LUBRICATING SPECIALTIES COMPANY

HARBOR TOXICS TMDL
MONITORING AND REPORTING PLAN

Lubricating Specialties Company
8015 Paramount Blvd
Pico Rivera, CA 90660

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LIST OF ABBREVIATIONS

DDT	Dichloro-diphenyl trichloroethane
BMPs	Best Management Practices
CEDEN	California Environmental Data Exchange Network
CFR	Codes of Federal Regulations
COC	Chain of Custody
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
MDL	Method of Detection Limit
MRP	Monitoring Reporting Plan
LARWQCB	Los Angeles Regional Water Quality Control Board
LOE	Lines of Evidence
LSC	Lubricating Specialties Company
QA/QC	Quality Assurance and Quality Control
QAPP	Quality Assurance Project Plan
NPDES	National Discharge Elimination System
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RL	Reporting Limit
SQO	Sediment Quality Objectives
SWAMP	Surface Water Ambient Monitoring Program
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Mass Daily Load
TSS	Total Suspended Solids

SECTION 1

INTRODUCTION

This Harbor Toxics Total Maximum Daily Load (TMDL) Monitoring and Reporting Plan (MRP) is prepared for the Lubricating Specialties Company's facility located at 8015 Paramount Boulevard, Pico Rivera, California. The MRP is developed and implemented to fulfill the requirements of the National Discharge Elimination System (NPDES) permit issued to the facility by the United States Environmental Protection Agency (EPA) and Los Angeles Regional Water Quality Control Board (LARWQCB) on 1 December 2017. The NPDES Permit number is CA0059013.

Objectives of the MRP are:

- Assess the chemical, physical and biological impacts of storm water discharges from the facility to the receiving water: Rio Hondo Channel Reach 2,
- Characterize pollutant loads in facility discharges,
- Identify and evaluate pollutant sources, and
- Measure and improve the effectiveness of pollutant controls.

The MRP is a living document and shall be revised whenever appropriate and shall be readily available for review by facility employees or the LARWQCB inspectors.

SECTION 2

FACILITY DESCRIPTION

2.1 General Facility Description

The Lubricating Specialties Company facility is located at 8015 Paramount Boulevard, Pico Rivera, California. The facility covers approximately 5 acres of area. Lubricating Specialties Company (LSC) is in an area of mixed residential, commercial and industrial facilities. Approximately 35 percent of the site has rooftop coverage. All major product manufacturing areas have rooftop coverage. The open area is paved with concrete and/or asphalt. The facility does not contain areas of potential soil erosion. Figure 1 shows the facility location map. Figure 2 provides the facility plot plan.

2.2 Facility Activity and Process Description

LSC blends and packages lubricating oils. Major processes conducted at the facility include:

1. The facility receives refined base oils by rail and tanker truck. The bulk materials are directly pumped from the railcar or tanker truck into aboveground storage tanks located in the outdoor tank farm. The outdoor tank farm is situated near the northwest corner of the facility. It contains about 50 storage tanks with a total storage capacity of 962,000 gallons. The railroad spur is situated within a containment structure, which can accommodate five railcars for up to an additional 100,000 gallons of storage.

2. Blending of the raw materials into products is accomplished in the blending vessels located indoor. Every product has a specified blending procedure for employees to follow. After blending, the product is either packaged into containers in the drum filling area or transferred into the aboveground tanks located in the tank farm. The filled containers are transferred to the warehouse for storage. Packaged goods are inspected for leaks before shipment. The blending process is conducted indoor and is impervious to storm water.

3. The facility maintains two drum storage areas. All drums are stored on pallets and are covered to protect the product from water intrusion and eliminate the materials possible contact with rain water. One storage area is located at the southeastern area of the site, where 55-gallon drums of finished product and other petroleum chemicals are stored. The facility leases a parcel of land located at the north boundary of the property for storage of drums, which contain additives. This area is covered by an asphalt berm for spill containment. The area is graded to drain to a low point, where the runoff will collect in a sump and be pumped to the storm water treatment unit.

2.3 Facility Storm Water Collection, Treatment and Control

Storm water from the facility drains to the storm water collection pond. The storm water is then pumped through the storm water treatment system. The system is equipped with two pumps, each with a maximum capacity of 70 gallons per minute. Commingled storm water from the storm water collection pond is pumped through two bag filters, an activated carbon filter, a sand filter, a 5-micron filter, and finally a 1-micron filter. After filtration, the treated water is stored in a 1,000-gallon tank to allow for additional settling.

If it is determined that additional treatment is necessary for the treated storm water to meet the NPDES permit limits, the treated storm water may be diverted to a sump, from which it is pumped back to the influent of the storm water treatment system, and the treatment process is repeated. The treated storm water may be reused for indoor industrial processes and discharged into the sanitary sewer. When the amount of treated storm water exceeds the capacity for reuse and/or storage onsite, the treated storm water is discharged through a polyvinyl chloride pipe that extends along the northern fence line. The pipe discharges offsite to an unnamed drainage ditch, where it commingles with runoff from neighboring industrial sites, and flows into the Rio Hondo Reach 2.

2.4 Facility Discharge

Under NPDES No. CA0059013, storm water can be released into the Rio Hondo Reach 2, a tributary of the Los Angeles River, through the permitted Discharge Point (ES-001).

LSC is implementing best management practices (BMPs) to eliminate storm water discharge to the Rio Hondo. These BMPs include: (1) reuse the treated storm water and discharge the used water to the sewer, and (2) avoid clean and contaminated storm water comingling. Details of the BMPs are as follows:

2.4.1 Reuse of Treated Storm Water

The treated storm water is pumped from the storm water treatment unit and stored in aboveground poly tanks. When rinse water is needed, a water pump is turned on and delivers the treated water to a hose reel connector inside a dike where equipment rinsing water would be needed. After cleaning, the wastewater is collected by a sump pump, and discharged to the 4-stage clarifier and then to the public sewer. LSC will continue to investigate other use of the treated storm water.

2.4.2 Minimize Clean and Contaminated Storm Water Comingling

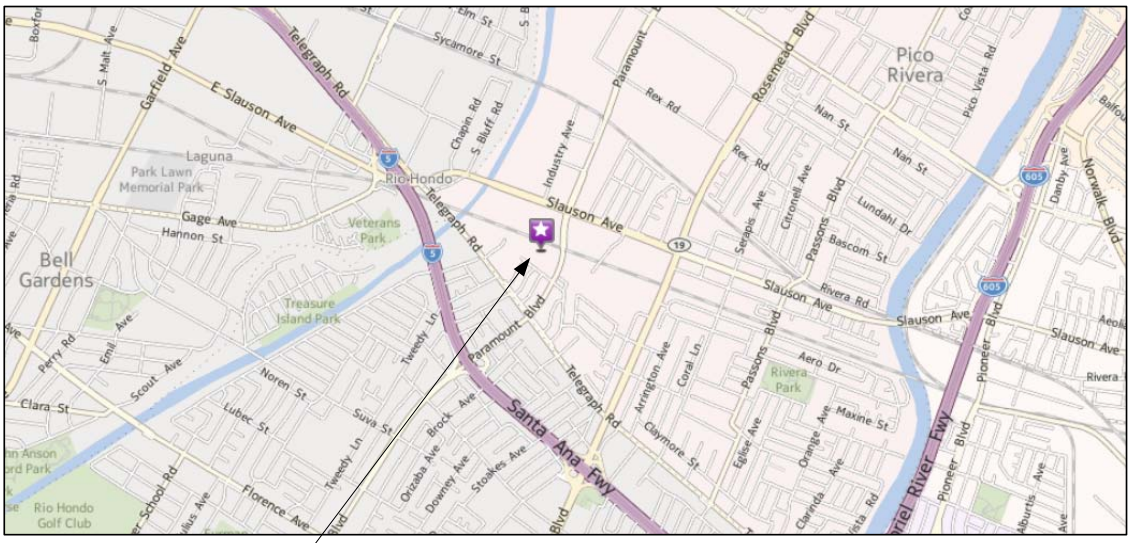
Sources of storm water contamination at LSC are from the tank farm, loading/unloading rack, outdoor equipment, trash bins and railcar loading. Storm water generated at other areas has minimal contamination potential, e.g. the office, warehouse, and roof. Diverting these clean storm water runoffs from reaching the

storm water pond will minimize the quantity of contaminated storm water at LSC. LSC will continue to investigate this pollution prevention practice.

Release of storm water to the Rio Hondo may still occur if flooding of the facility is imminent after taking all reasonable operational steps to contain excess storm water. For example, release may be allowed if the storm water quantity reaches all on-site storage capacity (pond and tanks), and if there are risks to human life, the safety of employees and the community from flooding of the facility.

