UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

Ref: 8ENF-W-NW

SENT VIA EMAIL
DIGITAL READ RECEIPT REQUESTED

Eric Marler
Senior Environmental Advisor
Suncor Energy (U.S.A.) Inc.
emarler@suncor.com

Re: Inspection Reports for Suncor Energy (U.S.A.) Inc., CDPS Permits COS000009 and CO0001147

Dear Mr. Marler:

On June 22-24, 2021, representatives of the U.S. Environmental Protection Agency inspected Suncor Energy (U.S.A.) Inc.'s Commerce City Refinery located at 5801 Brighton Boulevard, Commerce City, Colorado, to evaluate compliance with the facility's Colorado Discharge Permit System permits for industrial stormwater and wastewater. The inspections were conducted under the authority of Section 308 of the Clean Water Act (Act). Enclosed are reports of the inspections.

Inspection findings are summarized within the enclosed inspection reports in a section titled "Summary of Observations." Within **thirty (30) days** of receipt of this report, please provide the EPA with a summary of corrective actions taken to address each of the observations identified in the report. This summary should be sent to:

Stephanie Meyers
meyers.stephanie@epa.gov

Please contact me at 303-312-6938 or meyers.stephanie@epa.gov if you have any questions regarding this letter or the enclosed reports.

Sincerely,

Stephanie Meyers
NPDES and Wetlands Enforcement Section
Enforcement and Compliance Assurance Division

Enclosures:

1) COS000009 – Suncor Energy USA CEI Inspection Report
2) COS000009 – Suncor Energy USA CEI Appendix A Photos
3) COS000009 – Suncor Energy USA CEI Appendix B Exhibits
4) COS000009 – Suncor Energy USA CEI Appendix C SWMP
5) COS000009 – Suncor Energy USA CEI Appendix D CDPS Permit
6) COS000009 – Suncor Energy USA CEI Appendix E Records Request
7) COS000009 – Suncor Energy USA CEI Appendix F Golder Associates Technical Memo
8) CO0001147 – Suncor Energy USA CEI Inspection Report
9) CO0001147 – Suncor Energy USA CEI Appendix A Photos
10) CO0001147 – Suncor Energy USA CEI Appendix B Exhibits
11) CO0001147 – Suncor Energy USA CEI Appendix C CDPS Permit
12) CO0001147 – Suncor Energy USA CEI Appendix D Records Request
13) CO0001147 – Suncor Energy USA CEI Appendix E Brown and Caldwell Technical Memo

cc: Wes McNeil, Environmental Team Lead, Suncor Energy (U.S.A.) Inc. (via email)
Clayton Moores, Unit Manager, Colorado Department of Public Health and Environment (via email)
Meg Parish, Section Manager, Colorado Department of Public Health and Environment (via email)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VIII WATER BRANCH, ENFORCEMENT
AND COMPLIANCE ASSURANCE DIVISION
CLEAN WATER ACT
COMPLIANCE INSPECTION REPORT

for

Name of Facility: Suncor Energy (USA) Inc. Commerce City Refinery
Facility Address: 5801 Brighton Blvd., Commerce City, CO 80022
Mailing Address: 5801 Brighton Blvd., Commerce City, CO 80022

Report Prepared on: 8/23/2021 By: _____,
Date Sr. Environmental Scientist (PG Environmental)
Signature

Report Final as of: 9/01/2021 By: _____, EPA
Date NPDES & Wetlands Enforcement Section Chief
Signature

General Information

Type of Inspection:	Industrial Stormwater CEI
Owner:	Suncor Energy (USA) Inc.
Operator:	Suncor Energy (USA) Inc.
Permittee:	Suncor Energy (USA) Inc.
NPDES Permit No:	COS000009
NPDES Permit Effective Date:	September 27, 2012
NPDES Permit Expiration Date:	October 31, 2017 (administratively extended)
SIC Codes:	2911, 3599
Number of Outfalls:	9
Receiving Water:	Sand Creek; Unnamed tributary to the South Platte River
Latitude and Longitude:	39.75 N, -104.883333 W

On-Site Facility Inspection Overview

Inspection Dates: June 22, 23, and 24, 2021
Approximate Entry Time: 9:00 a.m. (MDT) on June 22, 2021
Approximate Exit Time: 3:40 p.m. (MDT) on June 24, 2021

On June 22–24, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region VIII and EPA's contract inspectors from PG Environmental (the EPA Inspection Team), conducted an industrial stormwater compliance evaluation inspection at the Suncor Energy (USA) Inc. Commerce City Refinery (Facility) in Commerce City, Colorado. Suncor Energy (USA) Inc. is identified as the Permittee and owns and operates the Facility.

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I. INTRODUCTION

On June 22-24, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region VIII and EPA's contract inspectors from PG Environmental (hereinafter, collectively referred to as the EPA Inspection Team) inspected the Suncor Energy (USA), Inc. Commerce City Refinery (hereinafter, Facility) in Commerce City, Colorado. Suncor Energy (USA), Inc. (hereinafter, Permittee or Suncor) is identified as the Permittee and owns and operates the Facility. The EPA Inspection Team was joined on the inspection by a representative from EPA Region X for training purposes, as well as a representative from Colorado Department of Public Health and Environment (CDPHE). The primary purpose of the inspection was to review and evaluate Facility operations and stormwater management, to review the accuracy and reliability of the Permittee's self-monitoring and reporting program, and to obtain information that will assist EPA in assessing the Permittee's compliance with the requirements of the Permit. The weather at the time of the inspection each day was warm and mostly sunny.

The Facility is authorized to discharge stormwater associated with industrial activity and specified non-stormwater discharges, to Sand Creek and the South Platte River, consistent with the terms and conditions of Colorado Discharge Permit System (CDPS) Permit No. COS000009 (hereinafter, the Permit). The Permit was issued on November 1, 2012 and expired on September 27, 2017 but has been administratively extended.

Photographs taken during the inspection are maintained on file with EPA Region VIII, some of which are included in this report as Appendix A, Photograph Log. Supporting documentation is included in Appendix B, Exhibit Log. The Suncor Energy USA Commerce City Refinery April 2021 Stormwater Management Plan (SWMP) is included as Appendix C. A copy of the Permit is included as Appendix D. Furthermore, a pre-inspection records request submitted by the EPA Inspection Team and completed by Suncor on June 3, 2021 is included in this report as Appendix E.

This inspection was conducted concurrently with an evaluation of the Permittee's compliance with CDPS Permit No. CO0001147 associated with process wastewater discharges to Sand Creek; observations pertaining to CDPS Permit No. CO0001147 are documented in a separate inspection report.

Facility Description

The Facility is a 98,000-barrel-per-day petroleum refinery producing gasoline, diesel and distillate fuels, paving-grade asphalt, and other petroleum products. The Facility is located in Commerce City, Colorado, in southwestern Adams County.

The Facility is approximately 274 acres and located just south of Sand Creek and Highway 270. The Facility comprises three separate process areas referred to by the Permittee as Plant 1, Plant, 2, and Plant 3 (refer to Appendix B, Exhibit 1). Brighton Boulevard bisects the Facility from north to south, with Plant 1 located west and Plants 2 and 3 located east of Brighton Boulevard. Two Suncor-owned buildings are located to the north of Highway 270, the Nelson Property (a contractor-operated maintenance facility) and the ERT building (used to house spill and emergency response equipment). Private businesses border the south and east perimeters of the Facility along 56th Avenue and York Street. Metro Wastewater Reclamation District and Denver Water operate facilities immediately west of Plant 1 and opposite the Burlington Ditch waterway.

Plants 1, 2, and 3 are each bordered by Sand Creek to the north, which flows northwest into the South Platte River approximately 1/3-mile downstream of the Facility. An unnamed tributary of the South Platte River runs west along the southern boundary of the Facility. The Burlington Ditch flows north along the west perimeter of the Facility (west of Plant 1). The Facility is not permitted to discharge industrial stormwater or wastewater to the Burlington Ditch from any outfall.

Industrial Stormwater Management and Monitoring

The Permittee's stormwater management plan (SWMP) identifies nine (9) Storm Water Areas (SWAs) (Nos. 1 through 4 and 6 through 10) throughout the Facility for stormwater runoff from industrial activities containing potential pollutant sources that discharge directly through nine (9) stormwater outfalls to both Sand Creek and the unnamed tributary of the South Platte River (refer to Appendix C, SWMP Figures 1 through 10). These stormwater outfalls are described below. The Facility's industrial activities generally include materials loading and unloading, outdoor storage, outdoor manufacturing and/or processing, onsite waste handling and disposal, and dust and particulate generating activities. Industrial stormwater runoff from areas of the Facility outside these SWAs is captured and treated at the Facility's industrial wastewater treatment plant (hereinafter, WWTP), discussed below.

COS000009 Outfall Descriptions (refer to Appendix B, Exhibit 2):

- Outfall 004A – Outfall to Sand Creek from Mary's Pond located in the northwest corner of Plant 3 (asphalt plant) (SWA Nos. 6, 7, and 10) (refer to Appendix A, Photographs 1 and 2).
- Outfall 021A – Constructed outlet at the northeast corner of the Nelson Property (Suncor contractor operated maintenance facility) (SWA No. 4) (refer to Appendix A, Photographs 3 and 4).
- Outfall 022A – Outfall from retention pond located at the northwest corner of Nelson Property (SWA No. 4) (refer to Appendix A, Photograph 5).
- Outfall 023A – Outfall from detention area located at west end of swale south of Sand Creek (SWA Nos. 1 and 2) (refer to Appendix A, Photographs 6, 7 and 8).
- Outfall 024A – Outfall from detention area located at north end of Plant 2 (SWA No. 8) (refer to Appendix A, Photograph 9).
- Outfall 025A – High flow contingency discharge point at Plant 1 sulfur rail loading gate (SWA No. 3) (not visited during inspection).
- Outfall 026A – High flow contingency discharge point at ditch inlet to Mary's Pond at Plant 3 (SWA Nos. 6, 7, and 10) (refer to Appendix A, Photographs 1 and 10).
- Outfall 027A – Manual pumping of accumulated stormwater from East Tank Farm in Plant 2 (no longer used) (not visited during inspection).
- Outfall 028A – Outlet of retention pond located in the southwest corner of Plant 2, approximately 1,700 feet east-northeast of the intersection of Brighton Blvd. and York St (SWA No. 9) (not visited during inspection).

The Facility's SWMP describes SWAs stormwater runoff flow characteristics and area specific Best Management Practices (BMPs) to control pollutants in stormwater discharges from each plant process area (Plant 1, Plant 2, and Plant 3). Surface water flow direction at the Facility is generally north towards Sand Creek with the exception of some runoff from the middle portions of the Facility flowing south into an unnamed tributary to the South Platte River (refer to Appendix B, Exhibits 1 and 3).

Plant 1

The Permittee is authorized to discharge stormwater runoff from Plant 1 at Outfall 023A (SWAs Nos. 1 & 2) and Outfall 025A (SWA No. 3). Refer to Appendix B, Exhibit 2 for outfall locations.

Figure 1. SWA Nos. 1 and 2.

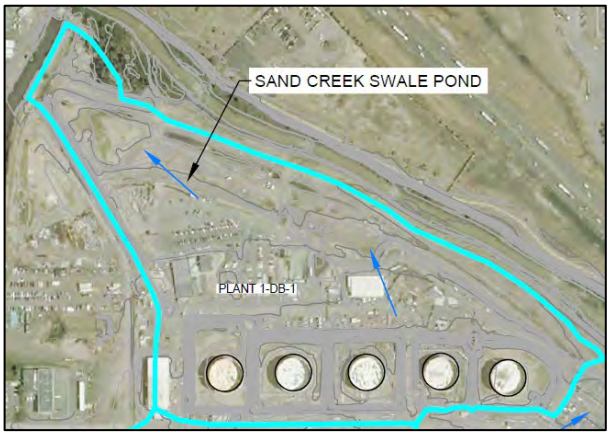


Figure 2. Plant 1 drainage and location of Sand Creek Swale Pond.

Stormwater runoff from SWA Nos. 1 and 2 (areas within Plant 1 where stormwater runoff is not treated by the WWTP; see Figure 1) is collected in the stormwater detention area upgradient of Outfall 023A (refer to Appendix A, Photographs 6 and 13). This stormwater detention area also receives runoff from the contaminated groundwater swale (referred to as the Sand Creek Swale Pond, see Figure 2) located between Plant 1 and Sand Creek during significant storm events (refer to Appendix A, Photograph 12). Additionally, stormwater runoff from an unnamed stormwater detention area located immediately east of the groundwater treatment systems (GWTS) (refer to Appendix A, Photograph 11) also drains to the stormwater detention area at Outfall 023A. Stormwater runoff from SWA No. 2 first collects in a concrete conveyance channel that runs north and northwest along the boundary of Plant 1 and adjacent to Metro Wastewater Reclamation District property and ultimately conveyed by culvert into the stormwater detention area at Outfall 023A.

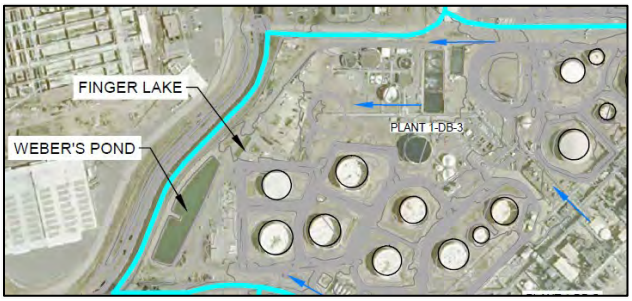


Figure 3. Plant 1 drainage and location of Finger Lake and Webber's Pond.

Stormwater runoff from the remaining portions of Plant 1 that does not flow to the stormwater detention area at Outfall 023A or to Outfall 025A and is not captured and conveyed to the Facility's oily water and non-oily water sewer systems which flow to the WWTP, drains to two impoundments referred to as Finger Lake and Webber's Pond located on the western portion of the Facility (refer to Appendix A, Photographs 17 and 18 and Figure 3). Finger Lake is a concrete lined rectangular impoundment which collects both stormwater runoff and non-stormwater sources, including firefighting training waters. Webber's Pond is a poly-lined impoundment located approximately 50 feet east of the Burlington Ditch waterway. According to Facility representatives, stormwater that accumulates in the tank farm secondary containment areas may also be pumped to Webber's Pond to promote evaporation. Mr. Marler (Suncor's Sr. Environmental Advisor) explained that stormwater and non-stormwater that collects in these two impoundments is not discharged through any stormwater Permit (CDPS Permit No. COS0000009) outfalls. He explained that Finger Lake may be pumped to the WWTP for treatment after being sampled for WWTP effluent parameters (CDPS Permit No. COS0001147). If the samples show compliance with Permit conditions, it is pumped (refer to Appendix A, Photograph 23) directly to Lagoon 1 of the WWTP (bypassing the majority

of the WWTP treatment units) and subsequently discharged through Outfall 002B and ultimately Outfall 020A. If sampling identifies contamination which may risk compliance exceedances for CDPS Permit No. CO0001147 (wastewater Outfall 020A), Finger Lake is then pumped to Tank TP-60 where it is then fed into the headworks of the WWTP (for full treatment). As stated by Facility representatives, these internal samples of the onsite impoundments are not reported on DMRs or shared with CDPHE.

Plant 2

Stormwater runoff from Plant 2 is authorized to be discharged at Outfall 024A (SWA No. 8; see Figure 4) and Outfall 28A (SWA No. 9). Refer to Appendix B, Exhibit 2 for outfall locations.

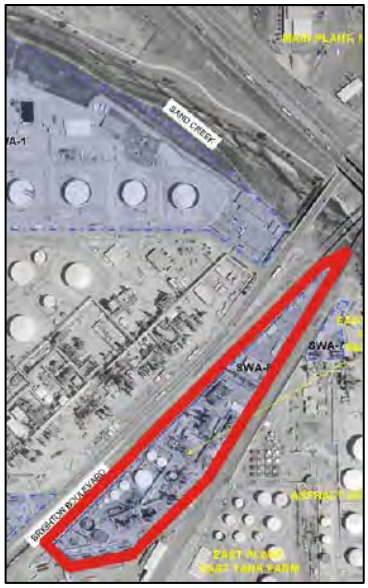


Figure 4. SWA No. 8.

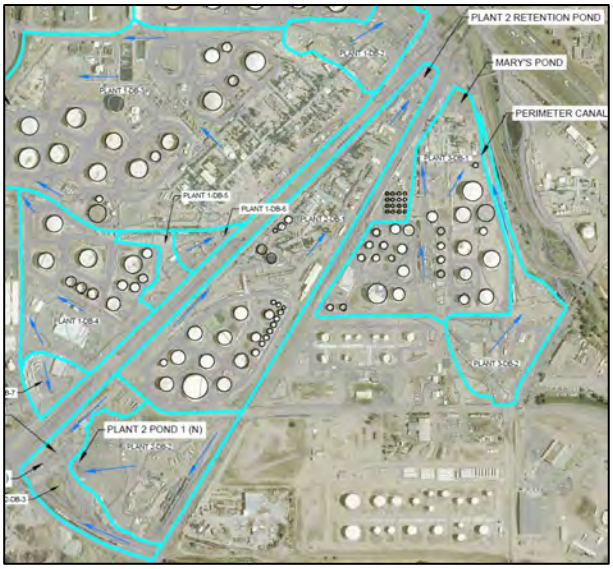


Figure 5. Plant 2 drainage.

Runoff at Plant 2 generally flows north and northeast toward Sand Creek; however, the south side of Plant 2 drains to the south and southwest into an unnamed tributary to the South Platte that follows a railroad right-of-way to the west along the Facility's southern boundary (see Figure 5). Stormwater runoff from Plant 2 that is not captured (primarily employee parking area) by the oily water and non-oily water sewer systems collects in a stormwater detention basin located upgradient of Outfall 024A (refer to Appendix A, Photograph 9). According to Facility representatives, this basin is normally pumped back to the WWTP headworks for treatment but can discharge to Outfall 024A via gate valve, as needed.

Plant 3

Stormwater runoff from Plant 3 is authorized to be discharged at Outfall 004A (SWA Nos. 6, 7, and 10; see Figure 6), Outfall 026A (SWA Nos. 6, 7, and 10), and Outfall 027A. Refer to Appendix B, Exhibit 2 for outfall locations.

Figure 6. SWA Nos. 6, 7, and 10.

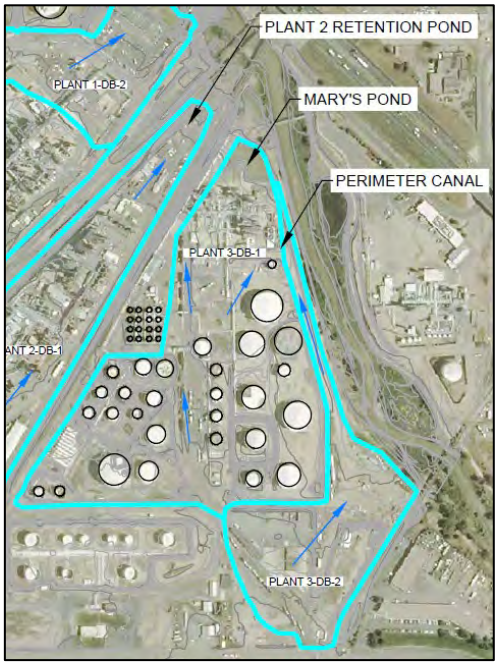


Figure 7. Plant 3 drainage.

Runoff at Plant 3 generally flows to the north towards Mary's Pond or Sand Creek via the north entrance road (see Figure 7). During the inspection, Facility representatives explained that Outfall 027A, a manual release outfall associated with SWA No. 6, is no longer utilized for stormwater discharges. Stormwater runoff from Plant 3 is captured in Mary's Pond, a concrete lined stormwater retention basin. According to Facility representatives, during normal conditions, all stormwater runoff captured in this pond is pumped to the WWTP headworks for treatment (refer to Appendix A, Photographs 22 and 23). During significant storm events, Mary's Pond is discharged to Sand Creek through a manually controlled valve to Outfall 004A (refer to Appendix A, Photograph 2). During significant storm events, a concrete conveyance channel flowing northwest along the eastern perimeter of Plant 3 into Mary's Pond may overtop the channel wall upstream of the inlet into Mary's Pond. Stormwater that overtops this channel overland flows north into Sand Creek (refer to Appendix A, Photograph 10). This high flow contingency discharge point has been permitted by CDPHE as Outfall 026A.

Nelson Property (Suncor contractor operated maintenance facility)
Stormwater runoff from the Nelson Property north of Highway 270 is authorized to be discharged to Outfall 021A (SWA No. 4) and Outfall 022A (SWA No. 4) (refer to Appendix A, Photographs 3, 4, and 5), and ultimately to Sand Creek. Refer to Appendix B, Exhibit 2 for outfall locations.

Additional industrial stormwater runoff from the process areas of Plants 1, 2, and 3 is collected and conveyed by the Facility's oily water and non-oily water sewer systems to the WWTP for treatment and subsequent discharge through the Facility's WWTP (CDPS Permit No. CO0001147) Outfall 020A. According to Facility representatives, stormwater impoundments associated with Outfalls 004A (Mary's Pond; refer to Appendix A, Photographs 22 and 23) and Outfall 024A (refer to Appendix A, Photograph 9) are pumped to the WWTP for treatment during typical conditions, and stormwater is typically retained onsite and allowed to evaporate when possible.

As stated in the Facility SWMP, "During most storm events, discharge is only expected to occur at outfalls 021A (Nelson Property) and/or 024A (Plant 2). Outfalls 004A and 027A are manually controlled and do not normally discharge during a storm event. The remaining outfalls (022A, 023A, 025A, 026A, and 028A) are only expected to have stormwater discharge during very large or sustained storm events." Based on discharge data, the EPA Inspection Team noted this statement in the SWMP to be generally accurate. The

Facility received significant storm events in May and June 2021 which resulted in a discharge from the manually controlled gates associated with the stormwater detention area located in the northwest portion of the Facility to Outfall 023A and subsequently Sand Creek.

Stormwater visual inspections, monitoring, and quarterly assessments at the Facility are performed by a third-party contractor, PSS. When needed, Suncor staff is available to assist with inspections and monitoring. The applicable Suncor departments responsible for inspection and monitoring support to PSS when needed is described in the SWMP. Oil and grease and pH NPDES compliance samples for permitted outfalls are analyzed by the onsite Suncor laboratory. Analyses for all other parameters (total organic carbon (TOC), selenium, benzene, and methyl tert-butyl ether (MTBE)) are conducted by a contract laboratory, Technology Labs in Fort Collins, Colorado.

II. INSPECTION PROCESS

Inspection Opening Conference

The EPA Inspection Team arrived at the Facility on June 22, 2021 at 9:00 AM (EDT) for the inspection. Jared Richardson and Anthony D'Angelo of PG Environmental, and Stephanie Meyers of EPA Region VIII displayed their Clean Water Act inspector credentials to Wes McNeil (Suncor Environmental Team Lead, Commerce City Refinery) and Eric Marler (Senior Environmental Advisor, Commerce City Refinery) at the onset of the inspection and explained the purpose of the inspection was to observe compliance with the Permit. The EPA Inspection Team informed the Permittee that any information that the Facility deemed to be confidential business information ("CBI") should be identified to EPA representatives during the inspection and it would be handled as CBI according to EPA's CBI procedures. No information provided to the EPA Inspection Team was identified as CBI during the course of the inspection. Table 1 describes the individuals that participated in the inspection.

Table 1. Inspection Attendee List

Name	Affiliation	Telephone	Email
EPA Inspectors and Contractors			
Jared Richardson	PG Environmental (EPA Contractor)	(720) 789-8036	Jared.richardson@pgenv.com
Anthony D'Angelo	PG Environmental (EPA Contractor)	(720) 789-8049	Anthony.dangelo@pgenv.com
Stephanie Meyers	EPA Region VIII	(303) 312-6938	Meyers.stephanie@epa.gov
Michelle Lanzoni	EPA Region X	(907) 271-6627	Lanzoni.michelle@epa.gov
Colorado Department of Public Health and Environment (CDPHE) Representatives			
Clayton Moores	Unit Manager, Field Services Unit 1	(303) 241-9296	clayton.moores@state.co.us
Meg Parish*	Permits Section Manager, Water Quality Control Division	--	meg.parish@state.co.us
Suncor Energy (USA), Inc. Representatives			
Eric Marler	Sr. Environmental Advisor	(303) 227-7524	EMarler@Suncor.com
Wes McNeil	Environmental Team Lead	(720) 838-1644	wmcneil@suncor.com
Donald Austin*	Vice President of Commerce City Refinery	--	daustin@suncor.com
Brian Nelson	EHS Manager	(303) 286-5711	bnelson@suncor.com

Brian Lilly	ORC	(303) 286-5748	blilly@suncor.com
Aaron James	CFT Manager	(720) 322-2503	ajames@suncor.com
Chris Mack	WWTP Superintendent	(303) 286-5745	chmack@csuncor.com
Brian Killough	Remediation Advisor	(303) 286-5714	bkillough@suncor.com
Heather Sazdov*	Operations Manager	--	--
Jacy Rock*	Senior Legal Council	--	--
Ana Rodriguez	Document Control	(720) 630-3495	arodriguez@suncor.com
Lisa Kouf	Document Control	(970) 213-5035	lkouf@suncor.com

*only present for closing conference on June 24, 2021

Facility Site Walk

Over the course of June 22, 23, and 24, 2021, the EPA Inspection Team observed various areas of the Facility to observe SWMP implementation and Permit compliance, including stormwater outfalls, conveyances, impoundments, and industrial areas. At the time of the inspection, the Permittee was finishing a scheduled maintenance turnover of Plants 1 and 3 which occurs every 5 years. As such, additional maintenance activities, laydown areas, and contractors were present throughout the Facility compared to normal operating conditions.

Stormwater impoundments viewed and/or discussed with Facility representative during the inspection include the following (refer to Appendix B, Exhibit 3):

- Unnamed stormwater detention area east of GWTS that subsequently flows to Sand Creek Swale and/or Outfall 023A stormwater detention area (refer to Appendix A, Photograph 11).
- Sand Creek Swale Pond (used to retain contaminated groundwater that surfaces) (refer to Appendix A, Photograph 12).
- Stormwater detention area and associated Outfall 023A (equipped with two gate check valves) (refer to Appendix A, Photographs 6 and 13).
- Plant 2 North Outfall 024A stormwater detention area (refer to Appendix A, Photograph 9).
- Nelson Property Outfalls 021A and 022A and associated stormwater detention basins (refer to Appendix A, Photographs 3, 4, 5, 14, and 16).
- Finger Lake and Webber's Pond (refer to Appendix A, Photographs 17 through 21).
- Outfall 004A (Mary's Pond) (refer to Appendix A, Photographs 1 and 2).
- Plant 2 Outfall 028A stormwater detention basins (not visited).
- Various other small sumps and impoundments within Plants 1, 2, and 3 used to manage stormwater runoff.

Records Review

The EPA Inspection Team conducted a records review to evaluate the Permittee's compliance with the Permit. On May 27, 2021, EPA Inspector Stephanie Meyers provided a records request to the Permittee which was completed on June 3, 2021 (refer to Appendix E, Suncor Completed EPA Records Request). Additional records were requested during and following the course of the inspection. Most of the records and reports required by the Permit were available for review prior to, during, and after the inspection. However, some records provided by the Permittee were noted as deficient (refer to Section III. Summary of Observations of this report for details).

III. SUMMARY OF OBSERVATIONS

The following section summarizes the EPA Inspection Team's observations relative to Permit requirements, including the status of certain treatment units, operation and maintenance practices, and the Permittee's monitoring and reporting documentation.

Part I.E.2.a, Maintenance of Control Measures and Associated Documentation, of the Permit states, "The permittee must maintain all control measures used to achieve the effluent limits required by this permit (see Part I.B–Effluent Limitations) in effective operating condition. For this permit, maintenance includes preventative and routine maintenance, modification, repair, replacement, or installation of new control measures."

Observation 1. The EPA Inspection Team observed that stormwater containment capacity, including freeboard, at the Facility may not be sufficient to contain and limit stormwater discharges from the Facility to Sand Creek to the maximum extent practicable demonstrated by previous stormwater discharge events and containment capacity assessments conducted by the Permittee.

While the Permit does not specify a requirement for the Facility to retain stormwater from a 25-year/24-hour storm event onsite, this is a recommended industry standard. Section 2.1.3, Discharge or Drainage Controls [§112.7(a)(3)(iii)], of the Facility's Spill Prevention Control and Countermeasures (SPCC) Plan, dated May 2021, states, "it should be noted that not all tertiary containments are adequate during a 25-year storm event." This information is based on an August 16, 2014 Containment and Drainage Analysis Technical Memorandum to Suncor from Golder Associates (refer to Appendix F) which, in Table 3 of the memo, identifies that Webber's Pond, Finger Lake, Mary's Pond, and the Sand Creek Swale Pond were not designed or constructed to retain stormwater runoff from a 25-year/24-hour storm event (identified in the technical memorandum based on 2013 NOAA data as 3.60 inches). Additionally, Section 2.1.3.1. Plant 1, of the Facility's May 2021 SPCC Plan states, "Plant 1 drainage can flow westward toward the Burlington Ditch and accumulate in two collecting ponds (Finger Lake and Webber's Pond), which offer containment volumes that do not meet that needed for Plant 1 drainage associated with inadequate secondary containments along with stormwater from areas not otherwise contained."

At the time of the inspection, upon request the Permittee was unable to provide current design calculations or volume capacities for any of the stormwater impoundments (i.e., controls) at the Facility. Additionally, the Permittee had not made any Facility changes to-date based upon the recommendations to increase berm height or provide additional containment areas to accommodate a 25-year/24-hour stormwater runoff event, as outlined in the Golder memo (see Figure 8).

Table 3: Summary of Tertiary Drainage Basins

Tertiary Drainage Basins	Ponds	Tertiary Containment Volume (gallons)	25-Year Stormwater Volume (gallons)	Adequate for 25-year Stormwater
Plant 1-DB-1	Sand Creek Swale	1,663,201	2,962,934	No
Plant 1-DB-3 & Plant 1-DB-4	Webers Pond, and Finger Lake	1,573,340	5,632,252	No
Plant 2-DB-1	Plant 2 Northern Retention Basin	8,907	2,594,194	No
Plant 2-DB-2	Plant 2 South 1 Pond	170,687	1,509,075	No
Plant 2-DB-3	Plant 2 South 2, Plant 2 South 3	75,319	837,037	No
Plant 3-DB-1	Mary's Pond, Perimeter Canal	619,181	2,658,431	No

Figure 8. Golder memo excerpt.

It should be noted that Section 7.2.1.5 of the SWMP states, "Plant 1 drainage can flow westward toward the Burlington Ditch and accumulate in two collecting ponds (Finger Lake and Webber's Pond), which offer containment volumes that exceed that needed for Plant 1 associated with drainage out of inadequate secondary containments plus stormwater from areas not otherwise contained." This statement in the SWMP contradicts the statement made in Section 2.1.3.1, Plant 1, of the Facility's May 2021 SPCC Plan and Golder memo, mentioned in Figure 8 above.

The EPA Inspection Team noted instances during heavy rain events in 2015, 2016, and 2017, where the Permittee was unable to contain all stormwater runoff collected by Webber's Pond and Finger Lake resulting in discharges to both the Burlington Ditch and Sand Creek. Specifically, the Permittee reported to CDPHE that on May 10, 2015, that the Facility received heavy rain which caused Webber's Pond to overflow the western perimeter wall of the Facility and discharge into the Burlington Ditch, a water of the State (refer to Appendix A, Photograph 24). It should be noted that Facility representatives stated that Finger Lake and Webber's Pond collects both stormwater runoff and non-stormwater sources, including firefighting training waters, from throughout Plant 1.

Additionally, Suncor submitted a Corrective Action Report to CDPHE (on March 29, 2016), for storm events experienced at the Facility in late March 2016 which states (refer to Appendix B, Exhibit 8), "In order to prevent an unpermitted storm water discharge into Burlington Canal, water from SW-6 (Webber's Pond) was pumped to the area of the former pond at Sand Creek during the night of 3/24/2016 and morning of 3/25/2016. The area of the former pond was already nearly full of storm water and at 10:00 am on 3/25/2016, stormwater was discharged from Outfall 023A to prevent the water from overflowing from the former pond and swale."

Further information provided by Mr. Marler in email correspondence following the inspection, on August 2, 2021 (refer to Appendix B, Exhibit 9), stated that the temporary discharge line used for the March 25, 2016 Webber's Pond pumping and discharge event (described above) was again used on January 20, 2017 and May 11, 2017 to reduce levels in Webber's Pond and Finger Lake to prevent an overflow to the Burlington Ditch. Refer to Observation No. 2 of this report for additional details.

Since the 2015, 2016, and 2017 events described above, the Permittee has expanded and increased its treatment capacity at the WWTP (CDPS Permit No. COS0001147) to handle larger quantities of stormwater runoff able to be pumped from Finger Lake and Webber's Pond to prevent an overflow to Burlington Ditch or discharge through Outfall 023A. However, no modifications or changes have been made to stormwater impoundments as a result of the abovementioned events.

Part II.A.2, Change in Discharge, of the Permit states, "The permittee shall give advance notice to the Division of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Whenever notification of any planned physical alterations or additions to the permitted facility is required pursuant to this section, the permittee shall furnish the Division such plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge, the stream, or ground water. If the Division finds that such new or altered discharge might be inconsistent with the conditions of the permit, the Division shall require a new or revised permit application and shall follow the procedures specified in Sections 61.5 through 61.6, and 61.15 of the Colorado Discharge Permit System Regulations."

Observation 2. The EPA Inspection Team did not observe documentation that pumping events from Webber's Pond to Outfall 023A, due to storm events in January and May 2017 in order to prevent the potential for overflowing to the Burlington Ditch were reported to CDPHE and there is no note of these occurrences in the 2017 Annual Report. A temporary discharge line is visible in Google Earth aerial imagery dated May 13, 2017, June 9, 2017, and May 31, 2018 (refer to Appendix B, Exhibits 4, 5, and 6, respectively). The additional information provided by Mr. Marler via email following the inspection indicates that this temporary discharge line was ultimately dismantled in 2018 (refer to Appendix B, Exhibit 9).

Part I.A.2 Allowable Non-Stormwater Discharges, of the Permit does not authorize the discharge of contaminated groundwater.

Observation 3. The EPA Inspection Team observed that contaminated groundwater enters the Outfall 023A stormwater detention area and is discharged through Outfall 023A to Sand Creek, which is not authorized by the Permit.

Facility representatives stated that during wet weather events and times of elevated groundwater levels, contaminated groundwater periodically surfaces to a vegetated swale on the inside of the slurry wall, near the wastewater (CDPS Permit No. COS0001147) Outfall 020A to Sand Creek, referred to as the Sand Creek Swale Pond. Facility representatives stated historic groundwater contamination has been identified at this location on the Facility's property and near the boundary with Sand Creek since the previous owner, Conoco Phillips, operated the Facility. Suncor acquired the property and/or portions thereof from approximately 2003 to 2005.

Water captured in the Sand Creek Swale Pond is typically allowed to evaporate or infiltrate back into the ground where it can be pumped to the GWTS; however, Mr. Marler explained that during significant storm events, contaminated groundwater commingled with stormwater exits the southwest side of the swale and flows unimpeded into the Outfall 023A stormwater detention area (refer to Appendix A, Photographs 6, 12, and 13). GoogleEarth aerial imagery from May 13, 2017 shows the Sand Creek Swale Pond and Outfall 023A stormwater pond as hydraulically connected (refer to Appendix B, Exhibit 4) The EPA Inspection Team observed two manual release gate check valves: one for the stormwater detention area and one for the discharge through Outfall 023A to Sand Creek (refer to Appendix A, Photographs 6, 7, and 8). Mr. Marler explained that visual observations and analytical monitoring of the stormwater detention area is conducted prior to opening the two check valves and discharging to Outfall 023A. The Permittee has constructed netting over the Sand Creek Swale Pond to prevent wildlife access (refer to Appendix A, Photograph 12).

Per the Permittee's 2016 Annual Report (refer to Appendix B, Exhibit 10), "Stormwater discharge from Outfall 023A (Sand Creek former pond area) exceeded the permit 30-day average benzene benchmark concentration of 5 ug/I on 3/25/2016." "The area of the former pond was already nearly full of storm water and at 10:00 am on 3/25/2016, stormwater was discharged from Outfall 023A to prevent the water from overflowing from the former pond and swale…The discharge showed no visible signs of contamination, and a sample of water in the area of the outfall taken on 3/23/2016 was below the detection limit for benzene. However, two samples taken of the discharge on 3/25/2016 both exceeded the benchmark concentration. It is believed that hydrocarbons coming to the surface in the swale likely contributed to the benzene exceedance. The

hydrocarbons came to the surface during the time the remediation wells lost power as a result of the Substation 16 power cutover."

The Permittee's March 29, 2016 Corrective Action Report further states (refer to Appendix B, Exhibit 8), "In the event that accumulated stormwater in the area of Sand Creek swale threatens to flow offsite from the former pond area, pumps and piping/hose will be proactively set up to transfer the water to the WWTS headworks or 4th Lagoon rather than directly discharging via Outfall 023A. Written directions and specifications for setting up the pumping will be prepared." Mr. Marler explained that the Facility also discharged stormwater from Outfall 023A in May 2021 and June 2021 due to significant storm events. However, it is unclear why the water was not pumped to the WWTP as specified by the written directions noted in the Permittee's March 29, 2016 Corrective Action Report or if the commingled contaminated groundwater in the Sand Creek Swale Pond and stormwater detention area were prevented from being discharged through Outfall 023A during these storm events.

According to Facility representatives, the current GWTS and slurry wall, used to treat and control groundwater, was constructed by Conoco Phillips in approximately 2001. The Permittee is in-process of constructing a new subsurface slurry wall and upgrades to the GWTS wells to create an additional interstitial space between the two slurry walls along the northern property boundary with Sand Creek extending toward Brighton Boulevard. This project is in response to an Order from CDPHE based on ongoing pollutant discharges (i.e., sheens) observed in Sand Creek.

The slurry wall is intended to inhibit contaminated groundwater migration to the surface and into Sand Creek. Currently, approximately 30 groundwater wells within the slurry wall pump contaminated groundwater to the Facility's GWTS for treatment. The EPA Inspection Team noted a recent, May 7, 2020 (CDPHE Case No. 2020-0222), where the Permittee reported a visible oil sheen on Sand Creek approximately 500 feet upstream of wastewater (CDPS Permit No. COS0001147) Outfall 020A. Facility representatives stated that this was likely caused by seepage from the historic groundwater contamination beyond the subsurface slurry wall to Sand Creek.

Part I.A.2, Allowable Non-Stormwater Discharges, of the Permit states, "The following non-stormwater discharges are authorized by this permit provided that appropriate control measures are implemented to minimize erosion and sediment transport resulting from such discharges, and the non-stormwater component(s) of the discharge and the control measure(s) used are identified in the SWMP (see Part I.G of SWMP—Specific SWMP Requirements):

a. Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids."

And

Part I.B.2.e, Erosion and Sediment Controls, of the Permit states, "The permittee must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Among other actions taken to meet this effluent limit, flow velocity dissipation devices must be placed at discharge locations and within outfall channels where necessary to minimize erosion and/or settle out pollutants."

Observation 4. During the inspection, the EPA Inspection Team observed a continual non-stormwater flow (i.e., cooling water) eroding the ground surface and causing sediment transport to flow into the open stormwater concrete conveyance channel along the east perimeter of

Plant 3 that subsequently flows to Mary's Pond and/or Outfall 026A. Mr. Marler stated the source of the flow was non-contact cooling water from the adjacent Plant 3 cooling towers. This flow appeared to have been occurring for some time as evident by channelization and erosion on the unstabilized ground surface between the cooling towers and the conveyance channel (refer to Appendix A, Photograph 31).

A Corrective Action Report from June 14, 2016 (refer to Appendix B, Exhibit 8) states, "Plant 3. Immediately following the storm event, a large amount of debris was found to have washed down the concrete channel leading to Mary's Pond, partially blocking the bar screen at the inlet to the pond. Visible signs of a high-water mark and erosion indicate that water may have discharged from the ditch just upstream of Outfall 026A. However, if this occurred, it must have been for a very brief period of time, because the water level in the ditch was approximately 2 feet below the top of the ditch soon after the storm, and there was more than adequate capacity remaining in Mary's Pond…Whether or not an actual discharge occurred, it is clear that a buildup of debris in the channel has the potential for backing up stormwater in the channel which could result in a preventable stormwater discharge. Furthermore, signs of erosion east of Outfall 026A indicate that there is a potential for discharge to the east of the designated discharge structure."

This issue was also identified by the Facility's contract inspectors from PSS during monthly stormwater inspections on June 17, 2019 and September 9, 2019 (refer to Appendix B, Exhibit 11).

Part II.A.9, Proper Operation and Maintenance, of the Permit states, "The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee as necessary to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance and adequate laboratory and process controls, including appropriate quality assurance procedures (40 CFR 122.41(e)). This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when necessary to achieve compliance with the conditions of the permit."

Observation 5. At the time of the inspection, the EPA Inspection Team observed accumulated sediment and vegetative growth in the stormwater detention basin upgradient of Outfall 021A and in the stormwater detention basin associated with Outfall 022A located at the Suncor "Nelson Property." Accumulated sediment was observed in the valley/gutter stormwater conveyance channel that flows north into the basin associated with Outfall 021A (refer to Appendix A, Photographs 14 and 15). Additionally, significant vegetative growth was observed potentially diminishing the capacity and effectiveness of the basin located in the northwest corner of the Nelson Property (refer to Appendix A, Photograph 16).

Observation 6. The EPA Inspection Team observed Webber's Pond to be in need of maintenance. Specifically, the EPA Inspection Team observed evidence of erosion and rill formation on the east embankment of Webber's Pond resulting in deposition of sediment into the pond (refer to Appendix A, Photographs 32 and 33). Additionally, the EPA Inspection Team observed trash and debris within the pond (refer to Appendix A, Photographs 18 and 19) and a torn and deteriorated poly liner on the central-east side of Webber's Pond (refer to Appendix A, Photographs 33 and 36). Furthermore, Mr. Marler explained that to the best of his knowledge, Webber's Pond has never been maintained due to risk associated with tearing the poly liner of the pond.

Part I.B.1, Effluent Limitations, Permitted Features, requires the Permittee to discharge and monitor only from those permitted discharge features (i.e., outfalls) specified in the Permit.

Observation 7. The EPA Inspection Team observed evidence of a previous stormwater discharge and release of sediment offsite from the southern boundary of the Facility, just south of Webber's Pond at a location not specified in the Permit. Uncovered and uncontained used chemical and oil totes and drums were observed adjacent to the Facility's southern perimeter in this area. Accumulated sediment against the perimeter wall indicated an area where stormwater runoff had accumulated. The depth of sediment and grit in this location was at or near the height of the perimeter wall. A visible crack in the wall was observed along with evidence that stormwater and sediment had previously mobilized through and onto the ground surface offsite and south of the Facility boundary (refer to Appendix A, Photographs 25 through 30). Section 7.2.1, Structural Controls and Best Management Practices, of the SWMP, states that "All drums and containers are labeled and closed/secured with lids" and "Berms and surface structures have been located to limit uncontrolled movement of stormwater runoff." Part II.A.8 of the Permit, Discharge Point, states, "Any discharge to the waters of the State from a point source other than specifically authorized by this permit is prohibited."

Part I.F.1., SWMP Requirement, of the Permit states, "The permittee must develop, implement, and maintain a SWMP for each facility authorized by this permit."

Observation 8. The EPA Inspection Team observed uncovered scrap and waste dumpsters immediately upgradient the Webber's Pond stormwater control. Evidence of leaching from the dumpsters was observed (refer to Appendix A, Photograph 35). Section 7.1.2, Materials Handling, of the SWMP (refer to Appendix C) stated "Storage of any scrap/surplus materials that may contain deleterious or hazardous wastes within any of the storm water control areas is prohibited."

Observation 9. The EPA Inspection Team observed, six (6) hazardous waste storage dumpsters outside secondary containment and the designated Hazardous Wastes Storage Area directly east of Webber's Pond. Mr. Marler explained that the Facility generates larger amounts of hazardous waste during turnaround events, and the paved surface area directly east of the Hazardous Wastes Storage Area containment area is often used as overflow during these times. The EPA Inspection Team observed that this area did not provide secondary containment and that stormwater runoff from this overflow area would flow north and west into a storm drain that flows into the adjacent Webber's Pond (refer to Appendix A, Photographs 37, 38, and 39).

Part I.I.2., Representative Sampling, of the Permit states, "Samples and measurements taken as required herein shall be representative of the nature of the monitored discharge."

