastes. • Inspect waste management areas for leaking containers, spills, damaged containers, uncovered waste piles, dumpsters, hoppers. • Develop and maintain proper erosion control or site stabilization measures. • Train employees on waste management and disposal practices for all materials.
Vehicle and equipment maintenance	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. • Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. • Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Maintain an organized inventory of materials. • Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Store batteries and other significant materials inside.

Pollutant Source	BMPs
Vehicle and equipment maintenance (continued)	<ul style="list-style-type: none"> • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. • Check vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, grassed swales or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and provide treatment or recycling. • Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled onsite. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly to ensure BMPs are implemented. • Train employees on waste control and disposal procedures.

Sector AA: Fabricated Metal Products Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Tool workpiece interface/ shaving, chipping	Used metal working fluid with fine metal dust	Total suspended solids (TSS), chemical oxygen demand (COD), oil and grease
Parts/tools cleaning, sand blasting, metal surface cleaning, removal of applied chemicals	Solvent cleaners, abrasive cleaners, alkaline cleaners, acid cleaners, rinse waters	Spent solvents, TSS, acid/alkaline waste, oil
	Solvents, cold and hot dips, cleaning parts, degreasing	Acid, coolants, clean composition, degreaser, mineral spirits, pickle liquor, spent caustic, sludge.
Making structural components	Cuttings, scraps, turnings, fines	Metals
Painting operations	Paint and paint thinner spills, sanding, spray painting	Paints, spent solvents, heavy metals, TSS
	Empty containers, paint application wastes, spills, over spraying, storage areas	Paint wastes, thinner, varnish, heavy metals, spent chlorinated solvents
Cleanup of spills and drips	Used absorbent materials	TSS, spilled material
Transportation or storage of materials	Wood dunnage/pallets	BOD, TSS
BOD, TSS	Grinding, welding, sawing, shaving, brazing, bending, cutting, etching	Steel scraps, aluminum scraps, brass, copper, dust, chips and borings, steel scale, Teflon, manganese
Surface treatment	Finishing, plating, case hardening, chemical coating, coating, polishing, rinsing, abrasive cleaning, electroplating	Acid, aromatic solvent, corn cob, lubricants, sand, oil, pH, nitrates, nitrites, carbon, phosphates, borates, nitrogen, oily sludge, nickel, chromium, hydrofluoric acid
Galvanizing	Spills, leaks, transporting materials	Acid solution, phosphates, zinc chromate, hexavalent chromium, nickel
Heavy equipment use and storage	Leaking fluids, fluids replacement, washing equipment, use on poor surface area, soil disturbance	Oil, heavy metals, organics, fuels, TSS, hydraulic oil, diesel fuel, gasoline
Equipment/vehicle maintenance	Leaking fluids, fluids replacement, washing equipment	Oil, grease
	Vehicle fueling	Gas/diesel fuel, fuel additives
Storage of uncoated structural steel	Stored on porous pavement	Aluminum, lead, zinc, copper, iron, oxide, oil, nickel, manganese

Activity	Pollutant Source	Pollutant
Storing galvanized steel directly on the ground	Galvanizing material drippage or leaching	Metals: zinc, nickel, cadmium, chromium
Vehicle/equipment traffic	Soil disturbance and erosion	TSS from erosion, hydraulic fluid loss/spillage
Cleaning equipment/vehicles	Chemicals disposed improperly, spillage	Oil, grease, surfactants, chromates, acid, hydroxide, nitric acid

Best management Practices (BMPs)

Pollutant Source	BMPs
Metal fabricating areas	<ul style="list-style-type: none"> • Sweep fabrication areas frequently to avoid heavy accumulation of steel ingots, fines, and scrap. • Absorb dust through a vacuum system to avoid accumulation on roof tops and onto the ground. • Sweep all accessible paved areas on a regular basis. • Maintain floors in a clean and dry condition using dry cleanup techniques. • Remove waste and dispose of regularly. • Train employees on good housekeeping measures.
Raw material storage areas	<ul style="list-style-type: none"> • Store materials in a covered area whenever possible. • Organize storage areas so there is easy access in case of a spill. • Label stored materials to aid in identifying spill contents. • Minimize the amount of material stored to avoid corrosive activity from long-term exposed materials. • Dike or berm the area to prevent or minimize run-on. • Keep area neat and orderly, stack neatly on pallets or off the ground. • Cover exposed materials
Receiving, unloading, and loading areas	<ul style="list-style-type: none"> • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Close storm drains during loading/unloading activities in surrounding areas. • Use a dead-end sump where materials could be directed. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Enclose material handling systems. • Cover materials entering and leaving areas. • Use dry cleanup methods instead of washing the areas down. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans.