If a discharge to the Rio Hondo occurs, effluent samples are required to be collected during active discharge at the corresponding discharge location (i.e. – Discharge Point 001) for the parameters listed in the permit order. During years of discharge, the receiving water is required to be monitored at 2 locations (RSW-001 and RSW-002). In addition, the first discharge through the permitted NPDES outfalls would also trigger the implementation of the Harbor Toxics TMDL Monitoring Program as specified in this MRP.

Figure 1. Location Map



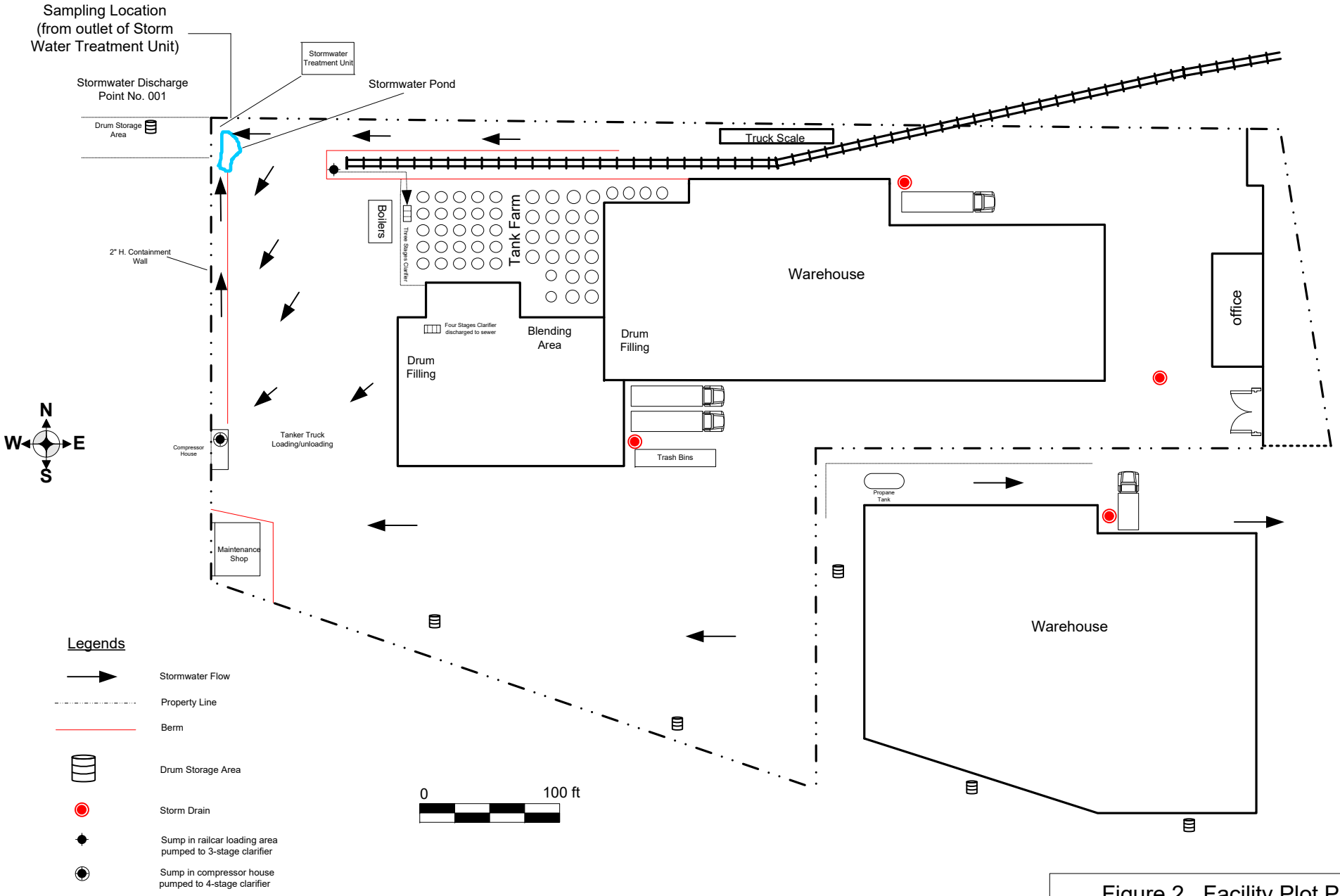


Figure 2. Facility Plot Plan

Lubricating Specialties Company
8015 Paramount Blvd
Pico Rivera, CA 90660

SECTION 3

TMDL MONITORING

Under NPDES No. CA0059013, LSC is required to conduct Harbor Toxics TMDL water column, and sediment monitoring above the Los Angeles River Estuary to determine the River's Contribution to the impairments in the Los Angeles Greater Harbor waters. The monitoring shall follow the "TMDL Element – Monitoring Plan" provision in Attachment to Resolution No. R11-008 (Resolution 2011). In addition, LSC is required to develop and implement a quality assurance project plan (QAPP 2018).

3.2 MRP Implementation

Monitoring, as specified in this MRP, is only to be implemented when a discharge occurs to the permitted NPDES outfall (ES-001). If no discharge occurs, implementation of this monitoring and reporting plan is not required.

When a discharge occurs, monitoring as outlined in this MRP shall be implemented from the facility's first discharge. Water column and total suspended solids (TSS) samples shall be collected in the Rio Hondo as soon as possible following the first effluent discharge. Sediment sample shall be collected within the year of the first effluent discharge event. Figure 3 shows the two sample locations (RSW-001 and RSW-002). Table 1 presents the sampling parameters.

All field sampling and measurements shall be conducted as outlined in the Surface Water Ambient Monitoring Program (SWAMP) protocols (SWAMP 2014) and Standard Operating Procedure for the Collection of Water and Bed Sediment Samples with Associated Field Measurements and Physical Habitat in California and SQO-Part 1 (SQO 2009).

3.1 Water Column and TSS Monitoring

Monitoring shall be performed at RSW-001 and RSW-002 as shown in Figure 3. Water samples and Total Suspended Solids (TSS) samples shall be collected during two wet weather events and one dry weather event each year. TSS samples collected at different depths shall be consolidated and analyzed as one sample for each station.

Water and TSS samples shall be analyzed for lead, zinc, copper, DDT, PCBs, benzo[a]anthracene, benzo[a]pyrene, chrysene, phenanthrene and pyrene at RSW-001 and RSW-002. General water chemistry including temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow shall be monitored at RSW-001 and RSW-002 during each sampling event using the appropriate field instrumentation for measurement. All samples are to be submitted to a state certified laboratory for analysis with an accompanying chain of custody as specified in the supporting QAPP.

The first large storm event of the season, once MRP implementation has been triggered, shall be included as one of the wet weather monitoring events. Receiving water column sampling including water samples and TSS samples shall begin during or as soon as possible following the first effluent discharge event. During water column sampling, sufficient volumes of suspended solids shall be collected to allow for analysis of the pollutants in the bulk sediment.

Table 2 summarizes the waste load allocations (WLAs) as included in the Harbor Toxics TMDL for the Los Angeles River Estuary.

3.2 Sediment Monitoring

Sediment triad sampling shall be performed at RSW-001 and RSW-002 every two years starting from the year of the first effluent discharge event and every two years subsequently. Sediment triad sampling, as specified in the SQO - Part 1, consists of three lines of evidence (LOE) including: sediment chemistry, two toxicity tests and four benthic indices.

In addition, sediment chemistry sampling shall be conducted in between the sediment triad sampling events every two years. The sediment chemistry samples shall be analyzed for the full chemical suite as included in Attachment A of the SQO-Part 1 to evaluate trends in general sediment quality constituents and listed constituents relative to sediment quality targets.

If moderate sediment toxicity is observed, results shall be reported in the Annual Report and submitted to the LARWQCB. Further analysis and evaluation to determine the causes of toxicity and remedial actions shall be performed in accordance with the LARWQCB guidance. Table 2 presents the marine sediment targets applicable to the Los Angeles Harbors.

3.3 Sampling Procedures

Sample collection protocols, standard analytical procedures, quality assurance / quality control protocols for water and sediment monitoring are specified in the QAPP supporting this MRP.