Observation 10. The EPA Inspection Team observed that the sampling activities conducted for Outfall 021A may not be representative of the quantity and quality of stormwater discharges from the Facility's Nelson Property. Specifically, Outfall 021A is located at the outlet of the northeastern stormwater detention basin of the Nelson Property. Mr. Marler identified the stormwater monitoring point and explained that this point is located at a low point just outside the property fence line along Colorado Boulevard (refer to Appendix A, Photographs 3, 4 and 5). He explained that a single storm drain culvert owned by the City of Commerce City also flows into this low point, accumulating stormwater runoff from the Nelson Property and City of Commerce City, and that it is difficult to collect a sample and visually monitor Facility discharges at this location because Facility runoff comingles

with stormwater runoff from the City of Commerce City's Colorado Boulevard. Additionally, he explained that during significant storm events, stormwater collected in this low point does not discharge anywhere but rather backs up into the Nelson Property and adjacent right-of-way. Section 8.1 of the SWMP (refer to Appendix C) states the Facility does not discharge to an MS4.

Part I.G.7, Inspection Procedures and Documentation, of the Permit states, "The permittee shall document inspection procedures, and maintain such procedures and other documentation with the SWMP, as follows:

A. The permittee shall document procedures for performing the facility inspections required by Part I.H (Inspections) of the permit. Procedures must identify:

i) Person(s) or positions of person(s) responsible for inspection;
ii) Schedules for conducting inspections; and
iii) Specific items to be covered by the inspection, including inspection schedules for specific outfalls."

Observation 11. The EPA Inspection Team observed that the Permittee had not adequately documented and described the processes and procedures in the SWMP for how the Facility will conduct and document Facility inspections by Part I.G.7 of the Permit. Section 7.1.3 of the SWMP does not identify that inspections are conducted by Suncor's contractor, PSS, and is vague about inspection frequencies (refer to Appendix C). The SWMP identifies visual inspections and employee audits as on-going; however, Section 4.4 of the SWMP states, "Refer to Appendix D for Monthly Inspection Forms." Appendix D of the SWMP only included a form titled "Stormwater Inspection Form" which does not indicate a monthly frequency for completion.

Part I.G.3., Facility Map, of the Permit states, "The SWMP shall include a legible site map(s), showing the entire facility, and vicinity as appropriate, identifying" (items a through l of the Permit).

Observation 12. The EPA Inspection Team observed that the SWMP site maps (referred to as Figures 1 through 4, and 6 through 10 in the SWMP; Appendix C) do not identify multiple elements required by Part I.G.3 of the Permit, including stormwater inlets, conveyances, stormwater flow direction, structural controls, and locations of pollutant sources. The SWMP site maps appear to only indicate the boundaries of each Facility SWA. The EPA Inspection Team noted that some of this information was included in the SPCC Plan maintained by the Permittee.

Observation 13. The maps and description of discharges included in the SWMP were not representative of conditions observed onsite at the time of the inspection. The EPA Inspection Team observed that the Figure 4 narrative of the SWMP identifies several storm drains in the center of the Nelson Property that convey stormwater to "the City's storm water sewer system"; however, Facility representatives stated there are no storm drains located at the Nelson Property (confirmed during course of field inspection).

Further, Section 8.1 of the SWMP (refer to Appendix C) states the Facility does not discharge to an MS4; however, the EPA Inspection Team observed stormwater runoff at the Facility Nelson Property was conveyed by valley gutters into two stormwater detention basins in the northeast and northwest corners of the property equipped with stormwater outfall structures to the Commerce City MS4 along Colorado Boulevard (refer to Appendix A, Photographs 3, 4, and 5).

Part I.H.3., Inspection Documentation, of the Permit states, "The permittee shall document the findings for each inspection in an inspection report or checklist, and keep the record onsite with the facility SWMP. The permittee shall ensure each inspection report documents the observations, verifications and assessments required in Part I.H.2above, and additionally includes

a. Weather information and a description of any discharges occurring at the time of the inspection."

Observation 14. The EPA Inspection Team observed multiple monthly Facility inspection reports from 2018, 2019, and 2020 that do not document weather information at the time of the inspection. The following monthly inspection reports reviewed did not identify the weather information at the time of these Facility stormwater inspections (refer to Appendix B, Exhibit 7 for Page 1 only copies of the reports):

- August 20, 2018
- April 15, 2019
- October 14, 2019
- December 16, 2019
- January 15, 2020

Part I.G.8., Monitoring Procedures and Documentation, of the Permit states, "The permittee shall document monitoring procedures, and maintain such procedures and other documentation with the SWMP, as follows:

b. The permittee shall document procedures for performing the monitoring required by the permit.
c. For each type of monitoring, procedures must identify
   i) Locations where samples are collected, and outfall identification by its unique identifying number
   ii) Staff responsible for conducting stormwater sampling
   iii) Procedures for sample collection and handling, including any deviations from sampling within the first 30 minutes of a measurable storm event (see Part I.I.5);
   iv) Parameters for analysis, holding times and preservatives, analytical methods, and laboratory quantitation levels;
   v) Procedures for sending samples to a laboratory;
   vi) The numeric control values (benchmarks, effluent limitations guidelines, TMDL-related requirements, or other requirements) applicable to discharges from each outfall."

Observation 15. The EPA Inspection Team observed that Section 9.5, Sampling, of the SWMP (refer to Appendix C) incorrectly identifies the Permittee's contract laboratory as Test America; however, Facility representatives confirmed the contract laboratory used for stormwater sample analysis as Technology Laboratories in Fort Collins, Colorado.

Observation 16. The EPA Inspection Team observed that Section 9.5, Sampling, of the SWMP (refer to Appendix C) incorrectly states that pH does not have a holding time. Sample procedures and methods in 40 CFR 136 identifies the required holding time for a pH sample as 15 minutes.

Part I.I.1., Monitored Outfalls, of the Permit states, "Applicable monitoring requirements apply to each outfall authorized by this permit."

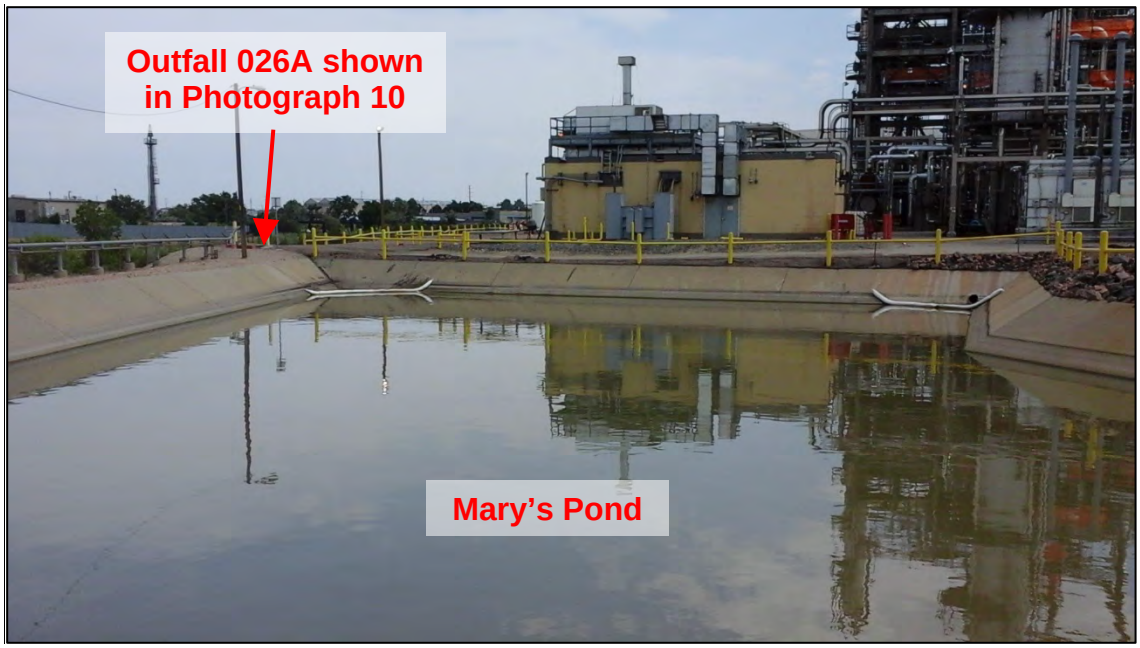
Observation 17. The EPA Inspection Team observed that Outfall 027A, located at Plant 2, is no longer used according to Facility representatives, and potentially should be removed as an outfall from the Permit during any future Permit renewals.

IV. CLOSING CONFERENCE

At approximately 3:00 p.m. on June 24, 2021, the EPA Inspection Team met with the Facility representatives for a closing conference and shared preliminary observations. Additional Suncor and CDPHE personnel called in remotely to the closing conference who were not otherwise present during the onsite inspection. The EPA Inspection Team reiterated that all preliminary observations discussed were not compliance determinations. Any preliminary observations shared were subject to further investigation by the EPA Inspection Team upon the additional review of records and documentation. Additional observations may be contained in this inspection report that were not identified at the time of the closing conference after the additional review of materials following the inspection.

The inspection concluded on June 24, 2021 at approximately 3:40 p.m. (MDT).

Appendix A
Photograph Log



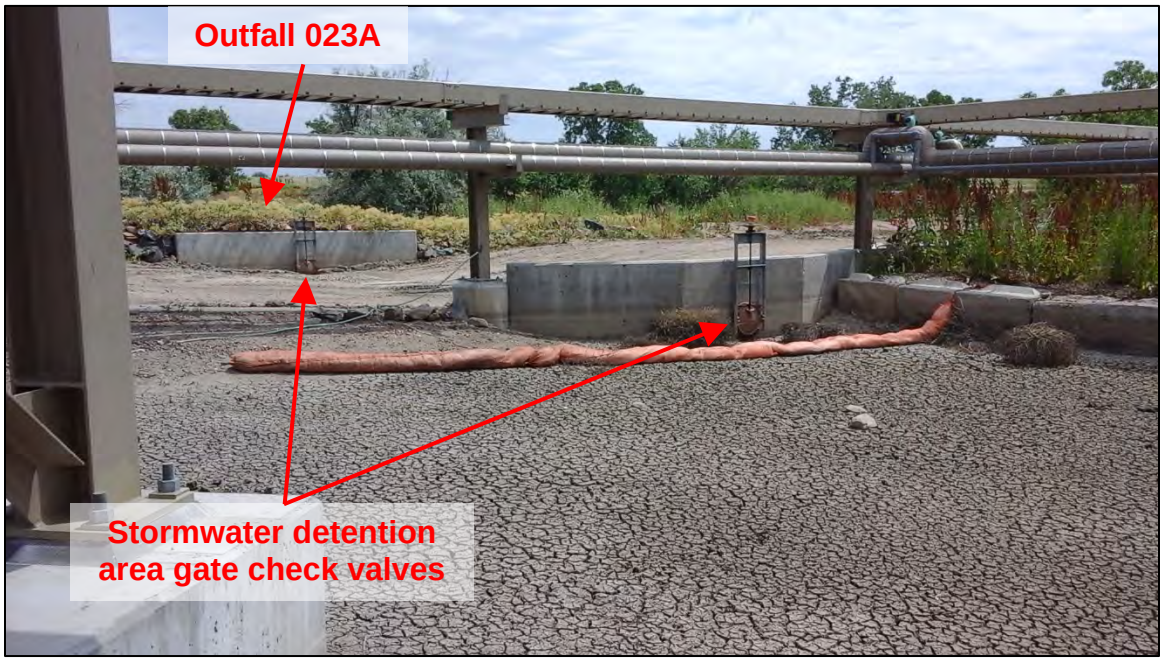
Photograph 1. View, facing southeast, of Mary's Pond receiving stormwater runoff from Plant 3 (asphalt plant). Mary's Pond can be pumped to the WWTP or discharged through Outfall 004A.

Photograph 2. View of Outfall 004A to Sand Creek from Mary's Pond, shown in Photograph 1.

Photograph 3. View, facing west, from the Colorado Boulevard right-of-way, of Outfall 021A at the northeast corner of the Nelson Property. The stormwater detention basin on the northeast side of the property is located behind the white fence. Outfall 021A is noted as the location where accumulated stormwater is monitored and also where stormwater is commingled with stormwater runoff from the City of Commerce City's MS4 from Colorado Boulevard.

Photograph 4. View of a storm drain culvert inlet along Colorado Boulevard adjacent to the Nelson Property. This MS4 culvert outlets at the headwall shown in Photograph 3 at the same location as Outfall 021A from the Nelson Property.

Photograph 5. View of Outfall 022A on the northwest side of the Nelson Property. This outfall drains into an adjacent offsite (behind chain link fence) parking lot and potentially to the City of Commerce City MS4.

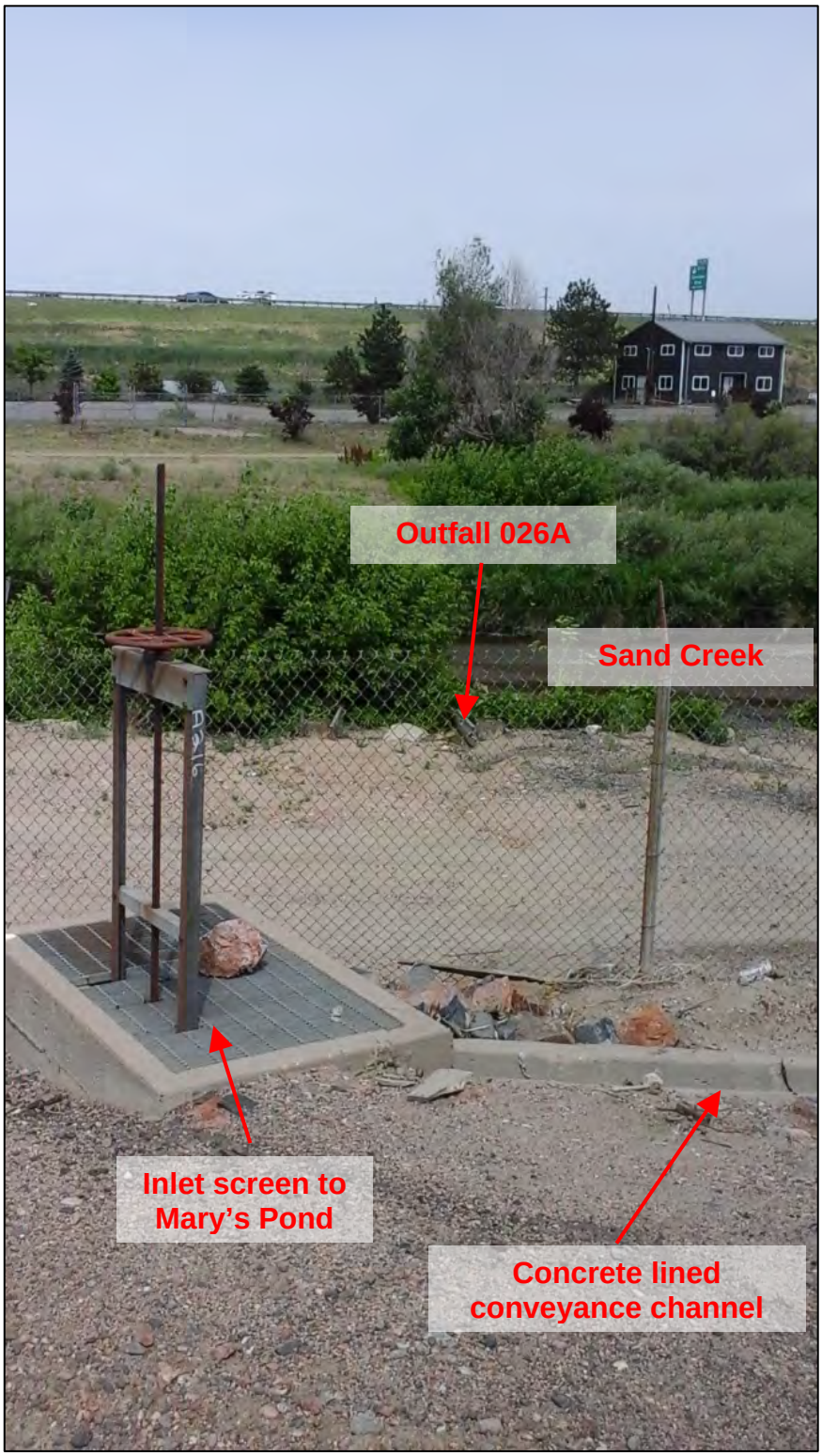


Photograph 6. View of Outfall 023A and the two gate check valves for the Outfall 023A stormwater detention area.

Photograph 7. Close-up view of Outfall 023A from stormwater detention area, shown in Photograph 6, which discharges into Sand Creek.

Photograph 8. View, facing north, from Outfall 023A towards Sand Creek.

Photograph 9. View, facing northwest, of Outfall 024A downgradient of a stormwater detention basin that captures runoff from the Plant 2 employee parking lot.



Photograph 10. View, facing east, of Outfall 026A which is a high flow contingency (i.e., overflow) discharge point from the Plant 3 east perimeter concrete lined conveyance channel that flows to Mary's Pond (refer to Photograph 1).

Photograph 11. View, facing northeast, of the stormwater detention area located immediately east of the GWTS. This stormwater detention area overflows towards the Sand Creek Swale Pond and to the stormwater detention area before discharges to Outfall 023A. This stormwater detention area is not identified in the SWMP.

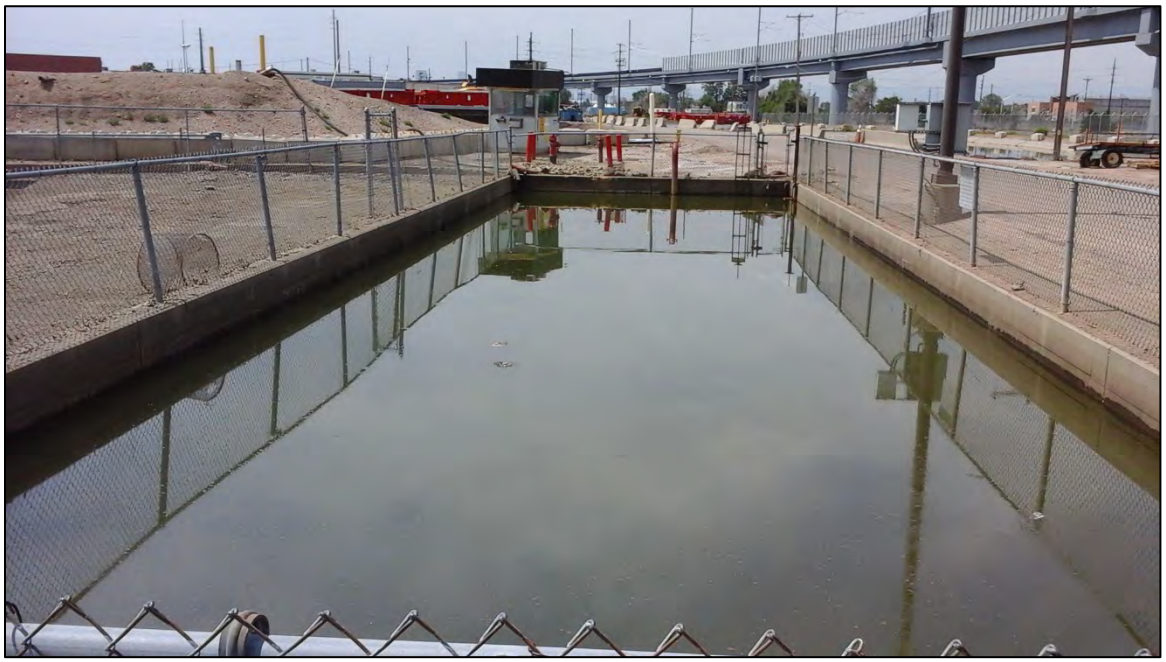
Photograph 12. View of the Sand Creek Swale Pond located between Plant 1 and Sand Creek where hydrocarbons during wet weather or times of elevated groundwater levels migrates to the ground surface. Note the black oil staining on the ground surface and netting to restrict wildlife access.

Photograph 13. View, facing southwest, of the stormwater detention area upgradient of Outfall 023A.

Photograph 14. View, facing east, of the stormwater detention basin in the northeast corner of the Nelson Property which discharges to Outfall 021A (refer to Photograph 3). Accumulated sediment and vegetative growth was observed within the basin.

Photograph 15. View, facing north, of a valley gutter leading into the stormwater detention basin shown in Photograph 14. Note the accumulated sediment in and around the valley gutter.

Photograph 16. View, facing west, of the stormwater detention basin located in the northwest corner of the Nelson Property. This basin discharges through Outfall 022A shown in Photograph 5. Note the significant vegetative growth potentially diminishing the capacity and effectiveness of this stormwater control.



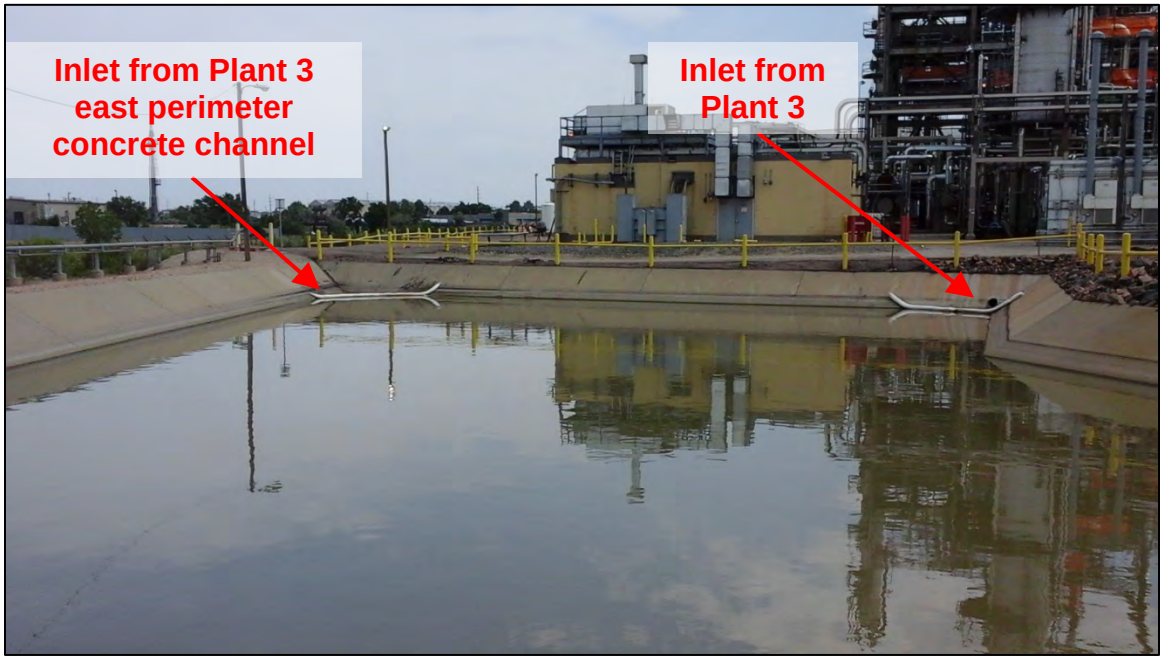
Photograph 17. View, facing south, of Facility's onsite Finger Lake impoundment.

Photograph 18. View, facing south, of the Facility's onsite Webber's Pond. Note the accumulated trash and debris within the pond itself.

Photograph 19. View, facing southeast, of an inlet into the southeast corner of Webber's Pond. Not the trash and debris in the pond adjacent to this inlet.

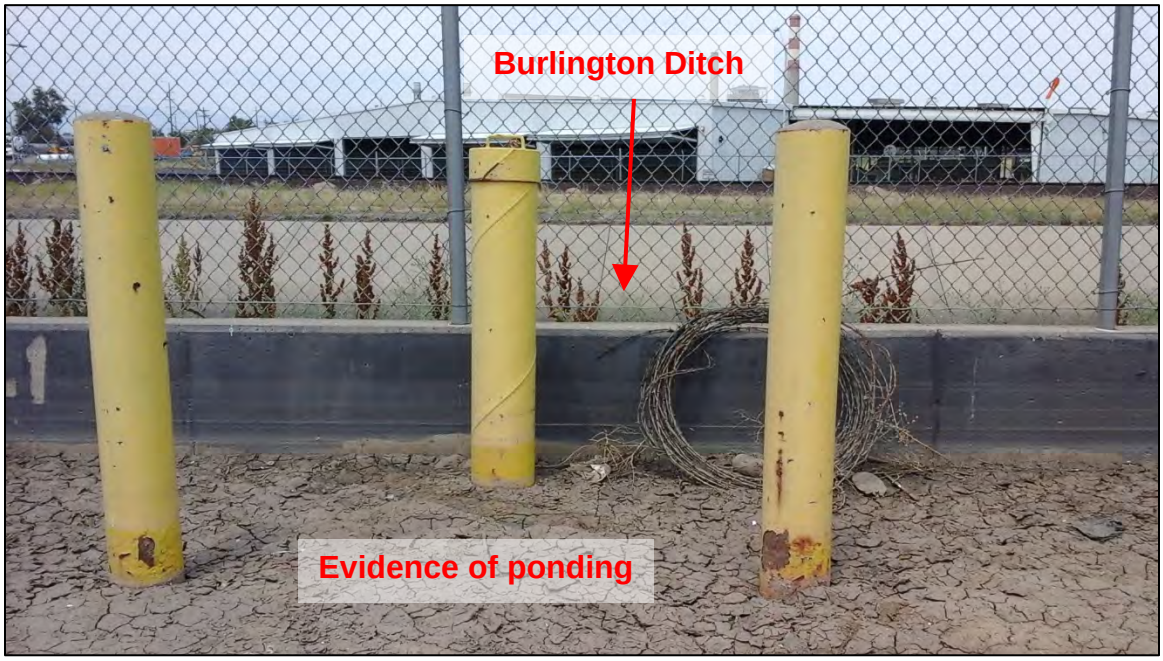
Photograph 20. View of the pump that transfers the contents of Finger Lake into Webber's Pond or to the WWTP. The pump was located within secondary containment; however, petroleum product staining was observed on the ground surface outside of the containment.

Photograph 21. View of transfer hose that connects Finger Lake and Webber's Pond.



Photograph 22. View of Mary's Pond. This pond contained three inlets and one outlet to Outfall 004A. However, pumping equipment was also installed to pump the contents of Mary's Pond to the WWTP during normal conditions, as shown in Photograph 23.

Photograph 23. View of the pump that transfers the contents of Mary's Pond to the WWTP during normal conditions.



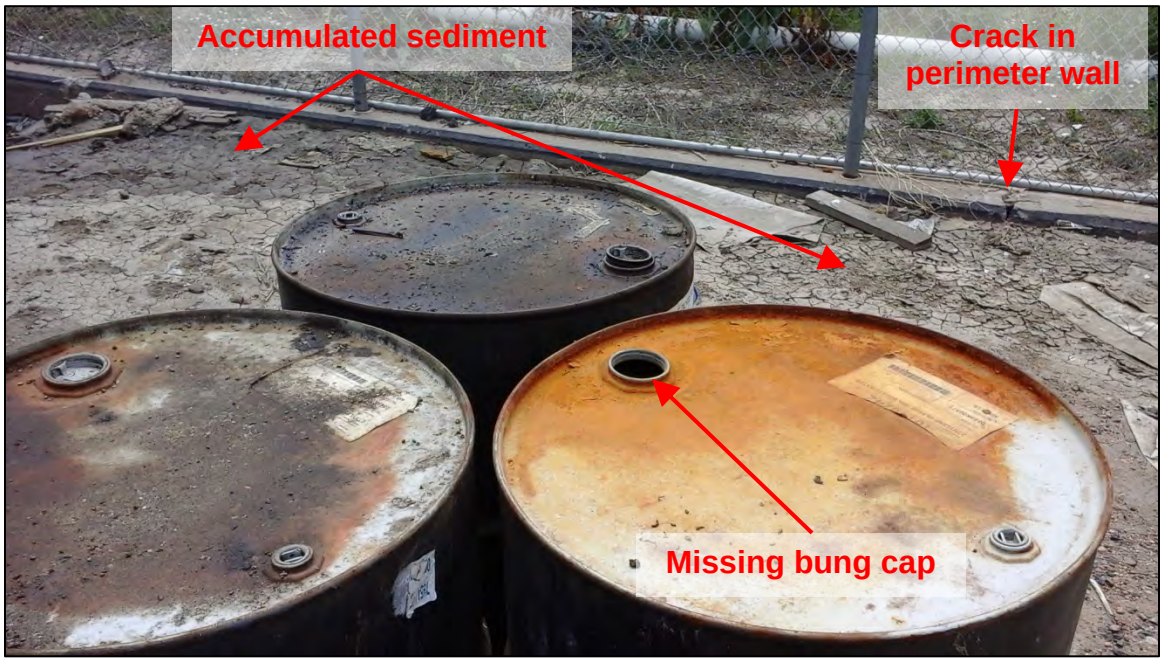
Photograph 24. View, facing south, of evidence of ponding between Webber's Pond and the western Facility wall adjacent to the Burlington Ditch. Mr. Marler explained that the 2015 overflow and discharge event from Webber's Pond to the Burlington Ditch occurred near this location.

Photograph 25. View of waste chemical and used oil totes and drums storage area to the southeast of Webber's Pond. Secondary containment was not provided for these materials. Note the Facility's perimeter chain link fence.

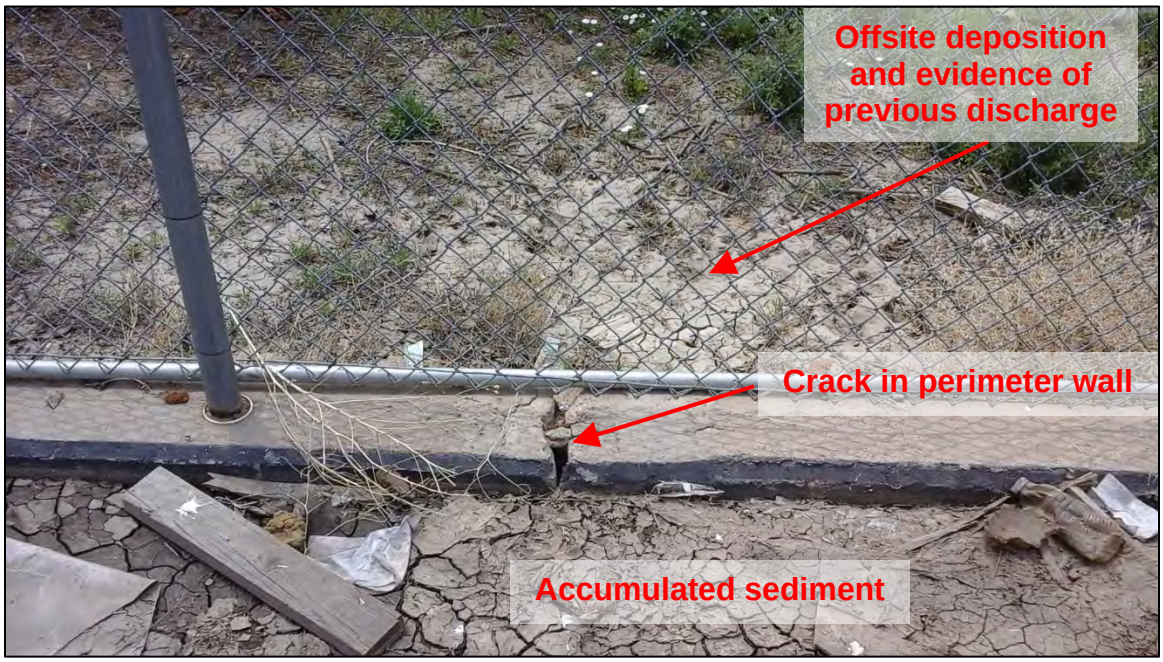
Photograph 26. View, facing north, of sediment accumulation against the Facility's south perimeter wall at the waste chemical and used oil storage area shown in Photograph 25. Note secondary containment was not provided for these totes of waste fluids.

Photograph 27. Additional view of accumulated sediment along the south perimeter wall shown in Photograph 26. Note the depth of sediment varied along this perimeter wall.

Photograph 28. Additional view of accumulated sediment along the south perimeter wall. Also note secondary containment was not provided for the 55-gallon drums of used oil.



Photograph 29. Additional view of accumulated sediment along the south perimeter wall as shown in Photograph 28. Note one of the 55-gallon drums of used oil was missing a bung cap. Also note the crack in the perimeter wall (also shown in Photograph 30).



Photograph 30. View of a crack in the southern perimeter wall shown in Photograph 29. Evidence of previous stormwater and sediment discharges from this location were observed (e.g., deposition of sediment offsite on the opposite side of the wall).

Photograph 31. View, facing south, of evidence of erosion occurring upgradient of the Plant 3 east perimeter concrete channel that leads to Mary's Pond (Outfall 004A) or to Outfall 026A during high flow events. Red dotted arrow indicates flow direction. According to Facility representatives this continual flow was from non-contact cooling water in Plant 3 into this channel. Note the slope above the channel was eroded due to the continual flow.

Photograph 32. View, facing north, of rill formation on the east embankment of Webber's Pond. Note the sediment deposited in Webber's Pond below the rill. Also note the uncovered scrap and waste dumpsters located upgradient of Webber's Pond.

Photograph 33. View, facing south, of additional rill formations along the eastern embankment of Webber's Pond. Note the sediment deposited in Webber's Pond beneath the rill. Also note the torn poly liner for Webber's Pond, as shown in Photograph 36.

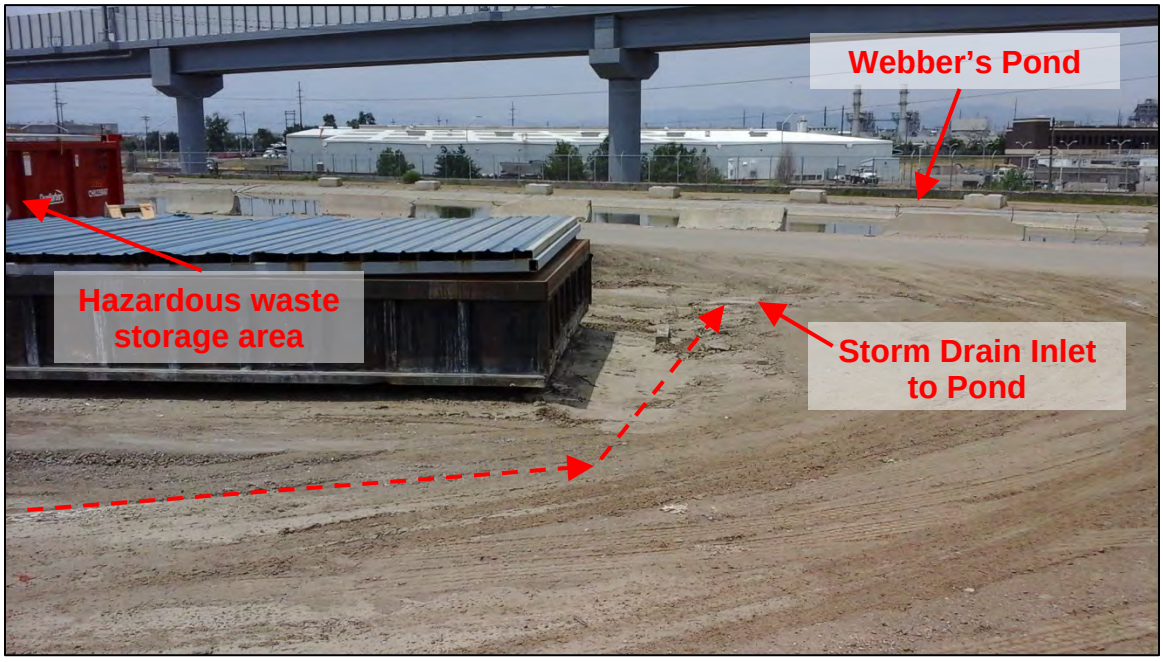
Photograph 34. View of crushed 55-gallon drums in one of the uncovered scrap and waste dumpsters located adjacent to Webber's Pond, shown in Photograph 32.

Photograph 35. View of leachate on the ground surface beneath the uncovered scrap and waste dumpsters shown in Photographs 32 and 34.

Photograph 36. Close-up view of the torn poly liner of Webber's Pond shown in Photograph 33.

Photograph 37. View, facing southwest, of the hazardous waste storage area located in Plant 1, east of Webber's Pond. Note six (6) red hazardous waste dumpsters were stored outside of this designated hazardous waste storage area and lacked secondary containment. Red dotted arrow indicates flow direction; refer to Photographs 38 and 39 for the observed flow pathway.

Photograph 38. View, facing south, of the hazardous waste storage area located in Plant 1, east of Webber's Pond. Red dotted arrow indicates flow direction; refer to Photograph 39 for observed flow pathway to Webber's Pond.



Photograph 39. View of the observed flow pathway from the area with the six (6) red hazardous waste dumpsters to Webber's Pond, as shown in Photographs 37 and 38. Stormwater runoff from this area enters a storm drain which flows to the adjacent Webber's Pond.

Appendix B
Exhibit Log

Exhibit 1
SWMP Figure 1A – Location Map

Figure 1A - LOCATION MAP

Suncor Energy Commerce City Refinery

Exhibit 2
Figure 5 – Wastewater and Stormwater Outfalls

Figure 5—Wastewater and Stormwater Outfalls

Suncor Energy Commerce City Refinery

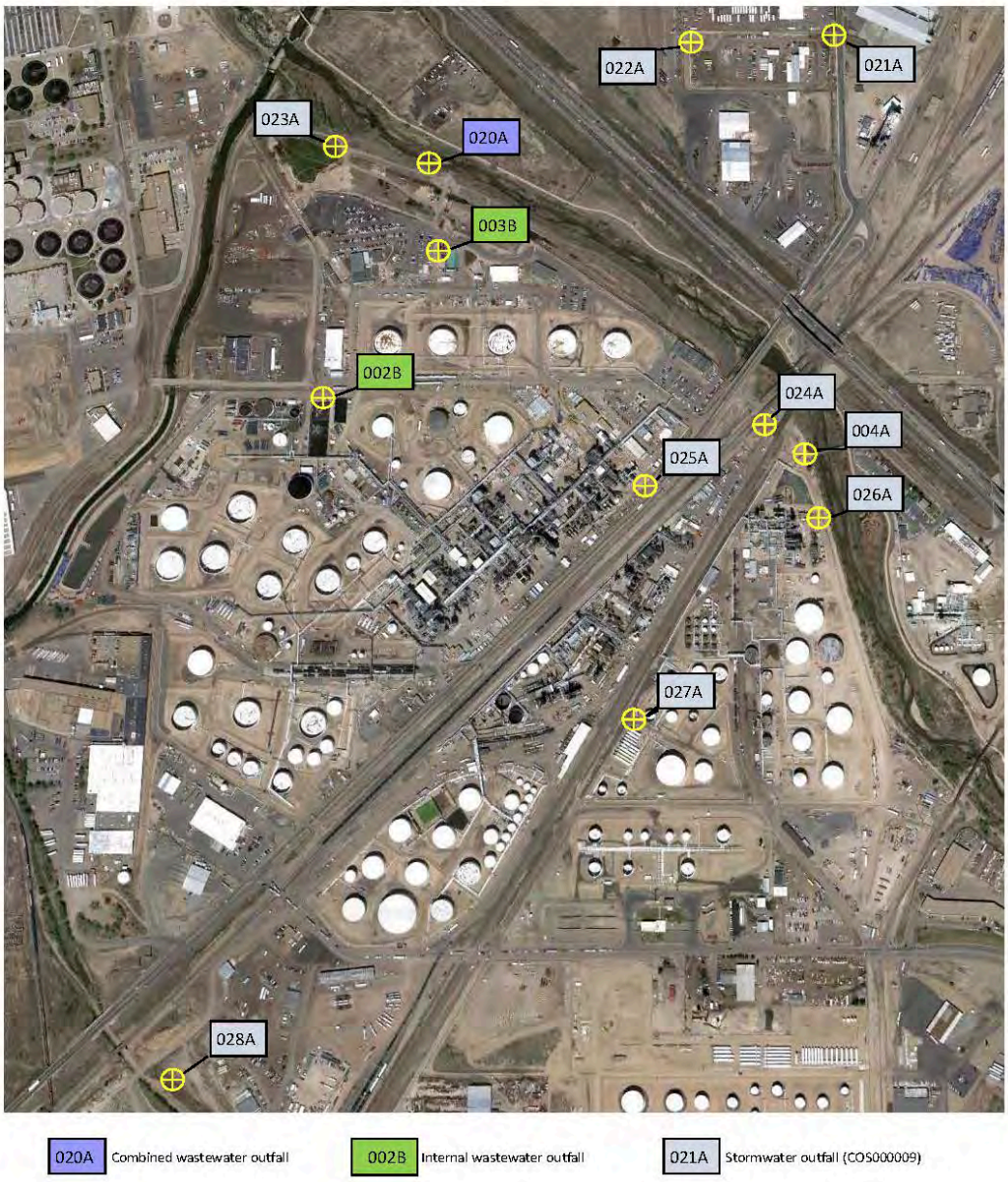


Exhibit 3
May 2021 SPCC Plan Tertiary Containment Ponds

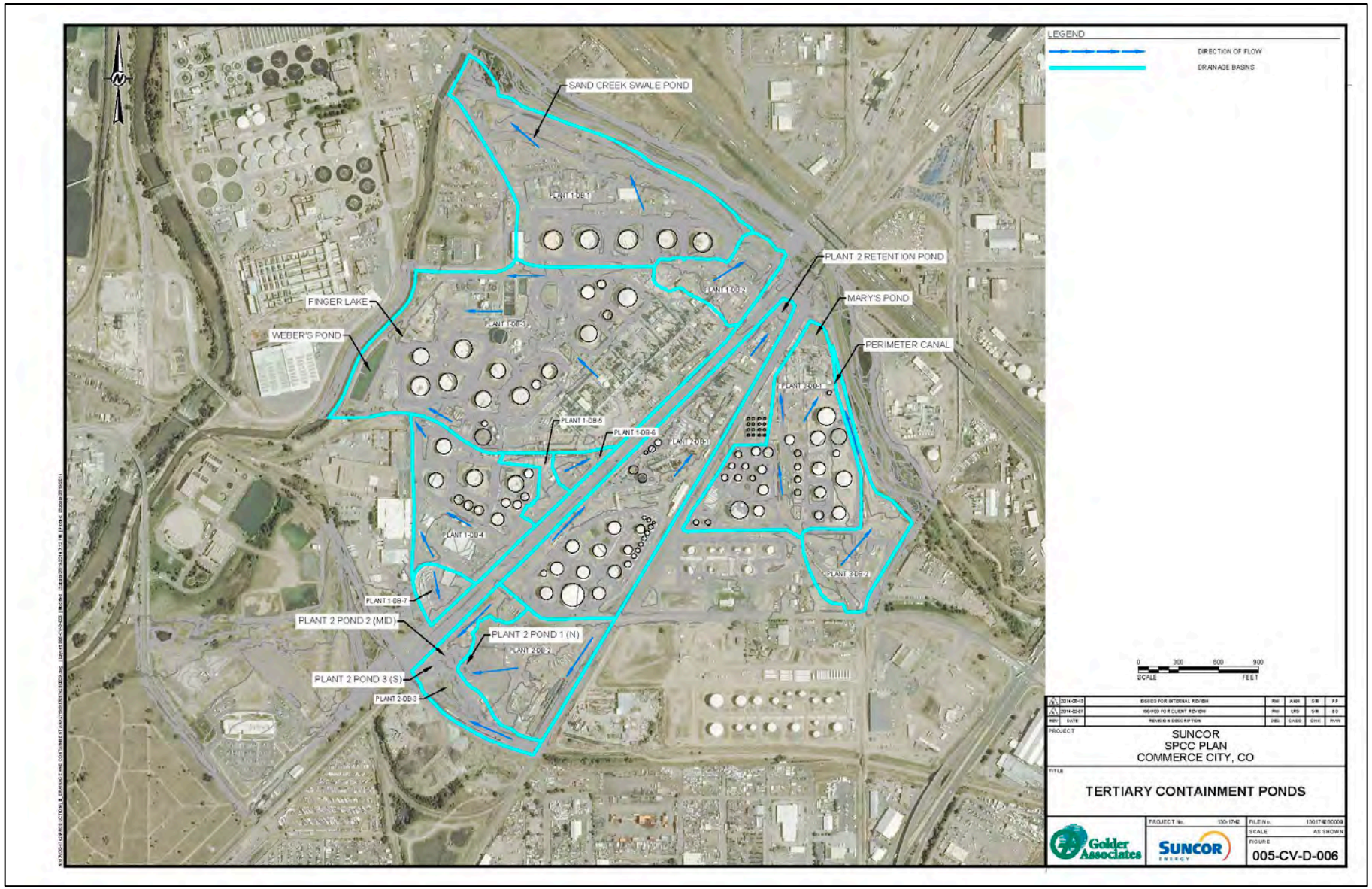

SAND CREEK SWALE POND
PLANT 2 RETENTION POND
MARY'S POND
PERIMETER CANAL
FINGER LAKE
WEBER'S POND
PLANT 2 POND 2 (MID)
PLANT 2 POND 1 (N)
PLANT 2 POND 3 (S)
LEGEND
DIRECTION OF FLOW
DRAINAGE BASINS
SCALE
FEET
SUNCOR
SPCC PLAN
COMMERCE CITY, CO
TERTIARY CONTAINMENT PONDS
Golder Associates
SUNCOR
005-CV-D-006