Pollutant Source	BMPs
Receiving, unloading, and loading areas (continued)	<ul style="list-style-type: none"> • Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Heavy equipment storage areas	<ul style="list-style-type: none"> • Vehicles should be stored indoors when possible. • If stored outdoors, use gravel, concrete, or other porous surfaces to minimize or prevent heavy equipment from creating ditches or other conveyances that would cause sedimentation runoff and increase TSS loadings. • Provide covering for outdoor storage areas. • Divert drainage to the grass swales, filter strips, retention ponds, or holding tanks. • Direct drainage systems away from high traffic areas into collection systems. • Clean equipment prior to storage.
Metal working fluid areas	<ul style="list-style-type: none"> • Store used metal working fluid with fine metal dust indoors. • Use tight sealing lids on all fluid containers. • Use straw, clay absorbents, sawdust, or synthetic absorbents to confine or contain any spills. • Establish recycling programs for used fluids when possible. • Conduct daily inspections of each machine to identify problems and trends and reduce fluid waste. • Use pumps, spigots, and funnels when transferring metal working fluid to reduce the amount of lost fluid and the risk of spilling fluids. • Fix leaking seals and gadgets to prevent leaks.
Unprotected liquid storage tanks	<ul style="list-style-type: none"> • • If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies, ensure that regular inspections and maintenance procedures are in place. • Develop and implement spill plans. • Train employees in spill prevention and control. • Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Use double-walled tanks. • Keep liquid transfer nozzles/hoses in secondary containment area. • Include overflow protection. • Store drums indoors when possible. • Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). • Clearly label drum with its contents.
Chemical cleaners and rinse water	<ul style="list-style-type: none"> • Use drip pans and other spill devices to collect spills or solvents and other liquid cleaners. • Recycle wastewater.

Pollutant Source	BMPs
Chemical cleaners and rinse water (continued)	<ul style="list-style-type: none"> • Store recyclable waste indoors or in covered containers. • Substitute nontoxic cleaning agents when possible.
Raw steel collection areas	<ul style="list-style-type: none"> • Keep collection areas clean. • Keep materials in a covered storage bin or inside until pickup. • Collect scrap metals, fines, iron dust and store under cover and recycle.
Paints and painting equipment	<ul style="list-style-type: none"> • Paint and sand indoors when possible. • If done outside, enclose sanding and painting areas with tarps or plastic sheeting. • Avoid painting and sandblasting operations outdoors in windy weather conditions. • Use tarps, drip pans, or other spill collection devices to contain and collect spills. • Use effective spray equipment that delivers more paint to the target and less overspray. • Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. • Have absorbent and other cleanup items readily available for immediate cleanup of spills. • Allow empty paint cans to dry before disposal. • Keep paint and paint thinner away from traffic areas to avoid spills. • Recycle paint, paint thinner, and solvents. • Establish and implement effective inventory control to reduce paint waste, including tracking date received and expiration dates. • Use water-based paints when possible. • Train employees to use the spray equipment properly.
Metal chip storage areas	<ul style="list-style-type: none"> • Store waste chips indoors, if possible. • Cover outdoors chip storage containers. • Place chip storage containers on asphalt or concrete surfaces. • Be sure fluid has completely drained before placing chips in storage containers. • Continue draining fluids, if necessary. This can be done as simply as tilting containers towards one end and allowing excess fluids to drain through a hole into a residue container. • Inspect area for leaks or spills. • Monitor and maintain containers on a regular basis. Empty storage or residue containers and do not allow them to overflow.
Hazardous waste storage areas	<ul style="list-style-type: none"> • Cover and/or enclose storage areas (including temporary cover such as a tarp that prevents contact with precipitation). • All hazardous waste must be stored in sealed drums. • Establish centralized satellite drum-storage areas. • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Check for corrosion and leakage of storage containers. • Label materials clearly. • Properly dispose of outdated materials.

Pollutant Source	BMPs
Hazardous waste storage areas (continued)	<ul style="list-style-type: none"> • Dike or use grass swales, ditches, or other containment to prevent run-on or runoff in case of spills. • Post notices prohibiting dumping of materials into storm drains. • Store containers, drums, and bags away from high traffic routes and surface waters. • Do not stack containers in such a way as to cause leaks or damage to the containers. • Use pallets to store containers when possible. • Store materials with adequate space for traffic without disturbing drums. • Maintain low inventory level of chemicals based on need. • Train employees in spill prevention and control and proper hazardous waste management
Equipment/vehicle maintenance areas	<ul style="list-style-type: none"> • Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. • Prevent spills and drips. • Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number or amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Perform all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills • Inspect vehicles closely for leaks and use pans to collect fluid when leaks occur. Management of Runoff

Pollutant Source	BMPs
Equipment/vehicle maintenance areas (continued)	<ul style="list-style-type: none"> • Use berms, curbs, grassed swales or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and providing treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge wash water to a storm drain or to surface water • Inspect the maintenance area regularly to insure BMPs are implemented. • Train employees on proper waste control and disposal procedures.
Vehicle fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use a concrete pad (not asphalt not chemically resistant to the fuels being handled). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use spill and overflow protection devices. • Cleanup spills and leaks immediately. • Minimize/eliminate run-on onto fueling areas. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing the fuel area down. Sweep up absorbents as soon as spilled substances have been absorbed. • Regularly inspect and perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills. • Provide curbing or posts around fuel pumps to prevent collisions from vehicles. • Discourage “topping off” of fuel tanks. • Train personnel on vehicle fueling BMPs.
Vehicle and equipment cleaning	<ul style="list-style-type: none"> • Designate vehicle and equipment wash areas that drain to recycle ponds or process wastewater treatment systems. • Conduct vehicle washing operation indoors or in a covered area. • Clean wash water residue from portions of the site that drain to stormwater discharges. • Train employees on proper procedure for washing vehicles and equipment including a discussion of the appropriate location for vehicle washing.
Transporting chemicals to storage areas	<ul style="list-style-type: none"> • Store drums as close to operational building as possible. • Label all drums with proper warning and handling instructions. • Forklift operators should be trained to avoid puncturing drums. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container.
Finished products (galvanized) storage	<ul style="list-style-type: none"> • Store finished products indoors, on a wooden pallets concrete pad, gravel surface, or other impervious surface.