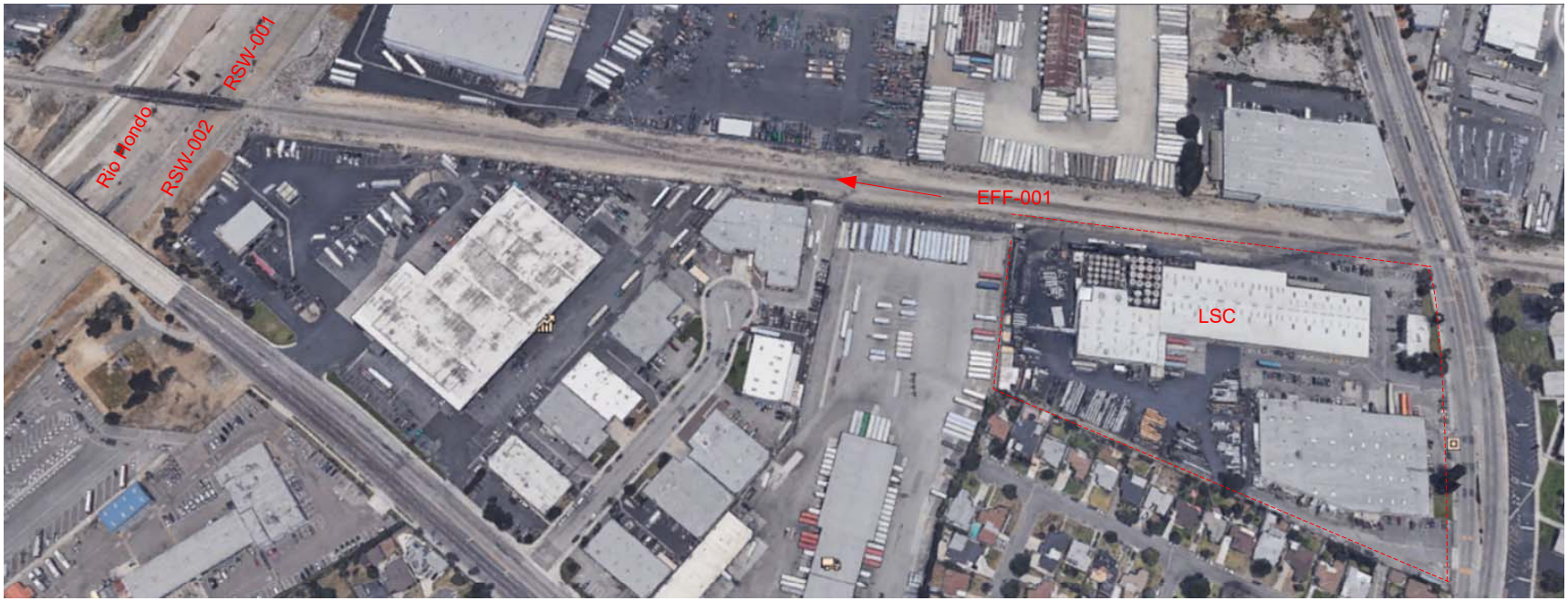
3.4 Quality Assurance and Quality Control

Quality Assurance and Quality Control (QA/QC) shall involve accurately documenting all monitoring using appropriate field logs, following clean sampling techniques, and properly using COC forms for laboratory analyses. Additionally, analytical results shall be verified

to ensure that samples were analyzed completely and accurately. This data verification shall include:

- Checking that all requested analyses were performed and all samples are accounted for.
- Checking that hold times were met and that the reporting levels meet or are lower than reporting levels and benchmark values.
- Reviewing data for outlier values, including typographical errors, unit reporting errors, or incomplete results. In these cases, the laboratory shall be followed up with to identify, clarify, and/or correct relevant errors.
- Comparing results with QA/QC results to check for contamination, precision, and accuracy. When QA/QC criteria are not met, obtain a written statement from the laboratory regarding the validity of the sample result. If necessary, have the lab re-analyze the sample.

Figure 3. Monitoring Locations



Legends

Property Line ----------

Storm Water Flow ——►

Sample Location:

EFF-001 – Outlet of Storm Water Treatment
RSW-001 – Within the Rio Hondo Channel at least 50 feet upstream of the confluence with the drainage course
RSW-002 – Within the Rio Hondo Channel at least 50 feet upstream of the confluence with the drainage course

Table 1. Monitoring Locations and Parameters

Water Body	Station ID	Station Description	Station Location	Sample Media and Parameters	Frequency
Rio Hondo	RSW-001	Within the Rio Hondo Channel at least 50 feet downstream of the confluence with the drainage course	Lat 33.9721º Lon: 118.1165º	**Water Column / TSS:** Lead, Zinc, Copper, PCBs, DDT, benzo[a]anthracene, benzo[a]pyrene, chrysene, phenanthrene, and pyrene, temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow	Two wet weather events and one dry weather event each year.
				Sediment: Sediment Chemistry, Toxicity, Benthic Community Effect	Once every two years
	RSW-002	Within the Rio Hondo Channel at least 50 feet downstream of the confluence with the drainage course	Lat 33.9721º Lon: 118.1165º	**Water Column / TSS:** Lead, Zinc, Copper, PCBs, DDT, benzo[a]anthracene, benzo[a]pyrene, chrysene, phenanthrene, and pyrene, temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow	Two wet weather events and one dry weather event each year.
				Sediment: Sediment Chemistry, Toxicity, Benthic Community Effect	Once every two years

Table 2. Water Column Concentrations Based Waste Load Allocations and Sediment Targets

Water Column Targets	
Pollutants	**Waste Load Allocation, ug/L**
Metals	
Copper	3.73
Lead	8.52
Zinc	85.6
Organics	
PAHs	0.049
Chlordance	0.00059
4'4 DDT	0.00059
Dieldrin	0.00014
Total PCBs	0.00017

Sediment Targets	
Pollutants	**Marine Sediment, mg/kg**
Metals	
Cadmium	1.2
Copper	3.4
Lead	46.7
Mercury	0.15
Zinc	150
Chromium	81
Organics	
Chlordance, total	0.5
Dieldrin	0.02
Toxaphene	0.1
Total PCBs	22.7
Benzo(a)anthracene	251
Benzo(a)pyrene	430
Chrysene	384
Pyrene	665
2-methlnaphthalene	201
Dibenz(a,h)anthracene	260
Phenanthrene	240
Hi MW PAHs	1700
Lo MW PAHs	552
Total PAHs	4022
Total DDT	1.58

SECTION 4

REPORTING

An Annual Report shall be submitted to the LARWQCB indicating compliance with waste load and/or load allocations. The annual monitoring report shall include the following:

- A description of monitoring activities conducted for the monitoring year;
- A summary of water and sediment analytical results;
- A summary of any deviations from the proposed sampling program and associated quality assurance / quality control issues and any associated action / response activities; and
- A summary of compliance / non-compliance with waste load allocations / targets.

Implementation of the Harbor Toxics TMDL monitoring program is triggered by the first storm water discharge from the facility through the permitted NPDES outfall into the Rio Hondo Reach 2 Estuary. The monitoring year shall begin the day the first discharge from the facility is released and shall conclude one year thereafter.

The Annual Report shall be submitted to the LARWQCB starting 12 months after monitoring is initiated and annually in subsequent years. All receiving water monitoring data shall also be submitted in accordance with the California Environmental Data Exchange Network (CEDEN). The facility shall submit all receiving water monitoring data in accordance with CEDEN, when feasible.

If no discharge occurs implementation of the TMDL monitoring program is not required and, as such, a no discharge report shall be submitted in the Annual Report submitted to the LARWQCB.

SECTION 5

REFERENCES

QAPP 2018. Lubricating Specialties Company, Harbor Toxics TMDL Quality Assurance Project Plan (QAPP), December 2018

NPDES 2017. National Pollutant Discharge Elimination System No. CA0059013, 1 December 2017.

Resolution 2011. Attachment A to Resolution No. R11-008, Amendment to the Water Quality Control Plan – Los Angeles Region, May 5, 2011, https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R11-008_RB_BPA.pdf

SQO 2009. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality, August 25, 2009. https://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/sed_qlty_part1.pdf

SWAMP 2014. Collections of Water and Bed Sediment Samples with Associated Field Measurements and Physical Habitat in California, March 2014, https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/final_collect_water_sed_phys_habitat.pdf

LUBRICATING SPECIALTIES COMPANY

HARBOR TOXICS TMDL QUALITY ASSURANCE PROJECT PLAN (QAPP)

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December 2018

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APPENDIX

LIST OF ABBREVIATIONS

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BMPs	Best Management Practices
CEDEN	California Environmental Data Exchange Network
CFR	Codes of Federal Regulations
COC	Chain of Custody
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
MDL	Method of Detection Limit
MRP	Monitoring Reporting Plan
LARWQCB	Los Angeles Regional Water Quality Control Board
LOE	Lines of Evidence
LSC	Lubricating Specialties Company
QA/QC	Quality Assurance and Quality Control
QAPP	Quality Assurance Project Plan
NPDES	National Discharge Elimination System
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RL	Reporting Limit
SQO	Sediment Quality Objectives
SWAMP	Surface Water Ambient Monitoring Program
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Mass Daily Load
TSS	Total Suspended Solids

SECTION 1

INTRODUCTION

1.1 Purpose

Pursuant to the National Discharge Elimination System (NPDES) Permit No. CA0059013, the Lubricating Specialties Company (LSC) has developed this Quality Assurance Project Plan (QAPP) to support the LSC's Harbor Toxics Total Maximum Daily Load (TMDL) Monitoring and Reporting Plan (MRP) (MRP 2018). The QAPP presents the monitoring and sampling methods, analytical procedures, laboratory certification and quality assurance/quality control protocol.