Exhibit 4
GoogleEarth Aerial Imagery Outfall 023A
May 13, 2017

Sand Creek Swale Pond Hydraulically Connected to Stormwater Detention Area and Outfall 023A

Exhibit 5
GoogleEarth Aerial Imagery Outfall 023A
June 9, 2017

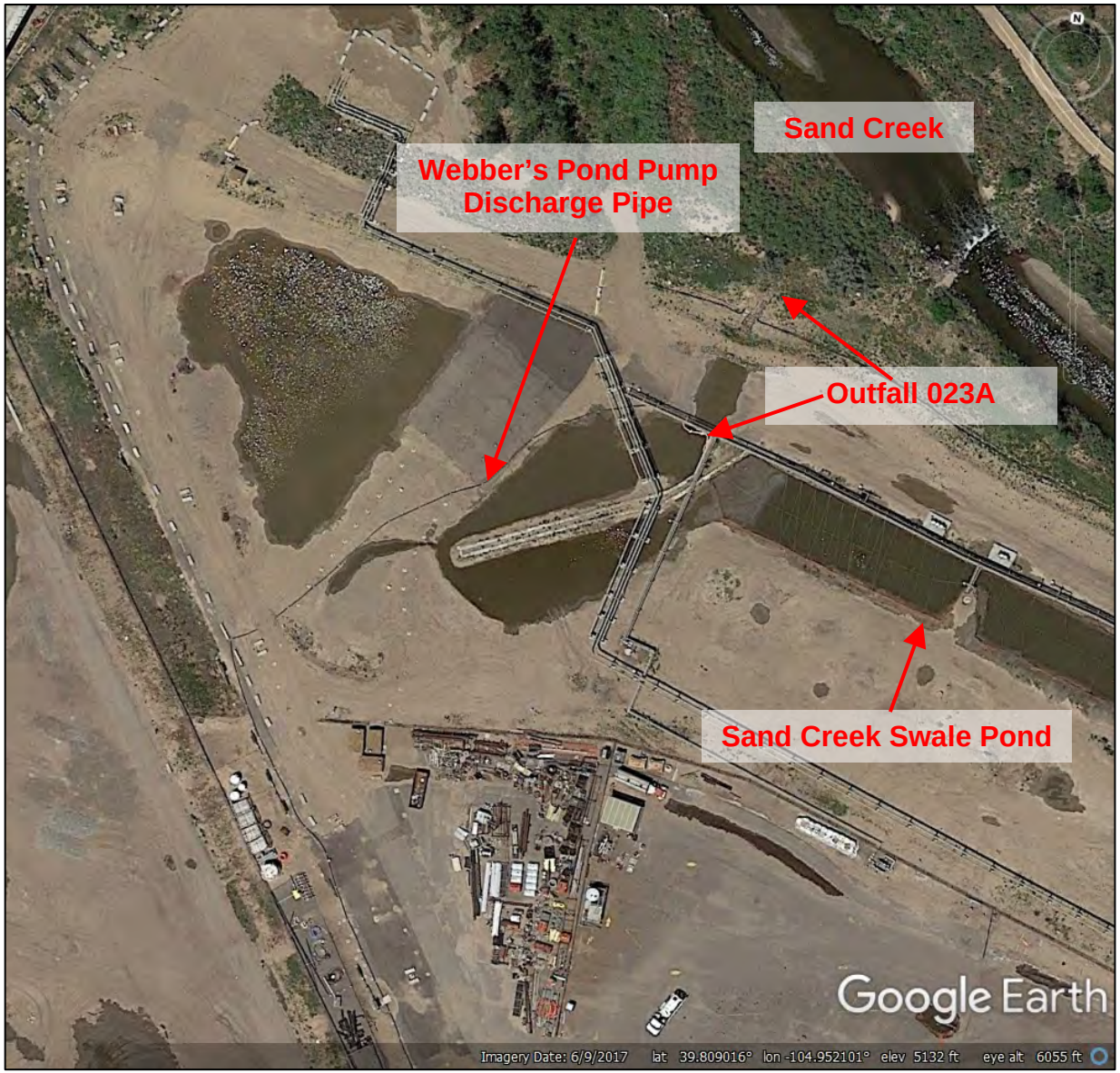

Sand Creek
Webber's Pond Pump Discharge Pipe
Outfall 023A
Sand Creek Swale Pond
Google Earth
Imagery Date: 6/9/2017 lat 39.809016° lon -104.952101° elev 5132 ft eye alt 6055 ft

Exhibit 6
GoogleEarth Aerial Imagery Outfall 023A
May 31, 2018


Sand Creek
Webber's Pond Pump Discharge Pipe(s)
Outfall 023A
Sand Creek Swale Pond
Google Earth
Imagery Date: 5/31/2018 lat 39.808475° lon -104.950282° elev 5130 ft eye alt 6055 ft

Exhibit 7
August 20, 2018 (Page 1 only), April 15, 2019 (Page 1 only), October 14, 2019 (Page 1 only), December 16, 2019 (Page 1 only), and January 15, 2020 (Page 1 only)
Monthly Industrial Stormwater Inspection Report

SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

Inspection Date: 8/29/18 **Time:** 0815

Weather Conditions:

PLANT 1	Yes	No	N/A
Is there discharge occurring from **Outfall 023A** (detention area along Sand Creek)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any signs of erosion of the swale or detention area along Sand Creek?		X	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?		X	
Is there discharge occurring from **Outfall 025A** (Sulfur Rail Loading Gate)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Is there any debris blocking the stormwater drain at the sulfur loading gate?		X	
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?		X	
Are there any signs of structural deficiencies with the detention area located near the North Gate?		X	
Is there any oil or solids present in the detention area located near the North Gate?		X	
Are there any structural deficiencies associated with tank berms?		X	
Are drain valves along north tank berm open or unlocked?		X	
Are drain valves at Waste Pad open?		X	
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?		X	
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?		X	
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?		X	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?		X	
Is the secondary containment structure associated with the fueling area filled with accumulated stormwater?		X	

PLANT 2	Yes	No	N/A
Is there discharge occurring from **Outfall 024A** (detention basin at north end of facility)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any signs of structural deficiencies associated with the detention basin?		X	
Is there any oil or solids present in the detention basin?		X	
Is the detention basin full or close to full of water?		X	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		X	
Are there any structural deficiencies associated with tank berms?		X	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?		X	
Is there discharge occurring from **Outfall 027A** (East Tank Farm manual pumping of bermed area)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X

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SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

Inspection Date: 04/15/19 **Time:** 1342

Weather Conditions:

PLANT 1	Yes	No	N/A
Is there discharge occurring from **Outfall 023A** (detention area along Sand Creek)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of erosion of the swale or detention area along Sand Creek?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?		✓	
Is there discharge occurring from **Outfall 025A** (Sulfur Rail Loading Gate)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Is there any debris blocking the stormwater drain at the sulfur loading gate?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?		✓	
Are there any signs of structural deficiencies with the detention area located near the North Gate?		✓	
Is there any oil or solids present in the detention area located near the North Gate?			
Are there any structural deficiencies associated with tank berms?		✓	
Are drain valves along north tank berm open or unlocked?		✓	
Are drain valves at Waste Pad open?		✓	
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?		✓	
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?		✓	
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?		✓	
Is the secondary containment structure associated with the fueling area filled with accumulated stormwater?		✓	

PLANT 2	Yes	No	N/A
Is there discharge occurring from **Outfall 024A** (detention basin at north end of facility)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of structural deficiencies associated with the detention basin?		✓	
Is there any oil or solids present in the detention basin?		✓	
Is the detention basin full or close to full of water?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?		✓	
Is there discharge occurring from **Outfall 027A** (East Tank Farm manual pumping of bermed area)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓

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SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

Inspection Date: 10/14/19 **Time:** 1425

Weather Conditions

PLANT 1	Yes	No	N/A
Is there discharge occurring from **Outfall 023A** (detention area along Sand Creek)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of erosion of the swale or detention area along Sand Creek?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?		✓	
Is there discharge occurring from **Outfall 025A** (Sulfur Rail Loading Gate)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Is there any debris blocking the stormwater drain at the sulfur loading gate?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?		✓	
Are there any signs of structural deficiencies with the detention area located near the North Gate?		✓	
Is there any oil or solids present in the detention area located near the North Gate?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are drain valves along north tank berm open or unlocked?		✓	
Are drain valves at Waste Pad open?		✓	
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?		✓	
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?		✓	
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?		✓	
Is the secondary containment structure associated with the fueling area filled with accumulated stormwater?		✓	

PLANT 2	Yes	No	N/A
Is there discharge occurring from **Outfall 024A** (detention basin at north end of facility)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of structural deficiencies associated with the detention basin?		✓	
Is there any oil or solids present in the detention basin?		✓	
Is the detention basin full or close to full of water?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?		✓	
Is there discharge occurring from **Outfall 027A** (East Tank Farm manual pumping of bermed area)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓

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SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

Inspection Date: 12-16-19 **Time:** 1000

Weather Conditions:

PLANT 1	Yes	No	N/A
Is there discharge occurring from **Outfall 023A** (detention area along Sand Creek)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of erosion of the swale or detention area along Sand Creek?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?		✓	
Is there discharge occurring from **Outfall 025A** (Sulfur Rail Loading Gate)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Is there any debris blocking the stormwater drain at the sulfur loading gate?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?		✓	
Are there any signs of structural deficiencies with the detention area located near the North Gate?		✓	
Is there any oil or solids present in the detention area located near the North Gate?		✓	
Are there any structural deficiencies associated with tank berms?			
Are drain valves along north tank berm open or unlocked?		✓	
Are drain valves at Waste Pad open?		✓	
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?		✓	
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?		✓	
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?		✓	
Is the secondary containment structure associated with the fueling area filled with accumulated stormwater?		✓	

PLANT 2	Yes	No	N/A
Is there discharge occurring from **Outfall 024A** (detention basin at north end of facility)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of structural deficiencies associated with the detention basin?		✓	
Is there any oil or solids present in the detention basin?		✓	
Is the detention basin full or close to full of water?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?		✓	
Is there discharge occurring from **Outfall 027A** (East Tank Farm manual pumping of bermed area)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓

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SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

Inspection Date: 1-15-20 **Time:** 0730

Weather Conditions:

PLANT 1	Yes	No	N/A
Is there discharge occurring from **Outfall 023A** (detention area along Sand Creek)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of erosion of the swale or detention area along Sand Creek?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?		✓	
Is there discharge occurring from **Outfall 025A** (Sulfur Rail Loading Gate)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Is there any debris blocking the stormwater drain at the sulfur loading gate?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?		✓	
Are there any signs of structural deficiencies with the detention area located near the North Gate?		✓	
Is there any oil or solids present in the detention area located near the North Gate?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are drain valves along north tank berm open or unlocked?		✓	
Are drain valves at Waste Pad open?		✓	
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?		✓	
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?		✓	
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?		✓	
Is the secondary containment structure associated with the fueling area filled with accumulated stormwater?		✓	

PLANT 2	Yes	No	N/A
Is there discharge occurring from **Outfall 024A** (detention basin at north end of facility)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of structural deficiencies associated with the detention basin?		✓	
Is there any oil or solids present in the detention basin?		✓	
Is the detention basin full or close to full of water?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		✓	
Are there any structural deficiencies associated with tank berms?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?		✓	
Is there discharge occurring from **Outfall 027A** (East Tank Farm manual pumping of bermed area)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓

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Exhibit 8
March 29, 2016
Corrective Action Report

3/29/2016

Corrective Action Report

Problem

Stormwater discharge from Outfall 023A (Sand Creek former pond area) exceeded the permit 30-day average benzene benchmark concentration of 5 ug/l on 3/25/2016. A benchmark concentration exceedance is not a violation of the permit. However, the permit requires that a corrective action review be performed in order to determine the appropriate actions needed to prevent a reoccurrence.

In order to prevent an unpermitted storm water discharge in to Burlington Canal, water from SW-6 (Webber's Pond) was pumped to the area of the former pond at Sand Creek during the night of 3/24/2016 and morning of 3/25/2016. The area of the former pond was already nearly full of storm water and at 10:00 am on 3/25/2016, stormwater was discharged from Outfall 023A to prevent the water from overflowing from the former pond and swale.

The discharge showed no visible signs of contamination, and a sample of water in the area of the outfall taken on 3/23/2016 was below the detection limit for benzene. However, two samples taken of the discharge on 3/25/2016 both exceeded the benchmark concentration. It is believed that hydrocarbons coming to the surface in the swale likely contributed to the benzene exceedance. The hydrocarbons came to the surface during the time the remediation wells lost power as a result of the Substation 16 power cutover.

Immediate Actions Taken

Results of analysis of the first discharge sample were received at 1:00 pm on 3/25/2016. The outfall was immediately closed to prevent further discharge. The pump from SW-6 was subsequently shut down. A pump was then set up in the area of the former pond to allow for pumping accumulated water into the refinery waste water treatment system (WWTS) headworks. Pumping to the WWTS was started at approximately midnight of 3/25/2016.

Additional Corrective Actions Planned

In the event that accumulated stormwater in the area of Sand Creek swale threatens to flow offsite from the former pond area, pumps and piping/hose will be proactively set up to transfer the water to the WWTS headworks or 4th Lagoon rather than directly discharging via Outfall 023A. Written directions and specifications for setting up the pumping will be prepared. Note that work will not be performed in the area of Sand Creek if flooding or storms make it unsafe.

Exhibit 9
August 2, 2021 Email Correspondence from Mr. Eric Marler (Suncor's Sr. Environmental Advisor)

From: Eric Marler
To: Anthony D'Angelo
Cc: Meyers, Stephanie; Jared Richardson; Wes Mcneil
Subject: RE: Suncor Corrective Action Report for Discharges from Webber's Pond to Outfall 023A
Date: Monday, August 2, 2021 11:49:38 AM

Hi Anthony,

Thank you for the opportunity to talk through your follow up questions this morning. Following is a summary of our discussion.

The "former stormwater pond" is the pond associated with Outfall 023A. This area was referred to as the "former stormwater pond" because it used to be a deeper, more permanent pond. It was filled in 2012 to prevent contact with groundwater, which is why the current "pond" is very shallow, as you saw during the inspection, and typically only fills with water after a heavy storm. The discharge from Webber's Pond to Burlington Ditch occurred on 5/10/2015. When heavy precipitation was experienced in 2016, the pump and piping was put into place from Webber's Pond to Outfall 023A to prevent a reoccurrence. We did not observe discharge into Burlington Ditch in 2016.

Although preliminary sampling indicated that stormwater from both the Webber's Pond area and the pond associated with Outfall 023A was below permit limits and benchmark concentrations, discharge sampling from Outfall 023A unexpectedly exceeded the benchmark concentration for benzene when the water was discharged on March 25, 2016. This was reported to CDPHE in the DMR and annual stormwater report.

Since March 2016, Outfall 023A has discharged four times, twice in 2017 and twice in 2021. During discharges in January 2017 and May 2017, water from the Webber's Pond area was again pumped to Outfall 023A. However, in these instances, the piping was extended to the area between the pond associated with the outfall and the outfall, itself. This allowed water to be discharged from Webber's Pond out of Outfall 023A, thus avoiding discharge to Burlington Ditch, without discharging water from the pond associated with Outfall 023A. The configuration of the line can be seen in the Google Earth image from May 13, 2017 and June 9, 2017. Water from the Webber's Pond area was sampled prior to discharge and the discharge samples were within permit limits and benchmark concentrations.

The most recent two discharges from Outfall 023A occurred in May and June of 2021. In both cases, only water from the pond associated with Outfall 023A was discharged. There was no line set up between Webber's Pond and Outfall 023A. Sampling from both discharges showed the water was within the permit limits and benchmark concentrations, as reported in the DMR's.

The Google Earth image from May 2018 shows the line between Webber's Pond and Outfall 023A was disconnected upstream of the outfall. This is because earlier in that year we needed to pump the area of Webber's Pond again to avoid discharge into Burlington Ditch. However, there was plenty of capacity in the pond associated with 023A, so the water was pumped into the pond rather than the outfall, and no discharge was necessary.

The second line shown in the image from May 2018 extending to Sand Creek was used for bypass of the wastewater line between Outfall 020A and Sand Creek. This was used to allow tie in to the new flume associated with Outfall 020A in late 2017 and again in May 2018 to replace a reducer downstream of the flume to correct an issue with flow out of the flume. By the time of the Google Earth image on May 31, 2018, the line was no longer in use and had been partially removed. By the time of the 2019 Google Earth image, all the temporary piping had been removed and has not put into place again, since.

Completion of the Membrane Bioreactor (MBR) project and combination of outfalls in 2018 has resulted in additional hydraulic capacity through Outfall 002B. Therefore, Suncor does not anticipate the need to reinstall these temporary lines in the future.

Feel free to let me know if you would like to discuss further or have any more questions.

Regards,

Eric Marler
Suncor Energy (U.S.A.) Inc.
Senior Environmental Advisor
303-227-7524
Cell 720-305-6155

From: Anthony D'Angelo <anthony.dangelo@pgenv.com>
Sent: Thursday, July 29, 2021 1:09 PM
To: Eric Marler <EMarler@Suncor.com>
Cc: Meyers, Stephanie <meyers.stephanie@epa.gov>; Jared Richardson <Jared.Richardson@pgenv.com>
Subject: Suncor Corrective Action Report for Discharges from Webber's Pond to Outfall 023A

Hi Eric,

Thank you for providing all the subsequent information that we requested. Just to follow-up on one item, we noted that a corrective action report from Suncor to CDPHE on March 29, 2016 noted that Webber's Pond was pumped directly to the "former stormwater pond" (please clarify where this is located), and subsequently to Outfall 023A to prevent an overflow of Webber's Pond to the adjacent Burlington Ditch. The March 29, 2016 corrective action report does not indicate that an actual discharge from Webber's Pond to the Burlington Ditch occurred but you had mentioned during the field tour that there was an instance where Webber's Pond may have overtopped the perimeter wall and discharged to Burlington Ditch. Can you confirm this overtopping and was this the same instance that prompted the Webber's Pond pump down to Outfall 023A?

The March 29, 2016 Corrective Action Report states, "In order to prevent an unpermitted storm water discharge in to Burlington Canal, water from SW-6 (Webber's Pond) was pumped to the area of the former pond at Sand Creek during the night of 3/24/2016 and morning of 3/25/2016. The area of the former pond was already nearly full of storm water and at 10:00 am on 3/25/2016, stormwater was discharged from Outfall 023A to prevent the water from overflowing from the former pond and swale."

In reviewing historic GoogleEarth imagery of the facility, we observed potential hose lines leading to Outfall 023A and Sand Creek visible in May 13, 2017, June 9, 2017, and May 31, 2018 imagery (see attached). A second potential hose line is also visible in vicinity of Outfall 023A in the May 31, 2018 imagery. Do you know if the lines visible at the outfall in these images are actual stormwater discharge lines and if they were installed for the March 2016 discharge event? Can you confirm the number of instances and dates when Webber's Pond was discharged to Outfall 023A since the March 2016 pumping event discussed in the corrective action.

We observed that the potential hose lines are no longer visible in 2019 imagery available on GoogleEarth.

Thank you for any additional clarification you can provide. Happy to discuss further on a call if needed.

Anthony D'Angelo
PG Environmental
1113 Washington Avenue, Suite 200
Golden, Colorado 80401
720-789-8049 (office)
303-994-3203 (cell)
anthony.dangelo@pgenv.com

visit our website at www.pgenv.com

Exhibit 10
Excerpt From Suncor's 2016 Annual Report

Permit COS000009 Annual Report

Part F : Corrective Actions (contd.)

If the answer to any of the above questions is "**Yes**", provide a description of the conditions that met the criterion/criteria and describe the corrective action(s) taken:

- Stormwater discharge from Outfall 023A (Sand Creek former pond area) exceeded the permit 30-day average benzene benchmark concentration of 5 ug/l on 3/25/2016. This was reported in the March 2016 DMR.

  In order to prevent an unpermitted storm water discharge in to Burlington Canal, water from SW-6 (Webber's Pond) was pumped to the area of the former pond at Sand Creek during the night of 3/24/2016 and morning of 3/25/2016. The area of the former pond was already nearly full of storm water and at 10:00 am on 3/25/2016, stormwater was discharged from Outfall 023A to prevent the water from overflowing from the former pond and swale.

  The discharge showed no visible signs of contamination, and a sample of water in the area of the outfall taken on 3/23/2016 was below the detection limit for benzene. However, two samples taken of the discharge on 3/25/2016 both exceeded the benchmark concentration. It is believed that hydrocarbons coming to the surface in the swale likely contributed to the benzene exceedance. The hydrocarbons came to the surface during a time the remediation wells were not functioning as a result of a power outage.

  Results of analysis of the first discharge sample were received at 1:00 pm on 3/25/2016. The outfall was immediately closed to prevent further discharge. The pump from SW-6 was subsequently shut down. A pump was then set up in the area of the former pond to allow for pumping accumulated water into the refinery waste water treatment system (WWTS) headworks. Pumping to the WWTS was started at approximately midnight of 3/25/2016.

- A brief but heavy downpour during the afternoon of 6/13/2016 revealed issues with Structural controls in Plant 2 and resulted in damage to structural controls in Plant 3. Heavy lightning in the area curtailed immediate efforts to inspect the outfalls and perform sampling.

  Plant 2

  Immediately following the storm event, stormwater was observed to have run on from the railroad ROW along the west side of Plant 2 into the detention pond associated with Outfall 024A and into the outfall basin below the pond. All stormwater from the refinery property was contained within the pond and did not discharge during the event. During recent railroad operations, additional rock was placed and the area re-graded. As a result, the flow of stormwater was altered.

  The discharge pipe was not draining properly and stormwater from the railroad ROW was observed to fill and briefly overflow the basin. Subsequent inspection of the outfall revealed that the end of the discharge pipe has been covered with sediment and sand had completely blocked the flow.

  The berm and swale previously existing between the west fence line in the area of Outfall 024A and the railroad ROW were restored to return the flow of storm water from the ROW directly to Sand Creek rather than into Outfall 024A. In addition, the discharge pipe associated with Outfall 024A was uncovered and cleared of sediment. These corrective actions were completed on 6/27/2016.

  Plant 3

  Immediately following the storm event, a large amount of debris was found to have washed down the concrete channel leading to Mary's Pond, partially blocking the bar screen at the inlet to the pond. Visible signs of a high water mark and erosion indicate that water may have discharged from the ditch just upstream of Outfall 026A. However, if this occurred, it must have been for a very brief period of time, because the water level in the ditch was approximately 2 feet below the top of the ditch soon after the storm, and there was more than adequate capacity remaining in Mary's Pond

Exhibit 11
June 17, 2019 and September 9, 2019
PSS Monthly Inspection Reports

SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

PLANT 2	Yes	No	N/A
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the railroad south of the facility (south side of 56th)?		X	
Are there any signs of leaks or contamination associated with rail or truck loading/unloading areas?		X	
Are there any structural deficiencies associated with secondary containment structures at crude unloading docks?		X	
Is there discharge occurring from **Outfall 028A** (retention pond behind South Park trailers)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Is the retention pond full or close to full of water?		X	

PLANT 3	Yes	No	N/A
Is there discharge occurring from **Outfall 004A** (Mary's Lake)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any signs of structural deficiencies associated with Mary's Lake?		X	
Is there any oil or solids present in Mary's Lake?		X	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		X	
Is Mary's Lake full or close to full of water?		X	
Is there discharge occurring from **Outfall 026A** (Overflow of inlet into Mary's Lake)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any deficiencies or blockages associated with the east perimeter stormwater ditch?	X		
Are there any structural deficiencies associated with tank berms?		X	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or south property boundaries?		X	
Are there structural deficiencies associated with the earthen berm around the Turnaround Boneyard?		X	

Nelson Property	Yes	No	N/A
Is there discharge occurring from **Outfall 021A** (constructed outlet at northeast corner of property)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any structural deficiencies or blockages associated with the constructed outlet?		X	
Is there discharge occurring from **Outfall 022A** (outlet of retention pond located at northwest corner of property)?		X	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			X
Are there any structural deficiencies or blockages associated with the constructed outlet?		X	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along property boundaries?		X	
Is the secondary containment structure used for storage containers of oil and antifreeze filled with accumulated stormwater?		X	
Are the perimeter concrete stormwater swales filled with sediment and/or debris?		X	

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SEUSA Commerce City Refinery **CCR-ENV 100.24**

Monthly Industrial Stormwater Inspection

PLANT 2	Yes	No	N/A
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the railroad south of the facility (south side of 56th)?		✓	
Are there any signs of leaks or contamination associated with rail or truck loading/unloading areas?		✓	
Are there any structural deficiencies associated with secondary containment structures at crude unloading docks?		✓	
Is there discharge occurring from **Outfall 028A** (retention pond behind South Park trailers)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Is the retention pond full or close to full of water?		✓	

PLANT 3	Yes	No	N/A
Is there discharge occurring from **Outfall 004A** (Mary's Lake)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any signs of structural deficiencies associated with Mary's Lake?		✓	
Is there any oil or solids present in Mary's Lake?		✓	
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?		✓	
Is Mary's Lake full or close to full of water?		✓	
Is there discharge occurring from **Outfall 026A** (Overflow of inlet into Mary's Lake)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any deficiencies or blockages associated with the east perimeter stormwater ditch?	✓		
Are there any structural deficiencies associated with tank berms?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or south property boundaries?		✓	
Are there structural deficiencies associated with the earthen berm around the Turnaround Boneyard?		✓	

Nelson Property	Yes	No	N/A
Is there discharge occurring from **Outfall 021A** (constructed outlet at northeast corner of property)?	✓		
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?		✓	
Are there any structural deficiencies or blockages associated with the constructed outlet?		✓	
Is there discharge occurring from **Outfall 022A** (outlet of retention pond located at northwest corner of property)?		✓	
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			✓
Are there any structural deficiencies or blockages associated with the constructed outlet?		✓	
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along property boundaries?		✓	
Is the secondary containment structure used for storage containers of oil and antifreeze filled with accumulated stormwater?		✓	
Are the perimeter concrete stormwater swales filled with sediment and/or debris?		✓	

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Appendix C
Suncor Energy USA Commerce City Refinery Stormwater Management Plan (SWMP)

Commerce City Refinery

Storm Water Management Plan

April 27, 2021
Revision 18

CCR-ENV 200.62

	Issue Date:	Revision Number:	Document Number:
SUNCOR ENERGY **Commerce City Refinery**	04/27/2021	18	**CCR-ENV 200.62**
	Document Owner: **Environmental**	Review Frequency: 1 Year	Page Number: 1 of 27

Document Title:

Storm Water Management Plan

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1.0 INTRODUCTION

1.1 Purpose and Scope

In conformance with the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) has promulgated regulations to issue general permits for storm water discharges associated with industrial activity under the National Pollutant Discharge Elimination System (NPDES) program as defined in 40 CFR 122.21 and 40 CFR 122.26. NPDES permits are issued by states that have been delegated as NPDES-permitting authority, or by the EPA for states that have not been delegated NPDES-permitting authority.

The individual permit issued to Suncor requires the development and implementation of a Storm Water Management Plan (SWMP), as defined in the Federal Register Publication, September 1992, "EPA 832-R-92-006 Storm Water Management for Industrial Activities, Developing Pollution Prevention Plans and Best Management Practices." The regulatory content of this SWMP includes references to the related content requirements defined in EPA 832-R-92-006.

The purpose of this SWMP is to identify potential storm water pollution sources and to reduce the potential for pollutants reaching nearby waterways by establishing procedures and controls specific to the Suncor Energy (USA) Commerce City Refinery (Refinery). This SWMP accomplishes the following objectives:

- Identify pollutants that may come in contact with storm water.
- Establish measures to prevent pollutants from coming in contact with storm water.
- Establish controls to reduce or eliminate the potential for contaminated storm water being released to the environment.

The Refinery has the authority according to permit number COS000009 to discharge stormwater to Sand Creek and the South Platte River through the Colorado Discharge Permit System (CDPS). Refer to Section 1.2 for additional information about the permit.

The scope of this SWMP applies to the industrial facilities identified in Section 1.3.

1.2 Authority to Discharge

The Refinery is authorized to discharge stormwater associated with industrial activity and specified non-stormwater discharges, from the Refinery to State Waters, consistent with the terms and conditions of the CDPS COS000009 permit. Allowable discharges include:

- Stormwater discharges associated with primary industrial activity (SIC code 2911) and co-located industrial activity (SIC code 3599).
- Stormwater-specific effluent as regulated by the effluent limitation guidelines (ELGs) under 40 CFR Subchapter N Part 419 Petroleum Refining Point Source Category, See Part I.B.3.
- Discharges that are not otherwise required to obtain permit authorization but are commingled with stormwater discharges that are authorized by the permit.
- Stormwater run-on that commingles with stormwater discharges associated with industrial activity.

1.3 Facility Information

Table 1. Facility Information

Name of Facility	Suncor Energy Commerce City Refinery		
Location of Facility	**Plant 1**: 5801 Brighton Blvd., Commerce City, CO 80022 **Plant 2**: 5800 Brighton Blvd., Commerce City, CO 80022 **Plant 3**: 3875 E. 56th Ave., Commerce City, CO 80022 **Nelson Property**: 6215 Colorado Blvd., Commerce City, CO 80022	**Name & Address of Owner or Operator**	Suncor Energy (U.S.A.) Inc. 717 17th Street, Suite 2900 Denver, CO 80202
Standard Industrial Classification Code (SIC)	2911, 3599 (Nelson Property)	**Type of Industry or Manufacturing**	Petroleum Refining and Marketing
EPA ID Number	110015848813	**Area of Impervious Surface**	85 acres
Permit Number(s)	COS000009	**Number of Outfalls**	9 outfalls
Existing Permit Date	11/01/2012	**Name(s) of Receiving Water(s)**	Sand Creek, unnamed tributary to the South Platte River
Permit Expiration Date	10/31/2017 (under administrative extension)	**Site Compliance Evaluation Interval(s)**	Annual
This facility is subject to reporting requirements under EPCRA Section 313 for water priority chemicals.			

1.4 Key Contacts

Table 2. Key Contacts

SWMP Title	**Contact Name**	**Phone Number(s)**
Emergency Contact	ON-SHIFT OPERATIONS SUPERVISOR Operations	(303) 286-5749 (Office) (303) 304-8149 (Cell) RADIO UNIT 20 (Channel 4)
Environmental Contact (SWMP Administrator)	Eric Marler Senior Environmental Advisor	(303) 227-7524 (Office) (720) 305-6155 (Cell)
Facility Manager	Donald Austin Vice President of Refinery	(303) 286-5788 (Office)

1.5 General Facility Description

The Refinery is an onshore, non-production facility located in Commerce City, Colorado (southwestern Adams County). The Refinery is composed of three separate process areas called Plant 1, Plant 2, and

Plant 3. Originally, Plants 1 and 3 (formerly referred to as the Denver Refinery or the West Plant) were owned and operated by ConocoPhillips Company, and were purchased by Suncor in August 2003. Plant 2 (formerly referred to as the East Plant) was owned by Valero Energy Corporation until June 2005, when it was purchased by Suncor.

The Refinery is a 98,000-barrel-per-day facility producing gasoline, diesel and distillate fuels, paving-grade asphalt, and other petroleum products. Crude oil is received by truck and pipeline, and finished products are shipped by truck, railcar, and pipeline. In addition, ethanol, butane, and various raw material chemicals arrive by railcar for use in the refining processes. A wastewater treatment plant (WWTP), located in Plant 1, receives and treats process waters generated during the processing and production of petroleum related products, which includes wastewater from the desalters, asphalt unit, tank water draws, hydrostatic test water, loading terminal runoff and truck wash water, process area, steam generation, cooling tower blowdown, and stormwater runoff. The Refinery also has an onsite wastewater treatment system that treats groundwater pumped from the groundwater recovery system located along an east-west line south of Sand Creek.

The Refinery encompasses approximately 274 acres of land. Highway 270 is located north of the Refinery, and Sand Creek is along the north and east boundary. Brighton Boulevard runs between the plants (east of Plant 1 and west of Plants 2 and 3). Burlington Ditch is along the far west boundary of the Refinery. Southwest of the Refinery is an office building owned by Suncor, the Refinery Business Center (RBC). There are two Suncor-owned buildings to the north of Highway 270: the Nelson Building and the ERT building. The Nelson Building is used for equipment maintenance, and the ERT building houses equipment used for spill and emergency response. To the south and east of the Refinery, private entities border 56th Avenue and York Street corridors. To the west is Metro Wastewater Reclamation District and Denver Water.

Oily and process wastewater, along with storm water that falls within the Refinery process units, is directed to oily-water or non-oily water sewers which are routed to the wastewater treatment plant (WWTP), located in Plant 1. This WWTP utilizes conventional activated sludge treatment technology. Discharges from this wastewater treatment plant are permitted under Colorado Discharge Permit System (CDPS) discharge permit CO0001147.

CDPS storm water discharge permit COS000009 and this SWMP address those areas of Suncor Energy Commerce City Refinery property that do not flow or drain to the Refinery WWTP.

1.6 Distribution List

This SWMP is maintained onsite and is available for review by the EPA Regional Administrator, State Permitting Authority, and local Municipal Storm Sewer System Operator, as necessary. If this SWMP is combined with other environmental response plans, a copy shall be provided to the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), and other local authorities.

2.0 STORM WATER MANAGEMENT PLAN (SWMP) TEAM

2.1 Team Development

All facilities required to develop a SWMP must establish a Storm Water Management Plan Team. Included on the team shall be a member of the plant manager's staff. In addition, the team should comprise representatives from the following functions listed below. The Storm Water Management Plan Team for the Refinery is identified in Section 2.2.

- Plant engineering
- Material handling
- Production
- Maintenance

- Consultant (optional)
- Security (optional)

2.2 SWMP Team Roster and Responsibilities

Table 3. Storm Water Management Plan Team Roster and Responsibilities

Team Leader (SWMP Administrator)			
Name and Title	Eric Marler Senior Environmental Specialist	**Contact Numbers**	(303) 227-7524 (Office) (720) 305-6155 (Cell)
Responsibilities			
• Provide overall team leadership. • Ensure plan certification and permit compliance remains in effect. • Plan and schedule regular plan reviews and site compliance evaluations at required intervals. • Coordinate plan re-certification as required. • Assign action items to team members, as necessary, for follow-up and resolution. • Maintain direct line of communication with facility management for prompt resolution of potential compliar issues.			
Team Members			
Name and Title	Wes McNeil Environmental Team Lead	**Contact Numbers**	(303) 286-5731 (Office) (720) 838-1644 (Cell) (303) 582-2063 (Home)
Name and Title	Jeff Osetek Emergency Response Coord.	**Contact Numbers**	(303) 286-5758 (Office) (303) 656-5883 (Cell)
• Identify pollutant sources that may come in contact with storm water. • Establish and maintain spill response and notification procedures. • Provide awareness training in storm water pollution prevention to employees who are required to respond spills and initiate cleanup. • Coordinate interdepartmental efforts to implement SWMP. • Develop and implement best management practices to prevent storm water pollution. • Document and maintain records of preventive measures. • Evaluate the need for structural controls. • Review construction plans and activities to minimize impact on storm water runoff. • Review process changes and the potential impact on storm water pollution. • Annually review SWMP for its effectiveness and keep updated.			

3.0 FACILITY MAPS AND DIAGRAMS

The facility maps and diagrams contained in this SWMP include the following information:

- A Topographic Map is provided that illustrates the facility location and nearby surface waters.
- A Site Plan is provided that illustrates the following facility drainage information, including:
  - Permanent structures such as buildings, roadways, and parking lots noting impervious areas
  - Natural water bodies
  - Outfalls, and specifically existing NPDES permitted outfalls by number

  - Receiving waters or municipal storm sewers (as appropriate)
  - Surface flow and runoff directions within facility
  - Major storm and sanitary sewer routes
  - Storm water structural controls
  - Flow diversion
  - Retention and detention ponds
  - Oil and water separators
  - Vegetative swales and drainage ditches
  - Vegetative areas including lawns, woodlots, and natural growth areas
  - Snow dumping sites
  - Storm water inlets and outfall drainage area (as necessary per state requirements)
- Significant material and locations of exposed and potentially exposed material to storm water, including:
  - Bulk storage tanks and process tanks
  - Major pipelines and/or process sewers
  - Drum storage areas
  - Coal and salt piles
  - Equipment storage areas
  - Fueling stations
  - Loading and unloading areas including chemical shipping and receiving docks
  - Waste management areas
  - Outdoor manufacturing areas
  - Vehicle and equipment washing and maintenance areas
  - Erodible surfaces and/or areas where significant sediment is generated
  - Areas where past spills or leaks have occurred
  - Main vehicular traffic areas where material is routinely routed
  - Containment structures that exist or need to be added
  - Potential areas of concern (as necessary per state requirements)
  - Contaminated areas (as necessary per state requirements)

4.0 POTENTIAL POLLUTANT SOURCES

4.1 Material Inventory – Potential Pollutant Sources

Appendix B provides a listing of materials and activities which may be reasonably expected to affect the quality of storm water discharges at the Suncor Energy Commerce City Refinery.

4.2 Best Management Practices for Pollutant Sources

Table 4 addresses pollutant sources identified in Section 4.1 and best management practices (BMPs) that are in place to control these potential pollutant sources. New BMP options that are incorporated into the plan, if necessary, to address planned changes (e.g. new installations or construction) that may affect pollutant sources are also discussed.

Table 4. Best Management Practices for Pollutant Sources

Pollutant Sources Material or Activity	Existing Management Systems	New BMP Options
Bulk Oil Storage	Ongoing visual inspections by operating personnel; Storage tank secondary containment structures (e.g. earthen and concrete dikes and perimeter tertiary containment structures); deadman switches and valves on fuel transfer pumps; high and low level alarms on tank to prevent overfilling.	Proposed project for tank dike armoring to reduce soil erosion from dikes and berms plant-wide.
Soil and sediment runoff from construction/excavation areas	Project-specific BMPs for erosion and sediment control are to be implemented prior to soil disturbance. BMP requirements should be evaluated on a case-by-case basis.	In some cases, contractors will be required to develop BMPs and a site-specific Storm Water Management Plan.
Scrap/Surplus Materials Storage	Prohibition of scrap/surplus materials storage that may contain deleterious or hazardous wastes within any of the storm water control areas.	Areas to be protected via storm water detention ponds.
Chemical Storage and Waste Paint Storage	Vigilance by personnel, protection from rain/precipitation exposure, secondary containment where appropriate.	
Drum Storage and Hazardous Waste Storage	All drums and containers identified and closed/secured with lids. Spills or leaks immediately cleaned-up per RCRA. Secondary containment structures intact and secure. Inspections occurring on a regular basis by operating personnel.	Hazardous Waste Storage area was commissioned in 2006.
Groundwater Treatment Chemical Storage	Groundwater treatment chemical storage is covered and protected.	N/A
General Refinery Storm Water Runoff	Berms and surface structures to limit uncontrolled movement of storm water runoff. In addition, the facility maintains the following storm water retention areas: Storm Water Area 1 (SWA-1), Storm Water Area 2 (SWA-2), and Storm Water Area 3 (SWA-3).	Maintain structural controls as designated in Drawing 005-CV-D-005, Surface Drainage Features and Primary Structural Control Measures

Pollutant Sources Material or Activity	Existing Management Systems	New BMP Options
Vehicle and Equipment Maintenance	Vehicle maintenance supplies, drums, equipment must be maintained in an enclosed shelter. Lubricants and fluid containers (for both new and used products) are to be maintained under covers protected from precipitation.	New storm water retention pond and storm water discharge structures have been constructed at the Nelson Property to control storm water discharge from the maintenance areas.

4.3 Spill History

Appendix C identifies all spills or leaks of a reportable quantity reported to an outside agency, or that had the potential to impact the facilities stormwater discharge under the discharge permit prior to cleaning up the spill.

4.4 Non-Stormwater Discharges and Emergency Fire Fighting

To evaluate non-storm water discharge, storm water outfalls must be inspected and tested per the requirements of the facility's application for an NPDES permit. Inspection and testing are required to ensure that no illicit non-storm water connections to the storm water system exist. Examples of non-storm water discharges include any water used directly in the manufacturing of process and sanitary wastes. To check for non-storm water discharges, one of the following three common dry weather tests can be used:

- Visual inspection
- Plant schematic review
- Dye testing

Table 5 lists authorized non-storm water discharges and emergency firefighting discharges.

Table 5. Authorized Non-Storm Water Discharges and Emergency Fire Fighting

Discharge Source	Estimated Frequency
Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids.	Not expected
Landscape watering provided all pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling.	Not expected
Uncontaminated spring water.	Not expected
Foundation or footing drains where flows are not contaminated with process materials.	Not expected
Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility but not intentional discharges from the cooling tower (e.g. "piped" cooling tower blowdown or drains).	Not expected
Fire Fighting Response – Fire Water and Aqueous Film Forming-Foam (AFFF) Application. (Note: The fire water system supply for the facility is treated process wastewater via the wastewater treatment system.)	These discharges are to occur only during emergency -related fire or vapor release scenarios.

Refer to Appendix D for Monthly Inspection Forms.

The Refinery eliminated non-stormwater discharges not authorized by the NPDES permit through best management practices. The following non-storm water discharges are authorized by the general permit

and are expected to be present in storm water following implementation of structural and non-structural preventive measures and source controls.

4.5 Waste, Garbage, Floatable Debris and Dust Generation

The Refinery minimizes the discharge of waste, garbage, and floatable debris from the site by keeping exposed areas free of such materials. The Plant 1 WWTP intercepts these materials before they would be discharged. The Refinery minimizes generation of dust and off-site tracking of raw, final, or waste materials through best management practices.

4.6 Site Evaluation of Potential Pollutant Sources

The following facility areas and activities have been evaluated for potential pollutant sources with a high potential to contaminate storm water, including those associated with materials loading and unloading, outdoor storage, outdoor manufacturing or processing, onsite waste disposal, and significant dust- or particulate-generating activities.

4.6.1 General Site Description

Plant 1 is located on relatively level terrain. Topography and general surface water flow is north and west – generally toward Sand Creek and the South Platte River. Sand Creek runs adjacent to the Refinery, and comprises the north and east boundary of the property. Sand Creek flows to the northwest and joins the South Platte River approximately 1/3-mile downstream of the facility boundary.

Plant 2 was purchased by Suncor Energy Commerce City Refinery from Colorado Refining Company/Valero Energy in 2005. The site is predominately level, and consists of refinery process units, tank farm areas, loading/unloading racks, and property areas for future development. Drainage from most of the process and tank farm areas flows generally north and northeast toward Sand Creek. The southern end of Plant 2 (primarily non-process and non-tank farm areas) drain to the south and southwest into an unnamed tributary to the South Platte that generally follows into an existing railroad right-of-way.

Plant 3 is located on relatively level terrain. General storm water flow direction is gentle to the north and west. Drainage generally flows northward toward Sand Creek, which comprises the northern property boundary for the site. Storm water impacting the process unit and tank farm areas is discharged through Outfall 004A to Sand Creek or, more typically, transferred via piping to the WWTS in Plant 1.

4.6.2 Storm Water Area 1 (SWA-1)

This area is adjacent to Sand Creek, north and northwest of tanks T-774, T-775, T-776, T-777, and T-778 (See Figure 1). There is a storm water detention area at the northwest corner of Plant 1 that collects run-off from areas outside diked tank storage in the north section of the plant. Under normal rainfall events, there is no discharge from this storm water detention area. If there is a significant enough quantity of runoff to overtop the detention area, flow will occur over the existing roadway towards the north into Sand Creek (Outfall 023A). In this area of the plant, the storage tanks are predominant features, with areas outside the diked containment being primarily used as a storage area for spare refinery parts and equipment. Crude truck unloading takes place south of T-776, adjacent to 60th Avenue. A crude pipeline station is located north of T-777. Also of significance in this area are facilities associated with the soil/groundwater remediation measures underway via a RCRA Order involving ConocoPhillips and Suncor Energy (U.S.A.).