Pollutant Source	BMPs
Wooden pallets and empty drums	<ul style="list-style-type: none">• Clean contaminated wooden pallets.• Cover empty drums.• Cover contaminated wooden pallets.• Store drums and pallets indoors.• Clean empty drums.• Store pallets and drums on concrete pads.

Sector AB: Transportation Equipment, Industrial, or Commercial Machinery Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Outdoor material loading/unloading	Wooden pallets, castings, foundry sand, limestone, spills/leaks from material handling equipment, solvents	Total suspended solids (TSS), turbidity, dust, oil and grease, organics
Outdoor material and equipment storage	Foundry sand, limestone, used equipment, above ground storage tanks, scrap metal, oil and grease, raw materials (e.g., aluminum, steel, iron, copper), castings, solvents, acids, and paints	TSS, turbidity, dust, oil and grease, heavy metals, organics
	Stored hazardous waste, including paint wastes, solvent wastes, and sludge wastes; stored nonhazardous wastes: glass, tires, used wooden pallets, used equipment and machinery, plastics, and rubber wastes	TSS, oils, solvents
Air emissions from stacks and ventilation systems	Engine exhaust from manufacturing equipment, paint residue, particulates in fumes from metal processing activities such as cutting, grinding, shaping, and welding	Particulates, heavy metals
Vehicle fueling and maintenance	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, COD, and benzene
	Fueling	Diesel, gasoline, oil

Best management Practices (BMPs)

Pollutant Source	BMPs
Outdoor material loading and unloading	<ul style="list-style-type: none"> • Confine loading/unloading activities to a designated area outside drainage pathways and away from surface waters • Load/unload indoors or in a covered area. • Cover loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). • Close storm drains during loading/unloading activities in surrounding areas. Avoid loading/ unloading materials in the rain. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Inspect all containers prior to loading/unloading of any raw or spent materials. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Use dry cleanup methods instead of washing the areas down. • Regularly sweep area to minimize debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans • Train employees on proper loading/unloading techniques and spill prevention and response.
Outdoor material storage	<ul style="list-style-type: none"> • Cover storage areas with roofs or tarps. • Confine storage of raw materials, parts, and equipment to designated areas away from high traffic, outside drainage pathways and away from surface waters. • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run on. • Direct stormwater runoff to an on-site retention pond. • Ensure that all containers are properly sealed, and valves closed. • Conduct container integrity testing and provide leak detection. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers.

Pollutant Source	BMPs
Outdoor material storage (continued)	<ul style="list-style-type: none"> • Maintain an inventory of fluids to identify leakage • Wash and rinse containers indoors before storing them outdoors. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. • Train employees on proper spill prevention and response techniques. • Train employees on proper waste control and disposal.
Foundry sand and limestone storage	<ul style="list-style-type: none"> • Confine storage to areas outside of drainage pathways and away from surface waters. • Divert stormwater around storage areas with vegetated swales, and/or berms. • Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. • Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. • Train employees in good housekeeping measures.
Waste management	<ul style="list-style-type: none"> • Store waste in enclosed and/or covered areas. • Store wastes in covered, leak proof containers (e.g., dumpsters, drums). • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters. • Direct runoff to on-site retention pond. • Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. • Ship all wastes to offsite licensed landfills or treatment facilities.
Particulate emission management	<ul style="list-style-type: none"> • Clean around vents and stacks. • Place tubs around vents and stacks to collect particulates. • Inspect air emission control systems (e.g., baghouses) regularly and repair or replace when necessary.
Vehicle fueling	<ul style="list-style-type: none"> • Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should cover extend beyond spill containment pad to prevent rain from entering. • When fueling in uncovered area, use concrete pad (not asphalt). • Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. • Use fueling hoses with check valves to prevent hose drainage after filling. • Clean up spills and leaks immediately. • Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Collect stormwater runoff and provide treatment or recycling. • Use dry cleanup methods for fuel area rather than hosing the fuel area down. Sweep up absorbents as soon as spilled substances have been absorbed. • Regularly inspect and perform preventive maintenance on storage tanks to detect potential leaks before they occur. • Inspect the fueling area for leaks and spills • Provide curbing or posts around fuel pumps to prevent collisions from vehicles.