The QAPP consists of the following:

- Program management;
- Field sampling data quality requirements;
- Laboratory quality requirements;
- Data review, verification and validation procedures.

The QAPP is a living document and shall be revised whenever appropriate and shall be readily available for review by facility employees or the Los Angeles Regional Water Control Board (LARWCB) inspectors.

1.2 QAPP Team

Facility officials, and qualified trained contractors will oversee and implement all aspects of this QAPP. The following outlines the involved parties, their tasks and responsibilities in implementing this program.

Robert Kress is the Vice President of the organization who reviews and certifies all associated reports required to be submitted to the LARWQCB for the Harbor Toxics TMDL monitoring program. The vice president of the organization will not participate in the day to day execution of the program.

Mark Negast is the Technical Director in charge of overseeing the storm water program implementation at the facility and approving facility effluent discharges to the NPDES outfall. The Technical Director supported by the LSC's staff reviews field sampling activities, including sampling protocols followed by the designated sampling contractors, to ensure all sampling procedures comply with the facility's QAPP. The Technical Director may stop all actions if there are significant deviations from required practices, or if there is evidence of systemic failure.

A select contractor shall be assigned to conduct field sampling for the facility's Harbor Toxics TMDL monitoring program. The contracted samplers shall be required to assign a designated supervisor to provide monitoring oversight in the field, provide progress reports to facility management and ensure all field sampling equipment is properly maintained. Contracted samplers are responsible for sample collection; handling and transport; and, field data transmittal to responsible parties. LSC's Technical Staff, Harvey Lopez, will oversee the select contractor.

Contracted laboratories are responsible for delivering sample confirmation receipt notifications to facility management, performing the required analytical methods, following documentation, custody and sample logbook procedures, meeting all reporting QA / QC requirements, delivering electronic data files to facility management and meeting turnaround times for required analyses.

SECTION 2

PROJECT TASK DESCRIPTION

2.1 Regulatory Background

The Clean Water Act Section 303(d) identifies impaired waterbodies for which effluent limitations are not meeting water quality standards. Water quality standards include the designated beneficial uses of a waterbody, the adopted water quality objectives to protect those uses, and the State's Antidegradation Policy. The 303(d) list identifies the Greater Los Angeles Harbors water body that fails to fully support its designated beneficial uses. The Lost Angeles River Estuary contains pollutant impairments for a variety of toxic pollutants, including metals, organic compounds and sediment toxicity.

To protect and restore water and sediment quality, TMDLs for the Los Angeles River Estuary have been designed to limit the amount of pollutants entering Los Angeles Harbor waters. Target loads are specified in the TMDL program with the intent to determine the quantity of contaminants a system can assimilate while protecting water quality. Additionally, the TMDL strives to identify contaminant source inputs and linkages of inputs to impairments and allocate reductions to each pollutant source to achieve compliance with established targets for the restoration and protection of harbor waters.

The LSC facility is an individual industrial permittee allowed to discharge storm water into the Rio Hondo Reach 2, which is a tributary of the Los Angeles River Estuary under NPDES Permit No. CA0059013 (NPDES 2017). As such, the facility is required to develop a TMDL monitoring program to assess and characterize the pollutants present in the facility's receiving water.

2.2 Facility's Responsibility

LSC shall collect water column and sediment samples in the Rio Hondo Reach 2 and shall utilize the analytical data of the samples to identify areas where waste load and/or load allocations are not being met. Sampling shall occur at monitoring locations RSW-001 and RSW-002 identified in the facility's MRP and depicted in Figure 1. The information gathered from the facility's TMDL monitoring program shall be reported to the LARWQCB at the end of each monitoring year. The data may be used by regulatory agencies to identify management actions that can be implemented to reduce sources and improve water quality as well as to plan for future monitoring needs and regulatory actions.

Samples shall be collected by a qualified contractor specialized in sample field collection. Eurofins laboratory or other accredited laboratory shall be used as the contract laboratory for analysis required under the Harbor Toxics TMDL Program. Eurofins Laboratory is an accredited laboratory with Environmental Laboratory Accreditation Program (ELAP) Certification No. 2944. As needed, Eurofins Laboratory shall subcontract to laboratories

certified in accordance with the provision of Water Code Section 13176. ELAP certified analytical laboratories shall incorporate the corresponding QA/QC data to the analytical laboratory report. Pollutants must be analyzed using the analytical methods prescribed in 40 Code of Federal Regulations (CFR) 136.

2.3 Implementation Schedule

Implementation of the facility's MRP and QAPP shall begin from the facility's first discharge through the permitted NPDES outfall. Receiving water column sampling (including water samples and TSS samples) shall begin during or as soon as possible following the first effluent discharge event. Sediment sampling must begin within the year of the first effluent discharge event. If no discharge occurs, no monitoring shall be conducted and implementation of the facility's QAPP is not required.

2.4 Submittal Requirements

The facility's proposed MRP and QAPP plans are the first deliverables to the LARWQCB. Once approved and monitoring is initiated, monitoring reports shall be submitted to the LARWQCB annually. The first report is due 12 months after monitoring begins, and subsequent reports shall be submitted annually thereafter. If there is no discharge triggering the implementation of the facility's MRP and QAPP, no discharge shall be specified in the Annual Report.

Annual monitoring reports shall include a description of monitoring activities conducted for the monitoring year, a summary of water column and sediment sample analytical results, summary of any deviations from the proposed sampling program and associated QA/QC issues, and any associated action/response activities. Annual monitoring reports shall provide a statement assessing whether or not monitoring results indicate compliance or non-compliance with waste load allocations / targets.

SECTION 3

SAMPLE PROTOCOL

3.1 Sampling Guidelines

In order to fulfill the requirements of the NPDES permit, LSC develops the sampling protocol based on the following guidance documents:

1. Amendment to the Los Angeles Water Quality Control Plan Resolution No. R11-008 (Resolution 2011);
2. Surface Water Ambient Monitoring Program (SWAMP) protocols (SWAMP 2014) and
3. Sediment Quality Objectives (SQO) -Part 1 guidelines (SQO 2009).

The monitoring locations for water column and sediment samples follows the guidelines specified in the Amendment to the Los Angeles Quality Control Plan Resolution No. R11-008. All field sampling and measurements shall be conducted as outlined in the SWAMP protocols and SQO-Part 1 guidelines.

3.2 Sampling Locations and Parameters

Monitoring shall include obtaining water column / TSS samples and sediment samples at RSW-001 and RSW-002 as shown in Figure 1. To assess temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow, an appropriate calibrated field instrument shall be used by trained sampling personnel. Table 1 summarizes water column and sediment sample requirements. Table 2 summarizes the waste load allocations (WLAs) as included in the Harbor Toxics TMDL for the Los Angeles River Estuary.

3.3 Sampling Staff and Sampling Equipment

Samples shall be collected by designated specialized contractors that have the required equipment and tools to properly collect and process the required samples. Sampling efforts shall include gathering data of onsite conditions, obtaining water quality measurements and collecting grab samples for analysis of the required parameters.

Samples shall be collected in clean sample containers that are made of appropriate materials, have adequate volume, and contain the correct preservative required for analysis as provided by the laboratory.

3.4 Timing for Sample Collection

Samples shall be targeted for collection 24 hours after a storm event to allow for runoff to reach the receiving waters and to improve the likelihood of sampling in less dangerous conditions than those present at the start of a storm.

3.5 Sampling Procedures

The following sections describe the techniques to be used to collect field samples in a way that neither contaminates, loses or changes the chemical form of the analytes of interest. All samples shall be collected using boats equipped with specialized equipment as provided by the contracted sampling company. Samples shall be collected in areas where the vessel does not interfere with the water being collected.

3.5.1 Water Column and TSS Sample

Water quality monitoring shall consist of field measurements and the collection of water samples for chemical analyses. All field instruments shall be calibrated per manufacturer's instructions. Calibrations shall be documented and maintained on file. Each instrument used to collect field measurements must be allowed to completely equilibrate before recording measurements.

Water column samples shall be collected from the surface during two wet weather events and one dry weather event, and analyzed for the required metals, PCBs, DDT and PAH constituents as noted in Table 1. For each sampling event, RSW-001 and RSW-002 shall be monitored for pH, temperature, dissolved oxygen, electrical conductivity and flow using the appropriate field equipment. Field measurements, including water depth, shall be recorded on a field datasheet. Additionally, TSS samples shall be collected at different depths (surface, mid-water column and bottom) within the water column.