Infrequently, this area may be utilized as a site for temporary office trailers/buildings and associated personnel parking.

Precipitation falling on and around T-774, T-775, T-776, T-777, and T-778 is captured in the earthen dikes constructed as secondary containment, and is not expected to be part of storm water runoff. Storm water in the area of the crude station is contained within a concrete curb and collected in a sump. Storm water contamination potential for this area is low to moderate.

SWA-1 Potential Sources for Contaminants in Storm Water Runoff:

- Crude oil/oil products from pump or piping leak
- Crude oil from catastrophic truck unloading incident
- Spill of scale inhibitor or pH adjustment chemicals from outside of their designated secondary containment area (groundwater treatment system)
- Spills or leaking vehicles in employee/contractor parking area
- Soil erosion from exposed soils, tank dikes, and construction activities

4.6.3 Storm Water Area 2 (SWA-2)

SWA-2 is a unique drainage area west and north of Tank 774, bordered on the south by 60th Avenue. (See Figure 2) The western border of this area is the fenceline shared by Metro Wastewater Reclamation District. Activities/materials in SWA-2 are not inside diked tank storage including surplus material storage, parking, and a maintenance facility (contained within a metal building). This area is used as a holding/dewatering area for hydro-vacuum excavated soil materials (held within a constructed soil pit) infrequently.

Storm water runoff from this area travels west by sheet flow to an asphalt lined swale just west of the western property boundary. Water in the swale flows north along the fenceline until reaching a point where it travels through a buried culvert back onto the Refinery property and into the detention area located in SWA-1.

SWA-2 Potential Sources for Contaminants in Storm Water Runoff:

- Soil/sediment
- Vehicle oil drips and leaks
- Deleterious materials on scrap subject to precipitation wash-off
- Spills and poor housekeeping around mechanical shop area
- Wash-out or erosion from hydro-vacuum excavated soil dewatering.

4.6.4 Storm Water Area 3 (SWA-3)

Movement of storm water to and from the Brighton Boulevard right-of-way adjacent to the Plant 1 may occur under certain precipitation or spill conditions (see Figure 3). This water may move north and be intercepted by a public storm drain system located near the Refinery North Gate. Documented spills of molten sulfur and fire water have occurred in one portion of SWA-3. The potential for oil or process unit fluids is minimal, but must be considered for contingency planning.

A Refinery drain is located on the sulfur railroad spur. In the event this drain is unable to manage the volume of stormwater, stormwater that leaves the site at this location would be considered Outfall 025A. SWA-3 Potential Sources for Contaminants in Storm Water Runoff:

- Mobile equipment storage
- Transformer leak/failure
- Molten sulfur
- Process unit oil or chemicals

4.6.5 Storm Water Area 4 (SWA-4)

Suncor Energy Commerce City Refinery owns and operates a maintenance facility, referred to as the "Nelson Property", that is located north of the Plant 1 on Brighton Boulevard, as shown in Figure 4. This facility includes the following features and activities:

- Fuel truck parking
- Parts laydown and storage
- Fabrication and maintenance shops
- Electrical transformer
- Truck wash building with drum storage of used oil and motor oil
- Roll-off boxes with soil, scrap and miscellaneous debris
- Employee parking

The facility is situated primarily on a soil/gravel surface with small areas of pavement. The west side of the facility slopes slightly to the west towards a storm water detention pond, in the event of heavy enough runoff to overtop this pond, discharge would occur onto the adjacent property toward the west (Outfall 022A). The east or "front" side of the facility slopes slightly to the east and north. Storm water would exit the property at a constructed outlet structure in to the ditch along Colorado Blvd. (Outfall 021A). Storm water runoff contamination potential for this area would be classified as moderate.

SWA-4 Potential Sources for Contaminants in Storm Water Runoff:

- Equipment storage
- Transformer leak
- Fuel truck leak
- Diesel or gasoline spill or leak during tank filling or vehicle re-fueling
- Oil spill or leak during drum transport
- Leak from roll-off boxes
- Maintenance activity residues or wastes

4.6.6 Storm Water Area 6 (SWA-6)

A small area exists in the southeast portion of the Plant 3 tank farm, which, although graded to minimize offsite storm water runoff, could possibly convey minimal sheet flow offsite during significant storm events (Figure 6). The actual area not controlled by surface structures is less than 2 acres. This area is used infrequently for staging of materials, surplus material storage, storage of temporary tanks, temporary equipment cleaning operations, and overflow parking during facility turnarounds and maintenance activities.

Sheet flow produced would flow east and northeast into the right-of-way adjacent to Sand Creek. This area is covered by scrub vegetation and exposed soil and has minimal slope. Under normal circumstances the potential for storm water contamination is low. The risk of unintended discharge of oil or waste materials during infrequent equipment operations is greater. A management practice utilized during such operations is the maintenance of a soil berm which will abate surface flow to the Sand Creek area, and instead route water west to be intercepted by the Plant 3 east boundary trench (leading to Mary's Pond, a controlled detention structure).

SWA-6 Potential Sources for Contaminants in Storm Water Runoff:

- Hazardous or toxic materials on scrap subject to precipitation wash-off

- Temporary tank leakage
- Spills or leaking vehicles in employee/contractor parking area
- Oily waste from material cleaning/pressure-washing activities

4.6.7 Storm Water Area 7 (SWA-7)

There is a small area at the northwest corner of Plant 3 where run-off could historically exit the facility to the north along the north entrance road. A culvert is now in place directing the flow of storm water in this area to Mary's Pond. There is minor potential for storm water that has been exposed to process areas on the extreme north end of the plant to flow off site at this point. There is also minor potential for this flow to reach Sand Creek. The potential for storm water contamination is minimal.

SWA-7 Potential Sources for Contaminants in Storm Water Runoff is process equipment leaks or spills.

4.6.8 Storm Water Area 8 (SWA-8)

Storm water not captured by Refinery area drains, along with precipitation impacting the parking and office areas of Plant 2 will flow to the extreme north end of the plant to a concrete retention basin (Figure 8). Storm water may be detained in this basin, pumped back to wastewater treatment, or allowed to evaporate. Storm water discharge to Sand Creek will only be allowed if the storm water is of acceptable water quality. In the event of discharge to Sand Creek, the discharge point for this flow is identified as Outfall 024A. The potential for storm water contamination is moderate.

SWA-8 Potential Sources for Contaminants in Storm Water Runoff is process equipment leaks or spills.

4.6.9 Storm Water Area 9 (SWA-9) – Parcel II

Parcel II is located directly south of the main refinery property across 56th Avenue, as indicated in Figure 9. Crude oil truck unloading, LPG railcar loading and unloading, ethanol railcar unloading, gasoline and diesel fuel railcar loading, and a refinery fire station are located on Parcel II. Outside equipment laydown is also located in this area.

Parcel II covers approximately 16 acres. Flow is generally to the south and southeast to a retention pond at the very southwest end of the parcel. This pond has no outlet. There is also a small storm water collection basin in a low area near the center of the parcel – collected water is allowed to evaporate or infiltrate. (These two structures effectively work in series configuration.) Drainage ditches, railroad ROWs and the topography direct run-off to the retention pond. The majority of runoff from Parcel II appears to infiltrate. Due to the strategic grading and routing of runoff into these basins, the potential for release of storm water contamination is low.

A very large precipitation event or catastrophic spill in the area that would overwhelm or over-top the detention basins would create flows into the un-named creek at the far south end of the parcel. This creek runs adjacent to the railroad right-of-way, west, and into the South Platte River (Outfall 028A).

SWA-9 (Parcel II) Potential Sources for Contaminants in Storm Water Runoff:

- Spills or leaks of raw and finished liquid materials from rail cars and trucks – LPG, ethanol, gasoline, diesel, crude oil
- Spills or leaks from chemical containers during operator transfer
- Soil sediments due to surface erosion and/or construction activities

4.6.10 Storm Water Area 10 (SWA-10) – Parcel IV

Parcel IV is located approximately 1000 feet east of the Plant 12 process area, and is adjacent to the East Tank Farm (to the west) and the Plant 3 (to the north) (Figure 10). Parcel IV is approximately 3 acres in size and is primarily an equipment laydown area that is essentially level. With most rainfall events, precipitation would tend to remain and infiltrate. However, a large rain event may cause flow to the north into the Plant 3.

Just to the south of this laydown area is an area called the Odyssey Staging Area. It is also graded relatively flat and is used for temporary equipment storage and parking. Heavy rainfall would cause run-off to the south onto 56th Avenue. The potential for storm water contamination from both areas is minimal.

SWA-10 (Parcel IV) Potential Sources for Contaminants in Storm Water Runoff:

- Spills or leaks from temporary tanks or equipment
- Spills or leaking vehicles in employee/contractor parking area

4.7 State-specific Requirements

The following state-specific requirements are applicable to this facility and additional facility and plan information regarding these requirements is provided.

4.7.1 Colorado Industrial Storm Water Permit (CDPS Permit No. COS000009)

The permit requires development and implementation of a storm water management plan emphasizing storm water best management practices (BMPs).

4.7.2 Description of SIC-Covered Industrial Activities Regulated Under the Storm Water Discharge Permit

While the majority of industrial processes at the Refinery are within an area of drainage specifically designed to capture and treat water prior to discharge authorized by an NPDES wastewater permit, some areas of the facility fall outside of the area designed for process water capture. These areas are subject to control under the storm water permit program.

Three refining trains are in place: “Plant 1”, located West of Brighton Boulevard, "Plant 2", located East of Brighton Boulevard, and “Plant 3” located east of Plant 2. Combined refining capacity through these processing units is approximately 98,000 barrels of crude oil per day.

Refining processes begin with three atmospheric and vacuum distillation units to fractionate the incoming crude oils. Prior to distillation, the incoming crude oils are "desalted", which is the process that contacts crude with water to remove any inorganic salts that are naturally occurring in the crudes. Some of the fractions from the crude distillation process are "sweetened" by processing through three separate hydrodesulfurization units, each one specifically designed to treat a particular type of hydrocarbon stock.

The remaining fractions from crude distillation and the desulfurized intermediates proceed further through several intermediate refinery process units that include a fluid catalytic reforming unit. Each of these process units is designed to yield motor fuel blend stocks to be blended to finished motor gasolines and diesel fuels. Petroleum products produced by this facility include liquefied petroleum gas, motor gasolines, jet fuel, diesel fuels, fuel oil, and asphalt. Asphalt is the product from the vacuum distillation section of the crude distillation units.

Industrial activities associated with the storm water runoff areas are limited to the following:

- Tank storage of crude oil and intermediate distilled products

- Pumping of crude oils and intermediate stocks
- Offloading of crude oils from over-the-road cargo tanks
- Conveyance of crude oils and products in above-ground and below-ground piping
- Pumping and treatment of groundwater necessary to accomplish a joint-facility remediation effort
- Painting, sandblasting, and associated material storage
- Vehicle maintenance
- Storage of surplus and scrap industrial materials
- Employee parking areas

Acreage breakdown for the facility is as follows:

- SWMP covered area (not controlled via CDPS Wastewater Discharge Permit CO-0001147): ≈45 acres
- Process area and tank farm runoff controlled via CDPS Permit CO-0001147: ≈81 acres

5.0 NOTIFICATION, REPORTING, AND RESPONSE PROCEDURES

5.1 Contact Directories

Refer to Release Reporting Program Manual, for the most current, detailed description of Refinery notification procedures.

5.2 Response Actions

5.2.1 Spill Response Actions

5.2.1.1 Discovery/First Person On-scene

1. Log of incident events.
2. Notify personnel in immediate area. Activate local alarms, as appropriate.
3. Notify Supervisory Personnel/Report the incident.
4. Advise personnel in the area of any potential threat and/or initiate evacuation procedures.
5. If safe to do so, take the following actions commensurate with Level of Training:
   - Stop flow of material
   - Ensure spill is contained, block material from entering sewers, drains, and/or sumps
   - Eliminate possible sources of ignition
   - Deploy emergency spill kits or equipment locally available

5.2.1.2 Supervisory Personnel

1. Restrict access to the incident scene and surrounding area as the situation demands. Take any other steps necessary to minimize any threat to health and safety.
2. Request medical assistance, if an injury has occurred.
3. Verify that incident has been properly reported and response resources have been dispatched, as necessary.

4. Verify the type of product and quantity released; request/obtain Material Safety Data Sheets as necessary.
5. Identify/isolate the source and minimize the loss of product.
6. Coordinate further initial response actions with the Incident Commander and/or Discharge Response Coordinator.
7. Make appropriate internal notifications.

5.2.1.3 Incident Commander

1. Activate the emergency response resources, as the situation demands.
2. Activate additional external response contractors and resources, as the situation demands.
3. Evaluate the Severity, Potential Impact, Safety Concerns, and Response Requirements based on the initial information available.
4. Confirm safety aspects at site, including personal protective equipment, isolation of ignition sources, and potential need for evacuation.
5. Provide incident briefing to Emergency Coordinator and implement agreed priorities and objectives.
6. Keep Facility Management advised of incident status.
7. Direct response and clean-up operations.

5.2.1.4 Emergency Coordinator

1. Interface with Incident Commander to align and agree on response priorities and objectives
2. Complete required external notifications
3. Document response actions, including:
   - Log of incident events
   - Log of Response Personnel and exposure time
4. Facilitate post-incident debriefings, as necessary
5. Conduct post-incident investigations, as required
6. Revise and update emergency response plan(s), as necessary

Table 6. Spill Mitigation Procedures

Type	Mitigation Procedure
Failure of Transfer Equipment	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Terminate transfer operations and close block valves. 3. Drain product into containment areas, if possible. 4. Eliminate sources of ignition.
Tank Overfill/Failure	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Shut down or divert source of incoming flow to tank. 3. Transfer fluid to another tank with adequate storage capacity, if possible. 4. Shut down sources of ignition. 5. Ensure that dike discharge valves are closed. 6. Monitor diked containment area for leaks and potential capacity limitations. 7. Begin transferring spilled product to another tank as soon as possible.
Piping Rupture/Leak (under pressure and no pressure)	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. 2. Shut down pumps. Close the closest block valves on each side of the rupture. 3. Drain the line back into contained areas, if possible. 4. Shut down sources of ignition. 5. If piping is leaking and under pressure, relieve pressure by draining into a containment area or back to a tank, if possible. Repair line according to established procedures.
Fire/Explosion	1. Personnel safety is the first priority. Evacuate nonessential personnel or personnel at risk of injury. 2. Notify local fire and police departments. 3. Attempt to extinguish fire if in incipient (early) stage. 4. Shut down transfer or pumping operation. Attempt to divert or stop flow of product to the hazardous area, if it can be done safely. 5. Eliminate sources of ignition. 6. Control fire before taking steps to contain spill.

6.0 SAMPLING DATA

A summary of existing storm water discharge sampling results describing pollutants, suspected sources, quality of discharges, and problems that have occurred during the previous three years is contained in Table 7. Parameters used for storm water sampling are identified in Section 9.5.

Table 7. Summary of Storm Water Sampling Data

Date	Outfall	O&G (mg/l)	TOC (mg/l)	Se, PD (µg/l)	pH	Benzene (µg/l)	MTBE (µg/l)
1/20/2017	023A	ND	19	10.6	7.4	ND	ND
5/8/2017	026A	0.5	7	15.6	8.8	ND	ND
10/9/2017	028A	1.4	36	2.5	7.6	ND	ND
3/20/2020	004A	2.2	22	11.7	7.3	0.17	ND
3/20/2020	004A	0.4	20	5.4	7.0	ND	ND

7.0 PREVENTATIVE MEASURES, SOURCE CONTROLS, AND BEST MANAGEMENT PRACTICES

The Refinery is required to minimize the exposure of pollutant sources associated with manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff. Minimizing exposure at the Refinery is described by non-structural and structural controls and BMPs implemented throughout the facility as discussed in Section 7.1 and 7.2.

7.1 Non-structural Controls

Non-structural controls are non-physical means of reducing the potential for contact between storm water and significant materials at the source. Refer to Section 7.1.7 for non-structural controls and best management practices implemented at the Refinery.

7.1.1 Good Housekeeping

Good housekeeping consists of keeping clean all areas exposed to stormwater runoff, as necessary to minimize potential sources of pollutants. Site housekeeping activities include the following:

- Pickup and disposal of trash and debris;
- Presence of full-time waste coordinators who manage all solid waste generation and disposal;
- Plentiful dumpsters, drums and other waste-specific receptacles;
- Materials are inspected regularly and maintained in an orderly fashion with labels;
- Materials are stored in appropriate containers for the contents stored;
- Company programs to enhance employee participation and ownership of housekeeping activities.

7.1.2 Materials Handling

- Chemicals will be handled in a manner that minimizes the possibility of leaks or spills, usually by providing secondary containment, spill response equipment, and employee training. Suncor's materials handling equipment is operated to minimize potential discharges of chemicals.
- Drain valves are inspected to ensure they are closed before loading commences. Trucks and tank cars are inspected for problems before and after loading. The lowermost drain in the tank car/truck is examined for leakage prior to filling and departure.
- Storage of any scrap/surplus materials that may contain deleterious or hazardous wastes within any of the storm water control areas is prohibited.

7.1.3 Inspections

- All aboveground bulk storage containers and piping are periodically integrity tested according to SPCC requirements, ASTM guidance and good engineering practices.
- Ongoing visual inspections conducted by operating personnel.
- An ongoing employee audit program is conducted with a checklist inspection sheet for storm water control areas. BMPs, spill prevention and response, and housekeeping issues are emphasized.
- The disposition of storm water accumulated in tank berms depends on its quality, which is checked by operators through an inspection process before deciding the proper storm water management.

7.1.4 Preventative Maintenance

The Refinery Maintenance Department performs preventative maintenance on the refinery equipment. The Maintenance Department maintains an onsite presence five days a week and is continuously on call.

Visual inspections of piping and process equipment are performed by Operations personnel on a routine basis. Any exceptions noted, or maintenance work required is managed via an enterprise system. Maintenance functions related to storm water compliance may be handled by contract and/or contractor personnel, receiving direction from Suncor Operations, Maintenance, or Environmental functions.

7.1.5 Sediment and Erosion Control

Most areas of the facility consist of stabilized surfaces that are infrequently disturbed. For these areas, the potential for significant erosion is minimal. Periodic inspections are conducted to identify areas that may have been disturbed and/or have a reasonable potential of producing sediment-laden runoff.

7.1.6 Spill Prevention and Response

- The primary resource document for the management of spills is the facility Spill Prevention, Control and Countermeasure (SPCC) Plan and Facility Response Plan (FRP), hereby made a part of this plan by reference.
- Procedures are in place for regularly inspecting, testing, maintaining, and repairing all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
- Procedures for plainly labeling containers that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur have been developed.
- Procedures have been developed specific to the Refinery that detail stopping, containing, and cleaning up leaks, spills, and other releases.
- Employees at the Refinery are trained to notify the appropriate facility personnel, emergency response agencies, and regulatory agencies in the event of a spill.
- A trained and staffed internal emergency response team is kept onsite at all times.

7.1.7 Area-specific BMPs – Outfalls 004A, 023A, 024A, and 027A

Prior to any discharge, the water is visually inspected for any signs of contamination or deleterious constituents. Sampling shall be conducted in compliance with the requirements of the permit.

7.2 Structural Controls

Where implementation of the measures required by the general permit does not control storm water discharges in accordance with Water Quality Standards, the SWMP shall provide a description of the location, function, and design criteria of structural controls for prevention and treatment. Structural controls

may be necessary to prevent uncontaminated storm water from contacting or being contacted by significant materials or if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with Water Quality Standards. The structural controls include physical structures to prevent or minimize the direct contact of storm water with sources of significant materials. Refer to Section 7.2.1 for structural controls and best management practices implemented at this facility.

7.2.1 Structural Controls and Best Management Practices (BMPs)

7.2.1.1 Materials Handling and Good Housekeeping

- All chemicals will be stored in closed containers. The Refinery strives to keep all chemicals stored in covered buildings to prevent storm water contact and minimizes the amount of material that is stored outside. The materials and construction of all bulk storage containers are compatible with the material stored and the conditions for storage (e.g., temperature, pressure, etc.).
- Groundwater treatment chemical storage is covered/protected.
- Physical barriers to vehicle movement (e.g., chocks, brakes, truck engine off) are part of the Operating Procedures for both rail-car and truck loading/unloading operations.
- The loading/unloading transfer areas are designed to contain at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded in the Refinery. In the event that a spill leaves a loading/unloading transfer area, it will be contained by tertiary containment structures (e.g., drainage channels, retaining walls) in the Refinery. The Refinery has trained personnel onsite at all times in the event a spill was to occur.
- All drums and containers are labeled and closed/secured with lids.
- Vehicle maintenance supplies, drums, and equipment are maintained in an enclosed shelter or on a raised spill containment area.
- Secondary containment for chemical storage and waste paint storage has been provided. The main chemical warehouse at the facility is indoors in a designated building.
- Security measures are implemented throughout the plant including fencing, manned entrances, and locking of fuel pumps and valves. Only trained operations personnel are allowed to open/close valves at the Refinery. Storm water movement out of the diked areas is controlled by valves that are normally closed.
- Discharge prevention measures consist of written procedures for fuel loading and unloading, regular facility inspections, and deadman switches and valves on the fuel transfer pump stations. High and low level alarms are installed on the fuel tanks to prevent overfilling or running the pumps dry during fuel delivery and dispensing operations.
- Bulk storage tanks and containers at the facility have secondary containment structures of earthen and concrete berms to contain the entire capacity of the largest single tank and sufficient freeboard.

7.2.1.2 Management of Runoff

- The Refinery's drainage system is engineered such that undiked areas flow to ponds and catchment basins, not subject to periodic flooding. These ponds and catchment basins (diked areas) are designed to retain storm water and spill material.
- Drainage from diked storage areas is managed by manually operated valves which are normally kept closed. Drainage from secondary containment storm drain or

conveyance only occurs after being monitored for signs of contamination (sheen, discoloration, etc.).

- The Refinery is designed such that storm water, wastewater, and spill material does not discharge from the site without being treated in the WWTP or cleaned up by vacuum truck or some other means of response (emergency response team).
- Berms and surface structures have been located to limit uncontrolled movement of storm water runoff.

7.2.1.3 Sediment and Erosion Control

Construction or soil movement activities that occur (primarily in Storm Water Management Areas 2-5) will require the implementation of activity-specific erosion prevention and/or sediment control.

7.2.1.4 Spill Prevention Response

- Storm Water Diversion – Culverts, drainage ditches, and berms are in place to manage storm water on site and to prevent storm water from migrating offsite. Suncor uses storm water covers for the sewers in the Refinery process areas to allow for controlled drainage. Controlling the volume of water entering the sewer system during a storm reduces the potential for overwhelming the wastewater treatment process, both hydraulically and chemically. The Operations Department uses a written procedure to direct personnel how and when to use the storm water covers in preparation for high-flow events.
- The Refinery maintains a Spill Prevention, Control, and Countermeasure Plan for oil filled equipment, containers, and vessels as a means to prevent spills from reaching navigable waters of the United States.

7.2.1.5 Area-specific BMPs – Plant 1

- Oil Storage Tank Secondary Containment
  - Flows outside of dikes are routed to areas or structures designed to retain emergency runoff of spill or storm water flows; and
  - Drainage from diked storage areas within Plant 1 can be managed by manually operated valves, which are normally kept closed. Spill material may be sent to designated detention areas (i.e., Finger Lake Storm Water Basin) and treated at the Plant 1 WWTP. ERT response would be activated prior to release to the WWTP.
- Process Units
  - Curbing is in place around some of the process unit areas; and
  - A spill would be directed to process drains/storm drains or flow to drainage detention areas, but remain on-site until cleanup occurred.
- Loading Transfer Areas
  - Plant 1 loading transfer areas contain a combination of French drains and storm drains, which flow to the Plant 1 WWTP; and
  - A spill would be directed to these drains or flow to drainage detention areas on-site.
- Tertiary Containment
  - Curbing, diking, and the Burlington Ditch concrete retaining wall direct flow to collection areas in Plant 1, preventing flow off the property;

- The Burlington Ditch concrete retaining wall is located at the southwest edge of the Plant 1 and runs northerly along the western property line adjacent to Burlington Ditch;
- Plant 1 drainage can flow westward toward the Burlington Ditch and accumulate in two collecting ponds (Finger Lake and Webber's Pond), which offer containment volumes that exceed that needed for Plant 1 associated with drainage out of inadequate secondary containments plus stormwater from areas not otherwise contained;
- Two V-notch cement conveyances (one northwest of the WWTP and one at the south end of the Refinery, west of the United Rentals building) direct storm water and spill runoff to the two collecting ponds. Material may also collect northward toward the abandoned channel of Sand Creek within the swale area. Storm water or spill material collected in this area will not discharge to Sand Creek due to the construction of the slurry wall along the perimeter of Sand Creek. Most surface water flow may also collect at the constructed detention swale and basin adjacent to Sand Creek;
- Other drainage structures utilized to control storm runoff and spill flows are the fire training ground concrete drainage channel (which runs adjacent to 60th Avenue and drains into Finger Lake Storm Water Basin), and the south tank farm concrete drainage channel (located along the Plant 1 southeastern boundary adjacent to tanks T-71 and T-75). The south tank farm channel also receives runoff from the adjacent Suncor facility housing the Commerce City Products Terminal (a products loading rack); and
- Groundwater is continuously pumped out of the area of the swale into the groundwater treatment system. The groundwater treatment system, located north of 60th avenue, is equipped with diking, curbing, and containment isolation valves. Spill material can be contained and transferred to the main refinery WWTP via vacuum trucks for treatment or processed through the groundwater treatment system, if groundwater contamination is present.
- Surface water flows originating in SWA-1 are detained behind soil berms that generally run along the facility fenceline, up-gradient of the Sand Creek riparian area, and the aforementioned detention swale and collection basin. This system of berms is designed to detain spills and smaller storm water flows, providing limited sediment control.
- An asphalt lined swale along the property boundary west of the Suncor Mechanical Shop (SMS) directs stormwater flow in SWA-2 through a culvert and into the detention area located in SWA-1.

7.2.1.6 Area-specific BMPs – Plant 3

- Oil Storage Tank Secondary Containment
  - Flows outside of dikes are routed to areas or structures designed to retain emergency runoff of spill or storm water flows; and
  - Drainage from diked storage areas within Plant 3 can be managed by manually operated valves, which are normally kept closed. Spill material may be sent to designated detention areas and treated at the Plant 1 WWTP. Emergency Response Team procedures would be activated prior to release to the WWTP.
- Process Units:
  - Curbing is in place around some of the process unit areas. Storm water and spills in the process area are restrained using curbs and walls and would be

transported to the Plant 3 storm water basin (Mary's Pond) through the sewer system; and

  - A spill would be directed to process drains/storm drains or flow to drainage detention areas, but remain on-site until cleanup occurred.

- Loading Areas
  - Plant 3 loading transfer areas contain a series of storm drains, which drain to Mary's Pond; and
  - A spill would be directed to these drains through the use of swales, berms, and sloping surfaces or flow to drainage detention areas, but remain on-site until cleanup occurred.
- Tertiary Containment:
  - An East Perimeter Concrete Drainage Channel has been installed in Plant 3 to prevent discharge off site into Sand Creek;
  - Spill material and storm water outside of oil storage tank secondary containment would flow northeast along the East Perimeter Concrete Drainage Channel and be collected at Mary's Pond, where it may be discharged to Sand Creek via Outfall 004A, or pumped to the Plant 1 WWTP. Flow from Mary's Pond would be directed via manually operated pumps. Typically, water detained in Mary's Pond is pumped to Plant 1 WWTP using two permanently mounted lift pumps located in the basin. Two permanently installed lift pumps are also located in the process sewer system downstream of oil/water separation. These pumps transfer water from Plant 3 to the Plant 1 WWTP. There are containment structures to prevent water from reaching Sand Creek.
  - Runoff and surface water flow from the Plant 3 Tank farm, SWA-6 and SWA-10 is directed via curbing, diking, and natural surface water flow to the drainage channel and Mary's Pond. Flow is restricted from moving off of the property.
  - A preventative maintenance program was initiated in 2011 to provide periodic inspection and clean-out of soil and other debris present in the East Perimeter Concrete Drainage Channel. This activity is intended to ensure efficient conveyance of precipitation water into Mary's Pond.

7.2.1.7 Area-specific BMPs – Plant 2

- Oil Storage Tank Secondary Containment
  - Flows outside of dikes are routed to areas or structures designed to retain emergency runoff of spill or storm water flows.
  - Drainage from diked storage areas within Plant 2 can be managed by manually operated valves, which are normally kept closed. Spill material may be sent to designated detention areas and treated at the Plant 1 WWTP. ERT response would be activated prior to release to the WWTP.
- Process Units
  - Storm water and process wastewaters (non-segregated system) at Plant 2 are directed through piping toward two lift stations (Upper API Lift Station and Middle API Lift Station). From the lift stations, water is pumped to TK-29 (settling tank) prior to being transferred for treatment at Plant 1 WWTP. There is an out-of-service wastewater treatment system within Plant 2 near the South Tank Farm.

  - Curbing is in place around some of the process unit areas. Storm water and spills in the process area are restrained using curbs and walls and would be transported to the WWTP through the sewer system.
  - A spill would be directed to process drains/storm drains or flow to drainage detention areas, but remain on-site until cleanup occurred.
- Loading and Unloading Transfer Areas
  - Plant 2 loading and unloading transfer areas contain a series of storm drains, which drain to the Plant 1 WWTP; and
  - A spill would be directed to these drains through the use of swales, berms, and sloping surfaces or flow to drainage detention areas, but remain on-site.
- Tertiary Containment
  - A containment wall on the west side of Plant 2 is maintained to manage and contain storm water or spill material.
  - Drainage channels have been designed to manage and move surface flow to designated detention areas, where storm water or spills can be safely managed.
  - Storm water or spill material from Plant 2 may flow north to the retention pond at the north end of the property. The storm water or spill material is then normally transferred to the Plant 1 WWTP. In the event that storm water is discharged from this pond directly to Sand Creek, the discharge point is Outfall 024A.
  - Crude unloading dock facilities are located on a concrete slab. The system consists of an unloading rack, pumps and piping, and a crude oil/water settler. During container loading and unloading activities, personnel are required to continuously supervise the transfer. In the event of a spill, liquid on the slab will drain to a 15,000-gallon underground storage tank, the contents of which are pumped to the Refinery for product recovery.
  - Storm water or spill material from the Plant 2 South Tank Farm is contained within the bermed area surrounding the South Tank Farm. Any spill material that remains in the individual bermed areas is removed through manual valves or using a vacuum truck and transported to the WWTP. Uncontaminated storm water from the East Tank Farm may be contained within the perimeter berms on Refinery property and drained to off-property conveyance using manual/portable pumps (Outfall 027A).
  - The conveyance channels utilized may be swales located on railroad right-of-way. These channels flow north into Sand Creek. Erosion must be prevented during such pumping operations via regulation of discharge flow rate, or via armoring of the discharge impact area. Any water discharged under this storm water permit must be visually inspected for signs of contamination prior to commencement of offsite flow.
  - Storm water or spill material at Parcel II is directed into one of two detention basins. Storm water at Parcels II and IV generally infiltrate the soil or evaporate. In the unlikely event that the detention basins would be filled, water exiting would flow south and southwest into an unnamed tributary to the South Platte (Outfall 028A). This tributary parallels the railroad corridor to the west, entering the South Platte approximately 700’ downstream of the York Street Bridge.
  - In the event of a spill on either parcel, the spill material would be removed from the detention basins or soil using a vacuum truck and transported to the WWTP.

- 6-inch HDPE overflow piping into Number 2 Detention pond is designed to prevent over-topping of Number 1 Detention Pond.

7.2.2 Structural Controls Specifications

Structural controls must be adequately installed and maintained as listed in the following sections.

7.2.2.1 Barrier Walls and Curbing

Barrier walls shall be constructed of concrete or asphalt and extend the entire length of the area requiring the control as shown in Drawing 005-CV-D-003.

7.2.2.2 Earthen Berms

Earthen berms shall extend the entire length of the area requiring the control as shown in Drawing 005-CV-D-003. Berms shall be maintained to approximately the same height over the entire length to prevent potential overflow of stormwater in a low spot.

7.2.2.3 Oil Containment Booms

Oil containment booms are 4" to 8" in diameter and deployed across the entire length of the area shown in Drawing 005-CV-D-003. Booms are designed to absorb oil and shall be replaced when found to be contaminated with oil or otherwise physically degraded.

7.3 Employee Training

Annual SWMP-specific training is required under Part I.B.2.h of the permit. The goal of the SWMP training program is to teach personnel, at all levels of responsibility, the components and objectives of the SWMP and to create overall sensitivity to storm water pollution prevention concerns. The employee training program includes such topics as the site-specific control measures to achieve the effluent limits, components and goals of the SWMP, monitoring and inspection procedures, and other applicable requirements of the permit. The following table (Table 8) defines the employee training program for the Refinery. At a minimum, the following individuals are trained:

i) Employee(s) overseeing implementation of, revising, and amending the SWMP.

ii) Employee(s) performing installation, inspection, maintenance, and repair of control measures.

iii) Employee(s) who work in areas of industrial activity subject to this permit.

iv) Employee(s) who conduct stormwater discharge monitoring required by Part.I.B and Part.I.C of this permit.

Table 8. Employee Training Program

Training Topics	Training Description	Schedule or Frequency	Target Attendees (Dept. or Position)
Spill Prevention Response	Environmental and Safety Issues (computer-based training (CBT), work-group specific, or general classroom format)	Annual	All Refinery employees
Spill Prevention Response	Application of procedures for spill prevention, emergency response, and spill mitigation (On-the-job training (OJT), emergency	Periodic	All Refinery employees

Training Topics	Training Description	Schedule or Frequency	Target Attendees (Dept. or Position)
	response training, and in periodic safety meetings)		
Spill Prevention Response	HAZWOPER proficiency training	As necessary	Environmental personnel, emergency response team members, vacuum truck operators
Management of Runoff	Storm water management and related issues (part of required annual training)	Annual	All Refinery employees
Good Housekeeping	OJT for site-specific instruction on actual units, duties, and functions	Ongoing	Employees who handle materials
Good Housekeeping	At least three days of site-specific training	As necessary	Each new permanent employee in Refinery operations

8.0 SPECIAL REQUIREMENTS (EPCRA SECTION 313 REPORTING FACILITIES)

In addition to the best management practices identified in this plan, facilities may be subject to additional "special" requirements, as defined in the facility's permit. In particular, the EPA's general permit includes special requirements for: (A) facilities that discharge storm water through municipal separate storm sewer systems; (B) facilities subject to EPCRA, Section 313, reporting requirements; and (C) facilities with salt storage piles. The following section (Section 8.1.1) identifies special requirements applicable to this Refinery, and provides additional information to address these conditions or criteria.

8.1 Discharges through Municipal Separate Storm Sewer Systems

Industrial facilities that discharge storm water through a large or medium municipal separate storm sewer system (serving a population of 100,000 or more) must comply with any applicable conditions established by the municipality's storm water management program. Examples of conditions could include additional monitoring requirements and/or additional source control requirements.

THIS REQUIREMENT DOES NOT APPLY TO THE SUNCOR ENERGY COMMERCE CITY REFINERY

8.2 EPCRA, Section 313, Reporting Facilities

EPCRA, Section 313, Facility Spill Prevention And Response Requirements; When a leak or spill of a Section 313 water priority chemical has occurred, the contaminated soil, material, or debris must be removed promptly and disposed of in accordance with Federal, State, and local requirements and as described in the Storm Water Management Plan. These facilities are also required to designate a person responsible for spill prevention, response, and reporting procedures. The following specific control requirements must be practiced in areas where Section 313 water priority chemicals are stored, handled, processed, or transferred:

- Provide containment, drainage control, and/or diversionary structures (prevent or minimize runoff by installing curbing, culverting, gutters, sewers, or other controls, and/or prevent or minimize exposure by covering storage piles).
- Prevent discharges from liquid storage areas (store liquid materials in compatible storage containers and/or provide secondary containment designed to hold the volume of the largest storage tank plus precipitation).
- Prevent discharges from material storage areas (install drainage and/or other control measures).

- Prevent discharges from loading/unloading areas (use drip pans and/or implement a strong spill contingency and integrity testing plan).
- Prevent discharges from handling/processing/transferring areas (use covers, guards, overhangs, door skirts and/or conduct visual inspections or leak tests for overhead piping).
- Prevent discharges from all the above areas (use manually activated valves with drainage controls in all areas, and/or equip the plant with a drainage system to return spilled material to the facility).
- Introduce facility security programs to prevent spills (use fencing, lighting, traffic control, and/or secure equipment and buildings).

8.2.1 Salt Storage Piles

Salt storage piles used for deicing or other commercial purposes must be enclosed or covered to prevent exposure to storm water (except when salt is being added or removed from the pile). Please note that piles do not need to be enclosed or covered where storm water is not discharged to waters of the United Sates. Compliance with this requirement must be met as expeditiously as practicable, but no later than 3 years after the NOI is submitted.

THIS REQUIREMENT DOES NOT CURRENTLY APPLY TO THE SUNCOR ENERGY COMMERCE CITY REFINERY

9.0 STORMWATER SAMPLING PLAN

9.1 Introduction

This plan provides details for stormwater sampling required under CDPS Permit No. COS000009.

9.2 Sampling Locations

The following stormwater discharge outfalls identified in the permit require sampling. Drawing 005-CV-D-004 shows the locations of the permitted.

Outfall	Description
004A	Outfall associated with Mary's Lake in Plant 3
021A	Constructed outlet at the northeast corner of the Nelson Property
022A	Outlet of retention pond located at the northwest corner of Nelson Property
023A	Outfall from detention area located at west end of swale south of Sand Creek
024A	Outfall from detention area located at north end of Plant 2
025A	High flow discharge point at Plant 1 sulfur rail loading gate
026A	High flow discharge point at ditch inlet to Mary's Pond in Plant 3
027A	Manual pumping of accumulated stormwater from East Tank Farm in Plant 2
028A	Outlet of retention pond located in the southwest corner of Plant 2, south of 56th.

9.3 Sampling Responsibilities

Stormwater sampling will typically be performed by the Environmental Group or designated contractors. On weekends, holidays, and after hours, sampling may be performed by Operations personnel, as follows:

- OMD 2 – Outfalls 021A, 022A, 024A, 027A, 028A
- Plant 1 – Outfall 025A
- Plant 3 – Outfalls 004A, 026A
- Wastewater – Outfall 023A

All individuals designated as potential stormwater samplers must be trained on the contents of this plan and general sampling procedures.

9.4 Sampling Frequency and Parameters

Requirements for sampling frequency and sampling parameters vary between outfalls as noted on the following table.

Frequency	Outfalls	Parameters
Monthly	023A, 024A, 025A, 026A, 028A	O&G, TOC, Se, pH, Benzene, MTBE
Quarterly	All outfalls	Visual Monitoring
Twice per discharge	004A, 027A	O&G, TOC, Se, pH, Benzene, MTBE

Sampling is only required when there is a storm event resulting in an actual discharge and when sampling has not already occurred during the period. During a storm event or when snow is melting, the person responsible for sampling will check the outfalls for stormwater discharge. The attached Stormwater Sampling Schedule will be used to track sampling events at each outfall to eliminate duplicate sampling. Sampling must be performed within 30 minutes of the start of discharge, if possible. During most storm events, discharge is only expected to occur at outfalls 021A (Nelson Property) and/or 024A (Plant 2). Outfalls 004A and 027A are manually controlled and do not normally discharge during a storm event. The remaining outfalls (022A, 023A, 025A, 026A, and 028A) are only expected to have stormwater discharge during very large or sustained storm events.

9.5 Sampling

All outfalls with the exception of 021A and 022A require sampling of stormwater for Oil and Grease (O&G), Total Organic Carbon (TOC), Selenium, pH, Benzene, and MTBE. Sample container requirements are listed in the following table. Sample kits will be made available to all groups potentially involved with sampling.

Parameter	Sample Containers	Preservative
O&G and pH	1 x 1 L clear glass	Sulfuric acid (after measuring pH)
TOC	1 x 250 mL amber glass	Sulfuric acid
Selenium (PD)	1 x 500 mL plastic	Nitric acid
Benzene and MTBE	3 x 40 mL VOA vials	Hydrochloric acid

Samples shall be immediately brought to the Lab upon sampling. Analysis for pH and Oil and Grease will be performed in the Lab. The pH analysis must be performed as soon as possible, as there is no holding time allowed for this parameter. All parameters other than pH and Oil and Grease will be analyzed by Test America. A Test America chain of custody form must be filled out and accompany the samples during shipment. In addition, the sampler must document the sampling event using a Stormwater Sampling Form. Shipping of the samples to Test America will be performed by Laboratory personnel.

9.6 Visual Monitoring

Visual monitoring of a stormwater sample must be performed at each outfall at least once per quarter. Visual monitoring will be performed by obtaining a sample of stormwater in a clear glass sample jar. The sample will be visually assessed for signs of contamination. The visual assessment must be performed in a well-lit area and will therefore typically be performed in the Lab. The assessment will be documented using a Stormwater Visual Monitoring Form, attached.

10.0 PLAN SIGNATURE AND REVIEW

All reports and other information required by the Division, shall be signed and certified for accuracy by the permittee in accord with the following criteria:

i) In the case of corporations, by a responsible corporate officer. For purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates;

ii) In the case of a partnership, by a general partner;

iii) In the case of a sole proprietorship, by the proprietor;

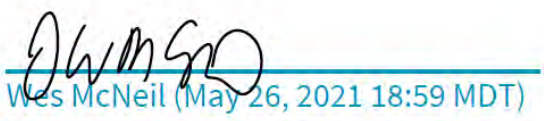
iv) In the case of a municipal, state, or other public facility, by either a principal executive officer, or ranking elected official. For purposes of this section, a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates;

v) By a duly authorized representative of a person described above, only if:

1) The authorization is made in writing by a person described in i, ii, iii, or iv above;

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and,

3) The written authorization is submitted to the Division.

Plan Certification	
I hereby certify that this Storm Water Management Plan has been prepared, and to the best of my knowledge, in accordance with good engineering practices. I have personally examined and am familiar with the information submitted in this document and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate and complete.	
Facility Signature Authority	
Printed Name	Wes McNeil
Title	Environmental Team Lead, Commerce City Refinery
 Wes McNeil (May 26, 2021 18:59 MDT)	

Appendix A

Revision History

Date of Review[1]		Will Plan Need Ammendment?[2] (Yes/No)	Reviewer's Name[3]	Reason for Amendment[4]	Rev. #	Date
Full	Partial					
X		Yes	A. Congram	Plan Overhaul	1	12/31/03
	X	Yes	A. Congram	Name-change to Suncor	2	09/30/05
X		Yes	A. Congram	Update of Plan to include Valero Refinery (East Plant)	3	06/30/06
X		Yes	A. Congram	Updated per Renewed Single Plan for Entire Suncor Complex. Submitted to the Colorado Water Quality Control Division storm water Unit on April 26, 2007.	4	02/01/07
	X	Yes	A. Congram	Sewer Enhancement Engineering Study (CH2MHill - 2007) indicated potential stormwater flow offsite east of West Plant Sulfur Unit. Modified SWA-3 to include this area.	5	2/4/2008
X		Yes	A. Congram	Ongoing review and maintenance update.	6	8/16/2011
	X	Yes	A. Congram	Updated secondary containment survey for Plants 2 and 3 (East Plant + Asphalt Unit) storage tank areas per CH2MHill survey information.	7	3/8/2012
X		Yes	V. DeCianne (URS)	SPCC Review and Audit by URS Corporation personnel.	8	3/28/2012
X		Yes	E. Marler	New storm water discharge permit (COS000009).	9	2/28/2013
X		Yes	E. Marler	Change in Facility Information.	10	2/18/2014
X			Golder	Plan review and update.	11	6/1/2014
X		Yes	E. Marler	Updated to reflect improved structural controls associated with SWA-2.	12	3/2/2015
X		Yes	E. Marler	Updated to reflect new pipelines station. Tables and drainage basin descriptions also updated.	13	3/15/2016
	X	Yes	E. Marler	Revised 005-CV-D-003 to identify addn'l controls. Inserted section 7.2.2. Changed section 1.7 to Appendix A.	14	6/1/2016
X		No	E. Marler	Updated tables, moved language from some sections into more appropriate sections, and removed reference to general permit.	15	3/23/2017
X		No	E. Marler	Updated tables and contact information	16	6/14/2019
X		No	E. Marler	Updated tables and contact information	17	4/29/2020
X		No	E. Marler	Updated tables, moved signature to last section	18	4/27/2021

Notes:

[1]. A full review of the plan must be performed at least once each year.