Pollutant Source	BMPs
Vehicle fueling (continued)	<ul style="list-style-type: none"> • Discourage “topping off” of fuel tanks. • Train personnel on vehicle fueling BMPs
Vehicle maintenance	<ul style="list-style-type: none"> • Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. • Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for reuse. • Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. • Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). • Maintain an organized inventory of materials. • Eliminate or reduce the number or amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. • Clean up leaks, drips, and other spills without using large amounts of water. • Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. • Clean without using liquid cleaners whenever possible. • Do all cleaning at a centralized station so the solvents stay in one area. • If parts are dipped in liquid, remove them slowly to avoid spills. • Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. • Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. • If operations are uncovered, perform them on concrete pad that is impervious and contained. • Park vehicles and equipment indoors or under a roof whenever possible where proper control of oil leaks/spills is maintained and exposure to stormwater is prevented. • Watch vehicles closely for leaks and use pans to collect fluid when leaks occur. • Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. • Collect the stormwater runoff from the cleaning area and providing treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge wash water to a storm drain or to surface water. • Inspect the maintenance area regularly for proper implementation of control measures. • Train employees on proper waste control and disposal procedures.

Sector AC: Electronic and Electrical Equipment and Components, Photographic, and Optical Goods Manufacturing Facilities

Pollutants of Concern

Activity	Pollutant Source	Pollutant
Outdoor material loading/ unloading	Wooden pallets, spills/leaks from material handling equipment, raw materials, finished products, solvents	Total suspended solids (TSS), oil and grease, organics
Outdoor material and equipment storage	Sulfuric acid, alkaline solutions, solvents miscellaneous chemicals, oily wastes, lead, silver, copper, zinc, spent solvents and acids, scrap metal and wire, oily rags	Organics, oil and grease, acids, alkalinity, heavy metals

Best management Practices (BMPs)

Pollutant Source	BMPs
Outdoor material loading and unloading	<ul style="list-style-type: none"> • Confine loading/unloading activities to a designated area outside drainage pathways and away from surface waters. • Perform loading/unloading activities indoors or in a covered area. • Cover loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). • Close storm drains during loading/unloading activities in surrounding areas. • Avoid loading/unloading materials in the rain. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Install an oil/water separator in catch basins. • Inspect all containers prior to loading/unloading of any raw or spent materials. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Dead-end sump where spilled materials could be directed. • Use dry cleanup methods instead of washing the areas down. • Train employees on proper loading/unloading techniques and spill prevention and response.
Outdoor material storage	<ul style="list-style-type: none"> • Cover storage areas with roofs or tarps. • Confine storage of raw materials, parts, and equipment to designated areas away from high traffic, outside drainage pathways and away from surface waters. • Provide secondary containment around chemical storage areas. • If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. • Provide diversion berms, dikes, or grassed swales around the perimeter of the area to limit run-on. • Direct stormwater runoff to an on-site retention pond. • Ensure that all containers are properly sealed, and valves closed. • Conduct container integrity testing and provide leak detection. • Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance. • Plainly label all containers. • Maintain an inventory of fluids to identify leakage. • Wash and rinse containers indoors before storing them outdoors. • Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container.

Pollutant Source	BMPs
Outdoor material storage (continued)	<ul style="list-style-type: none"> • Train employees on proper spill prevention and response techniques. • Train employees on proper waste control and disposal.
Waste management	<ul style="list-style-type: none"> • Store waste in enclosed and/or covered areas. • Store wastes in covered, leak proof containers (e.g., dumpsters, drums). • Cover the dumpsters or move them indoors. • Use linked dumpsters that do not leak. • Provide a lining for the dumpsters. • Direct runoff to on-site retention pond. • Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. • Ship all wastes to offsite licensed landfills or treatment facilities.
Particulate emission management	<ul style="list-style-type: none"> • Clean around vents and stacks. • Place tubs around vents and stacks to collect particulates. • Inspect air emission control systems (e.g., baghouses) regularly and repair or replace when necessary.

APPENDIX C

ROUTINE INSPECTION FORM

Structural Control Measure (Label on Site Map)	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Maintenance or Corrective Action Needed and Notes
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	

Below are some general areas that should be assessed during routine inspections. <u>Customize this list as needed</u> for the specific types of industrial materials or activities at your facility that are potential pollutant sources. Identify if maintenance or corrective action is needed.			
Area/Activity	Inspected?	Controls Adequate?	Maintenance or Corrective Action Needed and Notes
Material loading/unloading and storage areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Equipment operations and maintenance areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Fueling areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Outdoor vehicle and equipment washing areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Waste handling and disposal areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Erodible areas/construction	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Non-stormwater or illicit connections	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Salt storage piles	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Dust generation and vehicle tracking	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Processing areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Area/Activity	Inspected?	Controls Adequate?	Maintenance or Corrective Action Needed and Notes
Areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Area/Activity	Inspected?	Controls Adequate?	Maintenance or Corrective Action Needed and Notes
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Discharge Points

At discharge points, describe any evidence of, or the potential for, pollutants entering the stormwater drainage system. Also describe observations regarding the physical condition of and around all stormwater discharge points, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water. Identify if any corrective action is needed.