Surface samples are defined as samples collected between 0 and 1 meter. Mid water column samples are defined as samples collected at 50% of the total depth of the sampling location. The overall water depth shall be determined in the field during the time of sampling to account for changes of the water column depth that may result from uncontrollable factors, such as tidal patterns, seasonal fluctuations, input from precipitation / loss from evaporation, etc. Bottom sample depths are those samples collected within 1 meter above the bed of the estuary.

TSS samples collected at different depths shall be consolidated into one sample for analysis of the pollutants in the bulk sediment. Proper gloves must be worn to prevent contamination of the samples and to protect the sampler from environmental hazards. The SWAMP manual containing the standard operating procedures for all field analyses, including records of instrument calibration and maintenance, and quality control procedures shall be maintained on site.

3.5.2 Sediment Sample

Sediment samples shall be collected at RSW-001 and RSW-002 with the use of a mechanical sediment Van Veen grab sampler or other equivalent sampler. The grab sampler must be slowly lowered to the bottom with minimum substrate disturbance. Surface sediment shall be obtained within the upper 5 cm for chemistry and toxicity analyses. Benthic samples shall be screened through a 1.0 mm mesh and the entire contents of the grab sample, with a minimum penetration depth of 5 cm, shall be collected for benthic community analyses. Once sediment has been collected, the grab sampler shall be retrieved at a moderate speed.

Upon retrieval, the grab sample must be examined to ensure that the sediment surface is undisturbed and that the grab sample is not subject for rejection. The sample must be rejected if the following are not met:

- Mud surface must not be pressing out of the top of the sampler
- Water must not be leaking out along the sides of the sediment in the grab sampler (this ensures the surface sediment is not washed out)
- Sediment surface must be flat and level in the sampler (if it is not level, the grab tilted over before closing).

The sediment sampler must be cleaned prior to sampling EACH monitoring location, and processing of the sediment sample must be performed with reference to SWAMP protocols.

3.6 Sample Handling, Holding Time, Preservation, and Custody

Sample collection includes all stages of sampling directly connected with capturing the sample, assuring that the sample is a true representation of the medium and preventing cross contamination. The following sections describe sample handling procedures to be followed throughout this program.

Each sample must be labeled with labels provided by the laboratory and contain the following information:

General sampling information is recorded on the Chain of Custody (COC) at the time of sampling in sufficient detail so that such information can be readily available. Appendix A provides a copy of the COC.

The COC documents sample possession from the time of collection until the sample is analyzed. It also serves as a sample inventory and an analysis order form. Once the COC is received by the laboratory it is checked for accuracy and completeness. Information for each sample including the sample number, date of sampling, time of sampling, the sample matrix, and the required analyses, is entered on the form. The form should be filled out with a waterproof pen after the samples are labeled and ready for shipment. To keep it dry, the COC should be placed in a sealed plastic bag and sent to the laboratory inside the sample cooler. Facility personnel are responsible for retaining a copy of the original chain of custody.

The facility personnel or an authorized contractor must properly collect, pack and document the sample collection utilizing applicable methods and procedures. Once the samples have been collected and prepared for shipment to the laboratory, the authorized and qualified sampling contractor shall contact the appropriate laboratories for sample pickup or coordinate sample drop off to the laboratory. Various analyses have different hold times (the maximum time allowed between the collection and analysis of a sample). Samples must be transported to the laboratory as soon as possible, but no more than 24 hours after sample collection to avoid exceeding any holding times. Sample containers and holding conditions for the required constituents required under this monitoring program are provided in Appendix B.

Sample preservation is dependent on the specific analyses that are to be performed. Each sample is to be collected in sample containers provided by the laboratory. The required analyses call for different preservation techniques. The laboratory provides the proper containers with the appropriate preservatives already added to the containers. Field measurement of pH, temperature, dissolved oxygen, electrical conductivity, and flow may be field-tested by the sampler, using the appropriate instrumentation.

Sample storage is an integral part of the sample preservation. The samples are to be stored until they are transported to the laboratory at a temperature of 4 degrees Celsius either in a refrigerator or on ice in a cooler. A summary of storage temperatures is also included in Appendix B.

3.7 Analytic Methods

A list of analytical methods, reporting limits and method detection levels of the laboratory analyses for each medium are included in Appendix C.

Duplicate and spike samples shall be analyzed at the frequency specified in the applicable analytical method; if the method does not specify a frequency, duplicate samples and spike samples shall be analyzed at a frequency of 5% (1 in 20 samples) with at least one if there are fewer than 20 samples in a batch. A batch is defined as a single analytical run encompassing no more than 24 hours from start to finish.

To ensure high quality data, all parties involved in executing the facility's QAPP shall adhere to the standard operating procedures and methods as specified in the plan. Field and laboratory data generated during this TMDL monitoring program shall be reviewed using the data quality objectives described in Section 4.0 for the duration of the monitoring program, from the point of collection though laboratory analysis and reporting. Corrective actions shall be implemented when sample collection or analysis deficiencies are identified. Corrective actions involve checking procedures, reviewing documentation and calculations to identify possible errors, and re-analyzing samples, if possible.

The facility's QA/QC program is designed to ensure that all elements of the QAPP are implemented and that they are implemented by properly trained personnel. Each person who

shall perform or supervise sampling and/or perform discharge point inspections (storm and dry season) in accordance with this program must have a working knowledge of this plan, be familiar with the facility's MRP, and be otherwise qualified to carry out the associated tasks. Each of these persons shall receive a copy of this program for their review and shall be trained on the requirements of this monitoring plan and proper sample collection and water quality monitoring practices. All monitoring conducted in compliance with the MRP must be comparable with the Quality Assurance requirements specified in SWAMP.

3.8 Instrument / Equipment Maintenance and Calibration

Field equipment shall be maintained in accordance with manufacturer specifications. Maintenance shall be provided on an as needed basis. Prior to each sampling event, all instruments required shall be inspected during calibration procedures. All equipment must be tested for appropriate responses prior to analysis. Any deficiencies shall be identified, and corrective actions implemented. All equipment and instruments that may come into contact with sampling media must be properly cleaned prior to each use and between sampling events to prevent cross contamination between samples. The following procedure shall be implemented to ensure the sampling equipment is properly cleaned:

- Pre-wash rinse of sampling equipment with tap or site water
- Wash sampling equipment with warm tap water or site water and specialized soap6 solution
- Rinse using tap or site water
- Rinse thoroughly with organic free water and place on a clean foil wrapped surface to air dry
- Store in a clean, closed container for next use

After decontamination, equipment should only be handled by personnel wearing clean gloves to prevent re-contamination. All equipment shall be stored in clean containers away from the decontamination area to prevent re-contamination. When sampling each station, gloves must be worn at all times and shall be discarded after processing each station. Gloves must be replaced prior to handling decontaminated instruments or work surfaces.

Contract laboratories and sampler contractors are responsible for maintaining analytical and sampling equipment in accordance with their standard operating procedures, including those specified by the manufacturer and the analytical methods used. If contractor equipment malfunctions, facility officials must be notified, and data is not to be collected or analyzed using the deficient instrument. All problems and corrective actions must be recorded by the contract laboratory and samplers. Facility officials must address any problems identified during sampling events and update the QAPP accordingly.

Field data should be recorded. Appendix D provides a copy of the field collection data form.

3.9 Data Management

Involved parties responsible for the implementation of this QAPP are to maintain all data records, including field generated data and laboratory data. Results obtained during this monitoring program must be reported in the annual monitoring report to be submitted to the LARWQCB. All receiving water monitoring data shall also be submitted in accordance with the California Environmental Data Exchange Network (CEDEN). The discharger shall submit all receiving water monitoring data in accordance with CEDEN, when feasible.

3.10 Pre-sample Preparation

During sample collection events, samplers must review the appropriate standard operating procedures before going out to the sites to collect samples to ensure all methods are understood and the necessary equipment and supplies are ready for use. All measurements obtained in the field and all collected samples shall be visually evaluated to ensure all information required in the field data sheets is gathered prior to leaving a monitoring station. If issues are identified, the facility manager shall be notified, and appropriate actions shall be taken. Documentation of any deficiencies is to be recorded and maintained on site. Deficiencies must be noted in the Annual Report submitted to the LARWQCB.

3.11 Data Validation

This section addresses the quality assurance activities that occur following the completion of sampling activities, including data review, verification and validation. Data generated for this monitoring program shall be reviewed against the data quality objectives specified in this QAPP. Field, laboratory and facility personnel shall be responsible for reviewing the data and verifying that sample collection, handling and analysis procedures were in accordance with the methods specified in this plan.

Data verification and validation for sample collection and handling activities shall consist of the following tasks:

- Verification that the sampling activities were performed in accordance with QAPP requirements;
- Documentation of any field changes or discrepancies;
- Verification that the field activities were properly documented;
- Verification of proper completion of sample labels and secure storage of samples; and
- Verification that all samples recorded in the field log were received by the laboratory.