[2]. Any addition of new sources of significant materials or a change in operations which will have a significant effect on the potential to contaminate storm water runoff from this facility will require an amendment to this plan, including a description of controls to be used to minimize exposure of such materials to storm water runoff. If amendment of the plan is required as the result of a Site Compliance Evaluation, amendment of the plan must be completed within two (2) weeks of the inspection, and implementation of any necessary changes must be completed within twelve (12) weeks of the inspection (EPA 832-R-92-006; 2.5.3).

[3] The reviewer identified in the table above has completed review and evaluation of this plan on the date indicated and will or will not amend the plan as a result, as indicated.

[4] Briefly describe reasons for plan amendment, as required in footnote 2. For administrative changes not subject to the criteria identified in footnote 2, such as updates to names or phone numbers, regulatory changes, or changes in company policies, recertification of the plan is not required.

Appendix B

Material Inventory – Potential Pollutant Sources

Material or Activity	Location	Quantity			Exposed (Yes/No/Potential)	Method of Exposure	Containment[1]	Potentially Affected Outfall and MH
		Used	Stored	Produced				
AFFF Firefighting Foam	Plant-wide	NA	6,625	NA	Yes	Only used in the event of a fire or vapor release emergency	No	Plant-wide
Crude Oil	Plant-wide	80,000–100,000 Barrels/day	≈600,000 Barrels	NA	Yes	Spills, leaks or failure of tanks/piping	Yes	SWA-1,2,3,7 & 8
Electrical Transformer Oils	Plant-wide	Estimated 5,000 gallons	NA	NA	Yes	Leak or failure of transformer	No	Plant-wide
Ethylene Gylcol	Process Units	37,000 gallons annually	30,000 gallons	NA	Potential	Spill, leak, release	Yes	SWA-3
Molten sulfur	SWA-3	NA	NA	≈100 tons/day	Potential	Spill from railcar loading or loss of containment	Yes	SWA-3
Motor fuels and petroleum refining intermediate liquids	Plant-wide	Varies	Approx. 1.7 MM Barrels	Varies	Yes	Leaks, tank or piping failure, loading rack failure	Yes	All excluding Nelson Building area
Oils and greases	Employee/contractor parking area	NA	NA	NA	Potential	Spills or leaking vehicles	No	SWA-1,2,3,4,10
Paint and paint-related wastes	Maintenance facilities	Varies	Varies	NA	Potential	Spills or residues	Yes	Plant-wide
Petroleum sludges	AU bundle cleaning facilities	NA	Maximum ≈50,000 lbs.	Varies	Potential	During heat exchanger bundle cleaning and related maintenance	Yes	SWA-6,8
Wastewater treatment sludges	Plant 1 WWTS	NA	30,000 to 90,000 lbs.	≈30,000 lbs. /week	Potential	Spill from container	Yes	Plant 1
Process chemicals, various	Process areas, Tank Farm areas	NA	≈0.5MM gallons	TBD	Potential	Spill	Yes	Plant-wide
Soil and Sediment	Plant-wide	NA	NA	NA	Yes	Erosion of exposed and/or disturbed soil	No	All outfalls
Sulfuric acid	Process areas	Varies	≈65,000 lbs	NA	Potential	Spill, leaks, equipment failure	No	SWA-8
Vehicle maintenance (vehicle fluids, litter)	Outside of vehicle maintenance shop	Varies	NA	NA	Potential	Spills, poor housekeeping, vehicle leaks	No	SWA-1,2,10
Waste paint	Waste paint collection	TBD	TBD	TBD	Potential	Spill or overflow	Yes	SWA-2
Water-soluble or mobile constituents	Laydown and scrap storage	NA	NA	NA	Potential	Precipitation wash-off	Yes	Plant-wide

Notes:
[1].Adequate – means sufficient secondary containment to allow for the contents of the single largest tank plus freeboard for precipitation.

Appendix C

Spill History

Date	Material Spilled/Leaked	Quantity (gallons)	Source	Location	Storm Water Exposure	Cause	Response Procedures (Amount Material Recovered)	Preventive Measures
2/18/2021	Laboratory wastewater	20-40	Laboratory process wastewater sump	Plant 1 Laboratory	Yes	Overflow of sump due to frozen line	Remove standing liquid with vacuum truck, excavation of impacted soil, and sump repair	Contents of sump kept low using vacuum truck until line could be repaired
2/9/2021	Diesel	14,700	Tanks 48 and 49	Plant 1 Tank Farm	Yes	Failure of piping component	Removed standing diesel with vacuum truck and excavated impacted soil	Repair line
6/22/2020	Wastewater treatment sludge	10-15	Frac tank	Plant 1 along property boundary with FRICO	No	Overflow of tank	Spill cleaned up and impacted soil was excavated	Frac tank emptied and moved
3/24/2020	Crude oil	7-9	Open bleeder valve	Plant 1 crude pipeline terminal	No	Open valve	Impacted soil was excavated	
11/5/2019	Diesel	40-80	Tank 3801	Plant 1 Tank Farm	Yes	Overflow of water draw sump	Removed standing water/diesel mixture by vacuum truck, followed by excavation of contaminated soil.	Sump has been emptied
5/7/2019	Wastewater treatment sludge	<40	Tanks 4517 and 4518	Wastewater Treatment System	Yes	Valves on a line between Tanks 4517 and 4518 and a frac tank were inadvertently left open. Sludge gravity flowed into the frac tank which overflowed onto the ground.	Material was picked up by vac truck.	Line between the tanks has been taken out of service.
11/16/2018	Laboratory wastewater	130-170	Lab Sump	Plant 1 Laboratory	No	Wastewater sump overflowed due to loss of power to sump pump.	Excavation of impacted soil.	Power restored to building.
5/3/2018	Diesel	360	Tank 66	Plant 1 Tank Farm	No	During transfer of diesel between tanks, a bleeder was left partially open, allowing product to leak out onto the ground.	Excavation of impacted soil and application of MicroBlaze.	Bleeder has been closed.
4/20/2018	DGF Float (hazardous waste)	>2	Tank 4508	Wastewater Treatment Plant	No	During transfer sludge from using vac truck, truck operator inadvertently blocked in a valve causing the transfer line to over pressure and rupture	Excavation of impacted soil and application of MicroBlaze.	The ruptured line was repaired.
3/6/2018	Reformate	Unknown	Tank 44	Plant 2 Tank Farm	No	Leak from bottom tank seam onto soil.	Excavation of impacted soil and application of MicroBlaze.	Tank was emptied to allow for repair.
3/6/2018	Reformate	Unknown	Tank 70	Plant 1 Tank Farm	No	Overfilling of sump resulting from leaking valve from tank.	Sump was emptied and excavation of impacted soil and application of MicroBlaze.	Valve was repaired.
1/22/2018	Naphtha	Unknown	Tank 1	Plant 1 Tank Farm	No	Leaking valve sprayed naphtha on mix line through the bonnet at T-1.	Valve was blocked in and containment placed underneath. Excavation of impacted soil and application of MicroBlaze.	The valve was drill and pumped to stop the leak
12/28/2017	Reformate	~40	Tank 47	Plant 2 Tank Farm	No	Product got on tank roof during transfer of contents between two tanks.	Excavation of impacted soil and application of MicroBlaze.	
11/7/2017	Diesel and Water Mixture	~130	Vac Pad	Wastewater Treatment System	No	During offloading of a vacuum truck to the WWTS headworks, a hose connection came loose resulting in a release to a concrete containment area. Some of the material overflowed the containment onto the surrounding soil.	Standing liquid removed by vacuum truck and excavation of impacted soil.	
4/23/2017	Diesel	80-130	Tank 72	Plant 1 Tank Farm	No	A temporary hose developed a leak due to being over pressured as a result of a valve that was incorrectly blocked in.	Standing liquid removed by vacuum truck and excavation of impacted soil.	Issue with blocked line was remedied.
11/5/2016	Reformate	130-170	Tank 75	Plant 1 Tank Farm	No	Investigation of incident indicates reformate may have gotten onto tank roof during #1 Reformer startup and then drained onto ground via roof drain.	Excavation of impacted soil.	
7/6/2016	Hydrocarbon	Unknown	Subsurface	Plant 1 Sewer	No	Unearthed historical contamination during excavation around process drain	Removed product from excavation and drain	Monitoring wells used to actively monitor area.
3/9/2016	Clarifed Slurry Oil Sludge (hazardous waste)	45	Tank 57/59	Plant 1 south of Tanks 57 and 59	No	Overfilled frac tank with sludge pumped from Tanks 57 and 59	Spill was immediately cleaned up	Reviewed and revised frac tank management practices
9/29/15	Gasoline	100-150	Tank 96	Plant 1 Tank Farm	No	Leaking valve	Excavation of impacted soil	Leaking valve was taken out of service.

Appendix C

Spill History

Date	Material Spilled/Leaked	Quantity (gallons)	Source	Location	Storm Water Exposure	Cause	Response Procedures (Amount Material Recovered)	Preventive Measures
12/27/15	Jet Fuel/Naphtha	6,000-8,000	Tank 777	Plant 1 Tank Farm (within bermed area)	Yes	Leaking flat cap on pipe	Standing liquid removed by vacuum truck and excavation of impacted soil.	Leaking pipe was taken out of service and repaired.
7/20/14	Slop/Waste Oil	40-50	Plant 1 slop oil pipe	Plant 1 process Area	No	Leaking pipe	Excavation of impacted soil	Leaking pipe was repaired.
4/3/13	Gasoline	100-200	Tank 55	Plant 1 Tank Farm (within bermed area)	No	Leaking pipe	Standing liquid removed by vacuum truck and excavation of impacted soil.	Leaking pipe was repaired.
3/27/13	Kerosene/ Naphtha	200-400	Tank 777	Plant 1 Tank Farm (within bermed area), SWA-1	No	Leaking valve	Excavation of impacted soil and treatment of area with Micro-Blaze	Leaking valve was repaired.
2/28/12	Naphtha	~80	Tank 777	Plant 1 Tank Farm (within bermed area), SWA-1	No	Leaking valve	Excavation of impacted soil and treatment of area with Micro-Blaze	Leaking valve was repaired.
11/28/11	Waste Oil	Unknown	Subsurface	SWA-1, SWA-2 and downstream Sand Creek Areas	Yes	Part of ongoing remediation response and investigation	Ongoing remedial activities in conjunction with EPA and CDPHE consultations.	Ongoing remedial activities in conjunction with EPA and CDPHE consultations.
8/22/11	Waste Oil	5	Subsurface historical oil contamination	Directly adjacent to Sand Creek – discharging to creek near the existing WWT outfall pipe	Yes	Movement of historical groundwater oil contamination adjacent to slurry wall.	Containment & sorbent booms were deployed directly downstream of the sheen release point. A vacuum truck is stationed at the collection point. In addition, dual booms were deployed downstream to provide contingency containment.	Long-term groundwater remediation project
7/7/11	Waste Oil	30	Active groundwater remediation area	SWA-1, Sand Creek Area	Yes	Flash flood on sand creek which inundated the adjacent property undergoing remediation.	Straw bales placed to help prevent reoccurrence in the event of future flash flooding. In addition, microblaze bioremediation product is being applied to stained vegetation (no material applied to shoreline or water.)	Added straw bales to help avert loss of oil during over-topping. Additional surface oil removal from on-site pond (associated with ongoing remediation effort).
2/15/11	Waste Oil	50	Related to ongoing remediation activities and historical releases (RCRA order)	SWA-1, Sand Creek Area	Yes	Historical hydrocarbon contamination brought to surface by high groundwater elevations.	Commenced vacuum-truck removal of hydrocarbon material. Conducted area air monitoring. Mobilized oil-removal emergency response contractor. Established wildlife deterrent measures.	Initiation of investigation and control measures. Remediation issue being addressed as part of larger remediation remedy.

Appendix D

Forms

Stormwater Visual Monitoring Form

Outfall Number _____

Start of Discharge: Date_____ Time _____

Sample Taken: Date _____ Time _____

Nature of Discharge:

Storm Event _____ Snow Melt _____ Controlled Discharge _____

Stormwater Characteristics	Yes	No	Description
Does sample have a color?			
Does sample have an odor?			
Is sample clear?			
Are there floating solids in the sample?			
Are there any settled solids in the sample?			
Are there any suspended solids in the sample?			
Is there any foam on the sample?			
Is there an oil sheen on the sample?			
Are there any other indications of storm water pollutants?			

Probable source(s) of pollution, if indications of pollution are observed:

_____

_____

_____

Person who collected the sample:

Name _____ Signature _____

Person who performed visual assessment:

Name _____ Signature _____

Stormwater Sampling Form

Outfall Number _____

Start of Discharge: Date_____ Time _____

Sample Taken: Date _____ Time _____

If sampling could not be performed within 30 minutes of the start of discharge, describe the circumstances:

_____

_____

_____

Sample Container	Check
1 x 1 L clear glass (no preservative)	
1 x 250 mL amber glass (sulfuric acid preserved)	
1 x 500 mL plastic (nitric acid preserved)	
3 x 40 mL VOA vials (hydrochloric acid preserved)	

Depth of Stormwater Flow _____ Width of Stormwater Flow _____

Describe any observed issues that could impact stormwater quality:

_____

_____

_____

<u>Person who collected the sample</u>:

Name _____ Signature _____

Stormwater Inspection Form

Inspection Date: _____ Time: _____

Weather Conditions:

PLANT 1	Yes	No	N/A
Is there discharge occurring from Outfall 023A (detention area along Sand Creek)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any signs of erosion of the swale or detention area along Sand Creek?			
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek (other than Outfalls 002 and 003)?			
Is there discharge occurring from Outfall 025A (Sulfur Rail Loading Gate)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Is there any debris blocking the stormwater drain at the sulfur loading gate?			
Is there any evidence of contaminants or non-stormwater discharges along Brighton Blvd?			
Are there any signs of structural deficiencies with the detention area located near the North Gate?			
Is there any oil or solids present in the detention area located near the North Gate?			
Are there any structural deficiencies associated with tank berms?			
Are drain valves along north tank berm open or unlocked?			
Are drain valves at Waste Pad open?			
Are there any deficiencies or blockages associated with the ditches leading to Finger Lake?			
Are there any structural deficiencies with Finger Lake or the large detention area at the west end of the property?			
Is there any oil or solids present in Finger Lake or the large detention area at the west end of the property?			
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along Denver Metro property, the paper mill property, or Burlington Ditch?			

Stormwater Inspection Form

Inspection Date: _____ Time: _____

Weather Conditions:

PLANT 2	Yes	No	N/A
Is there discharge occurring from Outfall 024A (detention basin at north end of facility)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any signs of structural deficiencies associated with the detention basin?			
Is there any oil or solids present in the detention basin?			
Is the detention basin full or close to full of water?			
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?			
Are there any structural deficiencies associated with tank berms?			
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or west property boundaries?			
Is there discharge occurring from Outfall 027A (East Tank Farm manual pumping of bermed area)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the railroad south of the facility (south side of 56th)?			
Are there any signs of leaks or contamination associated with rail or truck loading/unloading areas?			
Are there any structural deficiencies associated with secondary containment structures at crude unloading docks?			
Is there discharge occurring from Outfall 028A (retention pond behind South Park trailers)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Is the retention pond full or close to full of water?			

Stormwater Inspection Form

Inspection Date: _____ Time: _____

Weather Conditions:

PLANT 3	Yes	No	N/A
Is there discharge occurring from Outfall 004A (Mary's Lake)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any signs of structural deficiencies associated with Mary's Lake?			
Is there any oil or solids present in Mary's Lake?			
Is there any evidence of contaminants or non-stormwater discharges along Sand Creek?			
Is Mary's Lake full or close to full of water?			
Is there discharge occurring from Outfall 026A (Overflow of inlet into Mary's Lake)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any deficiencies or blockages associated with the east perimeter stormwater ditch?			
Are there any structural deficiencies associated with tank berms?			
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along the east or south property boundaries?			
Nelson Property	**Yes**	**No**	**N/A**
Is there discharge occurring from Outfall 021A (constructed outlet at northeast corner of property)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any structural deficiencies or blockages associated with the constructed outlet?			
Is there discharge occurring from Outfall 022A (outlet of retention pond located at northwest corner of property)?			
If so, are there any indications of stormwater pollution (floating material, oil sheen, discoloration, turbidity, odor, etc.)?			
Are there any structural deficiencies or blockages associated with the constructed outlet?			
Are there any signs of contamination, non-stormwater discharges, or leaking/improperly stored containers/equipment along property boundaries?			

For any questions answered 'yes', specify locations and provide detailed descriptions where deficiencies were observed (provide attachments if needed):

_____

_____

Recommended Corrective Actions (provide attachments if needed):

Number	Recommendation	Responsible Person	Expected Completion Date	Repeat Issue?

I certify that this report is true, accurate, and complete, to the best of my knowledge and belief.

Person who performed inspection:

Name _____ Signature _____

Team Lead - Environmental:

Name _____ Signature _____

Stormwater Sampling Schedule

Year _____

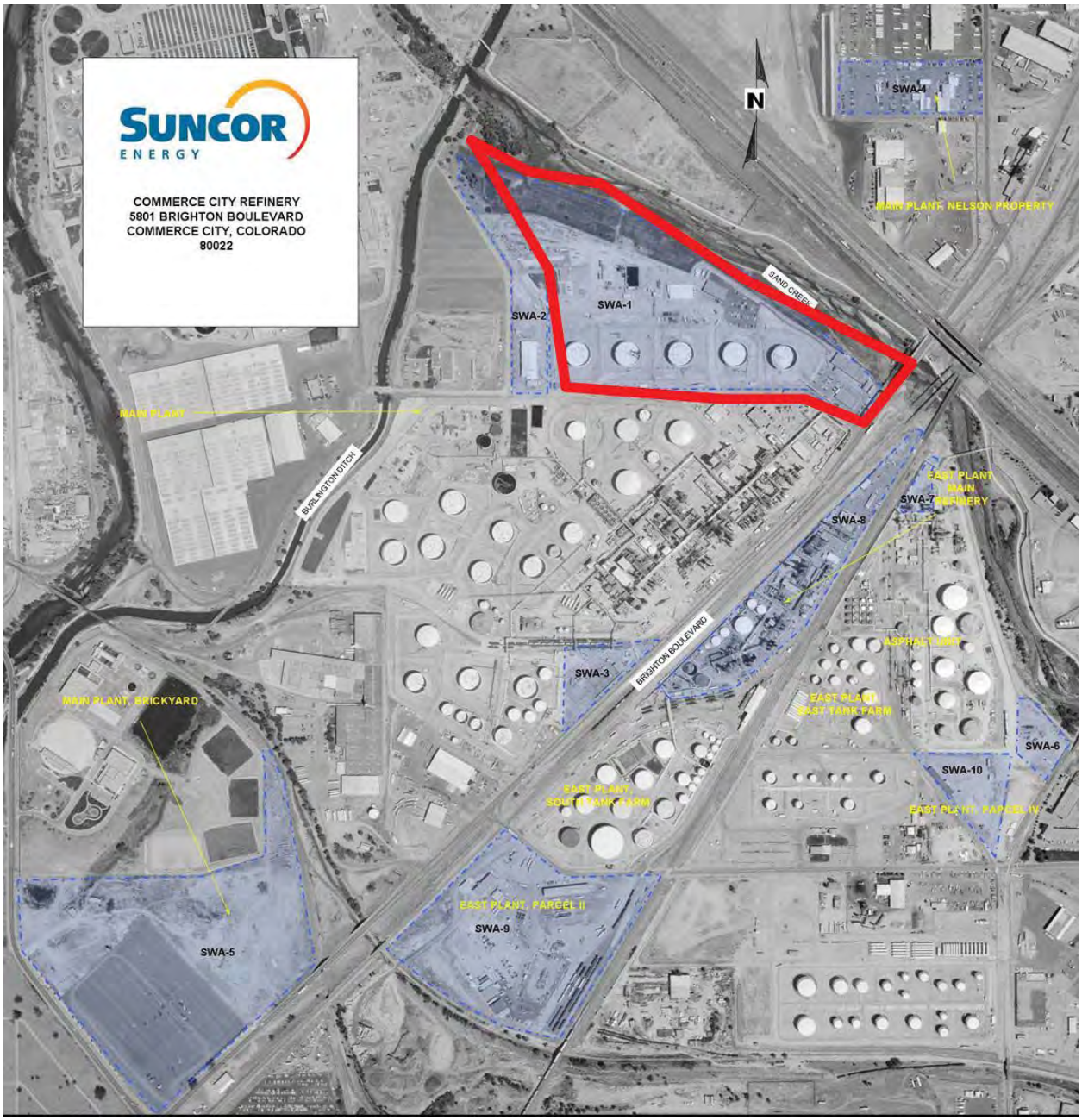
Outfall		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
004A	Sample	**Sample twice per discharge**											
	Visual												
021A	Sample	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Visual												
022A	Sample	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Visual												
023A	Sample												
	Visual												
024A	Sample												
	Visual												
025A	Sample												
	Visual												
026A	Sample												
	Visual												
027A	Sample	**Sample twice per discharge**											
	Visual												
028A	Sample												
	Visual												

Instructions

Enter the date of each sampling and visual monitoring event in the spaces above. Sampling/visual monitoring is not required at a given outfall, if it has already been performed earlier during the same period. In addition, sampling/visual monitoring should not be performed during a measurable storm event that occurs less than 72 hours after the previous measurable storm event. For outfalls 004A and 027A, which are manually controlled, sampling must be performed twice during each discharge, regardless of the number of discharges during the year.

FIGURES

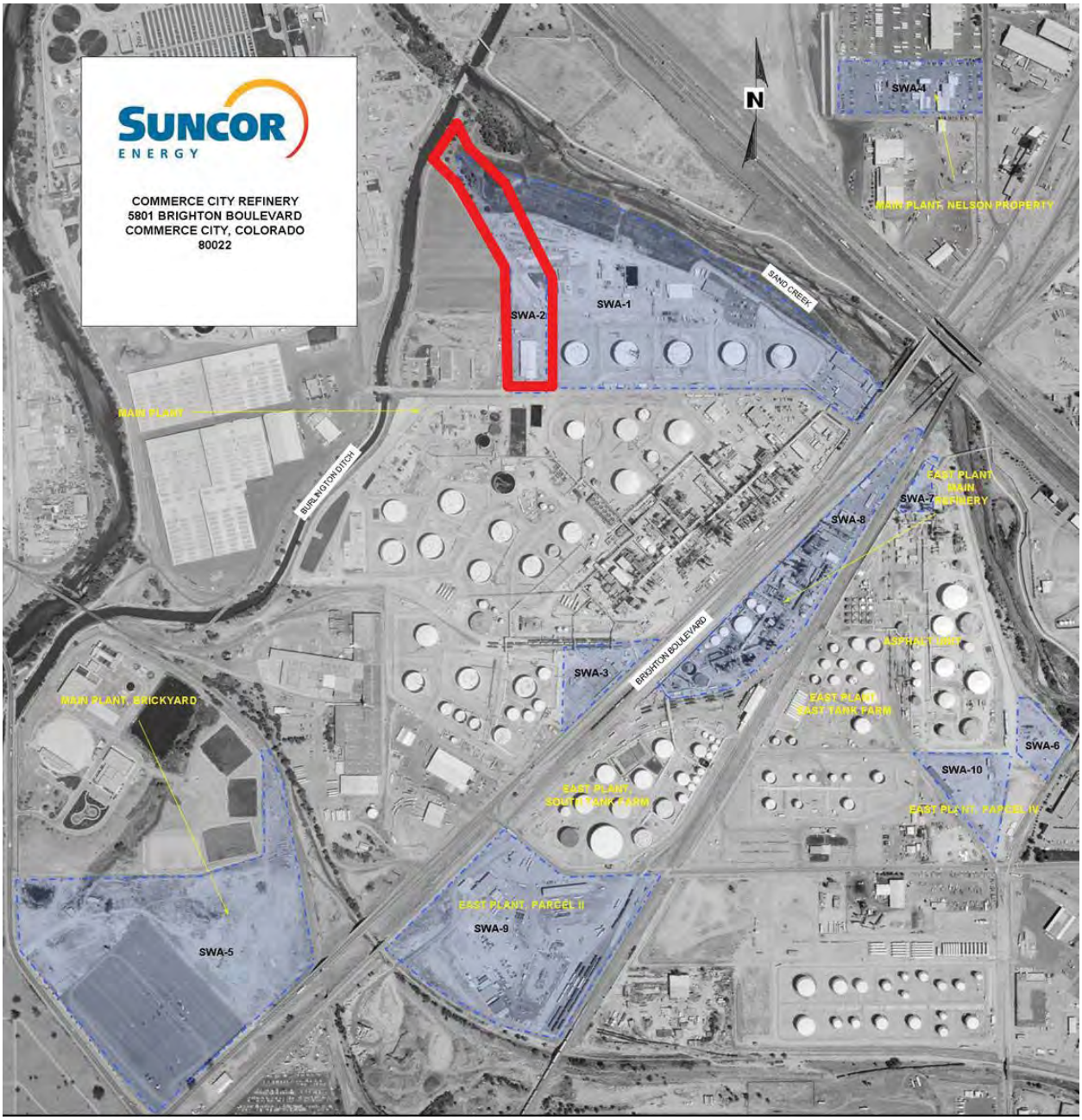
Figure 1: Storm Water Area 1 (SWA-1)



This area is adjacent to Sand Creek, north and northwest of tanks T-774, T-775, T-776, T-777, and T-778. There is a storm water detention area at the northwest corner of the Main Plant that collects run-off from areas outside diked tank storage in the north section of the plant. Under normal rainfall events, there is no outlet from this storm water detention area. In this area of the plant, the storage tanks are predominant features, with areas outside the diked containment being primarily used as a storage area for spare refinery parts and equipment. Crude truck unloading takes place south of T-776, adjacent to 60th Avenue. Also of significance in this area are facilities associated with the soil/groundwater remediation measures underway via a RCRA Order involving ConocoPhillips, and Suncor Energy (U.S.A.).

Precipitation falling on and around Tanks T-774, T-775, T-776, T-777, and T-778 is captured in the earthen dikes constructed as secondary containment, and is not a part of storm water runoff. Storm water contamination potential for this area is low to moderate.

Figure 2: Storm Water Area 2 (SWA-2)



SWA-2 borders 60th Avenue on the north, and is bordered on the west by Metro Wastewater Reclamation District and the Burlington Ditch. Activities/materials in this area that are not inside diked tank storage include surplus material storage, sandblasting, painting, and a maintenance facility (contained within a metal building).

Storm water runoff from this area travels west by sheet flow to a ditch just west of the western property boundary. This ditch flows north along the fenceline until reaching a point where the water travels through a buried culvert back onto Suncor Energy (U.S.A.) property. A detention area receives this flow and other flows from SWA-1. During normal rainfall events, there is no outlet from this storm water detention area. If there is significant quantity of runoff to overtop this detention area, sheet flow will occur over the existing roadway toward the north, and to Sand Creek. Considerable infiltration occurs in the detention pond area – the runoff potential and potential for storm water contamination is very low. The facility's discharge permit does allow for discharge of this storm water if water quality is acceptable.

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2014-08-18	ISSUED FOR CLIENT REVIEW	LRS	LRS	KP	PP

PROJECT

SUNCOR
SPCC PLAN
COMMERCE CITY, CO

TITLE

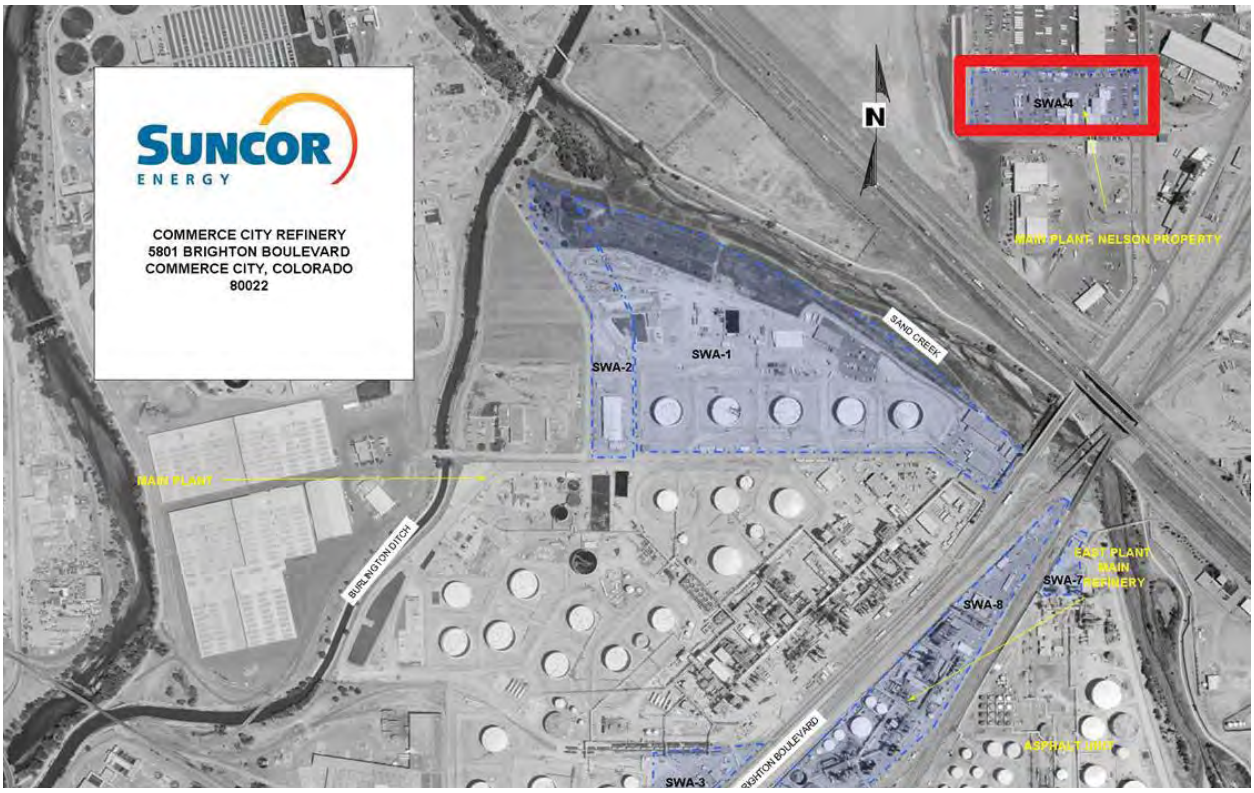
STORM WATER AREA 3

Golder Associates

SUNCOR ENERGY

PROJECT No.	130-1742
FILE No.	1301742A0043
SCALE	NOT TO SCALE
DRAWING	SWA-3

Figure 4: Storm Water Area 4 (SWA-4)

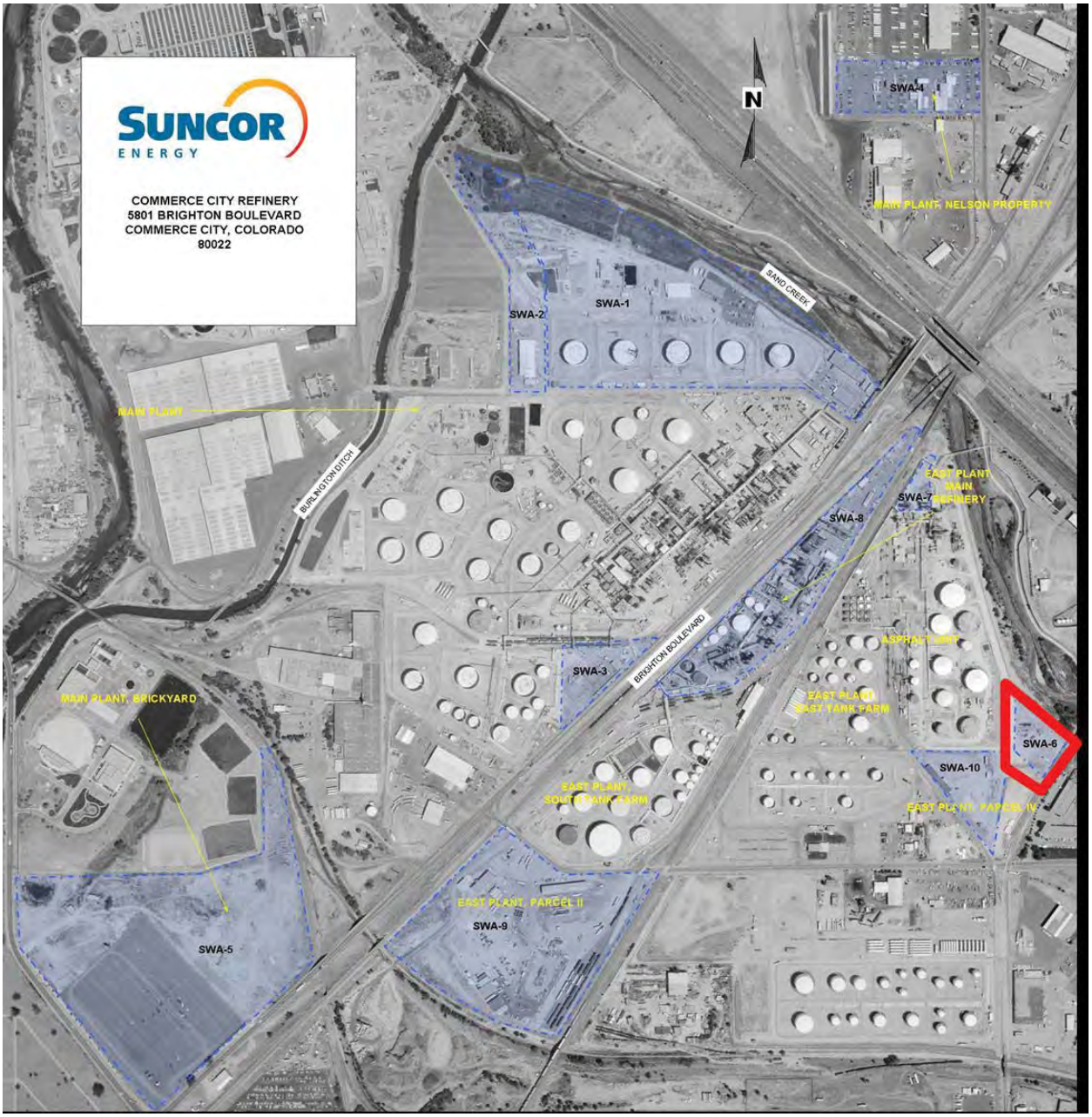


Suncor Energy owns and operates a maintenance facility, referred to as the "Nelson Property", that is located north of the Main Plant on Brighton Boulevard. This facility includes the following features and activities:

- Fuel truck parking
- Parts laydown and storage
- A 10,000 gallon double-walled diesel storage tank (Decommissioned)
- A 6,000 gallon double-walled gasoline storage tank (Decommissioned)
- Transformer
- Truck wash building with drum storage of used oil and motor oil
- Roll-off boxes with soil, scrap and miscellaneous debris

The facility is situated primarily a soil/gravel surface with small areas of pavement. The west side of the facility slopes slightly to the west and southwest; storm water would flow as sheet flow in those directions and onto the adjacent property. The east or "front" side of the facility slopes slightly to the east and north; storm water would also exit the property as sheet flow. There are several storm drains in the center of the maintenance facility that convey storm water to the city's storm water sewer system along Brighton Boulevard. Storm water runoff contamination potential for this area would be classified as moderate.

Figure 6: Storm Water Area 6 (SWA-6)



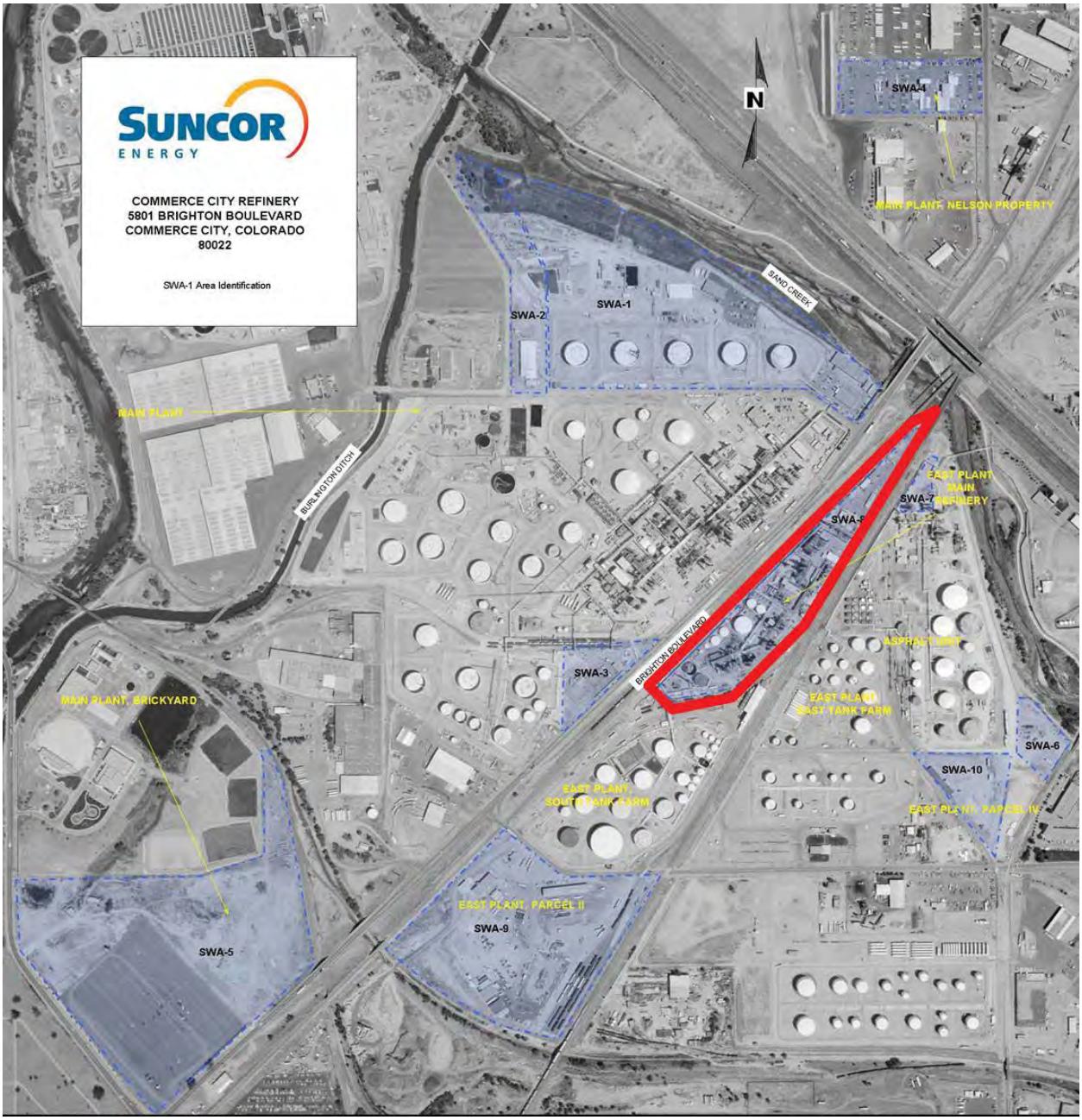
A small area exists in the southeast portion of the Asphalt Unit tank farm, which, although graded to minimize offsite storm water runoff, could possibly convey minimal sheet flow offsite during significant storm events. The actual area not controlled by surface structures is less than 2 acres. This area is used infrequently for staging of materials, surplus material storage, storage of temporary tanks and overflow parking during facility turnarounds/maintenance.

Sheet flow produced would flow east and northeast into the right-of-way adjacent to Sand Creek. This area is covered by scrub vegetation and exposed soil and has minimal slope so the potential for storm water contamination is low.

Figure 7: Storm Water Area 7 (SWA-7)

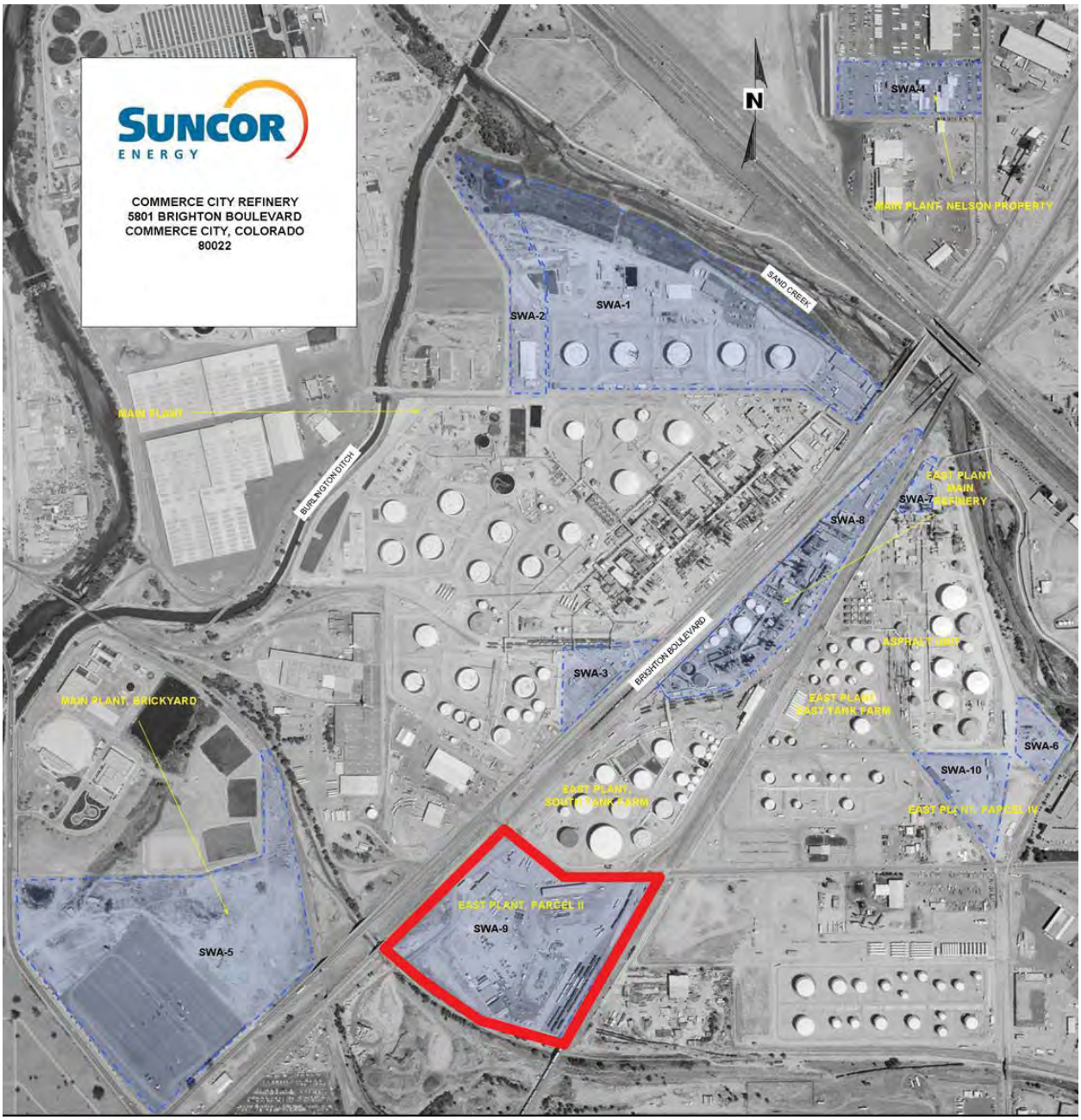
There is a small area at the northwest corner of the plant where run-off can exit the facility to the north along the north entrance road. There is a minor potential for storm water that has been exposed to process areas on the extreme north end of the plant to flow off site at this point. There is also minor potential for this flow to reach Sand Creek. The potential for storm water contamination is minimal.

Figure 8: Storm Water Area 8 (SWA-8)



Storm water not captured by refinery area drains, along with precipitation impacting the parking and office areas of the East plant will flow to the extreme north end of the East Plant to a concrete retention basin. Storm water may be detained in this basin, pumped back to wastewater treatment, or allowed to evaporate. The discharge point for this flow is adjacent to the permitted industrial wastewater discharge point identified as Outfall 001. Storm water discharge to Sand Creek will only be allowed if the storm water is of acceptable water quality. The potential for storm water contamination is moderate.