Discharge/Pollutants

Describe any previously unidentified stormwater discharges and/or pollutants:

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

APPENDIX D

COMPREHENSIVE SITE EVALUATION FORM

COMPREHENSIVE SITE EVALUATION FORM		
Facility Name		
Facility Address		
Facility Contact		
Facility Contact Phone		
Facility Contact Email		
Inspector Name/Title		
Inspection Date		
RECORDS REVIEW		
Copy of SWP On-Site	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
SWP Up to Date and Accurate	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
Training Records	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
Inspection Records	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
Monitoring Data (Quarterly Visuals and Analytical)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
Spill Records	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
Waste Manifests (if available)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Date Amended:
GENERAL INSPECTION FINDINGS		
<p>As part of this comprehensive site inspection, did you inspect all potential pollutant sources, including areas where industrial activity may be exposed to stormwater <input type="checkbox"/> Yes <input type="checkbox"/> No If no, describe why not:</p>		
<p>Did this inspection identify any stormwater or non-stormwater <u>outfalls</u> not previously identified in your SWP? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, for each location, describe the sources of those stormwater and non-stormwater discharges and any associated control measures in place:</p>		

Did this inspection identify any sources of stormwater or non-stormwater discharges not previously identified in your SWP

Yes No

If Yes, describe these sources of stormwater or non-stormwater pollutants expected to be present in these discharges, and any control measures in place:

Did you review stormwater monitoring data as part of this inspection to identify potential pollutant hot spots?

Yes No

If Yes, summarize the findings of that review and describe any additional inspection activities resulting from this review:

Describe evidence of pollutants entering the drainage system or discharging to surface waters, and the condition of and around outfalls, including flow dissipation measures to prevent scouring:

Have you taken or do you plan to take any corrective actions, as specified in Part of the permit, since your last comprehensive site evaluation (or since you received authorization to discharge under this permit if this is your first annual report), including any corrective actions identified as a result of this annual comprehensive site inspection?

Yes No

If Yes, how many conditions requiring review for correction action?

INDUSTRIAL ACTIVITY DISCHARGE AREA:**Brief Description:**

Are any control measures in need of maintenance or repair?

Yes No

Have any control measures failed and require replacement?

Yes No

Are any additional/revisited control measures necessary in this area?

Yes No

If Yes to any of these three questions, provide a description of the problem:

INDUSTRIAL ACTIVITY DISCHARGE AREA:**Brief Description:**

Are any control measures in need of maintenance or repair?

Yes No

Have any control measures failed and require replacement?

Yes No

Are any additional/revisited control measures necessary in this area?

Yes No

If Yes to any of these three questions, provide a description of the problem:

INDUSTRIAL ACTIVITY DISCHARGE AREA:**Brief Description:**

Are any control measures in need of maintenance or repair?

Yes No

Have any control measures failed and require replacement?

Yes No

Are any additional/revisited control measures necessary in this area?

Yes No

If Yes to any of these three questions, provide a description of the problem:

CORRECTIVE ACTIONS

Complete this section for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report

Corrective Action #

Is this corrective action:

- An update on a corrective action from a previous inspection; or
 A new corrective action?

Identify the condition(s) triggering the need for this review

- Unauthorized release or discharge
 Numeric effluent limitation exceedance
 Control measure inadequate to meet applicable water quality standards
 Control measures inadequate to meet non-numeric effluent standards
 Control measures not properly operated or maintained
 Change in facility operations necessitated change in control measures
 Average benchmark value exceedance
 Other (describe):

Briefly describe the nature of the problem identified:

Date problem identified:

How problem was identified:

- Comprehensive site inspection
 Quarterly visual assessment
 Routine facility inspection
 Benchmark monitoring
 Notification by EPA or State or local authorities
 Other (describe):

Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination
Did/will this corrective action require modification of your SWP? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date corrective action initiated (Within 14 days):
Date correction action completed:
If corrective action is not yet completed, provide the status of corrective action at the time of the comprehensive site inspection, and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

APPENDIX E

QUARTERLY VISUAL MONITORING FORM

QUARTERLY VISUAL MONITORING FORM			
Complete a separate form for each Outfall/Discharge Point			
Facility Name			
Date of Inspection		Start/End Time	
Calendar Quarter			
Collector Name/Title			
Sample Location (Outfall/Discharge)			
Time When Discharge Began			
Nature of Discharge	<input type="checkbox"/> Rainfall <input type="checkbox"/> Snowmelt		
If Rainfall: Amount in Inches			
If Rainfall: Two full days of standard operating activities since last rainfall?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Color	<input type="checkbox"/> None <input type="checkbox"/> Other		
Odor	<input type="checkbox"/> None <input type="checkbox"/> Musty <input type="checkbox"/> Sewage <input type="checkbox"/> Sulfur <input type="checkbox"/> Sour <input type="checkbox"/> Petroleum/Gas <input type="checkbox"/> Solvents <input type="checkbox"/> Other:		
Clarity	<input type="checkbox"/> Clear <input type="checkbox"/> Slightly Cloudy <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque <input type="checkbox"/> Other:		
Floating Solids	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Settled Solids	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Suspended Solids	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Foam	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Oil Sheen	<input type="checkbox"/> None <input type="checkbox"/> Flecks <input type="checkbox"/> Globs <input type="checkbox"/> Sheen <input type="checkbox"/> Slick Describe:		
Other Obvious Indicators of Stormwater Pollution	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Sampling not performed due to adverse conditions	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:		
Identify probable sources of any observed stormwater contamination. Also, include any additional comments, descriptions of pictures taken, and any corrective actions necessary below (attach additional sheets as necessary).			