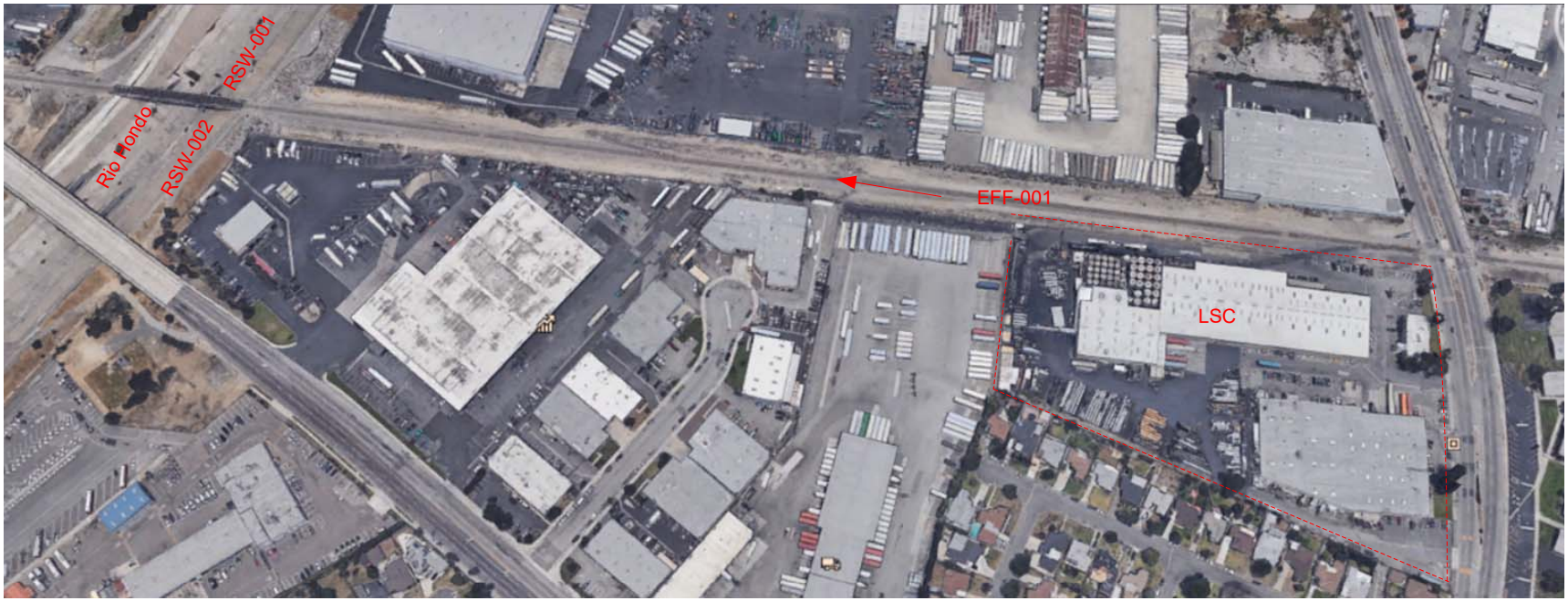
Data verification and validation for the sample analysis activities shall consists of the following tasks:

- Appropriate methodology has been followed;
- Instrument calibrations are correct;

- QC samples meet performance criteria;
- Analytical results are complete and correct; and
- Documentation is complete.
- Analytical laboratory result copies shall be emailed to all involved parties responsible for implementation of the QAPP. Sample results shall be evaluated immediately upon receipt by the facility officials and the environmental consultant.

The data quality shall be evaluated according to this document, with respect to sampling design, sampling method, field and laboratory analyses, quality control and maintenance. By properly following the guidelines in this document and documents referenced the data quality shall be validated. If samples or procedures used in this study fail to meet the guidelines listed in this document, the data shall be flagged and reported to the facility manager and associated parties responsible for the implementation of this QAPP. Any flagged data shall be carefully scrutinized to determine areas of improvement that shall improve data quality and usability.

Figure 1. Monitoring Locations



Legends

Property Line ----------

Storm Water Flow ——►

Sample Location:

EFF-001 – Outlet of Storm Water Treatment
RSW-001 – Within the Rio Hondo Channel at least 50 feet upstream of the confluence with the drainage course
RSW-002 – Within the Rio Hondo Channel at least 50 feet upstream of the confluence with the drainage course

Table 1. Monitoring Locations and Parameters

Water Body	Station ID	Station Description	Station Location	Sample Media and Parameters	Frequency
Rio Hondo	RSW-001	Within the Rio Hondo Channel at least 50 feet downstream of the confluence with the drainage course	Lat 33.9721º Lon: 118.1165 º	**Water Column / TSS:** Lead, Zinc, Copper, PCBs, DDT, benzo[a]anthracene, benzo[a]pyrene, chrysene, phenanthrene, and pyrene, temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow	Two wet weather events and one dry weather event each year.
				Sediment: Sediment Chemistry, Toxicity, Benthic Community Effect	Once every two years
	RSW-002	Within the Rio Hondo Channel at least 50 feet downstream of the confluence with the drainage course	Lat 33.9721º Lon: 118.1165 º	**Water Column / TSS:** Lead, Zinc, Copper, PCBs, DDT, benzo[a]anthracene, benzo[a]pyrene, chrysene, phenanthrene, and pyrene, temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow	Two wet weather events and one dry weather event each year.
				Sediment: Sediment Chemistry, Toxicity, Benthic Community Effect	Once every two years

Table 2. Water Column Concentrations Based Waste Load Allocations and Sediment Targets

Water Column Targets	
Pollutants	**Waste Load Allocation, ug/L**
Metals	
Copper	3.73
Lead	8.52
Zinc	85.6
Organics	
PAHs	0.049
Chlordance	0.00059
4'4 DDT	0.00059
Dieldrin	0.00014
Total PCBs	0.00017

Sediment Targets	
Pollutants	**Marine Sediment, mg/kg**
Metals	
Cadmium	1.2
Copper	3.4
Lead	46.7
Mercury	0.15
Zinc	150
Chromium	81
Organics	
Chlordance, total	0.5
Dieldrin	0.02
Toxaphene	0.1
Total PCBs	22.7
Benzo(a)anthracene	251
Benzo(a)pyrene	430
Chrysene	384
Pyrene	665
2-methlnaphthalene	201
Dibenz(a,h)anthracene	260
Phenanthrene	240
Hi MW PAHs	1700
Lo MW PAHs	552
Total PAHs	4022
Total DDT	1.58

SECTION 3

QUALITY OBJECTIVES AND DATA MEASURMENT CRITERIA

Data acquisition activities shall include both field measurements and laboratory analyses. The following indicators shall be used to assess data quality: accuracy, precision, representativeness, comparability and completeness. These indicators and data quality objectives shall be used to determine the level of error considered to be acceptable in the data produced by the sampling program. The following provides a brief discussion of the objectives for the indicators used in this monitoring program.

3.1 Accuracy

Accuracy is a measurement of how closely analytical results correspond to a "true" or accepted value. To achieve accuracy in measurements of pH, dissolved oxygen, electrical conductivity, and temperature, the corresponding measurement device shall be calibrated before each sampling event. Additionally, the laboratory is to address accuracy during sample analysis by evaluating the percent recovery of surrogates, laboratory control samples (LCS) and / or matrix spikes (MS).

3.2 Precision

Precision is a measurement of how closely analytical results can be duplicated. Precision is addressed by the collection and analysis of replicate samples. Additionally, the laboratory duplicates shall be analyzed to assess laboratory precision, which is reported as a standard deviation or relative percent difference (RPD).

3.3 Representativeness

Representativeness describes the degree to which the results of analyses represents the samples collected and the samples representation of the environment from which they are taken. Determining appropriate sample locations, utilizing approved documents and standard operating procedures and analytical methods shall ensure that field conditions are represented as best as possible. It is important to note that because site conditions may be affected by flow, tidal cycles, weather conditions, etc. field observations and conditions shall be noted during each sampling event.

3.4 Comparability

Comparability is the similarity of data from different sources. To appropriately compare data from multiple sampling events, standard methods of sample handling and analysis must be used. Maintaining consistency in the standard methods used eliminates variables that might result in unusable data.

3.5 Completeness

Completeness is the percentage data available for use compared to the potential amount of data identified in the monitoring plan. Ideally, 100% of the data should be available, however, possibilities exist for issues to arise that may result in incomplete data sets. These include unexpected field conditions, laboratory error, and shipment complications that result in unacceptable sample preservation conditions. To minimize data loss, facility management shall review all collection protocols and field measurements and implement corrective actions, if needed.

SECTION 4

TRAINING AND CERTIFICATION

Sampling personnel shall have prior experience and training in the type of water quality monitoring proposed for this program. The designated contract sampling supervisor shall ensure personnel are trained and familiar with the facility's MRP and QAPP.