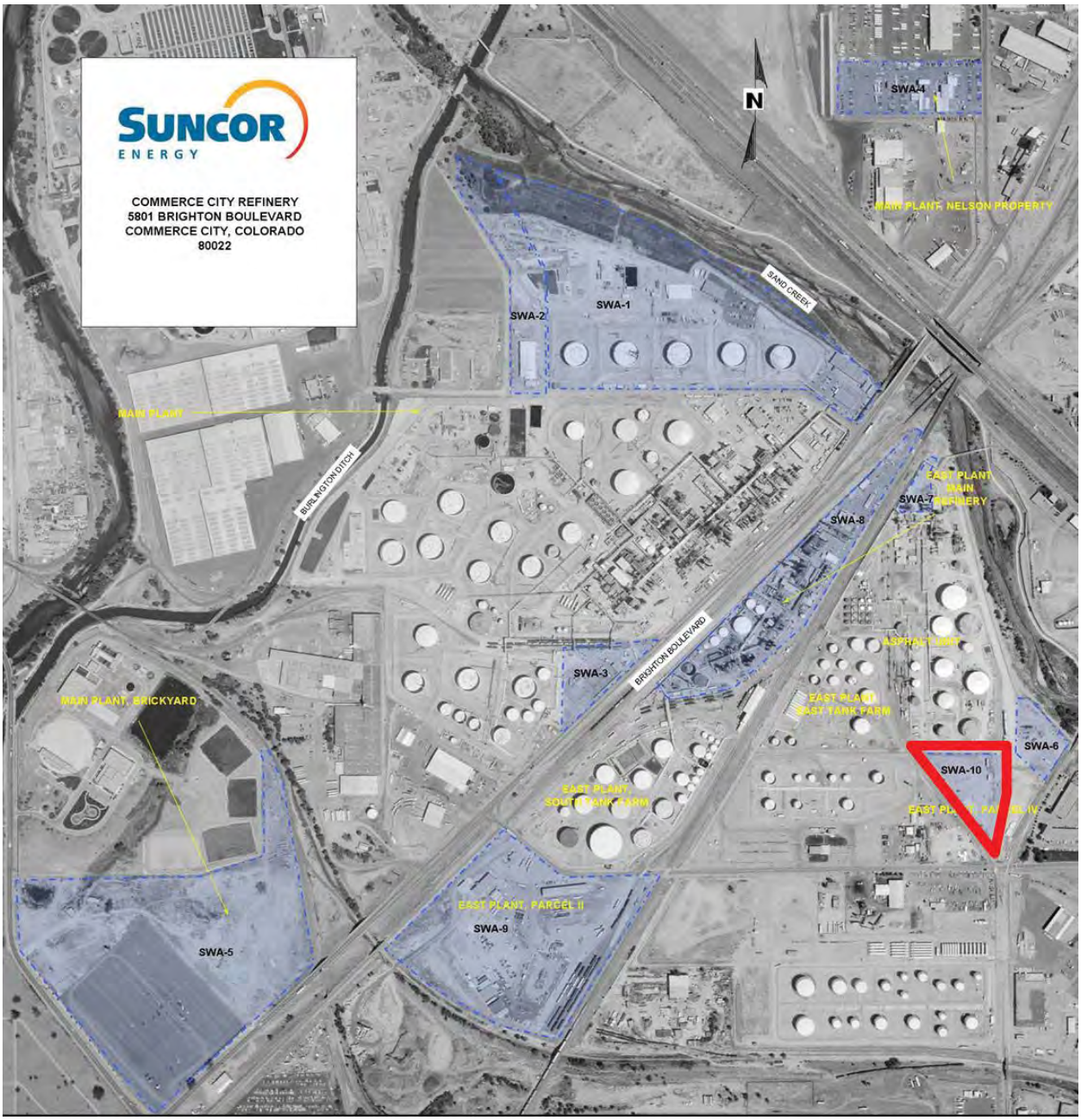
Figure 9: Storm Water Area 9 (SWA-9) - Parcell II



Parcel II is located directly south of the main refinery property across 56th Avenue. Crude oil truck unloading, LPG railcar loading and unloading, ethanol railcar unloading, gasoline and diesel fuel railcar loading, and the refinery's fire station are located on Parcel II. An independent contractor's field office, equipment storage building and outside equipment laydown areas are also located on Parcel II.

Parcel II covers approximately 16 acres – flow is generally to the south and southeast to a retention pond at the very southwest end of the parcel. This pond has no outlet. There is also a small storm water collection basin in a low area near the center of the parcel – collected water is allowed to evaporate or infiltrate. Drainage ditches, railroad ROWs and the topography direct run-off to the retention pond. The majority of runoff from Parcel II appears to infiltrate. Due to the strategic grading and routing of runoff into these basins, the potential for release of storm water contamination is low.

Figure 10: Storm Water Area 10 (SWA-10) - Parcell IV



Parcel IV is located approximately 1000 feet east of the main refinery process area, and is adjacent to the East Tank Farm (to the west) and the Asphalt Plant (to the north). Parcel IV is approximately 3 acres in size and is primarily an equipment laydown area that is essentially level. With most rainfall events, precipitation would tend to remain and infiltrate. However, a large rain event may cause flow to the north into the Suncor Asphalt Plant.

Just to the south of this laydown area is an area called the Odyssey Staging Area. It is also graded relatively flat and is used for temporary equipment storage and parking. Heavy rainfall would cause run-off to the south onto 56th Avenue. The potential for storm water contamination from both areas is minimal.

Appendix D
CDPS Permit No. COS000009

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
Water Quality Control Division

AUTHORIZATION TO DISCHARGE UNDER THE

COLORADO DISCHARGE PERMIT SYSTEM

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended), for both discharges to surface and ground waters, and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), for discharges to surface waters only, the

Suncor Energy (USA) Inc.

is authorized to discharge from the Commerce City Refinery located at **in the SW ¼ of Sect. 12, T3S, R68W, 6th P.M., at 5801 Brighton Blvd., Commerce City, CO, Latitude: 39.75 N, Longitude: 104.883333 W**

to **Sand Creek** and the **South Platte River**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

The applicant may demand an adjudicatory hearing within thirty (30) days of the date of issuance of the final permit determination, per the Colorado Discharge Permit System Regulations, 61.7(1). Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, the applicant must comply with Section 24-4-104 CRS and the Colorado Discharge Permit System Regulations. Failure to contest any such effluent limitation, monitoring requirement, or other condition, constitutes consent to the condition by the Applicant.

This permit and the authorization to discharge shall expire at midnight, **October 31, 2017**.

Issued and Signed this **September 27, 2012**

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Janet Kieler

Janet Kieler, Permits Section Manager
Water Quality Control Division

ISSUED AND SIGNED: **September 27, 2012**

EFFECTIVE DATE OF PERMIT: **November 1, 2012**

TABLE OF CONTENTS

PART I

A. AUTHORITY TO DISCHARGE

Beginning no later than the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge stormwater associated with industrial activity and specified non-stormwater discharges, from the Suncor Energy (USA) Inc.—Commerce City Refinery to State Waters, consistent with the terms and conditions of this permit.

1. **Allowable Stormwater Discharges**

The following discharges are authorized under this permit:

a. Stormwater discharges associated with the primary industrial activity (SIC code 2911) and co-located industrial activity SIC code 3599 (as defined in Appendix A), including those subject to the national stormwater-specific effluent limitation guidelines (ELGs) under 40 CFR Subchapter N listed in Table A-1 below:

Table A-1. Stormwater-specific Effluent Limitations Guidelines

Regulated Activity	40 CFR Part/Subpart	Effluent Limit
Petroleum Refining Point Source Category	Part 419	See Part I.B.3

b. Discharges that are not otherwise required to obtain permit authorization but are commingled with stormwater discharges that are authorized under this permit.

c. Stormwater run-on that commingles with stormwater discharges associated with industrial activity.

2. **Allowable Non-Stormwater Discharges.**

The following non-stormwater discharges are authorized by this permit provided that appropriate control measures are implemented to minimize erosion and sediment transport resulting from such discharges, and the non-stormwater component(s) of the discharge and the control measure(s) used are identified in the SWMP (see Part I.G SWMP—Specific SWMP Requirements):

a. Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;

b. Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;

c. Uncontaminated spring water;

d. Foundation or footing drains where flows are not contaminated with process materials; and

e. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).

3. **Emergency Fire Fighting**

Discharges resulting from emergency fire fighting activities are authorized by this permit.

4. **Limitations on Coverage**

This permit does not authorize the discharges or activities listed below.

a. **Discharges of non-stormwater.** Discharges of non-stormwater, except those authorized non-stormwater discharges listed in Part I.A.2 are not eligible for coverage under this permit.

b. **Stormwater Discharges Associated with Construction Activity.** Stormwater discharges associated with construction activity disturbing one acre or more are not eligible for coverage under this permit.

c. **Discharges Currently Covered by Another Permit.** Discharges that are currently covered under an individual permit or an alternative general permit are not eligible for coverage under this permit.

d. **Discharges Currently covered by a Division Low Risk Guidance document.** Discharges that meet the provisions of a Division Low Risk Guidance document permit are not eligible for coverage under this permit.

e. **Stormwater Discharges Subject to Effluent Limitations Guidelines.** Discharges subject to stormwater effluent limitation guidelines (ELGs) under 40 CFR, Subchapter N other than as summarized in Part I.A.1, Table A-1, are not eligible for coverage under this permit.

5. **Chemical addition**

Stormwater discharges with chemical addition are eligible for coverage under this permit, provided that:

a. the permittee files a request for a permit modification request for chemical addition to the Division prior to discharging industrial stormwater with chemical addition from the facility;
b. the Division makes a determination, consistent with Part II.B.5, as to whether a permit modification is appropriate, and if so, modifies the permit.

B. EFFLUENT LIMITATIONS

All discharges authorized under this permit shall attain the effluent limitations required under this Part, and shall be monitored in accordance with the requirements of Part I.B, Part I.C and consistent with Part I.I of the permit.

1. **Permitted Feature(s)**

The permittee must obtain self-monitoring samples consistent with Part I.I of this permit from the following permitted feature(s):

Permitted Features			
ID	**Type**	**Description**	**Latitude, Longitude**
Outfall 004A	External Outfall	Stormwater runoff from the asphalt unit; [Suncor designation 004A]	39.804571° N, -104.941201° W
Outfall 021A	External Outfall	Constructed outlet structure at far northeast corner of 6215 Colorado Blvd. property (Nelson Property); [Suncor designation SW-1]	39.810438° N, -104.940595° W
Outfall 022A	External Outfall	Outlet from retention pond located at far northwest corner of 6215 Colorado Blvd. property; [Suncor designation SW-2]	39.810318° N, -104.943202° W
Outfall 023A	External Outfall	Potential discharge point from detention area located at west end of swale south of Sand Creek; [Suncor designation SW-3]	39.809017° N, -104.949010° W
Outfall 024A	External Outfall	Outfall from detention structure located at north end of 5800 Brighton Blvd. property (east of Brighton Blvd.); [Suncor designation SW- 4]	39.804822° N, -104.942079° W
Outfall 025A	External Outfall	High flow contingency discharge point located on the west side of Brighton Blvd., 400 feet southeast of the main gate to the 5801 Brighton Blvd. property; [Suncor designation SW- 5]	39.804025° N, -104.944022° W
Outfall 026A	External Outfall	High flow contingency discharge point associated with inlet to stormwater retention pond located at north end of 3875 E. 56th Avenue property (Mary's Pond); [Suncor designation SW- 6]	39.803760° N, -104.940982° W
Outfall 027A	External Outfall	Discharge point associated with manual pumping of accumulated stormwater in tank farm north of 56th Avenue and east of Union Pacific rail line; [Suncor	39.801156° N, -104.944370° W

		designation SW- 7]	
Outfall 028A	External Outfall	Outlet from retention structure at south end of property located approximately 1700 feet east-northeast of the intersection of Brighton Blvd. and York St.; [Suncor designation SW- 9]	39.796733° N, -104.951480° W

The above referenced location(s), located after all treatment and prior to discharge to the receiving water, are the point(s) of compliance for the effluent limitation(s) required under this Part.

In accordance with the Colorado Discharge Permit System Regulations, Section 61.8(2), 5 C.C.R. 1002-61, the permitted discharge shall not contain effluent parameter concentrations which exceed the limitations specified in Part I.B.2, 3, and 4, below.

2. **Practice-based Effluent Limitations**
(Outfalls 004A, 021A, 022A, 023A, 024A, 025A, 026A, 027A, 028A)

Practice-based limitations required by this permit include the following:

a. **Minimize Exposure**
The permittee must minimize (as defined in Appendix A) the exposure of pollutant sources associated with manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff. Minimizing exposure may include locating these industrial materials and activities inside or protecting them with storm resistant coverings.

b. **Good Housekeeping**
The permittee must keep clean all areas exposed to stormwater runoff, as necessary to minimize potential sources of pollutants, using such measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers.

c. **Maintenance of Control Measures**
The permittee must maintain all control measures (structural and non-structural) used to achieve the effluent limits required by this permit in effective operating condition. The permittee must conduct maintenance of control measures in accordance with Part.I.E (Control Measures) of this permit.

d. **Spill Prevention and Response Procedures**
The permittee must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such potential spills. The permittee must at minimum implement:

i) Procedures for regularly inspecting, testing, maintaining, and repairing all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
ii) Procedures for plainly labeling containers that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
iii) Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, or procedures for material storage and handling;
iv) Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available; and
v) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies. Contact information must be in locations that are readily accessible and available.

e. **Erosion and Sediment Controls**
The permittee must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Among other actions taken to meet this effluent limit, flow velocity dissipation devices must be placed at discharge locations and within outfall channels where necessary to minimize erosion and/or settle out pollutants.

f. **Management of Runoff**
The permittee must divert, infiltrate, reuse, contain, or treat stormwater runoff, in a manner that minimizes pollutants in stormwater discharges from the site.

g. **Salt Storage Piles or Piles Containing Salt**
The permittee must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, and implement appropriate measures to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another permit.

h. **Employee Training**
The permittee must develop and implement a training program for employees. Training must be conducted at least **annually**, and must address the following, as applicable to the trainee's activities: the site-specific control measures used to achieve the effluent limits in this Part, components and goals of the SWMP, monitoring and inspection procedures, and other applicable requirements of the permit. At a minimum, the following individuals must be trained:

i) Employee(s) overseeing implementation of, revising, and amending the SWMP.
ii) Employee(s) performing installation, inspection, maintenance, and repair of control measures.
iii) Employee(s) who work in areas of industrial activity subject to this permit.
iv) Employee(s) who conduct stormwater discharge monitoring required by Part.I.B and Part.I.C of this permit.

i. **Non-Stormwater Discharges**
The permittee must eliminate non-stormwater discharges not authorized by a permit. See Part I.A.2 for a list of non-stormwater discharges authorized by this permit.

j. **Waste, Garbage and Floatable Debris**
The permittee must minimize the discharge of waste, garbage, and floatable debris from the site by keeping exposed areas free of such materials or by intercepting them before they are discharged.

k. **Dust Generation and Vehicle Tracking of Industrial Materials.**
The permittee must minimize generation of dust and off-site tracking of raw, final, or waste materials.

3. **Numeric Effluent Limitations based on Effluent Limitations Guidelines**
(Outfalls 004A, 023A, 024A, 025A, 026A, 027A, 028A)

Discharges subject to the effluent limitations guideline(s) (ELG) identified in Part I.A.1, Table A-1 must meet the provisions of this Part. If a numeric effluent limit required by this Part is exceeded, the permittee must conduct corrective action(s) pursuant to Part I.J (Corrective Actions).

a. Limitations, Monitoring Frequencies and Sample Types
The permittee shall monitor all effluent parameters at the frequencies and sample types specified in Tables B-1 and B-2, below. Such monitoring must begin immediately and continue for the permit term unless otherwise noted. The results of such monitoring shall be reported on the Discharge Monitoring Report form (See Part I.K.).

Self-monitoring sampling by the permittee for compliance with the monitoring requirements specified above shall be performed at the location(s) noted in above, and in accordance with Part I.I of this permit.

Table B-1: Outfall 004A, 027A

ICIS Code	Effluent Parameter	Effluent Limitations Maximum Concentrations	Monitoring Requirements	
		Daily Maximum	Frequency	Sample Type
50050	Effluent Flow (MGD)	Report	Twice per discharge	Instantaneous
03582	Oil and Grease (mg/l)	15	Twice per discharge	Grab
00680	Total Organic Carbon (mg/l)	110	Twice per discharge	Grab

Table B-2: Outfalls 023A, 024A, 025A, 026A, 028A

ICIS Code	Effluent Parameter	Effluent Limitations Maximum Concentrations	Monitoring Requirements	
		Daily Maximum	Frequency	Sample Type
50050	Effluent Flow (MGD)	Report	Monthly	Instantaneous
03582	Oil and Grease (mg/l)	15	Monthly	Grab
00680	Total Organic Carbon (mg/l)	110	Monthly	Grab

4. **Water Quality-Based Effluent Limitations**
(Outfalls 004A, 021A, 022A, 023A, 024A, 025A, 026A, 027A, 028A)

Discharges authorized under this permit must be controlled as necessary to meet applicable water quality standards.

The Division expects that compliance with the other conditions in this permit will control discharges as necessary to meet applicable water quality standards. If at any time the permittee becomes aware, or the Division determines, that the authorized discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective action as required in Part I.J (Corrective Actions), document the corrective actions as required in Part I.J (Corrective Actions) and Part I.G (SWMP – Specific SWMP Requirements), and report the corrective actions to the Division as required Part I.J (Corrective Actions) and Part I.K (Reporting and Recordkeeping).

C. ADDITIONAL MONITORING REQUIREMENTS

1. **Visual Monitoring**
(Outfalls 004A, 021A, 022A, 023A, 024A, 025A, 026A, 027A, 028A)

Once each **quarter** for the entire permit term, the permittee must collect a stormwater sample from each outfall, and conduct a visual assessment of each of these samples.

a. These samples should be collected in such a manner that the samples are representative of the stormwater discharge.

b. The visual assessment must be made of a sample in a clean, clear glass, or plastic container, and examined in a well-lit area. The permittee must visually inspect the sample for the presence of the following water quality characteristics:

i) Color;
ii) Odor;
iii) Clarity;
iv) Floating solids;
v) Settled solids;
vi) Suspended solids;
vii) Foam;
viii) Oil sheen; and
ix) Other obvious indicators of stormwater pollution.

c. Quarterly Visual Assessment Documentation. The permittee must document the visual assessment results and maintain this documentation onsite with the facility SWMP as required in Part I.G.8. If the permittee is unable to collect a stormwater sample because a measureable storm event does not occur during the quarter, the permittee must document this condition. The permittee is not required to submit visual assessment findings to the Division, unless specifically requested to do so. At a minimum, visual assessment documentation of the must include:

i) Sample location(s);
ii) Sample collection date and time, and visual assessment date and time for each sample;
iii) Personnel collecting the sample and performing visual assessment, and their signatures;
iv) Nature of the discharge (i.e., runoff or snowmelt);
v) Results of observations of the stormwater discharge;
vi) Probable sources of any observed stormwater contamination; and
vii) If applicable, why it was not possible to take samples within the first 30 minutes.

d. Quarterly Visual Assessment Corrective Actions. If the visual assessment indicates the control measures for the facility are inadequate or are not being properly operated and maintained, the permittee must conduct corrective actions consistent with Part I.J (Corrective Actions) of this permit.

e. The permittee shall maintain visual monitoring procedures in the SWMP as required in Part I.G.8 of this permit.

2. **Site-specific Benchmark Monitoring**
(Outfalls 004A, 023A, 024A, 025A, 026A, 027A, 028A)

Pollutant benchmark concentrations applicable to the discharge authorized by this permit are provided in Tables C-1 and C-2, below. Applicable benchmark parameters were developed on a site-specific basis with respect to facility industrial activity and receiving water quality.

Benchmark concentrations are to be used as a tool to assess control measure effectiveness in meeting the effluent limitations contained in this permit. The benchmark concentrations are not effluent limitations; a benchmark exceedance, therefore, is not a permit violation.

Table C-1: Outfall 004A, 027A

ICIS Code	Effluent Parameter	Benchmark Concentrations[1]		Monitoring Requirements	
		Daily Max	30-day Average	Frequency	Sample Type
01323	Selenium, PD (ug/L)	18.4	Report	Twice per discharge	Grab
00400	pH (s.u.)	6.5-9.0	6.5-9.0	Twice per discharge	Grab
34030	Benzene (µg/l)	Report	5	Twice per discharge	Grab
22417	MTBE (µg/l)	Report	Report	Twice per discharge	Grab

[1]Effective October 1, 2014, corrective actions apply to an exceedance of an applicable benchmark concentration.

Table C-2: Outfalls 023A, 024A, 025A, 026A, 028A

ICIS Code	Effluent Parameter	Benchmark Concentrations[1]		Monitoring Requirements	
		Daily Max	30-day Average	Frequency	Sample Type
01323	Selenium, PD (ug/L)	18.4	Report	Monthly	Grab
00400	pH (s.u.)	6.5-9.0	6.5-9.0	Monthly	Grab
34030	Benzene (µg/l)	Report	5	Monthly	Grab
22417	MTBE (µg/l)	Report	Report	Monthly	Grab

[1]Effective October 1, 2014, corrective actions apply to an exceedance of an applicable benchmark concentration.

a. Averaging monitoring values
Permittees must calculate average concentrations in accordance with the requirements of Part I.I.6 of this permit.

b. Benchmark Monitoring Actions
Effective October 1, 2014, when the discharge exceeds an applicable benchmark concentration, the permittee must conduct corrective actions consistent with Part I.J (Corrective Actions) of this permit. Failure to respond to benchmark value exceedances is a violation of the permit. Corrective actions must be conducted each time the discharge exceeds an applicable benchmark concentration, unless the Division waives the requirement for additional monitoring and corrective action.

c. Natural background pollutant levels
Following the first 12 months of benchmark monitoring, if the permittee determines that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background, the permittee may request that the Division waive the requirement to perform corrective action or additional benchmark monitoring.

Natural background pollutants include those substances that are naturally occurring in soils. Natural background pollutants **do not** include legacy pollutants from earlier activity on the site, or pollutants in run-on from neighboring sources which are not naturally occurring.

D. PERMIT COMPLIANCE

A permittee must comply with all the terms and conditions of this permit. Violation of the terms and conditions specified in this permit may be subject to civil and criminal liability pursuant to sections 25-8-601 through 612, C.R.S.. Correcting a permit violation does not remove the original violation. Failure to take any required corrective actions, as detailed in Part I.J (Corrective Actions), constitutes an independent, additional violation of this permit and may be subject to civil and criminal liability. However, where corrective action is triggered by an event that does not itself constitute permit noncompliance, there is no permit violation unless the permittee fails to take the required corrective action within the relevant deadlines established in Part I.J (Corrective Actions).

E. CONTROL MEASURES

All control measures (as defined in Appendix A) used by the permittee to meet the effluent limitations contained in this permit must be selected, designed, installed, implemented, and maintained in accordance with good engineering hydrologic and pollution control practices (as defined in Appendix A), and the manufacturer's specifications, when applicable.

The term "**Minimize**", for purposes of implementing control measures to meet the requirements of Part I.B (Effluent Limitations) of this general permit, means reduce and/or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.

1. **Installation and implementation specifications**

   Installation and implementation specifications for each control measure type used by the permittee to meet the effluent limitations contained in this permit must be retained with the SWMP (see Part I.G SWMP – Specific SWMP Requirements).

2. **Maintenance of Control Measures and Associated Documentation**

   a. The permittee must maintain all control measures used to achieve the effluent limits required by this permit (see Part I.B – Effluent Limitations) in effective operating condition. For this permit, maintenance includes preventative and routine maintenance, modification, repair, replacement, or installation of new control measures. Observations resulting in maintenance activities can be made during a site inspection, or during general observations of site conditions.

   b. Corrective actions associated with maintaining control measures must be conducted with due diligence, as soon as possible after the need is discovered, to achieve the effluent limits required by this permit. The permittee must implement interim control measures to achieve the effluent limits required by this permit while performing maintenance of the primary control measure.

   c. The permittee shall document corrective actions associated with maintaining control measures, in accordance with Part. I.J (Corrective Actions) of this permit, and shall revise the facility SWMP to reflect replacement or installation of new control measures in accordance with Part I.F SWMP (General SWMP Requirements).

F. STORMWATER MANAGEMENT PLAN (SWMP)—General SWMP Requirements

The General SWMP requirements contained in this section address administrative requirements of the SWMP, as opposed to the specific SWMP content requirements provided in Part I.G of the permit. **The permittee shall modify the existing facility SWMP to comply with the requirements of this permit within 90 days of the permit effective date.**

1. SWMP requirement: The permittee must develop, implement, and maintain a SWMP for each facility authorized by this permit. The SWMP shall be prepared in accordance with good engineering, hydrologic and pollution control practices (the SWMP need not be prepared by a registered engineer). The permittee must modify the SWMP to reflect current site conditions (see Part I.F.7 below).

2. Submission and Implementation: The permittee must submit the SWMP to the Division if requested. The permittee must implement the SWMP when the facility begins industrial activities, which includes installation of control measures.

3. Signatory Requirements: The permittee must sign and the SWMP in accordance with Part I.K (Reports and Recordkeeping); this requirement applies to the original SWMP prepared for the facility, **and** each time the permittee modifies a SWMP as required by Part I.F.7, below.

4. Permit Retention: The permittee must maintain a copy of this permit with the SWMP.

5. SWMP Retention: The permittee must retain a copy of the SWMP at the facility unless another location, specified by the permittee, is approved by the Division.

6. Consistency with Other Plans: The permittee may incorporate, by reference, applicable portions of plans prepared for other purposes at their facility. Plans or portions of plans incorporated by reference into a SWMP become enforceable requirements of this permit and must be available along with the SWMP as required in Part.I.F.5 above.

7. Required SWMP Modifications:

   a. *Division initiated*:
      i) The permittee must modify the SWMP when notified by the Division that it does not meet one or more of the requirements of this permit. Unless otherwise provided by the Division, the permittee shall have 30 days after notification to make the necessary changes to the SWMP and implement them.
      ii) The Division may require the permittee to submit the modified SWMP to the Division.
      iii) If the Division determines that the permittee's stormwater discharges do not, or may not, achieve the effluent limits required by this permit, the Division may require the permittee, within a specified time period, to develop and implement a supplemental control measure action plan, which describes additional SWMP modifications to adequately address the identified water quality concerns.

   b. *Permittee initiated*:

      i) The permittee must modify the SWMP whenever necessary to address any of the triggering conditions for corrective action in Part I.J (Corrective Actions) to ensure that they do not reoccur.
      ii) The permittee must modify the SWMP whenever there is a change in design, construction, operation, or maintenance at the facility that significantly changes the nature of pollutants discharged in stormwater from the facility, significantly increases the quantity of pollutants discharged, or that requires the permittee to implement new or modified control measures.
      iii) The SWMP modifications may include a schedule for control measure design and implementation, provided that interim control measures needed to comply with the permit are documented in the SWMP and implemented during the design period.
      iv) The permittee must make all SWMP modifications in accordance with the corrective action deadlines in Part I.J (Corrective Actions).

G. STORMWATER MANAGEMENT PLAN (SWMP)—Specific SWMP Requirements

The SWMP shall contain the elements described in this section.

1. **SWMP Administrator**

The SWMP shall identify a specific individual(s) by name or by title whose responsibilities include: SWMP development, implementation, maintenance, and modification.

2. **Facility Description**

The facility description shall include:

   a. A narrative description of the industrial activities conducted at the facility;
   b. The total size of the facility property in acres;
   c. The general layout of the facility including buildings and storage of raw materials, and the flow of goods and materials through the facility.

3. **Facility Map**

The SWMP shall include a legible site map(s), showing the entire facility, and vicinity as appropriate, identifying:

a. The location of the facility in relation to surface waters that receive industrial stormwater discharges from the facility (including the name of the surface water; if the name is not known, indicate that on the map); a separate vicinity map may be necessary to comply with this requirement;

b. Location of significant impervious surfaces within the facility property boundaries, including paved areas and buildings;

c. The locations of all facility stormwater conveyances including ditches, pipes, and swales;

d. The locations of stormwater inlets and outfalls, with a unique identification code for each outfall (e.g., Outfall No. 1, No. 2, etc), and an approximate outline of the areas draining to each outfall;

e. Directions of stormwater flow indicated by arrows;

f. The areas where industrial activities are conducted, where such activities are exposed to precipitation;

g. Locations of all pollutant sources (actual or potential) associated with specific industrial activities as identified under Part I.G.4;

h. Location of all structural and applicable non-structural control measures used to meet the effluent limits required by this permit;

i. Locations where significant spills or leaks identified under Part I.G.4.b have occurred;

j. Locations of all stormwater monitoring points applicable to the facility.

k. Location and description of any non-stormwater discharges authorized in Part I.A.2, emergency fire fighting discharges authorized in Part I.A.3, or authorized by separate permit coverage.

l. Locations and sources of run-on to the facility from adjacent property that contains significant quantities of pollutants.

4. **Facility Inventory and Assessment of Pollutant Sources**

The facility inventory and assessment shall include the following:

a. Inventory of facility activities and equipment
The inventory shall identify all areas (except interior areas that are not exposed to precipitation) associated with industrial activities that have been, or may potentially be, sources of pollutants, that contribute, or have the potential to contribute, any pollutants to stormwater, including but not limited to the following:

i) Loading and unloading of materials, including solids and liquids.
ii) Outdoor storage of materials or products, including solids and liquids.
iii) Outdoor manufacturing and processing.
iv) On-site dust or particulate generating processes, including dust collection devices and vents.
v) On-site waste treatment, storage, or disposal, including waste ponds and solid waste management units.
vi) Vehicle and equipment fueling, maintenance, and/or cleaning (includes washing).
vii) 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.
viii) Roofs or other surfaces exposed to air emissions from a manufacturing building or a process area, including vents and stacks from metal processing and similar operations.

ix) Roofs and associated surfaces composed of galvanized materials that may be mobilized by stormwater (e.g., roofs, ducts, heating/air conditioning equipment, gutters and downspouts).

b. Inventory of materials

The inventory shall list materials that contribute, or have the potential to contribute, pollutants to stormwater, including but not limited to the following:

i) The types of materials handled at the facility that may be exposed to precipitation or runoff and could result in stormwater pollution.
ii) The types of materials handled at the facility that may leak or spill, and be exposed to precipitation or runoff and result in stormwater pollution.
iii) A narrative description of any potential sources of pollutants from past activities, materials and spills that could contribute pollutants to stormwater discharges, and the corresponding outfall(s) that would be affected by such spills and leaks. The description shall include the method and location of any on-site storage or disposal; and documentation of all significant spills and leaks of oil or toxic or hazardous pollutants that occurred at exposed areas, or that drained to a stormwater conveyance, in the 3 years prior to the SWMP preparation date.

c. Assessment of potential pollutant sources

The assessment of potential pollutant sources shall provide a short narrative or tabulation describing the potential of a pollutant to be present in stormwater discharges for each facility activity, equipment and material identified above. The permittee shall update this narrative when data become available to verify the presence or absence of these pollutants.

5. **Description of Control Measures**

a. The permittee shall document the location and type of each non-structural and structural control measure implemented at the facility to achieve meet the effluent limitations contained in this permit. Documentation must include those control measures implemented for stormwater run-on that commingles with any discharges covered under this permit.

b. Installation and implementation specifications for each control measure used by the permittee to meet the effluent limitations contained in this permit must be retained with the SWMP.

6. **Additional Control Measure Requirements**

The permittee shall document the schedules, procedures, and evaluation results for the following subset of practice-based effluent limitations.

a. Good Housekeeping (see Part I.B.2.b) – A schedule for regular pickup and disposal of waste materials, along with routine inspections for leaks and conditions of drums, tanks and containers.

b. Maintenance (see Part I.B.2.c) – Preventative maintenance schedules for industrial equipment and systems; control measures; and any back-up practices in place should a runoff event occur while a control measure is off-line.

c. Spill Prevention and Response Procedures (see Part I.B.2.d) – Procedures for preventing, responding to, and reporting spills and leaks. The permittee may reference other plans (e.g., a Spill Prevention Control and Countermeasure (SPCC) plan) otherwise required by a permit for the facility, provided that a copy of the other plan is kept onsite with the SWMP, and made available for review consistent with Part I.F (SWMP—General SWMP Requirements).

d. Employee Training (see Part I.B.2.h) – A schedule for all types of training required by this permit, content of the training, and log of the dates on which specific employees received training.

e. Non-Stormwater Discharges (see Part I.B.2.i) – Documentation of the stormwater conveyance system evaluation for the presence of non-stormwater discharges not authorized in Part I.A.2, and the elimination of all unauthorized discharges. Documentation of the evaluation must include:

i) The date of any evaluation;
ii) A description of the evaluation criteria used;
iii) A list of the outfalls or onsite drainage points that were directly observed during the evaluation;
iv) The different types of non-stormwater discharge(s) and source locations; and
v) The action(s) taken, such as a list of control measures used to eliminate unauthorized discharge(s), if any were identified.

7. **Inspection Procedures and Documentation**

The permittee shall document inspection procedures, and maintain such procedures and other documentation with the SWMP, as follows:

a. The permittee shall document procedures for performing the facility inspections required by Part I.H (Inspections) of the permit. Procedures must identify:

i) Person(s) or positions of person(s) responsible for inspection;
ii) Schedules for conducting inspections; and
iii) Specific items to be covered by the inspection, including inspection schedules for specific outfalls.

b. The permittee shall maintain inspection documentation with the SWMP as required by Part I.H (Inspections) of this permit.

8. **Monitoring Procedures and Documentation**

The permittee shall document monitoring procedures, and maintain such procedures and other documentation with the SWMP, as follows:

a. The permittee shall document procedures for performing the monitoring required by the permit.

b. For each type of monitoring, procedures must identify:

i) Locations where samples are collected, and outfall identification by its unique identifying number;
ii) Staff responsible for conducting stormwater sampling;
iii) Procedures for sample collection and handling, including any deviations from sampling within the first 30 minutes of a measurable storm event (see Part I.I.5);
iv) Parameters for analysis, holding times and preservatives, analytical methods, and laboratory quantitation levels;
v) Procedures for sending samples to a laboratory;
vi) The numeric control values (benchmarks, effluent limitations guidelines, TMDL-related requirements, or other requirements) applicable to discharges from each outfall.

c. Permittees must maintain Quarterly Visual Assessment documentation (see Part I.C.1) with the SWMP.

9. **Corrective Action Documentation**

The permittee must maintain a copy of all Corrective Action reports that document corrective actions taken by the permittee consistent with Part I.J (Corrective Actions) of this permit, with the facility SWMP.

H. INSPECTIONS

1. **Inspection Frequency and Personnel**

   a. The permittee shall conduct and document visual inspections of the facility at least **monthly**. Inspections shall be conducted at least 10 days apart.

   b. The permittee shall conduct a minimum of one (1) inspection per calendar year during a runoff event, which for a rain event means during, or within 24 hours after the end of, a measureable storm event (as defined in Appendix A); and for a snowmelt event, means at a time when a measurable discharge occurs from the facility.

   c. The permittee shall ensure that inspections are conducted by qualified personnel.

2. **Inspection Scope**

Each inspection shall include:

   a. Observations made at stormwater sampling locations and areas where stormwater associated with industrial activity is discharged off-site; or discharged to waters of the state, or to a storm sewer system that drains to waters of the state.

   b. Observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharge(s).

   c. Observations of the condition of and around stormwater outfalls, including flow dissipation measures to prevent scouring.
   d. Observations for the presence of illicit discharges or other non-permitted discharges such as domestic wastewater, noncontact cooling water, or process wastewater (including leachate).

   e. A verification that the descriptions of potential pollutant sources required under this permit are accurate.

   f. A verification that the site map in the SWMP reflects current conditions.

   g. An assessment of all control measures used to comply with the effluent limits contained in this permit, noting all of the following:

      i) Effectiveness of control measures inspected.
      ii) Locations of control measures that need maintenance or repair.
      iii) Reason maintenance or repair is needed and a schedule for maintenance or repair.
      iv) Locations where additional or different control measures are needed and the rationale for the additional or different control measures.

3. **Inspection Documentation**

The permittee shall document the findings for each inspection in an inspection report or checklist, and keep the record onsite with the facility SWMP. The permittee shall ensure each inspection report documents the observations, verifications and assessments required in Part I.H.2 above, and additionally includes:

   a. The inspection date and time;

   b. Locations inspected;

   c. Weather information and a description of any discharges occurring at the time of the inspection;

   d. A statement that, in the judgment of 1) the person conducting the site inspection, and 2) the person described in Part I.K.6 (Reports and Recordkeeping), the site is either in compliance or out of compliance with the terms and conditions of this permit, with respect to Part I.H.2 (Inspection Scope);

e. A summary report and a schedule of implementation of the corrective actions that the permittee has taken or plans to take if the site inspection indicates that the site is out of compliance;

f. Name, title, and signature of the person conducting site inspection; and the following statement: "I certify that this report is true, accurate, and complete, to the best of my knowledge and belief.";

g. Certification and signature of the person described in Part I.K.6 (Reports and Recordkeeping), or a duly authorized representative of the facility thereof.

4. **Non-Compliance discovered during inspection**

Any corrective action required as a result of a facility inspection must be performed consistent with Part I.J (Corrective Actions) of this permit, and retained with the SWMP.

I. GENERAL MONITORING REQUIREMENTS

All permittees must collect and analyze stormwater samples and document monitoring activities consistent with the procedures described in Part I.I. The results of such monitoring shall be reported on the Discharge Monitoring Report form (see Part I.K – Reporting and Recordkeeping).

1. **Monitored Outfalls**

Applicable monitoring requirements apply to each outfall authorized by this permit.

2. **Representative Sampling**

Samples and measurements taken as required herein shall be representative of the nature of the monitored discharge.

3. **Measurable Storm Events.**

a. Rain event. Permittees must conduct all required monitoring on a storm event that results in an actual discharge from the facility ("measurable storm event"), and that follows the preceding measurable storm event by at least 72 hours (3 days).

b. Snowmelt event. The permittee must conduct snowmelt monitoring at a time when a measurable discharge occurs from the facility.

4. **Storm Event Information**

a. Rain event. The permittee must document the information below for each monitored event. Such documentation is not required for events that do not meet the criteria in Part I.I.4, or that are not monitored to meet the requirements of this permit.

i) The date, time of the start of the discharge, time of sampling, duration (in hours) of the rainfall event, and magnitude (in inches) of the storm event sampled;
ii) The duration between the storm event sampled and the end of the most recent storm event that produced a discharge.

b. Snowmelt monitoring. The permittee must document the date of the sampling event for each monitored snowmelt event.

5. **Sample Type and Requirements**

a. Grab samples shall be used for all monitoring and shall not be combined.

b. Permittees must take a minimum of one grab sample from a discharge resulting from a measurable storm event.

c. Grab samples must be collected within the first 30 minutes of a measurable storm event (see Part I.I.3). If it is not possible to collect the sample within the first 30 minutes of a measurable storm event, the sample must be collected as soon as practicable after the first 30 minutes, and documentation must be kept with the SWMP explaining why it was not possible to take samples within the first 30 minutes.

d. In the case of snowmelt, samples must be taken during a period with a measurable discharge.

e. All discharge samples at a facility must be taken during the same storm event, if feasible.

6. **Analytical Requirements**

All sampling shall be performed by the permittee according to specified methods in 40 CFR Part 136; methods approved by EPA pursuant to 40 CFR Part 136; or methods approved by the Division, in the absence of a method specified in or approved pursuant to 40 CFR Part 136.

a. If the permit contains a numeric effluent limit for a parameter, the analytical method and PQL selected for all monitoring conducted in accordance with this permit for that parameter shall be the one that can measure at or below the numeric effluent limit. If all specified analytical methods and corresponding PQLs are greater than the numeric effluent limit, then the analytical method with the lowest PQL shall be used.

b. If the permit contains a report only requirement for a parameter, the analytical method and PQL chosen shall be one that can measure at or below the benchmark, or water quality standard, or other level approved by the Division. If all analytical methods and corresponding PQLs are greater than the benchmark, or water quality standard, or other level, then the analytical method with the lowest PQL shall be used.

c. If the permit contains an interim effluent limitation (a limit is report until such time as a numeric effluent limit becomes effective) for a parameter, the analytical method and PQL chosen for all monitoring conducted in accordance with this permit for the parameter shall be one that can measure to the final numeric effluent limit. If all analytical methods and corresponding PQLs are greater than the final numeric effluent limit (s), then the analytical method with the lowest PQL shall be used.

d. For parameters such as TIN, the analytical methods chosen shall be those that can measure to the potential or final numeric effluent limit, based on the sum of the PQLs for nitrate, nitrite and ammonia.

e. When the analytical method which complies with the above requirements has a PQL greater than the permit limit, and the permittee's analytical result is less than the PQL, the permittee shall report "BDL" on the DMR. Such reports will not be considered as violations of the permit limit, as long as the lowest available PQL is used for the analysis. When the analytical method which complies with the above requirements has a PQL that is equal to or less than the permit limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR. For parameters that have a report only limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR.

f. In the calculation of average concentrations (i.e. 7- day average, 30-day average, 2-year rolling average) any individual analytical result that is less than the PQL shall be considered to be zero for the calculation purposes. When reporting:

   If all individual analytical results are less than the PQL, the permittee shall report either "BDL" or "<X" (where X = the actual PQL achieved by the laboratory), following the guidance above.

If one or more individual results is greater than the PQL, an average shall be calculated and reported. Note that it does not matter if the final calculated average is greater or less than the PQL, it must be reported as a value.

Note that when calculating T.I.N. for a single sampling event, any value less than the PQL (for total ammonia, total nitrite, or total nitrate) shall be treated as zero. The T.I.N. concentration for a single sampling event shall then be determined as the sum of the analytical results (zeros if applicable) of same day sampling for total ammonia and total nitrite and total nitrate. From these calculated T.I.N. concentrations, the daily maximum and thirty day average concentrations shall be calculated and must be reported as a value.

g. The present lowest PQLs for specific parameters, as determined by the State Laboratory (November 2008) are provided below. If the analytical method cannot achieve a PQL that is less than or equal to the permit limit, then the method, or a more precise method, must achieve a PQL that is less than or equal to the PQL in the Table H-1 below. A listing of the PQLs for organic parameters that must meet the above requirement can be found in the Division's Practical Quantitation Limitation Guidance Document, July 2008.

For nonylphenol, until such time as there is an EPA 40 CFR Part 136 method, the State is approving use of ASTM Methods D7065 and D7485. Until a statewide PQL has been developed, the permittee shall use either the default PQLs listed in the table below, or develop their own site-specific PQL in accordance with the Practical Quantitation Limitation Guidance Document (July 2008) for Organic Parameters. This document is available on the Division's website at www.coloradowaterpermits.com . The delayed effective date for the monitoring requirement allows time for the permittee to develop a site-specific PQL.

These limits apply to the total recoverable or the potentially dissolved fraction of metals.

For hexavalent chromium, samples must be unacidified so dissolved concentrations will be measured rather than potentially dissolved concentrations.

Table H-1. Practical Quantitation Limits (PQLs)

Parameter	PQLs	Parameter	PQLs
Aluminum	50 µg/l	Mercury	0.1 µg/l
Ammonia	1 mg/l	Mercury (low-level)	0.003 µg/l
Arsenic	1 µg/l	Nickel	50 µg/l
Barium	5 µg/l	N-Ammonia	50 µg/l
Beryllium	1 µg/l	N Nitrate/Nitrite	0.5 mg/l
BOD / CBOD	1 mg/l	N-Nitrate	50 µg/l
Boron	50 µg/l	N-Nitrite	10 µg/l
Cadmium	1 µg/l	Total Nitrogen	0.5 mg/l
Calcium	20 µg/l	Phenols	100 µg/l
Chloride	2 mg/l	Phosphorus	10 µg/l
Chlorine	0.1 mg/l	Radium 226	1 pCi/l
Total Residual Chlorine		Radium 228	1 pCi/l
DPD colorimetric	0.10 mg/l	Selenium	1 µg/l
Amperometric titration	0.05 mg/l	Silver	0.5 µg/l
Chromium	20 µg/l	Sodium	0.2 mg/l
Chromium, Hexavalent	20 µg/l	Sulfate	5 mg/l
Copper	5 µg/l	Sulfide	0.2 mg/l
Cyanide (Direct / Distilled)	10 µg/l	Total Dissolved Solids	10 mg/l
Cyanide, WAD+A47	5 µg/l	Total Suspended Solids	10 mg/l
Fluoride	0.1 mg/l	Thallium	1 µg/l
Iron	10 µg/l	Uranium	1 µg/l
Lead	1 µg/l	Zinc	10 µg/l
Magnesium	20 µg/l	Nonylphenol D7065	10 µg/l
Manganese	2 µg/l	Nonylphenol D7485	0.33 µg/l

7. **Adverse Weather Conditions**

When adverse weather conditions prevent sample collection according to the relevant monitoring schedule, the permittee must take a substitute sample during the next qualifying storm event. Adverse conditions are those that are dangerous or create inaccessibility for personnel, such as local flooding, high winds, or electrical storms.