APPENDIX F

**SECTOR SPECIFIC ANALYTICAL
REQUIREMENTS**

SECTOR SPECIFIC ANALYTICAL REQUIREMENTS
Complete a separate form for each Outfall/Discharge Point

Records of all analytical monitoring shall include the following:

- The date, exact place, and time of sampling or measurements.
- The name(s) of the individual(s) who performed the sampling or measurements as well as the procedures used for sample collection and preservation.
- The date and time when the analysis of the samples took place along with the name of the individual(s) who performed the analysis.
- References and written procedures, when available, for the analytical techniques or methods used.
- The results of such analyses, including the bench sheets, instrument read-outs, computer disks or tapes, used to determine these results.
- A filled Benchmark Monitoring Summary table from **Appendix F** detailing each analytical result on a per-outfall basis; and
- These records shall be kept for a minimum of five (5) years.

In the event that analytical results exceed Benchmark Monitoring Concentration values or Numeric Effluent Limitations, the facility shall investigate the cause for such exceedance and the results of this investigation shall be documented. The results of the investigation shall identify potential sources of pollution, additional Best Management Practices (BMPs) necessary, revisions to the Industrial Material Management Section of the SWP or identify other areas of the SWP that may require revision in order to meet the goal of the Benchmark Monitoring Concentration values. Background concentrations of specific pollutants may also be considered during the investigation.

Benchmark Monitoring Summary				
Outfall Sampled				
Date Sampled		Time Sampled		
Sampler Name				
Date Analyzed		Time Analyzed		
Lab Performing the Analysis				
Include attached to this section the results and procedures of the analysis performed.				
Parameter	Units	Benchmark	Results	Pass/Fail

Benchmark Monitoring Summary				
Outfall Sampled				
Date Sampled		Time Sampled		
Sampler Name				
Date Analyzed		Time Analyzed		
Lab Performing the Analysis				
Include attached to this section the results and procedures of the analysis performed.				
Parameter	Units	Benchmark	Results	Pass/Fail

Benchmark Monitoring Summary				
Outfall Sampled				
Date Sampled		Time Sampled		
Sampler Name				
Date Analyzed		Time Analyzed		
Lab Performing the Analysis				
Include attached to this section the results and procedures of the analysis performed.				
Parameter	Units	Benchmark	Results	Pass/Fail

Sector A – General Sawmills and Planning Mills

9.1.4.3.2.1.1 Numeric Effluent Limitation

Parameter	Units	Effluent Limitations
Wet Decking Discharges at Log Storage and Handling Areas (SIC Code 2411)		
Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	-----	No discharge of debris that will not pass through a 2.54 cm (1 inch) diameter round opening.
pH	Standard Units	6.0-9.0

9.1.4.3.2.1.1 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Log Storage and Handling (SIC Code 2411)		
Total Suspended Solids (TSS)	mg/l	100.0
General Sawmills and Planning Mills (SIC Code 2421)		
Chemical Oxygen Demand (COD)	mg/l	120.0
Total Suspended Solids (TSS)	mg/l	100.0
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Wood Preserving (SIC Code 2491)		
Total Arsenic	mg/l	0.16854
Total Copper	mg/l	0.0636
pH	Standard units	6.0-9.0
Hardwood Dimension and Flooring Mills (SIC Codes 2426, 2429, 2431-2439 (except 2434), 2448, 2449, 2451, 2452, 2499 and 2593)		
Chemical Oxygen Demand (COD)	mg/l	120.0
Total Suspended Solids (TSS)	mg/l	100.0
pH	Standard units	6.0-9.0

Sector B – Paper and Allied Product

No Numeric Effluent Limitations

9.1.4.3.2.2 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Paperboard Mills (SIC Code 2631)		
Chemical Oxygen Demand (COD)	mg/l	120.0
pH	Standard units	6.0-9.0

Sector C – Chemical and Allied Product Manufacturing

9.1.4.3.2.3.1 Numeric Effluent Limitation

Parameter	Units	Effluent Limitations	
		Daily Maximum	30-Day Average
Phosphate Subcategory of the Fertilizer Manufacturing Point Source Category (SIC Code 2874) – applies to precipitation runoff that, during manufacturing or processing, comes into contact with any raw materials, intermediate product, finished product, by-products or waste product			
Total Phosphorus (as P)	mg/l	105.0	35.0
Fluoride	mg/l	75.0	25.0
pH	Standard units	6.0-9.0	