Contracted laboratories must be certified by the Environmental Laboratory Accreditations Program (ELAP) in accordance with provision of Water Code Section 13176. The assigned laboratory shall have their own QA/QC program in place to ensure requisite knowledge and skills are in place for the proper execution of the analytical methods being requested.

Involved parties responsible for implementation of this QAPP shall ensure all necessary standard operating procedures are followed for the duration of the program. All involved parties must completely understand the QAPP and retain an up to date copy for reference.

SECTION 5

DOCUMENTATION AND RECORDS

Records of all monitoring information, including calibration and maintenance records, copies of all reports and records of all data shall be maintained for a minimum of three (3) years.

All field measurements shall be recorded at the time of completion using field data sheets (Appendix D). The data sheets shall be reviewed at each monitoring station to ensure all information required is complete. If data is missing an explanation must be recorded documenting the reason for incompleteness. The following information shall be recorded at the monitoring station:

- The date and time of sample collection
- Name of individuals collecting the samples
- Field observations / site conditions
- GPS coordinates
- Field measurements
- Number and types of samples collected
- Additional information that may affect the integrity of the samples

Laboratory personnel are responsible for documenting all analyses performed. Reporting shall include:

- The date(s) analyses were performed;
- The analytical techniques or methods used;
- The results of such analysis;
- Names of the personnel who performed the analysis;
- Final laboratory analytical reports;
- Analytical and extraction methods;
- Summary of QA/QC data, including matrix spikes, laboratory control samples, duplicate analyses, blanks, blank spikes, percent recovery of surrogates, etc. (Level 2 QA/QC); and,
- A perjury statement executed by the person responsible for the laboratory.

Analytical results received from the laboratory shall be reported to the LARWQCB. An Annual Report on the findings of the monitoring program shall be developed and submitted at the end of the monitoring year.

All of the above information shall be reviewed by qualified personnel to ensure that proper analytical methods and procedures were followed. The information shall be reviewed, specifically, to determine if the samples were analyzed using the proper analytical methods and within the appropriate holding times, and if the QA/QC data is within allowable limits set by the laboratory.

Each sample result must specify the applicable reporting limit (RL) and the Method Detection Limit (MDL) for each parameter, as determined by the procedure in 40 CFR Part 136. If there are any discrepancies in the laboratory data, the laboratory shall be contacted to discuss the discrepancies. An explanation for the discrepancies should be included in the annual report. In addition, the QAPP shall be reviewed and revised annually based on the results and execution of the program during the reporting year. Revisions shall be made by the facility's environmental consultant and the changes shall be reviewed and approved by the facility manager. An updated copy of the plan shall be redistributed to the parties involved in the execution of the facility's QAPP.

SECTION 6

REFERENCES

MRP 2018. Lubricating Specialties Company, Harbor Toxics TMDL Monitoring and Reporting Plan (MRP), December 2018

NPDES 2017. National Pollutant Discharge Elimination System No. CA0059013, 1 December 2017.

Resolution 2011. Attachment A to Resolution No. R11-008, Amendment to the Water Quality Control Plan – Los Angeles Region, May 5, 2011, https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R11-008_RB_BPA.pdf

SQO 2009. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality, August 25, 2009. https://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/sed_qlty_part1.pdf

SWAMP 2014. Collections of Water and Bed Sediment Samples with Associated Field Measurements and Physical Habitat in California, March 2014, https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/final_collect_water_sed_phys_habitat.pdf

APPENDIX A

CHAIN OF CUSTODY

eurofins | Calscience

CHAIN OF CUSTODY RECORD

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

WO # / LAB USE ONLY

DATE: _____

PAGE: _____ OF _____

LABORATORY CLIENT: Lubricating Specialties Company

ADDRESS: 8015 Paramount Blvd

CITY: Pico Rivera STATE: CA ZIP: 90660

TEL: 562-776-4000 E-MAIL: mnegast@lubespecialties.com

CLIENT PROJECT NAME / NUMBER: NPDES PERMIT - HARBOR TOXIC TMDL

P.O. NO.:

PROJECT CONTACT: Mark Negast

SAMPLER(S): (PRINT)

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Metals - Copper, Lead, Zinc	DDT	PCBs	PAHs - Benzo(a)anthracene, chrysene, benzo(a)pyrene, phenanthrane, pryene	Total Organic Carbon	Metals	PAHs	Pesticides	PCBs	Benthic Community Effect	Sediment Toxicity									
	RSW-001 -WC			Aq.					X	X	X	X																
	RSW-002- WC			Aq.					X	X	X	X																
	RSW-001- S			Sediment									X	X	X	X	X	X	X									
	RSW-002-S			Sediment									X	X	X	X	X	X	X									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

APPENDIX B

SAMPLE CONTAINERS AND HOLDING CONDITIONS

Appendix B: Sample Containers and Holding Conditions[1]			
Parameter	**Container Type / Volume**	**Holding Time**	**Preservative**
Water/TSS Samples[2]			
pH	N/A	15 minutes	N/A
Dissolved Oxygen	N/A	15 minutes	N/A
Electrical Conductivity	1 - 125 mL HDPE	28 days	None
Metals: Copper, Lead and Zinc	1 - 250 mL HDPE	180 days	HNO3 ; Cool ≤4°C
DDT	2 - 1L Amber Glass	7 days	Cool ≤4°C
PCBs	2 - 1L Amber Glass	7 days	Cool ≤4°C
PAHs: Benzo[a]anthracene, Benzo[a]pyrene, Chrysene, Phenanthrene, Pyrene	2 - 1L Amber Glass	7 days	Cool ≤4°C
Sediment			
Total Organic Carbon	1- 4-oz glass with teflon lid	14 days	Cool ≤4°C
Metals	1- 4-oz glass with teflon lid	14 days	Cool ≤6°C
		12 months	Freeze ≤ -20°C
Mercury	1- 4-oz glass with teflon lid	14 days	Cool ≤6°C
		12 months	Freeze ≤ -20°C
DDT	1 - 4-oz glass with teflon lid	14 days	Cool ≤4°C
PAHs	1 - 4-oz amber glass with teflon lid	14 days	Cool ≤4°C
PCBs	1 - 4-oz glass with teflon lid	14 days	Cool ≤4°C
Benthic Community Effect[3]	1 - 0.5-gallon poly container	None	Cool ≤4°C
Sediment Toxicity	4 - 1L wide mouth polyethylene with teflon lid liner	14 days	Cool ≤4°C

1- Sample preservation is intended as a guidance only. The selection of sample container and sample volume may vary per contracted / subcontracted laboratories.

2 - Water column analysis of flow, temperature, dissolved oxygen, electrical conductivity and pH shall be conducted in the field using the appropriate calibrated field equipment. A record of the calibration and the field readings shall be documented in the appropriate form.

3 – Samples for benthic community effect are preserved in the field by maintaining samples cold. Once submitted to the laboratory, samples are stored in formalin for at least 72 hours and then samples are maintained in 70% ethanol. Samples can be stored for up to 1 year before having to refresh the ethanol.

APPENDIX C

ANALYTICAL METHODS, REPORTING LIMITS, AND DETECTION LEVELS

Appendix C: Analytical Methods, Reporting Limits and Method Detection Levels[1,2]				
Parameter	Method	Method Detection Levels	Reporting Limit	Units
WATER COLUMN / TSS ANALYSIS				
Copper	EPA 6020	0.117	1.0	ug/L
Lead	EPA 6020	0.0543	1.0	ug/L
Zinc	EPA 6020	4.49	5.0	ug/L
DDT				
o,p'-DDT	EPA 1699	0.0000172	0.00004	ug/L
p,p'-DDT	EPA 1699	0.0000172	0.00004	ug/L
PAHs				
Benzo[a]anthracene	EPA 8270C	0.024	0.20	ug/L
Benzo[a]pyrene	EPA 8270C	0.036	0.20	ug/L
Chrysene	EPA 8270C	0.019	0.20	ug/L
Phenanthrene	EPA 8270C	0.031	0.20	ug/L
Pyrene	EPA 8270C	0.025	0.20	ug/L
PCBs[3]				
PCB008	EPA 1668	0.000034	0.0001	ug/L
PCB018	EPA 1668	0.000007	0.0002	ug/L
PCB028	EPA 1668	0.000004	0.0002	ug/L
PCB044	EPA 1668	0.000003	0.0003	ug/L
PCB052	EPA 1668	0.000003	0.0001	ug/L
PCB066	EPA 1668	0.000003	0.0001	ug/L
PCB101	EPA 1668	0.000005	0.0003	ug/L
PCB105	EPA 1668	0.000004	0.0001	ug/L
PCB118	EPA 1668	0.000004	0.0001	ug/L
PCB128	EPA 1668	0.000005	0.0002	ug/L
PCB138	EPA 1668	0.000005	0.0003	ug/L
PCB153	EPA 1668	0.000004	0.0002	ug/L
PCB170	EPA 1668	0.000004	0.0001	ug/L
PCB180	EPA 1668	0.000003	0.0002	ug/L
PCB187	EPA 1668	0.000006	0.0001	ug/L
PCB195	EPA 1668	0.000003	0.0001	ug/L
PCB206	EPA 1668	0.000003	0.0001	ug/L
PCB209	EPA 1668	0.000004	0.0001	ug/L

Footnotes:

1 - Reporting limits (RLs) and Method Detection Limits (MDLs) listed above are those provided by Eurofins Laboratory for the water column analysis required under the Harbor Toxics TMDL Monitoring Program.