Adverse weather does not exempt the permittee from having to file timely DMRs. The permittee must report any failure to monitor and indicate the basis for not sampling during the usual reporting period.

8. **Monitoring Periods**

Monitoring requirements in this permit begin in the first full month following the permit effective date.

9. **Additional Monitoring**

If the permittee, using an approved analytical method, monitors any parameter more frequently than required by this permit, then the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (DMRs) or other forms as required by the Division. Such increased frequency shall also be indicated.

10. **Monitoring for Allowable Non-Stormwater Discharges**

A permittee is only required to monitor allowable non-stormwater discharges (see Part I.A.2) when they are commingled with stormwater discharges associated with industrial activity.

J. CORRECTIVE ACTIONS

1. **Conditions that must be Eliminated**

If any of the following conditions occur at the permitted facility (as identified by the permittee; the Division; or an EPA official, or local, or State entity), the permittee must review and revise the selection, design, installation, and implementation of facility control measures to ensure that the condition is eliminated and will not be repeated in the future:

a. an unauthorized release or discharge (e.g., spill, leak, or discharge of non-stormwater not authorized by this [see Part I.A] or another permit) occurs;

b. a discharge violates a numeric effluent limit (see Part I.B.3);

c. facility control measures are not stringent enough for the discharge to meet applicable water quality standards;

d. modifications to the facility control measures are necessary to meet the practice-based effluent limits in this permit; or

e. the permittee finds in a facility inspection, that facility control measures are not properly selected, designed, installed, operated or maintained.

2. **Conditions that Require Review and Modification**

If any of the following conditions occur, the permittee must review the selection, design, installation, and implementation of facility control measures to determine the appropriate modifications necessary to attain the effluent limits in this permit:

a. construction or a change in design, operation, or maintenance at the facility significantly changes the nature of pollutants discharged in stormwater from the facility, or significantly increases the quantity of pollutants discharged; or

b. sampling results, as described in Part I.C.2 of this permit, exceeds an applicable benchmark.

3. **Corrective Action Reports and Deadlines**

The permittee must document discovery of any condition listed in Parts I.J.1 and I.J.2 above, within 24 hours and 5 days as described below, submit the documentation in an annual report as required in Part I.K (Reports and Recordkeeping), and retain a copy onsite with the facility SWMP as required in Part I.G (SWMP-Specific SWMP Requirements).

a. **24 hour documentation requirement**:
Within 24 hours of discovery of any condition listed in Parts I.J.1 and I.J.2, the permittee must document the following information:

i) Identification of the condition triggering the need for corrective action review;
ii) Description of the problem identified; and
iii) Date the problem was identified.

b. **Five (5) day documentation requirement:**
Within five (5) days of discovery of any condition listed in Parts I.J.1 and I.J.2, the permittee must document the following information:

i) Summary of corrective action taken or to be taken (or, for triggering events identified in Part I.J.2 where the permittee determines that corrective action is not necessary, the basis for this determination);
ii) Notice of whether SWMP modifications are required as a result of this discovery or corrective action;
iii) Date corrective action initiated; and
iv) Date corrective action completed or expected to be completed.

4. **Control measure modification**

Modification of any control measure as part of the corrective action required by Parts I.J.1 and I.J.2 must be performed consistent with Part I.E (Control Measures) of this permit.

K. REPORTING AND RECORDKEEPING

1. **Routine Reporting of Data- Discharge Monitoring Report**

The permittee shall report the data gathered in compliance with Parts I.B and I.C on a **monthly** basis. Reporting of all data gathered shall comply with the requirements of Part I.I. (General Monitoring Requirements) and Part I.K (Reports and Recordkeeping) of this permit. The permittee shall summarize monitoring results for each month and report on Division approved discharge monitoring report (DMR) forms (EPA form 3320-1).

The permittee must submit these forms either by mail, or by using the Division's Net-DMR service. If mailed, one form shall be mailed to the Division, as indicated below, so that the DMR is received no later than the 28th day of the following month (for example, the DMR for the first calendar quarter must be received by the Division by April 28th). If no discharge occurs during the reporting period, "**No Discharge**" shall be reported on the DMR.

The signed copy of each discharge monitoring report (DMR) shall be submitted to the Division at the following address:

Colorado Department of Public Health and Environment

Water Quality Control Division
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

The Discharge Monitoring Report forms shall be filled out accurately and completely in accordance with requirements of this permit and the instructions on the forms. They shall be signed by an authorized person as identified in Part I.K.6.

2. **Annual Report**

The permittee must submit an annual report to the Division for the reporting period January 1 through December 31. Annual reports must be received by the Division by **February 30** of the following year. The Annual Report shall include:

- Name of permittee, address, phone number
- Permit certification number
- Facility name and physical address
- Contact person name, title, and phone number
- Summary of inspection dates
- Corrective action documentation as required in Part I.J., and status of any outstanding corrective action(s).

The signed copy of each annual report shall be submitted to the Division at the address below, and a copy maintained with the SWMP.

Attn: Annual Report
Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

3. **Additional Reporting**

In addition to the reporting requirements stipulated in this Part, the permittee is also subject to the standard permit reporting provisions of Part II of this permit.

4. **SWMP Records**

The permittee shall retain copies of the facility SWMP, including any modifications made during the term of this permit, documentation related to corrective actions taken, all reports and certifications required by this permit, monitoring data, and records of all data used to complete the application to be covered by this permit, for a period of at least 3 years from the date that coverage under this permit expires or is terminated.

5. **Sampling Records**

The permittee shall establish and maintain records. Those records shall include the following:

a. The date, type, exact location, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) the analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used;
f. The results of such analyses; and
g. Any other observations which may result in an impact on the quality or quantity of the discharge as indicated in 40 CFR 122.44 (i)(1)(iii).

The permittee shall retain for a minimum of three (3) years records of all monitoring information, including all original strip chart recordings for continuous monitoring instrumentation, all calibration and maintenance records, copies of all reports required by this permit and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Division or EPA.

6. **Signatory and Certification Requirements**

a. All reports and other information required by the Division, shall be signed and certified for accuracy by the permittee in accord with the following criteria:

i) In the case of corporations, by a responsible corporate officer. For purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates;

ii) In the case of a partnership, by a general partner;

iii) In the case of a sole proprietorship, by the proprietor;

iv) In the case of a municipal, state, or other public facility, by either a principal executive officer, or ranking elected official. For purposes of this section, a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates;

v) By a duly authorized representative of a person described above, only if:

1) The authorization is made in writing by a person described in i, ii, iii, or iv above;

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and,

3) The written authorization is submitted to the Division.

b. If an authorization as described in this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of this section must be submitted to the Division prior to or together with any reports, information, or applications to be signed by an authorized representative.

The permittee, or the duly authorized representative shall make and sign the following certification on all such documents:

"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 inquiry of the person or persons 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."

L. OTHER TERMS AND CONDITIONS

1. All dischargers must comply with the lawful requirements of counties, drainage districts and other state or local agencies regarding any discharges of stormwater to storm drain systems or other water courses under their jurisdiction.

2. Reporting to Municipality – Any permitted facility discharging to a municipal storm sewer shall provide the municipality with a copy of the permit application, and/or Annual Reports, upon request. A copy of the SWMP shall also be provided to the municipality upon request.

PART II

A. NOTIFICATION REQUIREMENTS

1. **Notification to Parties**

All notification requirements under this section shall be directed as follows:

a. Oral Notifications**,** during normal business hours shall be to:

Water Quality Protection Section - Industrial Compliance Program
Water Quality Control Division
Telephone: (303) 692-3500

b. Written notification shall be to:

Water Quality Protection Section - Industrial Compliance Program
Water Quality Control Division
Colorado Department of Public Health and Environment
WQCD-WQP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

2. **Change in Discharge**

The permittee shall notify the Division, in writing, of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged, or;

b. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported pursuant to an approved land application plan.

The permittee shall give advance notice to the Division of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Whenever notification of any planned physical alterations or additions to the permitted facility is required pursuant to this section, the permittee shall furnish the Division such plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge, the stream, or ground water. If the Division finds that such new or altered discharge might be inconsistent with the conditions of the permit, the Division shall require a new or revised permit application and shall follow the procedures specified in Sections 61.5 through 61.6, and 61.15 of the Colorado Discharge Permit System Regulations.

3. **Special Notifications - Definitions**

a. Bypass: The intentional diversion of waste streams from any portion of a treatment facility.

b. Severe Property Damage: Substantial physical damage to property at the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. It does not mean economic loss caused by delays in production.

c. Upset: An exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not

include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

4. **Noncompliance Notification**

a. If, for any reason, the permittee does not comply with or will be unable to comply with any discharge limitations or standards specified in this permit, the permittee shall, at a minimum, provide the Division with the following information:

i) A description of the discharge and cause of noncompliance;

ii) The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and

iii) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The permittee shall report the following circumstances **orally within twenty-four (24) hours** from the time the permittee becomes aware of the circumstances, and shall mail to the Division a written report containing the information requested in Part II.A.4.a above, **within five (5) working days** after becoming aware of the following circumstances:

i) Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;

ii) Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;

iii) Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit;

iv) Daily maximum violations for any of the pollutants limited by Part I.D.3 of this permit and specified as requiring 24-hour notification. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

c. Unless otherwise indicated in this permit, the permittee shall report instances of non-compliance which are not required to be reported within 24-hours at the time Discharge Monitoring Reports are submitted. The reports shall contain the information listed in sub-paragraph (a) of this section.

5. **Other Notification Requirements**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit shall be submitted no later than fourteen (14) calendar days following each scheduled date, unless otherwise provided by the Division.

The permittee shall notify the Division, in writing, thirty (30) calendar days in advance of a proposed transfer of permit as provided in Part II.B.3.

The permittee's notification of all anticipated noncompliance does not stay any permit condition.

All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Division as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i) One hundred micrograms per liter (100 µg/l);

ii) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2.4-dinitrophenol and 2-methyl-4.6-dinitrophenol; and one milligram per liter (1.0 mg/l) for antimony;

iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Section 61.4(2)(g).

iv) The level established by the Division in accordance with 40 C.F.R. § 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i) Five hundred micrograms per liter (500 µg/l);

ii) One milligram per liter (1 mg/l) for antimony; and

iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application.

iv) The level established by the Division in accordance with 40 C.F.R. § 122.44(f).

6. **Bypass Notification**

If the permittee knows in advance of the need for a bypass, a notice shall be submitted, at least ten (10) calendar days before the date of the bypass, to the Division. The bypass shall be subject to Division approval and limitations imposed by the Division. Violations of requirements imposed by the Division will constitute a violation of this permit.

7. **Upsets**

a. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of paragraph (b) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

b. Conditions Necessary for a Demonstration of Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:

i) An upset occurred and that the permittee can identify the specific cause(s) of the upset; and

ii) The permitted facility was at the time being properly operated and maintained; and

iii) The permittee submitted proper notice of the upset as required in Part II.A.4. of this permit (24-hour notice); and

iv) The permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reason able likelihood of adversely affecting human health or the environment.

In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate

through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

c. Burden of Proof

In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

8. **Discharge Point**

Any discharge to the waters of the State from a point source other than specifically authorized by this permit is prohibited.

9. **Proper Operation and Maintenance**

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee as necessary to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance and adequate laboratory and process controls, including appropriate quality assurance procedures (40 CFR 122.41(e)). This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when necessary to achieve compliance with the conditions of the permit.

10. **Minimization of Adverse Impact**

The permittee shall take all reasonable steps to minimize or prevent any discharge of sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. As necessary, accelerated or additional monitoring to determine the nature and impact of the noncomplying discharge is required.

11. **Removed Substances**

Solids, sludges, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed in accordance with applicable state and federal regulations.

For all domestic wastewater treatment works, at industrial facilities, the permittee shall dispose of sludge in accordance with all State and Federal regulations.

12. **Submission of Incorrect or Incomplete Information**

Where the permittee failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or report to the Division, the permittee shall promptly submit the relevant information which was not submitted or any additional information needed to correct any erroneous information previously submitted.

13. **Bypass**

a. Bypasses are prohibited and the Division may take enforcement action against the permittee for bypass, unless:

i) The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

ii) There were no feasible alternatives to bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

iii) Proper notices were submitted in compliance with Part II.A.4.

b. "Severe property damage" as used in this Subsection means substantial physical damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

c. The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance or to assure optimal operation. These bypasses are not subject to the provisions of paragraph (a) above.

d. The Division may approve an anticipated bypass, after considering adverse effects, if the Division determines that the bypass will meet the conditions specified in paragraph (a) above.

14. **Reduction, Loss, or Failure of Treatment Facility**

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production, control sources of wastewater, or all discharges, until the facility is restored or an alternative method of treatment is provided. This provision also applies to power failures, unless an alternative power source sufficient to operate the wastewater control facilities is provided.

It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

B. RESPONSIBILITIES

1. **Inspections and Right to Entry**

The permittee shall allow the Division and/or the authorized representative, upon the presentation of credentials:

a. To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and

c. To enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect and/or investigate, any actual, suspected, or potential source of water pollution, or to ascertain compliance or non compliance with the Colorado Water Quality Control Act or any other applicable state or federal statute or regulation or any order promulgated by the Division. The investigation may include, but is not limited to, the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing of any person having knowledge related to the discharge permit or alleged violation, access to any and all facilities or areas within the permittee's premises that may have any effect on the discharge, permit, or alleged violation. Such entry is also authorized for the purpose of inspecting and copying records required to be kept concerning any effluent source.

d. The permittee shall provide access to the Division to sample the discharge at a point after the final treatment process but prior to the discharge mixing with state waters upon presentation of proper credentials.

In the making of such inspections, investigations, and determinations, the Division, insofar as practicable, may designate as its authorized representatives any qualified personnel of the Department of Agriculture. The Division may also request assistance from any other state or local agency or institution.

2. **Duty to Provide Information**

The permittee shall furnish to the Division, within a reasonable time, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Division, upon request, copies of records required to be kept by this permit.

3. **Transfer of Ownership or Control**

a. Except as provided in paragraph b. of this section, a permit may be transferred by a permittee only if the permit has been modified or revoked and reissued as provided in Section 61.8(8) of the Colorado Discharge Permit System Regulations, to identify the new permittee and to incorporate such other requirements as may be necessary under the Federal Act.

b. A permit may be automatically transferred to a new permittee if:

i) The current permittee notifies the Division in writing 30 days in advance of the proposed transfer date; and

ii) The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them; and

iii) The Division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue the permit.

iv) Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15, have been met.

4. **Availability of Reports**

Except for data determined to be confidential under Section 308 of the Federal Clean Water Act and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.5(4), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division and the Environmental Protection Agency.

The name and address of the permit applicant(s) and permittee(s), permit applications, permits and effluent data shall not be considered confidential. Knowingly making false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Clean Water Act, and Section 25-8-610 C.R.S.

5. **Modification, Suspension, Revocation, or Termination of Permits By the Division**

The filing of a request by the permittee for a permit modification, revocation and reissuance, termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

a. A permit may be modified, suspended, or terminated in whole or in part during its term for reasons determined by the Division including, but not limited to, the following:

i) Violation of any terms or conditions of the permit;

ii) Obtaining a permit by misrepresentation or failing to disclose any fact which is material to the granting or denial of a permit or to the establishment of terms or conditions of the permit; or

iii) Materially false or inaccurate statements or information in the permit application or the permit.

iv) A determination that the permitted activity endangers human health or the classified or existing uses of state waters and can only be regulated to acceptable levels by permit modifications or termination.

b. A permit may be modified in whole or in part for the following causes, provided that such modification complies with the provisions of Section 61.10 of the Colorado Discharge Permit System Regulations:

i) There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

ii) The Division has received new information which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of different permit conditions at the time of issuance. For permits issued to new sources or new dischargers, this cause includes information derived from effluent testing required under Section 61.4(7)(e) of the Colorado Discharge Permit System Regulations. This provision allows a modification of the permit to include conditions that are less stringent than the existing permit only to the extent allowed under Section 61.10 of the Colorado Discharge Permit System Regulations.

iii) The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. Permits may be modified during their terms for this cause only as follows:

(A) The permit condition requested to be modified was based on a promulgated effluent limitation guideline, EPA approved water quality standard, or an effluent limitation set forth in 5 CCR 1002-62, § 62 et seq.; and

(B) EPA has revised, withdrawn, or modified that portion of the regulation or effluent limitation guideline on which the permit condition was based, or has approved a Commission action with respect to the water quality standard or effluent limitation on which the permit condition was based; and

(C) The permittee requests modification after the notice of final action by which the EPA effluent limitation guideline, water quality standard, or effluent limitation is revised, withdrawn, or modified; or

(D) For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations or effluent limitation guidelines, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the permittee in accordance with this Regulation, within ninety (90) days of judicial remand.

iv) The Division determines that good cause exists to modify a permit condition because of events over which the permittee has no control and for which there is no reasonable available remedy.

v) The permittee has received a variance.

vi) When required to incorporate applicable toxic effluent limitation or standards adopted pursuant to § 307(a) of the Federal act.

vii) When required by the reopener conditions in the permit.

viii) As necessary under 40 C.F.R. 403.8(e), to include a compliance schedule for the development of a pretreatment program.

ix) When the level of discharge of any pollutant which is not limited in the permit exceeds the level which can be achieved by the technology-based treatment requirements appropriate to the permittee under Section 61.8(2) of the Colorado Discharge Permit System Regulations.

x) To establish a pollutant notification level required in Section 61.8(5) of the Colorado Discharge Permit System Regulations.

xi) To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions, to the extent allowed in Section 61.10 of the Colorado State Discharge Permit System Regulations.

xii) When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

xiii) For any other cause provided in Section 61.10 of the Colorado Discharge Permit System Regulations.

c. At the request of a permittee, the Division may modify or terminate a permit and issue a new permit if the following conditions are met:

i) The Regional Administrator has been notified of the proposed modification or termination and does not object in writing within thirty (30) days of receipt of notification,

ii) The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes and regulations for such modifications or termination;

iii) Requirements of Section 61.15 of the Colorado Discharge Permit System Regulations have been met, and

iv) Requirements of public notice have been met.

d. Permit modification (except for minor modifications), termination or revocation and reissuance actions shall be subject to the requirements of Sections 61.5(2), 61.5(3), 61.6, 61.7 and 61.15 of the Colorado Discharge Permit System Regulations. The Division shall act on a permit modification request, other than minor modification requests, within 180 days of receipt thereof. Except for minor modifications, the terms of the existing permit govern and are enforceable until the newly issued permit is formally modified or revoked and reissued following public notice.

e. Upon consent by the permittee, the Division may make minor permit modifications without following the requirements of Sections 61.5(2), 61.5(3), 61.7, and 61.15 of the Colorado Discharge Permit System Regulations. Minor modifications to permits are limited to:

i) Correcting typographical errors; or

ii) Increasing the frequency of monitoring or reporting by the permittee; or

iii) Changing an interim date in a schedule of compliance, provided the new date of compliance is not more than 120 days after the date specific in the existing permit and does not interfere with attainment of the final compliance date requirement; or

iv) Allowing for a transfer in ownership or operational control of a facility where the Division determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees has been submitted to the Division; or

v) Changing the construction schedule for a discharger which is a new source, but no such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge; or

vi) Deleting a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits.

f. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term.

g. The filing of a request by the permittee for a permit modification, revocation and reissuance or termination does not stay any permit condition.

h. All permit modifications and reissuances are subject to the antibacksliding provisions set forth in 61.10(e) through (g).

6. **Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the Clean Water Act.

7. **State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority granted by Section 510 of the Clean Water Act. Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

8. **Permit Violations**

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Except as provided in Parts I.H and K and Part II.A or B, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance (40 CFR 122.41(a)(1)).

9. **Property Rights**

The issuance of this permit does not convey any property or water rights in either real or personal property, or stream flows, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. **Severability**

The provisions of this permit are severable. If any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

11. **Renewal Application**

If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least one hundred eighty (180) days before this permit expires. If the permittee anticipates there will be no discharge after the expiration date of this permit, the Division should be promptly notified so that it can terminate the permit in accordance with Part II.B.5.

12. **Confidentiality**

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any

member, officer, or employee of the Commission or the Division, but shall be kept confidential. Any person seeking to invoke the protection of this Subsection (12) shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

13. **Fees**

The permittee is required to submit payment of an annual fee as set forth in the 2005 amendments to the Water Quality Control Act. Section 25-8-502 (l) (b), and the Colorado Discharge Permit System Regulations 5 CCR l002-61, Section 61.l5 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-60l et. seq., C.R.S. l973 as amended.

14. **Duration of Permit**

The duration of a permit shall be for a fixed term and shall not exceed five (5) years. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications.

15. **Section 307 Toxics**

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established by regulation pursuant to Section 307 of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the Division shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition.

16. **Effect of Permit Issuance**

a. The issuance of a permit does not convey any property rights or any exclusive privilege.

b. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.

c. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Federal act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Federal act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations.

d. Compliance with a permit condition which implements a particular standard for sewage sludge use or disposal shall be an affirmative defense in any enforcement action brought for a violation of that standard for sewage sludge use or disposal.

Appendix A. Definitions and Abbreviations

Best Management Practices (BMPs) – schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to state waters. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. See 5 CCR 1002-61.2(9).

Co-located Industrial Activities – Any industrial activities, excluding the primary industrial activity(ies), located on-site that are defined by the stormwater regulations at 5 CCR 1002-61.3(2). An activity at a facility is not considered co-located if the activity, when considered separately, does not meet the description of a category of industrial activity covered by the stormwater regulations or identified by the SIC code list in Appendix A.

Continuous measurement – a measurement obtained from an automatic recording device which continually measures the effluent for the parameter in question, or that provides measurements at specified intervals.

Control Measure – refers to any BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the state.

Daily Maximum limitation – for all parameters except temperature, means the limitation for this parameter shall be applied as an instantaneous maximum (or, for pH or DO, instantaneous minimum) value. The instantaneous value is defined as the analytical result of any individual sample. DMRs shall include the maximum (and/or minimum) of all instantaneous values within the calendar month. Any instantaneous value beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit.
Discharge – when used without qualification, means the "discharge of a pollutant." See 5 CCR 1002-61.2(22).

Discharge of a pollutant – the introduction or addition of a pollutant into state waters. See 25-8-103(3) C.R.S.

Good Engineering, Hydrologic and Pollution Control Practices – methods, procedures, and practices that a) are based on basic scientific fact(s); b) reflect best industry practices and standards; c) are appropriate for the conditions and pollutant sources; and d) provide appropriate solutions to meet the associated permit requirements, including all effluent limitations.

Grab sample – a single "dip and take" sample so as to be representative of the parameter being monitored.

Industrial Activity – the 10 categories of industrial activities included in the definition of "stormwater discharges associated with industrial activity" as defined in 5 CCR 1002-61.3(2).

Industrial Stormwater – stormwater runoff from industrial activity.

Instantaneous measurement – a single reading, observation, or measurement performed on site using existing monitoring facilities.

Material handling activities – the storage, loading and unloading, transportation, disposal, or conveyance of any raw material, intermediate product, final product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas.

Measurable storm event – a storm event that results in an actual discharge from the facility.

Minimize – reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practice.

New Discharger – means any building, structure, facility, or installation from which there is or may be a discharge of pollutants that did not commence at the particular site before August 13, 1979, that is not a new source, and that has never received a final effective permit for discharges at the site. See 5 CCR 1002-61.2(65).

Operator – any entity with a stormwater discharge associated with industrial activity that meets either of the following two criteria:
(i) The entity has operational control over industrial activities, including the ability to modify those activities; or
(ii) The entity has day-to-day operational control of activities at a facility necessary to ensure compliance with the permit (e.g., the entity is authorized to direct workers at a facility to carry out activities required by the permit).

Person – an individual, corporation, partnership, association, state or political subdivision thereof, federal agency, state agency, municipality, Commission, or interstate body. See 5 CCR 1002-61.2(73).

Point source – any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. "Point Source" does not include irrigation return flow. See 5 CCR 1002-61.2(75).

Pollutant – dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste. See 5 CCR 1002-61.2(76).

Potentially dissolved (PD) metals fraction – defined in the Basic Standards and Methodologies for Surface Water 1002-31, as that portion of a constituent measured from the filtrate of a water and suspended sediment sample that was first treated with nitric acid to a pH of 2 or less and let stand for 8 to 96 hours prior to sample filtration using a 0.40 or 0.45-UM (micron) membrane filter. Note the "potentially dissolved" method cannot be used where nitric acid will interfere with the analytical procedure used for the constituent measured.

Practical Quantitation Limit (PQL) – the minimum concentration of an analyte (substance) that can be measured with a high degree of confidence that the analyte is present at or above that concentration. The use of PQL in this document may refer to those PQLs shown in Part I.D of this permit or the PQLs of an individual laboratory.

Primary industrial activity – includes any activities performed on-site which are (1) identified by the facility's primary SIC code; or (2) included in the narrative descriptions of 5 CCR 1002-61.3(2). [For co-located activities covered by multiple SIC codes, it is recommended that the primary industrial determination be based on the value of receipts or revenues or, if such information is not available for a particular facility, the number of employees or production rate for each process may be compared. The operation that generates the most revenue or employs the most personnel is the operation in which the facility is primarily engaged. In situations where the vast majority of on-site activity falls within one SIC code, that activity may be the primary industrial activity.]

Qualified Personnel – Qualified personnel are those who possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at a facility, and who can also evaluate the effectiveness of control measures.

Quarterly measurement frequency – samples may be collected at any time during the calendar quarter if a continual discharge occurs. If the discharge is intermittent, then samples shall be collected during the period that discharge occurs.

Significant materials – includes, but is not limited to raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA as amended by SARA (1986); any chemical the facility is required to report pursuant to Section 313 of Title III of SARA (1986); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges. See 5 CCR 1002-61.2(76).
Significant spills and leaks – include, but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable under CWA Section 311 (see 40 CFR 110.6 and 40 CFR 117.21) or Section 102 of the

Comprehensive Environment al Response, Compensation and Liability Act (CERCLA), 42 USC §9602. This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302 relating to spills or other releases of oils or hazardous substances.

Stormwater – stormwater runoff, snow melt runoff, and surface runoff and drainage. See 5 CCR 1002-61.2(103).

Stormwater Discharges Associated with Industrial Activity – the discharge from any conveyance that is used for collecting and conveying stormwater and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. Except for the provision of 61.3(2)(c) that addresses construction activities associated with oil and gas operations or facilities, the term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR Part 122 or the CDPS program under Regulation No. 61.

For the categories of industries identified in this permit, the term includes, but is not limited to, stormwater discharges from industrial plant yards; 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; material handling sites; refuse sites; sites used for the application or disposal of process waste waters); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. See 5 CCR 1002-61.3(2)(e).

Total Inorganic Nitrogen (T.I.N.) – an aggregate parameter determined based on ammonia, nitrate and nitrite concentrations. To determine T.I.N. concentrations, the facility must monitor for total ammonia and total nitrate plus nitrite (or nitrate and nitrite individually) on the same days. The calculated T.I.N. concentrations in mg/L shall then be determined as the sum of the analytical results of same-day sampling for total ammonia (as N) in mg/L, and total nitrate plus nitrite (as N) in mg/L (or nitrate as N and nitrite as N individually). From these calculated T.I.N. concentrations, the daily maximum and thirty (30) day average concentrations for T.I.N. shall be determined in the same manner as set out in the definitions for the daily maximum and thirty (30) day average. (See the "Analytical and Sampling Methods for Monitoring and Reporting Section in Part I.I.6 for guidance on calculating averages and reporting analytical results that are less than the PQL).

Total Maximum Daily Loads (TMDLs) – A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes wasteload allocations (WLAs) for point source discharges; load allocations (LAs) for nonpoint sources and/or natural background, and must include a margin of safety (MOS) and account for seasonal variations. (See section 303(d) of the Clean Water Act and 40 CFR 130.2 and 130.7).

Total Metals – the concentration of metals determined on an unfiltered sample following vigorous digestion (Section 4.1.3), or the sum of the concentrations of metals in both the dissolved and suspended fractions, as described in Manual of Methods for Chemical Analysis of Water and Wastes, U.S. Environmental Protection Agency, March 1979, or its equivalent.

Total Recoverable Metals – that portion of a water and suspended sediment sample measured by the total recoverable analytical procedure described in Methods for Chemical Analysis of Water and Wastes, U.S. Environmental Protection Agency, March 1979 or its equivalent.

Twice Monthly monitoring frequency – two samples shall be collected each calendar month on separate weeks with at least one full week between the two sample dates. Also, there shall be at least one full week between the second sample of a month and the first sample of the following month.

Water Quality Standards – means a narrative and/or numeric restriction established by the Commission applied to state surface waters to protect one or more beneficial uses of such waters. Whenever only numeric or only narrative standards are intended, the wording shall specifically designate which is intended. See 5 CCR 1002- 31.5(37).

Water Quality Control Division or Division – the state Water Quality Control Division as established in 25-8-101 et al.)

ABBREVIATIONS

BMP – Best Management Practice
CDPS – Colorado Discharge Permit System
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq*)
DMR – Discharge Monitoring Report
EPA – U. S. Environmental Protection Agency
NPDES – National Pollutant Discharge Elimination System (change to)
SARA – Superfund Amendments and Reauthorization Act
SIC – Standard Industrial Classification
SPCC – Spill Prevention, Control, and Countermeasures
SWMP – Stormwater Management Plan
TMDL – Total Maximum Daily Load

Appendix E
Pre-Inspection Records Request
Completed by Suncor June 3, 2021

Suncor Energy (USA) Inc.
NPDES Permit No. COS000009 (Industrial Stormwater)
Records Request

Part I.F & I.G – Stormwater Management Plan (SWMP)

- SWMP (most current version) 4/27/2021 (Document provided)
- SWMP Map (incorporated in SWMP)
- SWMP Modification Log (Part I.K.4) (incorporated in SWMP)

Part I.I.4 – Storm Event Information

- Rain Events
  - Permit-Required Details for each Qualifying Storm Event Monitored in 2018, 2019, 2020
    5/3/18 (021A) (Documents provided)

    3/20/20 (004A) (Documents provided)

- Snowmelt Monitoring Events
  - Permit-Required Details for each Monitored Snowmelt Events Monitored in 2018, 2019, 2020

Part I.J – Corrective Actions

- Corrective Action Reports
  Summarized in Annual Reports

  - In Response to Numeric Effluent Limitation Exceedances In Response to Site Specific Benchmark Exceedances
    Storm Event 5/13/18

  - In Response to Monthly Facility Inspections
    8/20/18, 9/19/18, 6/7/19, 9/9/19

  - Corrective Actions Associated with Maintaining Control Measures (Part I.E.2.c)
    Magellan pipeline 12/24/20

  - Associated 24-hour and 5-day Documentation Associated with Each Corrective Action

Part I.K.2 – Annuals Reports

- Annual Reports *(Documents provided)*
  - 2018, 2019, 2020

Part I.B.2.h – Employee Training

- List of Key Facility Personnel Responsible for Permit Compliance Activities

Name	Title
Brian Lily	Team Manager
Roger Bain	Chemist
Jennifer Stapp	Analytical Chemist
Christopher Mack	Area Superintendent
Shane Suleyman	Env Operator Trainee
Alvino Townsend	Lab Tech – Env Specialist
Nick Shelton	Lap Tech – Env Specialist
Tyler Blessing	Contractor-Project Site Solutions
Cathleen Drake	Contractor-Project Site Solutions
Kirk Leon	Contractor-Project Site Solutions
Scott Gillette	Contractor-Project Site Solutions

- List of Contractors, Consultants, and Third-Party Laboratories Supporting Permit Compliance Activities
  Project Site Solutions (PSS)

  Suncor

- Annual Training Records for Facility Staff
  - 2018, 2019, 2020 (Documents Provided)

Part I.B.3 – Numeric Effluent Limitation Monitoring

- Numeric Effluent Limitation Monitoring Records for Outfalls 004A, 023A, 024A, 025A, 026A, 027A, 028A for all Monitored Discharge Events in 2018, 2019, and 2020
  - Chain of Custodies *Documents Provided*
  - Permit-Required Sampling Records Including Analytical Results and Average Calculations *Documents Provided*
  - Monthly DMRs *Documents Provided*
  - Additional Monitoring Event Results Reported in DMRs

Part I.C.1 – Quarterly Visual Monitoring

Quarterly Visual Monitoring Reports for Outfalls 004A, 021A, 022A, 023A, 024A, 025A, 026A, 027A, 028A for all Monitored Discharge Events in 2018, 2019, and 2020

- Q1-Q4 for 2018, 2019, 2020 Documents Provided

2018	2019	2020
3/28/18 (021A) 7/23/18 (021A) 8/20/18 (021A) 9/5/18 (021A)	1/11/19 (021A) 3/7/19 (021A) 4/11/19 (021A) 7/2/19 (022A)	2/11/20 (021A) 5/15/20 (021A) 11/24/20 (021A)

Part I.C.2 – Site Specific Benchmark Monitoring

Same information provided for Part I.B.3 – Numeric Effluent Limitation

- Site Specific Benchmark Monitoring Records for Outfalls 004A, 023A, 024A, 025A, 026A, 027A, 028A for all Monitored Discharge Events in 2018, 2019, and 2020
    - Chain of Custodies
    - Permit-Required Sampling Records Including Analytical Results and Average Calculations
    - Monthly DMRs
    - Additional Monitoring Event Results Reported in DMRs

Part I.H – Inspections

- Monthly Facility Inspection Reports for 2018, 2019, and 2020 *(Documents provided)*
- List of Qualified Personnel Responsible for Monthly Facility Inspections, including Documentation of Training/Experience Demonstrating the Individual Conducting the Inspection is a Qualified Personnel
    - *Contractor-Project Site Solutions -Tyler Blessing, Cathleen Drake, Kirk Leon, Scott Gillette (Training received annually as part of contractor re-certification to work on-site.) (Training module Document provided.)*
    - *Suncor-Eric Marler (Annual SWMP training, Suncor Stormwater Coordinator) (Training content Document provided)*

Part II.A – Notification Requirements

- Change In Discharge Notifications Made in 2018, 2019, and 2020 *Not Applicable*
- Special Notifications Made in 2018, 2019, and 2020 *Not Applicable*
- Noncompliance Notifications Made in 2018, 2019, and 2020 *Not Applicable*
- Other Notifications Made in 2018, 2019, and 2020 *Not Applicable*
- Bypass and Upset Notifications Made in 2018, 2019, and 2020 *Not Applicable*

Other

- Permit renewal/reissuance records 5/4/17, Document(s) provided
- Spill records SWMP Table Spill History, Document(s) provided

<u>NOTE:</u> This is a list of documentation that is typically requested at the time of inspection. Your permit may have special reporting provisions specific to your facility or facilities; those records may not be included on this list but should be available at the time of the onsite inspection.

Appendix F
Golder Associates – Containment and Drainage Analysis Technical Memorandum to Suncor (dated August 16, 2014)

TECHNICAL MEMORANDUM

Date:	August 16, 2014	**Made by:**	Rachel Williams
Project No.:	130-1742	**Checked by:**	Kati Petersburg
Subject:	Containment and Drainage Analysis	**Reviewed by:**	Paul Pigeon
Project Short Title:	Suncor Commerce City Refinery SPCC		

1.0 INTRODUCTION

Suncor Energy Commerce City Refinery (Refinery) requested a facility-wide drainage analysis of the Refinery, prompted by the update of their Spill Prevention, Control, and Countermeasure (SPCC) Plan. This technical memo summarizes Golder's drainage analysis effort, which includes:

- Definition of drainage basin boundaries and flow direction of surface drainage at the Refinery.
- Analysis of storage tank secondary containment areas and their capacity required to meet SPCC regulations.
- Analysis of tertiary containment areas for storage tanks and their capacity required to meet SPCC regulations.
- Summary of drainage in transfer areas including truck and rail loading and unloading areas.
- Recommendations for berm modifications to meet capacity requirements.

2.0 BACKGROUND

The Refinery is composed of three plants, each of which includes process areas for production, tank farms for storage, and loading/unloading zones for trucks and rail cars. Plant 1 is located to the northwest of Brighton Blvd., and south of Sand Creek and Highway 270. It occupies approximately 148 acres. Plant 2, approximately 30 acres, is located southeast of Brighton Blvd. and south of Sand Creek and Highway 270. Plant 3 occupies approximately 40 acres to the southeast of Plant 2 and west of Sand Creek.

The SPCC rule (40 Code of Federal Regulations 112) requires the Refinery to prepare a contingency plan for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The Refinery utilizes earthen and concrete berms around tanks as secondary containment to contain spills. Under the SPCC regulations, each secondary containment area must be able to contain the volume of the largest tank in each containment area, as well as sufficient freeboard for a precipitation event. The recommended precipitation event is the 25-year frequency, 24-hour duration storm event.

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Previous studies were completed for the Refinery that overlap in scope with this study and were used as background for this analysis. All of these reports, with the exception of Jacobs Engineering (2003), were used as reference to understand the stormwater sewer (SWS) and oily water sewer (OWS) systems, and the existing berm structure. The Jacobs Engineering (2003) study was used to verify the results of the containment analysis in Plant 1. These studies include:

- Tetra Tech (2013). Final Report: Oily Wastewater Sewer and Stormwater Sewer Systems Study.

  The Tetra Tech study addressed the configuration of the OWS and SWS systems for the three plants. The systems were mapped and inventoried for physical dimensions and piping connectivity. The existing sewer systems were evaluated for compliance with New Source Performance Standard (NSPS) Subpart QQQ. Recommendations were made to achieve compliance with NSPS Subpart QQQ.

- Terracon (2011). Geotechnical Engineering Report for Suncor OMD Tank Berm Study.

  This study addressed groundwater conditions at the berms and geotechnical engineering criteria for the berms at all three plants. Samples of berm material and subgrade material were taken and evaluated for their potential to limit seepage of an oil spill to groundwater. Terracon made recommendations to improve the performance of existing berms and for construction of new berms in terms of recommended soil type, compaction, and erosion resistance.

- CH2M Hill (2011). Report of Survey: Suncor Energy OMD 2 & 3 Tank Dyke Study.

  CH2M Hill used high resolution scanning to create a model of OMD 2 and 3 including topographic information, pipe features, steel, tanks, and foundations. Modeling was performed in the Refinery local coordinate system.

- CH2M Hill (2007). Final Report: Suncor Energy Commerce City Facility Wastewater/Stormwater Collection System Enhancements.

  CH2M Hill studied drainage conveyance and the performance of OWS and SWS systems for all three plants. They determined that the OWS and SWS systems are not separate, they are treating substantial runoff generated offsite, and wet-weather flows are much higher than the design dry weather flow. They made recommendations to mitigate these problems and reduce the amount of water requiring treatment in the wastewater treatment plant.

- Jacobs Engineering (2003). Containment Study for ConocoPhilips Denver Refinery Revision B.

  This study was performed to analyze Plant 1 compliance with SPCC regulations, NFPA 30, and NFPA 11, and to estimate the cost of improvements to bring secondary containments into compliance. A 25-year frequency, 24-hour duration storm was considered. At the time of the study, Plant 1 was owned by ConocoPhilips. They found 9 of 20 existing containments in Plant 1 to be compliant and made recommendations for improving the inadequate berms. The 2003 compliance results were used to verify the results of this current analysis for Plant 1.

3.0 METHODOLOGY

This section includes a discussion of the methodology used in Golder's drainage analysis.

3.1 Drainage Basins

Golder used existing topographic mapping, provided by Suncor, to estimate high and low points within Plants 1, 2, and 3 of the Refinery and to define overall drainage basin boundaries within the Refinery. Drainage basin boundaries were confirmed by field visits to the site. Off-site topography was not available, and was therefore not considered in drawing the drainage basin boundaries. The analysis assumed that the existing topographic mapping is reliable for identifying general high and low boundaries in the plant areas. The Refinery is developing a facility-wide updated topographic map of the site based on high-resolution scanning; however, that topographic mapping was not complete for this study. Drainage basin boundaries used should be confirmed following the updated topographic mapping, and revisions to the drainage basins should be incorporated in future SPCC updates, if warranted.

3.2 Secondary Containment Areas

A two-part analysis was used to determine if secondary containment areas for the tanks are sufficient to meet current SPCC regulations. First, the required containment volume that must be stored was calculated and then the available capacity was calculated. SPCC regulations require that hydrocarbon storage containers have a secondary means of containment for the entire capacity of the largest single container, plus freeboard for precipitation, or sufficient drainage improvements that cause discharges to terminate and be confined in a basin or holding pond. To account for containment capacity displaced by existing tanks in the containment area, the capacity of the diked area enclosing more than one tank was calculated after deducting the displaced volume of the tanks, other than the largest single tank.

To calculate required containment volume, the volume of surface water runoff within each containment area was determined utilizing National Oceanic and Atmospheric Administration (NOAA) Atlas (2013) precipitation storm depths for the 25-year frequency, 24-hour duration storm in Commerce City, Colorado. The tank volume of the largest tank within each containment area was added to the 25-year frequency, 24-hour stormwater depth. Tank volumes were collected from the current Suncor database of storage tank data. Table 1 shows the precipitation depths for the 25-year, 24-hour storm and the 100-year, 24-hour storm. The 25-year storm must be contained in the event of an oil spill to meet current SPCC regulations, and the 100-year storm was analyzed for improved understanding of containment capacity.

Table 1: Precipitation Depths for Commerce City, CO (NOAA, 2013)

Storm	Precipitation Depth (inches)
25-Year, 24-Hour	3.60
100-Year, 24-Hour	4.75

Note: Secondary containment of storage tanks must meet the 25-year, 24-hour storm per SPCC regulations.

Second, the total storage capacity of each containment area was calculated. Golder modeled the containment capacity with Civil3D (2013) using a combination of existing and updated topographic information. Some of the berms within the site have eroded over time; consequently, the existing topographic information did not reflect real time conditions. In some areas, the topographic information was not of sufficient detail to describe the berm topography for calculating storage capacity. The berms with substantial erosion or topographical data gaps were identified for targeted surveying by Golder with a Global Positioning System (GPS) receiver. The GPS data was collected with Trimble R6 receivers with horizontal precision of 3-mm and vertical precision of 3.5-mm. Golder supplemented existing topographic mapping with the new GPS data to model existing containment area volumes.

To model the containment capacity, the lowest point along the berm was identified as the maximum height of containment. The difference between the artificial water surface elevation and the base topography is the total containment volume. Per regulations, the largest tank is considered active containment and is included in the total containment volume. The volume of the smaller tanks is displaced and therefore subtracted from the containment volume. When adjacent containments are hydraulically connected, the adjacent storage capacity is added to the total capacity. Adjacent containments are considered hydraulically connected when the lowest point in the containment berm causes overflow into an adjacent bermed area.

Available containment capacities greater than required storage volumes are sufficient to meet SPCC requirements. Assumptions for the secondary containment area analysis include:

- No evaporation or infiltration occurs in the secondary-containment areas.
- Existing topographic mapping, supplemented by recently obtained GPS data, is accurate.
- Low internal berms within containment areas do not act as containment.
- Pipe and equipment inside the bermed areas do not reduce or increase the overall containment capacity.
- Berms that have been removed for pipe or other maintenance will be re-constructed to the height of the surrounding berms.

3.3 Tertiary Containment Analysis

Six tertiary containment areas are located throughout the Suncor property, and also function as stormwater containment. Analysis of the tertiary containment areas was consistent with the procedure used for secondary containment. The required containment volume for the tertiary ponds was defined as the largest overflow from the secondary containment areas contributing to it plus the volume of stormwater generated by the 25-year, 24-hour storm in the contributing drainage basin. Within each tertiary containment area, only the stormwater that falls into the secondary containment area with the largest overflow was counted toward the required containment volume, since the other secondary containment areas are assumed to remain intact.

The tertiary containment capacity of each area was evaluated applying the same method as the secondary containment areas. The capacity was modeled in Civil3D using a variety of topographic and surveyed measurements. In the model, the lowest point along the berm or wall was identified as the maximum height of containment. An artificial water surface was created by adding a surface at this elevation in Civil3D that covered the extents of the tertiary containment area. The difference between the artificial water surface and the base topography of the tertiary containment area is the total containment volume.

Available containment capacities greater than required storage volumes are needed to sufficiently contain spilled oil on Suncor property. Assumptions for the tertiary containment area analysis include:

- Existing topographic mapping, supplemented by recently obtained GPS data, is accurate.
- In some cases, the pond depths represented in the base topography are less than the existing pond depth. In this situation, the actual depth could not be determined from design documents or field measurement, so the base topography was assumed to represent the actual available depth.
- The 25-year frequency, 24-hour duration storm in Commerce City, Colorado is 3.60 inches (NOAA, 2013).
- All stormwater goes to the tertiary containment areas.
- There is no pumping of the tertiary ponds.
- There is no initial abstraction of the stormwater volume.