9.1.4.3.2.3.2 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Industrial Inorganic Chemicals (SIC Codes 2812-2819)		
Total Recoverable Aluminum	mg/l	0.75
Total Recoverable Iron	mg/l	1.0
Nitrate plus Nitrite Nitrogen	mg/l	0.68
pH	Standard units	6.0-9.0
Plastics, Synthetics, and Resins (SIC Codes 2821-2824)		
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Soaps, Detergents, Cosmetics, and Perfumes (SIC Codes 2841-2844)		
Nitrate plus Nitrite Nitrogen	mg/l	0.68
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Agricultural Chemicals (SIC Codes 2873-2879)		
Nitrate plus Nitrite Nitrogen	mg/l	0.68
Total Recoverable Iron	mg/l	1.0
Total Recoverable Zinc	mg/l	0.117
Phosphorus	mg/l	2.0
Total Recoverable Lead	mg/l	0.0816
pH	Standard units	6.0-9.0

Sector D – Asphalt Paving and Roofing Materials and Lubricant Manufacturers

9.1.4.3.2.4.1 Numeric Effluent Limitations

Parameter	Units	Effluent Limitations	
		Daily Maximum	30-Day Average
Discharges from areas where production of asphalt paving and roofing emulsions occurs (SIC Codes 2951 and 2952)			
Total Suspended Solids (TSS)	mg/l	23.0	15.0
Oil and Grease	mg/l	15.0	10.0
pH	Standard units	6.0-9.0	

9.1.4.3.2.4.2 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Asphalt Paving and Roofing Materials and Lubricant Manufacturers (SIC Codes 2951 and 2952)		
Total Suspended Solids (TSS)	mg/l	100.0
pH	Standard units	6.0-9.0

Sector E – Glass, Clay, Cement, Concrete and Gypsum Products

9.1.4.3.2.5.1 Numeric Effluent Limitations

Parameter	Units	Effluent Limitations
		Daily Maximum
Cement Manufacturing Facility, Material Storage Runoff: Any discharge composed of runoff that derives from the storage of materials including raw materials, intermediate products, finished products and waste materials that are used in or derived from the manufacture of cement.		
Total Suspended Solids (TSS)	mg/l	50.0
pH	Standard units	6.0-9.0

9.1.4.3.2.5.2 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Clay Product Manufacturers (SIC Codes 3245-3259 and 3261-3269)		
Total Recoverable Aluminum	mg/l	0.75
pH	Standard units	6.0-9.0
Concrete and Gypsum Product Manufacturers (SIC Codes 3271-3275)		
Total Suspended Solids (TSS)	mg/l	100.0
Oil and Grease	mg/l	15.0
Total Recoverable Iron	mg/l	1.0
pH	Standard units	6.0-9.0

Sector F – Primary MetalsNo Numeric Effluent Limitations9.1.4.3.2.6.1 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Steel Works, Blast Furnaces, and Rolling and Finishing Mills (SIC Codes 3312-3317)		
Total Recoverable Aluminum	mg/l	0.75
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Iron and Steel Foundries (SIC Codes 3321-3325)		
Total Recoverable Aluminum	mg/l	0.75
Total Suspended Solids (TSS)	mg/l	100.0
Total Recoverable Copper	mg/l	0.0636
Total Recoverable Iron	mg/l	1.0
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Rolling, Drawing, and Extruding of Nonferrous Metals (SIC Codes 3351-3357)		
Total Recoverable Copper	mg/l	0.0636
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0
Nonferrous Foundries (SIC Codes 3363-3369)		
Total Recoverable Copper	mg/l	0.0636
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0

Sector J – Mineral Mining and Dressing

9.1.4.3.2.7.1 Numeric Effluent Limitations

Parameter	Units	Effluent Limitations	
		Daily Maximum	30-Day Average
Mine Dewatering Activities at Construction Sand and Gravel; Industrial Sand; and Crushed Stone Mining Facilities (SIC Codes 1422-1429, 1442 and 1446)			
Total Suspended Solids (TSS)	mg/l	45.0	25.0
pH	Standard units	6.0-9.0	

9.1.4.3.2.7.2 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Dimension Stone Crushed and Broken Stone and Nonmetallic Minerals (except fuels) (SIC Codes 1411, 1422-1429, 1481 and 1499)		
Total Suspended Solids (TSS)	mg/l	100.0
pH	Standard units	6.0-9.0
Sand and Gravel Mining (SIC Codes 1442 and 1446)		
Nitrate plus Nitrite Nitrogen	mg/l	0.68
Total Suspended Solids (TSS)	mg/l	100.0
pH	Standard units	6.0-9.0

Sector M – Automobile Salvage Yards

No Numeric Effluent Limitations

9.1.4.3.2.8 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Automobile Salvage Yards (SIC Code 5015)		
Total Suspended Solids (TSS)	mg/l	100.0
Total Recoverable Aluminum	mg/l	0.75
Total Recoverable Iron	mg/l	1.0
Oil and Grease	mg/l	15.0
Total Recoverable Lead	mg/l	0.0816
pH	Standard units	6.0-9.0