2 - Water column temperature, dissolved oxygen, pH, electrical conductivity and receiving water flow shall be measured in the field with the appropriate calibrated instrument

3 - Select PCB MDLs and RLs are provided, however, total PCBs shall be defined as the sum of all 209 PCB congeners

Appendix C: Analytical Methods, Reporting Limits and Method Detection Levels [1]				
Parameter	Analytical Method	Method Detection Levels	Reporting Limit	Units
SEDIMENT ANALYSIS				
Total Organic Carbon	EPA 9060A	170	500	mg/kg
Metals				
Cadmium	EPA 6020	0.0572	0.1000	mg/kg
Copper	EPA 6020	0.0419	0.1000	mg/kg
Lead	EPA 6020	0.0659	0.1000	mg/kg
Mercury	EPA 7471A	0.00587	0.02000	mg/kg
Zinc	EPA 6020	0.7950	1.0000	mg/kg
PAHs				
Acenaphthene	EPA 8270C SIM PAHs	2.4	10.0	ug/kg
Anthracene	EPA 8270C SIM PAHs	3.5	10.0	ug/kg
Biphenyl	EPA 8270C SIM PAHs	1.9	10.0	ug/kg
Naphthalene	EPA 8270C SIM PAHs	3.5	10.0	ug/kg
2,6-dimethylnaphthalene	EPA 8270C SIM PAHs	1.7	10.0	ug/kg
Fluorene	EPA 8270C SIM PAHs	3.1	10.0	ug/kg
1-methylnaphthalene	EPA 8270C SIM PAHs	2.3	10.0	ug/kg
2-methylnaphthalene	EPA 8270C SIM PAHs	2.3	10.0	ug/kg
1-methylphenanthrene	EPA 8270C SIM PAHs	2.5	10.0	ug/kg
Phenanthrene	EPA 8270C SIM PAHs	2.2	10.0	ug/kg
Benzo(a)anthracene	EPA 8270C SIM PAHs	2.2	10.0	ug/kg
Benzo(a)pyrene	EPA 8270C SIM PAHs	1.8	10.0	ug/kg
Benzo(e)pyrene	EPA 8270C SIM PAHs	2.0	10.0	ug/kg
Chrysene	EPA 8270C SIM PAHs	2.2	10.0	ug/kg
Dibenz(a,h)anthracene	EPA 8270C SIM PAHs	2.0	10.0	ug/kg
Fluoranthene	EPA 8270C SIM PAHs	1.8	10.0	ug/kg
Perylene	EPA 8270C SIM PAHs	2.4	10.0	ug/kg
Pyrene	EPA 8270C SIM PAHs	2.2	10.0	ug/kg
Pesticides [2]				
Alpha Chlordane	EPA 1699	0.00959	0.04000	ug/kg
Gamma Chlordane	EPA 1699	0.0114	0.0400	ug/kg
Trans Nonachlor	EPA 8081A	0.27	1.00	ug/kg
Dieldrin	EPA 1699	0.0105	0.0400	ug/kg
o,p'-DDE	EPA 8270C PEST-SIM	0.035	0.200	ug/kg
o,p'-DDD	EPA 8270C PEST-SIM	0.076	0.200	ug/kg
o'p-DDT	EPA 8270C PEST-SIM	0.062	0.200	ug/kg
p,p'-DDD	EPA 8270C PEST-SIM	0.04	0.200	ug/kg
p,p'-DDE	EPA 8270C PEST-SIM	0.04	0.200	ug/kg
p,p'-DDT	EPA 8270C PEST-SIM	0.053	0.200	ug/kg

PCBs				
PCB008	EPA 8270C SIM PCB	0.077	0.400	ug/kg
PCB018	EPA 8270C SIM PCB	0.065	0.200	ug/kg
PCB028	EPA 8270C SIM PCB	0.069	0.200	ug/kg
PCB044	EPA 8270C SIM PCB	0.15	0.200	ug/kg
PCB052	EPA 8270C SIM PCB	0.19	0.200	ug/kg
PCB066	EPA 8270C SIM PCB	0.12	0.200	ug/kg
PCB101	EPA 8270C SIM PCB	0.044	0.200	ug/kg
PCB105	EPA 8270C SIM PCB	0.053	0.200	ug/kg
PCB118	EPA 8270C SIM PCB	0.035	0.200	ug/kg
PCB128	EPA 8270C SIM PCB	0.12	0.200	ug/kg
PCB 138	EPA 8270C SIM PCB	0.35	0.200	ug/kg
PCB 153	EPA 8270C SIM PCB	0.35	0.200	ug/kg
PCB170	EPA 8270C SIM PCB	0.11	0.200	ug/kg
PCB180	EPA 8270C SIM PCB	0.092	0.200	ug/kg
PCB187	EPA 8270C SIM PCB	0.1	0.200	ug/kg
PCB195	EPA 8270C SIM PCB	0.06	0.200	ug/kg
PCB206	EPA 8270C SIM PCB	0.12	0.200	ug/kg
PCB209	EPA 8270C SIM PCB	0.061	0.200	ug/kg

Sediment Toxicity & Benthic Community Effects
Sediment Toxicity analysis shall be performed per the SQO-Part 1 guidelines using percent of control survival as metric. Refer to Table 4, Sediment Toxicity Categorization Values, detailed in the SQO- Part 1 document.
The Benthic Community Condition shall be assessed through the use of 4 benthic indices to determine the benthic index categorization value and associated disturbance. Refer to Table 5, Benthic Index Categorization Values, of the SQO Part-1 document.

Footnotes:
1 - Reporting Limits (RLs) and Method Detection Levels (MDLs) provided are those provided by Eurofins Laboratory for the analyses chosen for the chemical analytes as required in Attachment A of the SQO - Part 1
2 - The MDLs and RLs for chlordane and dieldrin are subject to change depending on the conclusion of the MDL/RL studies being conducted by Eurofins' subcontract laboratory.

APPENDIX D

FIELD COLLECTION DATA SHEET

HARBOR TOXICS TMDL FIELD COLLECTION DATA SHEET

StationID:	**Date (mm/dd/yyyy):**	**SampleTime (1st sample):**	**Sampled By:**
Station Location:	**Arrival Time:** / **Departure Time:**	**Form of preservation:** ice other : _____	
Purpose (circle applicable): Water Chemistry / TSS Sediment Fish Tissue		**Time placed on ice / preserved:**	

Location:	**GPS/DGPS**	**Lat (dd.ddddd)**	**Long (ddd.ddddd)**
GPS Device:	**Target:**		-
Accuracy (ft / m):	**Actual:**		-

Additional Sample Preservation Notes:

FIELD OBSERVATIONS (CIRCLE ALL THAT APPLIES)

WATER ODOR	None Sewage Petroleum Sulfides Mixed Other_____	**WIND DIRECTION:**
SKY COVER:	Clear Partly Cloudy Overcast Fog Smoky Hazy Other:_____	**PRECIPITATION:** None Fog Drizzle Rain Snow
OTHER PRESENCE:	Floating and Suspended Materials Oily Sheen Turbidity Odor Foam Trash Discoloration Other_____	**Precipitation Amount: (last 24 hours)** inches **WATER CLARITY:** Clear Cloudy Murky
WATERCOLOR:	Colorless Green Yellow Brown Other: _____	

FIELD MEASUREMENTS:

Type of Sample:	Sample Type	Flow	Water Temp (°F)	pH (S.U.)	Dissolved Oxygen (mg/L or %)	Salinity (ppt)	Depth (m)	Equipment Decontaminated:
Water Column Samples								☐ Yes
TSS Samples								☐ Yes
Sediment Samples								☐ Yes

CALIBRATION INFORMATION:

Instrument Type:	Flow	Temp.	pH	Dissolved Oxygen	Salinity	Notes:
Instrument:						
Calibration Date:						
Calibration Standards						
Calibration Readings						

FIELD STAFF CONFIRMATION OF FIELD DATA SHEET

My signature below certifies that I have reviewed the information recorded in this Field Collection Data Sheet and determined it to be complete:

Date / Time Reviewed:	Signature
Name:	
Title:	