3.4 Berm Height Recommendations

As part of this scope of work, Golder performed an evaluation of possible berm modifications needed to meet secondary containment capacity requirements for those areas that do not currently meet regulation. The evaluation is considered to be a preliminary analysis to guide decision making and not a full design. The methodology used for this analysis is the same as the technique used to calculate the volume of existing secondary and tertiary containment areas. An iterative approach was used to determine how high a berm must be raised to contain the largest tank volume and 25-yr, 24-hr storm volume. The evaluation also considered the option of hydraulically connecting adjacent containment areas.

Some additional assumptions were made in the analysis to simplify the calculations:

- Additional berm height is assumed to be a straight wall with zero width. Figure 1 below demonstrates this assumption, where the alternative is to do a detailed design of the additional berm height so that the new profile matches with the existing berm.
- A proposed hydraulic connection between secondary containment areas does not take up any volume in the respective areas.

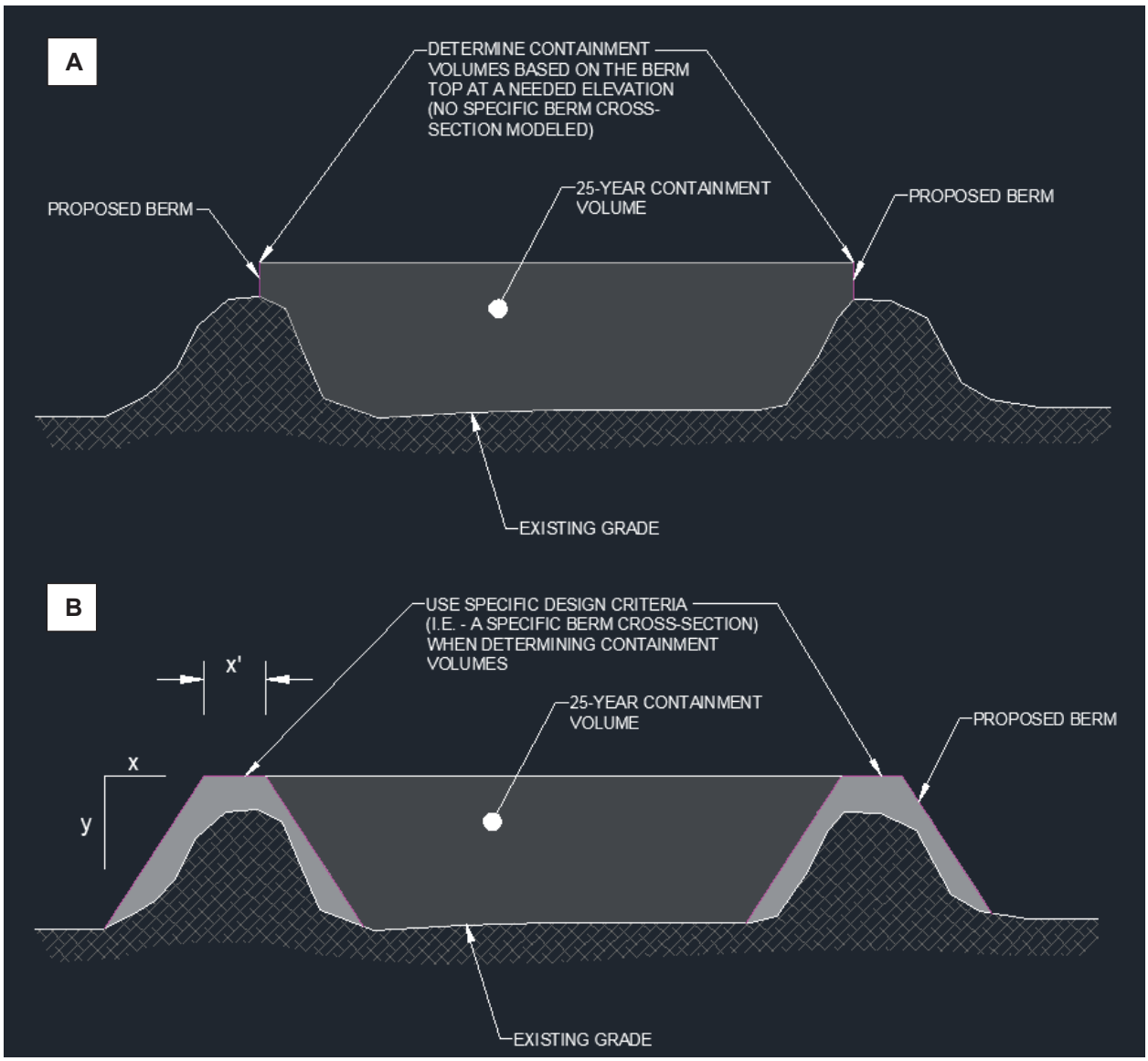

Figure 1: Assumption for structure of additional berm elevation; A: Simplified method used for this analysis, B: Alternative method for detailed design analysis.

3.5 Transfer Areas Drainage Analysis

Transfer areas include truck and rail loading and unloading areas. The drainage of spills and stormwater runoff in the transfer areas was summarized for Plants 1, 2, and 3. A GPS Trimble R6 receiver was used to collect topography data of these areas and associated stormwater inlets. The GPS data and field visits were used to identify primary drainage routes including the ultimate destination through storm drains and routes of overflow from storm drains.

4.0 RESULTS & RECOMMENDATIONS

Results for the analysis are presented in the appendices. The drainage basin boundaries at the Refinery are shown on the map included in Drawing 005-CV-D-002. Drawing 005-CV-D-001 displays the

secondary containment areas and Drawing 005-CV-D-006 summarizes the tertiary containment ponds. The loading and unloading zone drainage analysis is summarized in text and figures in Attachment 1.

4.1 Drainage Basins

The drainage basins map shows the boundaries of the general drainage basins at the Refinery. If a spill were to breach an outside berm, this map shows what direction the spill would migrate. Since the topography of the site is generally flat, a spill that breaches an outside berm near the boundary of a drainage basin could move to multiple basins depending on the location of the spill within the containment and local variation of the berm heights in proximity to the spill. Since topographic data are only available for Suncor property, the drainage basin boundaries do not include off-site locations.

4.2 Secondary Containment Areas

Of the 31 secondary containment areas analyzed for this study, 12 were found to have sufficient containment to be in compliance with the SPCC secondary containment regulations (Table 2). This count does not include those tanks that do not have any containment, such as those in the wastewater treatment plant. These results were compared with the 2003 Jacobs Engineering study that evaluated Plant 1 when it was under the ownership of ConocoPhilips. In Plant 1, Golder found 11 of the 21 secondary containments to be in compliance. The Jacobs Engineering study identified an additional two containments that were in compliance. These are the secondary containments labeled A-4 (T-77) and E-3 (T-58, T-88, T-135). For areas A-4 and E-3, the difference between the results is likely due to erosion of the berms over the past 10 years. Golder found that three additional containment areas, C-1, C-2, and D-4 were in compliance compared to Jacobs Engineering study. Their compliance is due to being hydraulically connected to adjacent containment areas which increases the total containment volume available.

Table 2: Summary of Secondary Containment Compliance

Plant	Containment	Area (ft^2)	Required 25-year Volume (gallons)	Required 100-year Volume (gallons)	Containment Capacity (gallons)	Adequate for 25-year	Adequate for 100-year
Plant 1	A-1	53,011	3,478,974	3,516,977	2,454,395	No	No
	A-2~	65,764	5,215,487	5,262,632	3,561,418	No	No
	A-3**~	69,262	5,195,449	5,245,102	4,028,989	No	No
	A-4**~	74,104	5,206,315	5,259,439	4,010,811	No	No
	A-5	137,108	3,563,835	3,662,126	4,472,929	Yes	Yes
	A-6	150,763	4,118,347	4,226,426	6,236,975	Yes	Yes
	A-7	57,622	549,314	590,623	612,185	Yes	Yes
	A-8*	90,544	1,253,199	1,318,109	0	No	No
	B~	141,620	3,545,485	3,647,010	6,903,289	Yes	Yes
	C-1~	80,597	3,540,882	3,598,660	4,300,241	Yes	Yes
	C-2~	63,192	3,501,822	3,547,123	4,299,029	Yes	Yes
	C-3**~	82,616	3,410,550	3,469,776	3,808,635	Yes	Yes
	C-4**~	52,715	1,173,344	1,211,134	3,296,629	Yes	Yes
	D-1	86,552	5,234,250	5,296,298	2,216,469	No	No
	D-2~	85,493	5,119,532	5,180,821	4,109,375	No	No
	D-3~	84,517	5,229,683	5,290,272	4,106,547	No	No
	D-4~	66,781	5,189,881	5,237,755	5,249,723	Yes	Yes
	D-5~	81,536	5,222,993	5,281,445	5,280,221	Yes	No
	E-1	76,365	2,403,177	2,457,922	2,555,382	Yes	Yes
	E-2	63,006	4,866,114	4,911,282	1,761,218	No	No
	E-3	39,768	1,139,249	1,167,758	418,895	No	No
	E-4~	62,232	4,864,377	4,908,991	2,542,860	No	No
Plant 2	F	206,556	8,989,568	9,137,645	7,151,718	No	No
	G	249,592	2,907,931	3,086,860	2,661,801	No	No
	H~	157,472	5,393,056	5,505,945	6,049,341	Yes	Yes
	I	116,490	1,583,426	1,666,936	1,455,429	No	No
	J-1	9,220	461,692	468,302	406,777	No	No
	J-2**	27,029	1,110,660	1,130,037	1,170,645	Yes	Yes
Plant 3	K-1	329,928	5,780,075	6,016,596	3,197,258	No	No
	K-2~	38,242	1,765,709	1,793,124	4,222,279	Yes	Yes
	K-3*	44,143	728,066	759,711	0	No	No
	K-4*	34,880	498,248	523,253	0	No	No

Notes:

*As of December 2013 no containment is provided for these tanks. The containment area is based on an estimate of future berm locations.

**As of December 2013 the containment wall or berm was partially removed. ~Adjacent hydraulically connected containment included in total containment capacity.

In Plant 1, several secondary containment areas that contain one tank are not in compliance, but they could be combined with adjacent single containment berms to improve containment capacity. Examples include secondary containment areas A-3 (T-78) and A-4 (T-77), and Area D containments.

In Plant 2, Golder found one of the six containment areas to be in compliance; Area H. J-2 will be compliant if the walls are re-built where they have been removed. Areas F, G, and I are non-compliant due to erosion of the berms, and containment for area F is a particular challenge due to the relatively large volume of the tanks.

In Plant 3, Golder found one of the four containment areas to be in compliance, Area K-2. The berms for other containment areas, especially K-3, K-4 and the north side of K-1, are highly eroded and provide little containment.

Many berms require intensive re-building and maintenance to reach compliance. In general, a regular berm maintenance schedule should be employed to keep the secondary containments in compliance with current SPCC regulations.

4.3 Tertiary Containment Analysis

The objective of the tertiary containment analysis is to determine if tertiary ponds are sufficient to contain the potential overflow volume from the secondary containments that can contribute to it. All of the results for the tertiary analysis are summarized by drainage basins, since ponds in one drainage basin are often connected. The tertiary ponds and drainage basin areas contributing to the ponds are identified in Drawing 005-CV-D-006 and summarized in Table 3. Two of the six tertiary drainage basins, located in the southern most section of Plant 2, do not have contributing secondary containment overflow and were not analyzed for spill containment.

Table 3: Summary of Tertiary Drainage Basins

Tertiary Drainage Basins	Ponds	Tertiary Containment Volume (gallons)	25-Year Stormwater Volume (gallons)	Adequate for 25-year Stormwater
Plant 1-DB-1	Sand Creek Swale	1,663,201	2,962,934	No
Plant 1-DB-3 & Plant 1-DB-4	Webers Pond, and Finger Lake	1,573,340	5,632,252	No
Plant 2-DB-1	Plant 2 Northern Retention Basin	8,907	2,594,194	No
Plant 2-DB-2	Plant 2 South 1 Pond	170,687	1,509,075	No
Plant 2-DB-3	Plant 2 South 2, Plant 2 South 3	75,319	837,037	No
Plant 3-DB-1	Mary's Pond, Perimeter Canal	619,181	2,658,431	No

The adequacy of tertiary ponds for containment are summarized in Table 4 for all secondary containment areas for two scenarios: a 25-year storm, and dry conditions with no storm. Of the four tertiary drainage basins analyzed for spill containment, none provided adequate storage for the potential spill volumes contributing to it from the secondary containment areas during the 25-year storm. In dry conditions, overflow from nine secondary containments can be contained by the tertiary ponds (Table 4).

Table 4: Summary of Tertiary Containment Compliance

Plant	Tertiary Drainage Basin	Containment	Potential No Storm Spill Volume (gal)	Potential 25-year Spill Volume (gal)	Adequate for No Storm	Adequate for 25-year
Plant 1	Plant 1-DB-3	A-1	905,614	1,024,579	Yes	No
		A-2~	1,506,484	1,654,069	Yes	No
		A-3**,~	1,011,025	1,166,460	Yes	No
		A-4**,~	1,029,202	1,195,504	Yes	No
		A-5				
		A-6				
		A-7				
		A-8*	1,050,003	1,253,199	Yes	No
	Plant 1-DB-4	B~				
		C-1~				
		C-2~				
		C-3**,~				
		C-4**,~				
	Plant 1-DB-1	D-1	2,823,544	3,017,781	No	No
		D-2~	818,297	1,010,158	Yes	No
		D-3~	933,466	1,123,136	Yes	No
		D-4~				
		D-5~				
	Plant 1-DB-3	E-1				
		E-2	2,963,500	3,104,896	No	No
		E-3	631,108	720,353	Yes	No
		E-4~	2,181,859	2,321,517	No	No
Plant 2	Plant 2-DB-1	F	1,374,305	1,837,850	No	No
		G		246,130		No
	Plant 3-DB-1	H~				
		I		127,997		No
	Plant 2-DB-1	J-1	34,224	54,916	No	No
		J-2**				
Plant 3	Plant 3-DB-1	K-1	1,842,406	2,582,818	No	No
		K-2~				
		K-3*	629,002	728,066	No	No
		K-4*	419,972	498,248	Yes	No

Notes:

*As of December 2013 no containment is provided for these tanks. The containment area is based on an estimate of future berm locations.

**As of December 2013 the containment wall or berm was partially removed. ~Adjacent hydraulically connected containment included in total containment capacity.

Of the six tertiary drainage basins, only Plant 1-DB-1 in the northern most section of Plant 1 (Drawing 005-CV-D-006), has tertiary containment sufficient to store the 25-year stormwater volume (neglecting spill volumes). Plant 1-DB-3, Plant 1-DB-4, and Plant 3-DB-1 drainage basins can store smaller storm volumes between 0.5 to 0.75-inches in depth (neglecting spill volumes). Plant 2-DB-1 drainage basin has negligible storage capacity. The northern part of Plant 2 is relatively flat and constrained by railroad tracks on both sides. As a result, if Plant 2 northern tertiary containment capacity were increased, it would be difficult to direct spills toward the containment. These results neglect pumping that occurs from tertiary containment to other containments or the waste water treatment plant (WWTP). However the capacity of the WWTP is not designed to treat overflow from a combined design storm and spill of this magnitude.

4.4 Recommendations

Golder provided general recommendations (Table 5) to meet compliance for the individual secondary containment areas. The recommendations provide a preliminary estimate of proposed berm elevations or combined containment areas that could be used to meet compliance standards. For secondary containment areas that currently have berms, the recommendations suggest heightening berms between 0.2 and 2.7 feet. Three containment areas currently lack berms, and the recommend heights for these are 5.1 and 6.4 feet.

Table 5: Recommendations for Compliance of Storage Tank Containment

Plant	Containment	Secondary Adequate	Tertiary Adequate	Recommendation	Height Raised (ft)	Alternative
Plant 1	A-1	No	No	A-1 and A-2 are hydraulically linked. Raise both berms.	2.4	Hydraulically link A-1, A-2, A-3, and A-4. No berm elevation required
	A-2	No	No		2.4	
	A-3	No	No	A-3 and A-4 are hydraulically linked. Raise both berms.	1.4	
	A-4	No	No		1.4	
	A-5	Yes				
	A-6	Yes				
	A-7	Yes				
	A-8	No	No	Not evaluated.		
	B	Yes				
	C-1	Yes				
	C-2	Yes				
	C-3	Yes				
	C-4	Yes				
	D-1	No	No	Hydraulically Link D-1, D-2, and D-3, and maintain the berms. There currently is a link between D-2 and D-3.	0	Double the capacity of the tertiary containment.
	D-2	No	No		0	
	D-3	No	No		0	
	D-4	Yes				
	D-5	Yes				
	E-1	Yes				
	E-2	No	No	Raise the existing secondary berm of E-2 and E-4, and hydraulically link E-2, E-3, and E-4. Currently E-3 is linked to E-4.	0.3	
	E-3	No	Yes		0	
	E-4	No	No		1.2	
Plant 2	F	No	No	Raise the existing secondary berm.	1.6	
	G	No	No	Raise the existing secondary berm.	0.3	
	H	Yes				
	I	No	No	Raise the existing secondary berm.	0.2	
	J-1	No	No	Add a secondary berm.	4.5	
	J-2	Yes				
Plant 3	K-1	No	No	Raise the existing secondary berm.	1.3	
	K-2	Yes				
	K-3	No	No	Add a secondary berm.	5.1	
	K-4	No	No	Add a secondary berm.	6.3	

5.0 REFERENCES

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ATTACHMENT 1
DRAINAGE ANALYSIS OF TRANSFER AREAS

Transfer areas include rail and truck loading and unloading zones in Plants 1, 2, and 3. The transfer locations are shown on Drawing 005-CV-M-002. The following sections describe the drainage patterns in these zones.

1.0 PLANT 1

1.1 Rail Loading Area

The Plant 1 rail yard has French drains lining the entire length of the rail yard and three storm inlets set away from the rail yard: one to the northeast near the OMD 1 control building, one to the northwest, and a third to the southwest. The French drains are directly connected to the Tank 70 secondary containment area, which drains to the Tank 94 lagoon for further drainage to Finger Lake by a manually operated pump. Storm inlets in Plant 1, including the three around the rail yard, drain into the Plant 1 WWTP. A spill in this rail yard that is not contained by the French drains would not necessarily drain to one of the three storm inlets, because not all of the surrounding area is sloped towards the inlets. A spill on the far west end of the rail yard would drain west into the containment areas of Tank 7 or 39, or alternatively into the stormwater pond directly west called Finger Lake. A spill along the property boundary of the southeast side of the rail yard would be directed south off of Suncor property, where there are no apparent storm inlets or containments. A spill on the northeast side of the rail yard could potentially drain towards Plant 1 process area or off-site rather than to the northeast storm inlet. The drainage summary is shown in Figure C1.

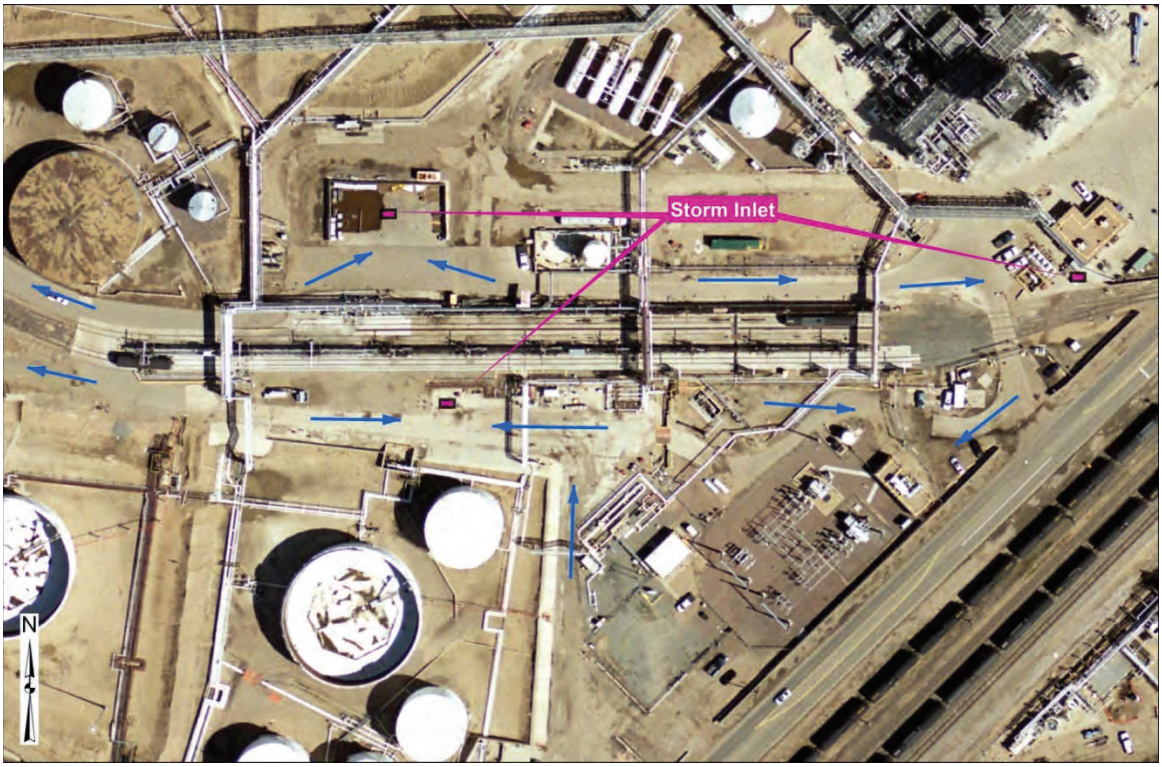

Figure C1: Plant 1 Rail Loading Area Drainage Summary

1.2 West Truck Rack

The West Truck Rack is located at the southern end of Plant 1 as shown in Figure C2. The loading terminal includes 5 truck loading bays in a covered structure. Each loading bay has a center drain to collect overflow, which is directed to a bermed collection area directly south of the covered structure. The low collection area is equipped with a pump to move water to tank T-6000 (Slop Tank). Stormwater at the West Truck Rack is also directed to the low collection area. On the northwest corner of the West Truck Rack, stormwater and overflow is directed north to a collection ditch. The collection ditch directs water north along the west edge of the tank farm and terminates at a road directing flow the Webers Pond. Overflow at the West Truck Rack is expected to stay on site.

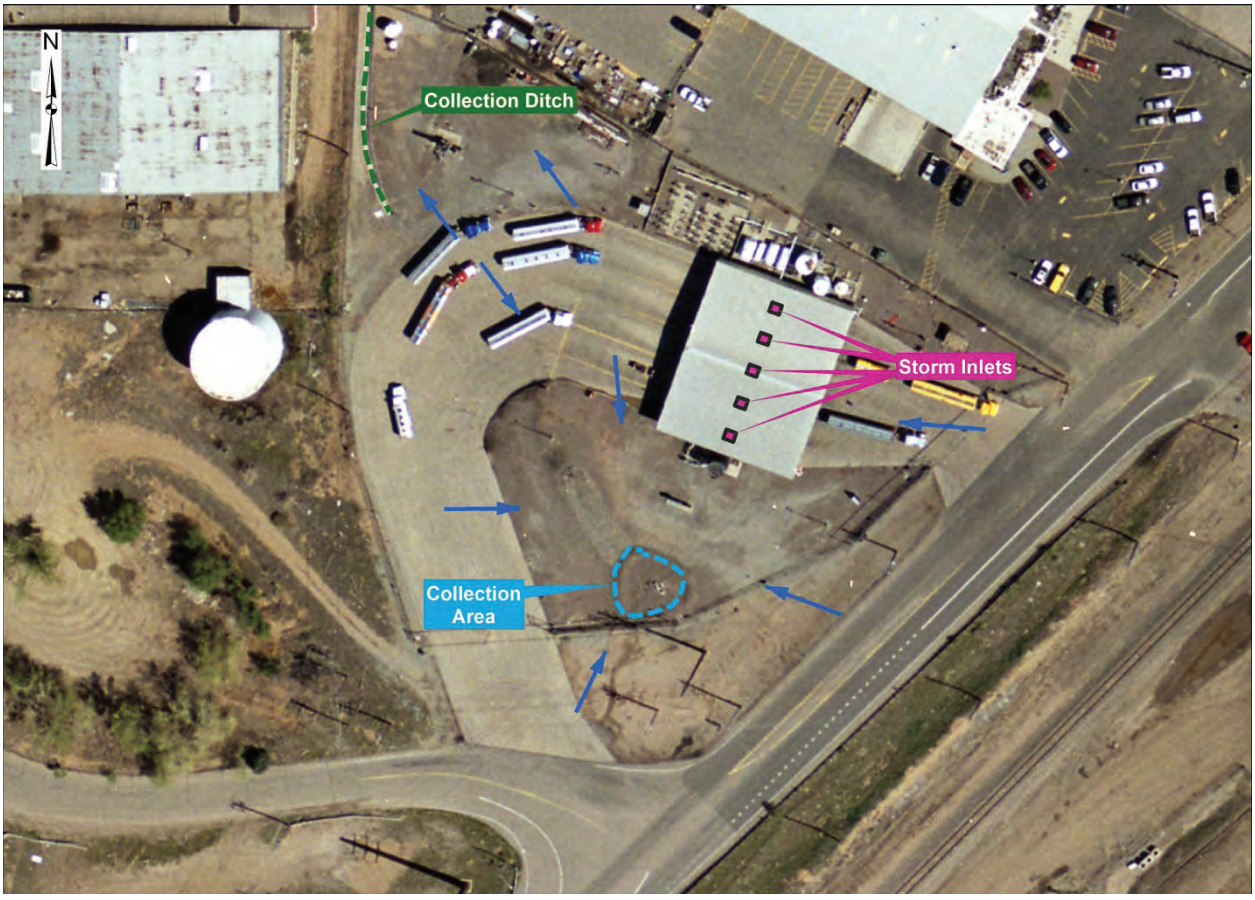

Figure C2: Plant 1 West Truck Rack Drainage Summary

2.0 PLANT 2

2.1 North Truck and Rail Loading Area

Plant 2 includes a combined truck and rail loading area. The drainage summary is shown in Figure C3. French drains run along each of seven truck loading locations. There are no storm inlets to drain low spots in the area. A concrete swale along the road centerline diverts overflow northeast towards the

service warehouse and does not include a storm inlet at the low point. Overflow at the south side of the rail yard would also be directed south east towards the service warehouse. The far north side of the rail yard would drain north towards Tanks 19 and 29 or towards Plant 2 process area. Stormwater that is captured by the storm inlets in Plant 2 is directed through lift station to Tank 29 for settling, and is eventually processed through the Plant 1 WWTP. If a spill were to occur at this site, it is expected to stay onsite.

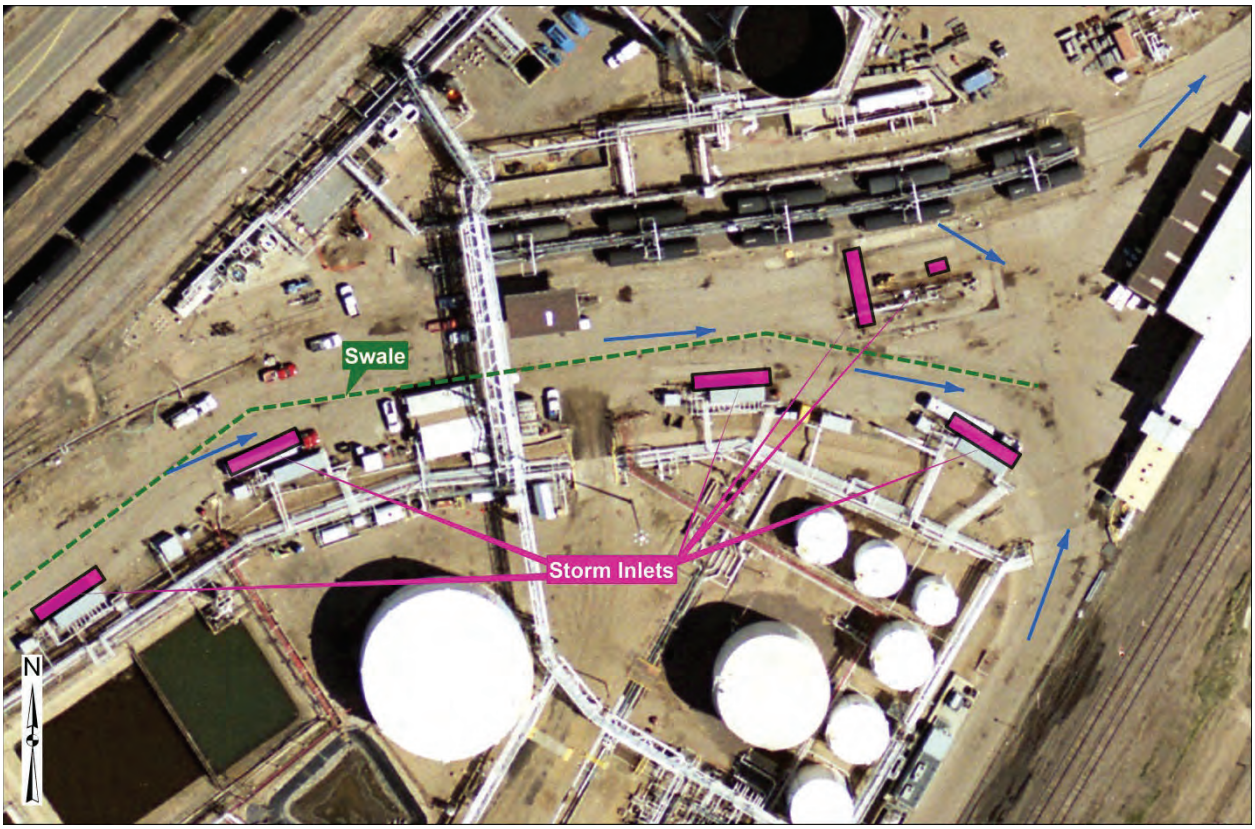

Figure C3: Plant 2 North Truck and Rail Loading Area Drainage Summary

2.2 South Truck Unloading and Rail Loading Area

Crude truck unloading and product rail loading are located in Parcels II and IV south of Plant 2. The drainage summary is shown in Figure C4. French drains are located at each truck loading station. Additional storm inlets are located south and east of the main truck unloading area. Overflow from the truck unloading area would primarily drain south. The rail yard does not have any storm inlets. The rail yard drains south along swales paralleling the rail road tracks to the east and west sides. Overflow from the rail yard is contained by earthen berms to the east and south sides of the rail yard.

Figure C4: Plant 2 South Truck Unloading and Rail Loading Area Drainage Summary

3.0 PLANT 3

3.1 Rail and Truck Loading Area

The Plant 3 rail and truck loading area is located west of the primary tank farm and process unit. The drainage summary is shown in Figure C5. Three storm inlets are present at the north end of rail yard. Overflow from the north portion of the rail yard is drained to these inlets and secondarily to the stormwater detention basin at the north end of Plant 3 referred to as Mary's Pond. Overflow from the central and southern portions of the rail yard is directed primarily east towards the tank farm, which eventually drains north to Mary's Pond. The highly eroded earth berms on the west side of the tank farm are evidence of this drainage. Overflow from the west side of the central rail yard could also drain west towards Tanks 161-176.

Figure C5: Plant 3 Rail and Truck Loading Area Drainage Summary

CALCULATIONS

Secondary Containment Analysis Calculations: Plant 1

Plant 1 Containment Areas

Date:	2/18/14
By:	REW
Chkd:	AJR
Apprvd:	

25-yr Storm Depth (in)	100-yr Storm Depth (in)
3.6	4.75

Containment Area	Tanks	Largest Tank	Largest Volume (gallons)	Largest Volume (ft^3)	Containment Area (ft^2)	25-Year Storm Volume (ft^3)	100-Year Storm Volume (ft^3)	Total Required 25-Year Volume (ft^3)	Total Required 100-Year Volume (ft^3)	Current Containment Capacity (ft^3)	Notes	Jacobs Eng (2003) Compliance Results	Recommended Berm Heights								
													Iteration 1	Height Raised (ft)	New Capacity (ft^3)	Iteration 2	Required Containment Capacity	New Capacity (ft^3)	Iteration 3	Required Containment Capacity	New Capacity (ft^3)
A-1	T-94	T-94	3360000	449167	53011	15903	20984	465070	470150	328104		no	The individual containment area berms are raised	3	487,107	Try A-1 and A-2 connected	484799	(as is - no raise) 500,958	A-1+A-2+A-3+A-4	527,809	954,261 (as is - no raise)
A-2	T-80	T-80	5067888	677478	65764	19729	26032	697207	703510	476091	Hydraulically connected to A-1	no		6.8	698,106	Try A-2 + A-1 area	713111	476,064 short <237047> raise each 2.4 ft 721,656	A-1+A-2+A-3+A-4	756,120	929,421 (as is - no raise)
A-3	T-78	T-78	5040000	673750	69262	20779	27416	694529	701166	538596	Hydraulically connected to A-4	no		5.6	695,586	Try A-3 + A-4	716760	538,569 short <178,191> raise both 1.4 ft 719,188	A-1+A-2+A-3+A-4	752,392	936,603 (as is - no raise)
A-4	T-77	T-77	5040000	673750	74104	22231	29333	695981	703083	536166	Hydraulically connected to A-3	yes		5.2	699,026	Try A-4 + A-3	716760	536,183 short <179967> raise both 1.4 ft 716,660	A-1+A-2+A-3+A-4	752,392	934200 (as is - no raise)
A-5	T-2010, T-55	T-55	3256134	435282	137108	41132	54272	476414	489554	597942		yes		ok							
A-6	T-1, T-67, T-34	T-34	3780000	505312	150763	45229	59677	550541	564989	833760		yes		ok							
A-7	T-39, T-76, T-68, T-69	T-76	420000	56146	57622	17287	22809	73432	78955	81837	T-39 reported to be out of service	no		ok							
A-8	T-4512, T-4511, T-4504, T-60, T-29, T-28, T-26	T-60	1050000	140365	90544	27163	35840	167528	176205	0	WWTP, has no containment	NA									
B	T-72, T-116, T-96, T-97, T-74, T-62	T-72	3227658	431475	141620	42486	56058	473961	487533	922833	Hydraulically connected to C-3	yes		ok							
C-1	T-71	T-71	3360000	449167	80597	24179	31903	473346	481070	574857	Hydraulically connected to C-2	no		ok							
C-2	T-75	T-75	3360000	449167	63192	18958	25014	468124	474180	574695	Hydraulically connected to C-1	no		ok							
C-3	T-70	T-70	3225138	431138	82616	24785	32702	455923	463840	509139	Hydraulically connected to C-4	yes		ok							
C-4	T-64, T-65, T-66	T-64, T-65, T-66	1055040	141038	52715	15815	20866	156853	161905	440694	Hydraulically connected to C-3	yes		ok							
D-1	T-774	T-774	5040000	673750	86552	25966	34260	699716	708010	296298		NA		4.7	703092	Try D-1 + D-2 +D-3	750719	778,161 (as is - no raise)			
D-2	T-775	T-775	4927659	658732	85493	25648	33841	684380	692573	549342	Hydraulically connected to D-3	no		4.6	690,105	Try D-1 + D-2 +D-3	735701	783,405 (as is - no raise)			
D-3	T-776	T-776	5040000	673750	84517	25355	33455	699105	707205	548964	Hydraulically connected to D-2	no		4.5	699898	Try D-1 + D-2 +D-3	750719	783,027 (as is - no raise)			
D-4	T-777	T-777	5040000	673750	66781	20034	26434	693784	700184	701784	Hydraulically connected to D-5	no		ok							
D-5	T-778	T-778	5040000	673750	81536	24461	32275	698211	706025	705861	Hydraulically connected to D-4	yes		ok							
E-1	T-3801, T-52	T-3801	2231796	298348	76365	22910	30228	321257	328576	341604		yes		ok							
E-2	T-3	T-3	4724706	631601	63006	18902	24940	650503	656541	235440		no		6.6	651,279	Try E-2 + E-3 + E-4	681103	500,904 short <180,199> Raise each 0.3 ft 713,230			
E-3	T-58, T-88, T-135	T-58	1050000	140365	39768	11930	15742	152295	156106	55998		yes		2.5	155418	Try E-2 + E-3 + E-4	189866	436,401 (ok as is)			
E-4	T-2	T-2	4724706	631601	62232	18670	24634	650271	656235	339930	Hydraulically connected to E-3	no		5.8	652626	Try E-2 + E-3 + E-4	681103	502,983 short <178120> Raise each 1.2 ft 680284			

Secondary Containment Analysis Calculations: Plant 2

Plant 2 Containment Areas

Date:	2/18/14
By:	REW
Chkd:	AJR
Apprvd:	

25-yr Storm Depth (in)	100-yr Storm Depth (in)
3.6	4.75

Containment Area	Tanks	Largest Tank	Largest Volume (gallons)	Largest Volume (ft^3)	Area (ft^2)	25-Year Storm Volume (ft^3)	100-Year Storm Volume (ft^3)	Total Required 25-Year Volume (ft^3)	Total Required 100-Year Volume (ft^3)	Current Containment Capacity (ft^3)	Notes	Recommended Berm Raise		
												Iteration 1	Height Raised (ft)	New Capacity (ft^3)
F	TK-6, TK-39, TK-30, TK-28, TK-38, TK-46	TK-6	8526000	1139760	206556	61967	81762	1201727	1221522	956043		The individual containment area berms are raised	1.6	1229230
G	TK-27, TK-11, TK-26, TK-10, TK-9, TK-20, TK-8, TK-5, TK-4, TK-23, TK-24, TK-25, TK-40, TK-41, TK-42, TK-43	TK-27, TK-11, TK-26, TK-10	2347800	313855	249592	74878	98797	388733	412652	355830			0.3	403965
H	TK-79, TK-62, TK-57, TK-35, TK-36	TK-79	5039650	673703	157472	47242	62333	720945	736036	808677	Hydraulically connected to I			
I	TK-44, TK-45, TK-52, TK-53, TK-54, TK-37, TK-47, TK-58, TK-12	TK-47	1322000	176726	116490	34947	46111	211673	222836	194562			0.2	213644
J-1	TK-32, TK-48, TK-49	TK-48, TK-49	441000	58953	9220	2766	3650	61719	62603	54378		Add wall from existing ground	4.5	61774
J-2	TK-19, TK-29	TK-19, TK-29	1050000	140365	27029	8109	10699	148473	151064	156492				

Golder Associates

Secondary Containment Analysis Calculations: Plant 3

Plant 3 Containment Areas

Date:	2/18/14
By:	REW
Chkd:	AJR
Apprvd:	

25-yr Storm Depth (in)	100-yr Storm Depth (in)
3.6	4.75

Containment Area	Tanks	Largest Tank	Largest Volume (gallons)	Largest Volume (ft^3)	Area (ft^2)	25-Year Storm Volume (ft^3)	100-Year Storm Volume (ft^3)	Total Required 25-Year Volume (ft^3)	Total Required 100-Year Volume (ft^3)	Current Containment Capacity (ft^3)	Notes	Recommended Berm Heights		
												Iteration 1	Height Raised (ft)	New Capacity (ft^3)
K-1	T-3201, T-142, T-147, T-140, T-2006, T-145, T-146, T-194	T-3201	5039650	673703	329928	98978	130597	772682	804300	427410		Raise individual berm	1.3	784942
K-2	T-144	T-144	1679883	224568	38242	11473	15137	236040	239705	564435				
K-3*	T-112		629000	84085	44143	13243	17473	97328	101558	0	No existing containment	Add wall from existing ground	2.3	101528
K-4*	T-141, T-193, T-191, T-192	T-193, T-191, T-192	419971	56142	34880	10464	13807	66606	69949	0	No existing containment		2.4	66890

*As of December 2013 no containment is provided for these tanks. The containment area is based on an estimate of future berm locations.

Tertiary Containment Analysis Calculations

Date:	8/6/14
By:	REW
Chkd:	AJR
Apprvd:	

Summary of Tertiary Containment Ponds

Tertiary Containment	Containment Volume (yd^3)
Plant 1 North	8234.89
Plant 1 Webers Pond	1341.13
Plant 1 Finger Lake	2238.72
Plant 1 Flooded Weber and Finger	7789.97
Plant 2 North	44.1
Plant 2 OWS Ponds	544.89
Plant 2 South 1 (N)	845.11
Plant 2 South 2 (Mid)	320.66
Plant 2 South 3 (S)	52.26
Plant 3 Mary's Pond	2988.61
Plant 3 Canal	77.1

Analysis for the Largest Tank in each Tertiary Drainage Basin

Tertiary Drainage Basins	Ponds	Tertiary Containment Volume (yd^3)	Drainage Basin Area (ft^2)	Secondary Containment in Drainage Basin Area (ft^2)	Total Contributing Area (ft^2)	25-Year Stormwater Volume (yd^3)	25-Year Stormwater Volume minus Initial Abstractions (yd^3)	25-Year Spill Volume (yd^3)	Spill Containment	Adequate for 25-Year Stormwater	Adequate for 25-Year Spill
Plant 1-DB-1	Sand Creek Swale	8235	1638642	318327	1320315	14670	14670	14941	D-1	No	No
Plant 1-DB-3 & Plant 1-DB-4	Webers Pond, and Finger Lake	7790	3807076	1297283	2509792	27887	27887	15373	E-2	No	No
Plant 2-DB-1	Plant 2 Northern Retention Basir	44	1441842	285841	1156001	12844	12844	9099	F	No	No
Plant 2-DB-2	Plant 2 South 1 Pond	845	672460		672460	7472	7472		none	No	NA
Plant 2-DB-3	Plant 2 South 2, Plant 2 South 3	373	372992		372992	4144	4144		none	No	NA
Plant 3-DB-1	Mary's Pond, Perimeter Cana	3066	1575853	391227	1184626	13163	13163	12788	K-1	No	No

Analysis for every Secondary Containment area in each Tertiary Drainage Basin

Plant	Tertiary Drainage Basin	Containment	Area (ft^2)	Required Volume No Storm (ft^3)	Required 25-Year Volume (ft^3)	Containment Capacity (ft^3)	Adequate for 25-year	Potential No Storm Spill Volume (ft^3)	Potential 25-Year Spill Volume (ft^3)	Adequate for No Storm	Adequate for 25-year
Plant 1	Plant 1-DB-3	A-1	53011	449167	465070	328104	No	121,063	136,966	Yes	No
		A-2~	65764	677478	697207	476091	No	201,387	221,116	Yes	No
		A-3**,~	69262	673750	694529	538596	No	135,154	155,933	Yes	No
		A-4**,~	74104	673750	695981	536166	No	137,584	159,815	Yes	No
		A-5	137108	435282	476414	597942	Yes				
		A-6	150763	505312	550541	833760	Yes				
		A-7	57622	56146	73432	81837	Yes				
		A-8*	90544	140365	167528	0	No	140,365	167,528	Yes	No
	Plant 1-DB-4	B~	141620	431475	473961	922833	Yes				
		C-1~	80597	449167	473346	574857	Yes				
		C-2~	63192	449167	468124	574695	Yes				
		C-3**,~	82616	431138	455923	509139	Yes				
		C-4**,~	52715	141038	156853	440694	Yes				
	Plant 1-DB-1	D-1	86552	673750	699716	296298	No	377,452	403,418	No	No
		D-2~	85493	658732	684380	549342	No	109,390	135,038	Yes	No
		D-3~	84517	673750	699105	548964	No	124,786	150,141	Yes	No
		D-4~	66781	673750	693784	701784	Yes				
		D-5~	81536	673750	698211	705861	Yes				
	Plant 1-DB-3	E-1	76365	298348	321257	341604	Yes				
		E-2	63006	631601	650503	235440	No	396,161	415,063	No	No
		E-3	39768	140365	152295	55998	No	84,367	96,297	Yes	No
		E-4~	62232	631601	650271	339930	No	291,671	310,341	No	No
Plant 2	Plant 2-DB-1	F	206556	1139760	1201727	956043	No	183,717	245,684	No	No
		G	249592	313855	388733	355830	No		32,903		No
	Plant 3-DB-1	H~	157472	673703	720945	808677	Yes				
		I	116490	176726	211673	194562	No	-17836.32	17,111	Yes	No
	Plant 2-DB-1	J-1	9220	58953	61719	54378	No	4,575	7,341	No	No
		J-2**	27029	140365	148473	156492	Yes				
Plant 3	Plant 3-DB-1	K-1	329928	673703	772682	427410	No	246,293	345,272	No	No
		K-2~	38242	224568	236040	564435	Yes				
		K-3*	44143	84085	97328	0	No	84,085	97,328	No	No
		K-4*	34880	56142	66606	0	No	56,142	66,606	Yes	No