Sector N – Scrap Recycling and Waste Recycling Facilities

No Numeric Effluent Limitations

9.1.4.3.2.9 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Scrap Recycling and Waste Recycling Facilities (SIC Code 5093)		
Total Suspended Solids (TSS)	mg/l	100.0
Total Recoverable Aluminum	mg/l	0.750
Total Recoverable Copper	mg/l	0.0636
Total Recoverable Iron	mg/l	1.0
Total Recoverable Lead	mg/l	0.0816
Total Recoverable Zinc	mg/l	0.117
Oil and Grease	mg/l	15.0
Chemical Oxygen Demand (COD)	mg/l	120.0
pH	Standard units	6.0-9.0

Sector O - Steam Electric Generating Facilities

No Numeric Effluent Limitations

9.1.4.3.2.10 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Steam Electric Generating Facilities (Industrial Activity Code SE)		
Total Recoverable Iron	mg/l	1.0
pH	Standard units	6.0-9.0

Sectors P – Land Transportation and Warehousing

No Numeric Effluent Limitations

9.1.4.3.2.11 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Land Transportation and Warehousing (SIC Codes 4011-4013, 4111-4173, 4212-4273, 4311 and 5171)		
Oil and Grease	mg/l	15.0
Total Surfactants	mg/l	1.0
Total Suspended Solids	mg/l	100.0
pH	Standard units	6.0-9.0

Sector Q – Water Transportation

No Numeric Effluent Limitations

9.1.4.3.2.12 Benchmark Monitoring Requirement

Parameter	Units	Benchmark Monitoring Concentrations
Water Transportation Facilities (SIC Codes 4412-4499)		
Total Recoverable Aluminum	mg/l	0.75
Total Recoverable Aluminum	mg/l	1.0
Total Recoverable Zinc	mg/l	0.117
Total Recoverable Lead	mg/l	0.0816
pH	Standard units	6.0-9.0

Sector S – Air Transportation

No Numeric Effluent Limitations

9.1.4.3.2.13 Benchmark Monitoring Requirement

Parameter	Units	Benchmark Monitoring Concentrations
Facilities at airports that use more than 100,000 gallons of glycol-based deicing/anti-icing chemicals and/or 100 tons or more of urea on an average annual basis: monitor only those outfalls from the airport facility that collect runoff from areas where deicing/anti-icing activities occur (SIC Codes 45xx)		
Biochemical Oxygen Demand (BOD5)	mg/l	30.0
Ammonia	mg/l	19.0
Chemical Oxygen Demand (COD)	mg/l	120.0
pH	Standard units	6.0-9.0

Sector U – Food and Kindred ProductsNo Numeric Effluent Limitations9.1.4.3.2.14 Benchmark Monitoring Requirements

Parameter	Units	Benchmark Monitoring Concentrations
Grain Mill Products (SIC Codes 2041-2048)		
Total Suspended Solids (TSS)	mg/l	100.0
pH	Standard units	6.0-9.0
Fats and Oils Products (SIC Codes 2074-2079)		
Biochemical Oxygen Demand (BOD5)	mg/l	30.0
Nitrate plus Nitrite Nitrogen	mg/l	0.68
Total Suspended Solids (TSS)	mg/l	100.0
Chemical Oxygen Demand (COD)	mg/l	120.0
pH	Standard units	6.0-9.0

Sector Y - Rubber, Miscellaneous Plastic Products and Miscellaneous Manufacturing Industries

No Numeric Effluent Limitations

9.1.4.3.2.15 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Tires and Inner Tubes; Rubber Footwear; Gaskets, Packing and Sealing Devices; Rubber Hose and Belting; and Fabricated Rubber Products, Not Elsewhere Classified (SIC Codes 3011-3069, rubber)		
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0

Sector Z - Leather Tanning and Finishing

No Numeric Effluent Limitations

9.1.4.3.2.16 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Leather Tanning and Finishing (SIC Code 3111)		
Total Kjeldahl Nitrogen	mg/l	1.5
pH	Standard units	6.0-9.0

Sector AA – Fabricated Metal Product

No Numeric Effluent Limitations

9.1.4.3.2.17 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Fabricated Metal Products Except Coating (SIC Codes 3411-3471, 3482-3499, 3911-3915)		
Total Recoverable Aluminum	mg/l	0.750
Total Recoverable Iron	mg/l	1.0
Total Recoverable Zinc	mg/l	0.117
Nitrate plus Nitrite Nitrogen	mg/l	0.68
pH	Standard units	6.0-9.0
Fabricated Metal Coating and Engraving (SIC Code 3479)		
Total Recoverable Zinc	mg/l	0.117
pH	Standard units	6.0-9.0

Coal Pile Runoff

9.1.4.3.2.18 Benchmark Monitoring

Parameter	Units	Benchmark Monitoring Concentrations
Facilities that have discharges of storm water from coal storage piles regardless of a facility's sector of industrial activity shall analyze grab samples in accordance with the following parameters and shall not exceed the indicated Numeric Effluent Limitations. The coal pile runoff must not be diluted with other storm water flows in order to meet the Numeric Effluent Limitations indicated below. Persons subject to Numeric Effluent Limitations must be in compliance with these limitations through the duration of coverage		
Coal Pile Runoff		
Total Suspended Solids	mg/l	50.0
pH	Standard units	6.0-9.0