



Alabama Department of Environmental Management
adem.alabama.gov

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MARCH 30, 2021

MR DONALD WEAVER
GENERAL MANAGER
SHELL CHEMICAL LP (MOBILE SITE)
400 INDUSTRIAL PARKWAY EXTENSION
SARALAND AL 36571

RE: REVISED DRAFT PERMIT
NPDES PERMIT NUMBER AL0055859

Dear Mr. Weaver:

Transmitted herein is a revised draft of the referenced permit.

We would appreciate your comments on the permit within **30 days** of the date of this letter. Please direct any comments of a technical or administrative nature to the undersigned.

By copy of this letter and the draft permit, we are also requesting comments within the same time frame from EPA.

Our records indicate that you are currently utilizing the Department's web-based electronic environmental (E2) reporting system for submittal of discharge monitoring reports (DMRs). Your E2 DMRs will automatically update on the effective date of this permit, if issued.

The Alabama Department of Environmental Management encourages you to voluntarily consider pollution prevention practices and alternatives at your facility. Pollution Prevention may assist you in complying with effluent limitations, and possibly reduce or eliminate monitoring requirements.

If you have questions regarding this permit or monitoring requirements, please contact Scott Ramsey by e-mail at **sramsey@adem.alabama.gov** or by phone at **(334) 271-7838**.

Sincerely,

Scott Ramsey, Chief
Industrial Section
Industrial/Municipal Branch
Water Division

Enclosure: Draft Permit

pc via website:

Montgomery Field Office
EPA Region IV
U.S. Fish & Wildlife Service
AL Historical Commission
Advisory Council on Historic Preservation
Department of Conservation and Natural Resources



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: SHELL CHEMICAL LP (MOBILE SITE)

FACILITY LOCATION: 400 INDUSTRIAL PARKWAY EXTENSION
SARALAND, AL 36571

PERMIT NUMBER: AL0055859

RECEIVING WATERS: DSN001 – DSN021: CHICKASAW CREEK

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1388 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-17, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE:

EFFECTIVE DATE:

EXPIRATION DATE:

Draft

Alabama Department of Environmental Management

**INDUSTRIAL SECTION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
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PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS**A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS**

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011; Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Oxygen, Dissolved (DO)	-	-	6.0 mg/l	-	-	Monthly	Grab	-
BOD, 5-Day (20 Deg. C)	143 lbs/day	241 lbs/day	-	30 mg/l	45 mg/l	Weekly	Composite	-
pH 3/	-	-	REPORT S.U.	-	REPORT S.U.	Continuous	Recorder	-
Solids, Total Suspended	224.5 lbs/day	350.9 lbs/day	-	-	-	Weekly	Composite	-
Oil & Grease	79.9 lbs/day	153.8 lbs/day	-	-	-	Weekly	Grab	-
Nitrogen, Ammonia Total (As N)	26.3 lbs/day	58.0 lbs/day	-	12 mg/l	18 mg/l	Weekly	Composite	-
Nitrogen, Kjeldahl Total (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	April - October
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	April - October

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ pH measurements other than from continuous monitoring, shall comply with a daily minimum of 6.0 and a daily max of 9.0 standard units. Where the pH of wastewater is measured continuously, the total time during which the pH values are outside the required range of 6.0 to 9.0 standard units shall not exceed 7 hours and 26 minutes in any calendar month and no individual excursion from the range of pH values shall exceed 30 minutes in duration.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011 (continued): Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Phosphorus, Total (As P)	-	-	-	-	REPORT mg/l	Monthly	Composite	April - October
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Totalizer	-
pH range excursions, >30 minutes 4/	-	0 Occurrence/Month	-	-	-	Continuous	Calculated ^{3/}	-
Phenolic Compounds, Total 3/	0.348 lbs/day	1.21 lbs/day	-	-	-	Monthly	Grab	-
Chemical Oxygen Demand (COD)	1339.5 lbs/day	2607.6 lbs/day	-	-	-	Monthly	Composite	-
pH Range Excursions, Monthly Total Accum 4/	-	446 min	-	-	-	Continuous	Calculated	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ To be measured using 4AAP defined as 4-Aminoantipyrine.
- 4/ pH measurements other than from continuous monitoring, shall comply with a daily minimum of 6.0 and a daily max of 9.0 standard units. Where the pH of wastewater is measured continuously, the total time during which the pH values are outside the required range of 6.0 to 9.0 standard units shall not exceed 7 hours and 26 minutes in any calendar month and no individual excursion from the range of pH values shall exceed 30 minutes in duration.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN001Q: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Sulfide, Total (As S)	1.37 lbs/day	3.02 lbs/day	-	-	-	Quarterly	Grab	-
Chromium, Hexavalent (As Cr)	0.048 lbs/day	0.096 lbs/day	-	-	-	Quarterly	Grab	-
Chromium, Total (As Cr)	0.44 lbs/day	1.24 lbs/day	-	-	-	Quarterly	Composite	-
Mercury, Total Recoverable 3/ 4/	0.00167 lbs/day	0.0361 lbs/day	-	-	-	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ Total Recoverable Mercury shall be analyzed using EPA method 1631E.
- 4/ For the purpose of determining compliance with this limitation, "Total" and "Total Recoverable" will be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN001S: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Toluene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-
Benzene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-
Ethylbenzene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN001T: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws. 3/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
P/F Statre 7 Day Chr Mysid, Bahia	-	-	-	-	0 pass(0)/fail(1)	Semi-Annually	24-Hr Composite	-
P/F Statre 7 Day Chr Cyprinodon	-	-	-	-	0 pass(0)/fail(1)	Semi-Annually	24-Hr Composite	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.F. Effluent Toxicity Limitations and Biomonitoring Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN001Y: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Chloride (As Cl)	-	-	-	-	REPORT mg/l	Annually	Composite	-
2,3,7,8-Tetrachlorodibenzo-P-Dioxin 3/	-	0.00000000354 lbs/day	-	-	REPORT ppq	Annually	Composite	-
Solids, Total Dissolved	-	-	-	-	REPORT mg/l	Annually	Composite	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.D. Dioxin Monitoring Requirements. Monitoring is to be conducted during a period when the catalytic reforming process is in use.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

Such discharge shall be limited and monitored by the permittee as specified below:

DSN0021: Fire pump non-contact cooling water.

<u>EFFLUENT</u> <u>CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Daily</u> <u>Maximum</u>	<u>Monthly</u> <u>Average</u>	<u>Daily</u> <u>Minimum</u>	<u>Daily</u> <u>Maximum</u>	<u>Monthly</u> <u>Average</u>	<u>Measurement</u> <u>Frequency 2/</u>	<u>Sample Type</u> <u>Seasonal</u>

NO MONITORING REQUIREMENTS IMPOSED.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN005Q, 006Q, 007Q, 010Q, 012Q, 013Q, 015Q, 016Q: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters. 3/ 5/ 6/ 7/ 8/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>					<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Carbon, Tot Organic (TOC)	-	-	-	-	110 mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate 4/	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ The permittee shall not discharge chemical or non- chemical tank cleaning wastewaters, tank bottoms, water draws, or tank bottom sludge to dike areas or other permeable impoundments.
- 4/ See Part IV.B. Stormwater Flow Measurement and Sampling Requirements for storm water flow measurement requirements.
- 5/ During the first quarter inch of rainfall, storm water from process areas shall be collected and routed to DSN001 for treatment. Storm water from process areas received in excess of a quarter-inch rain may be discharged under the requirements listed above.
- 6/ Monitoring requirements apply to DSN015.
- 7/ See Part IV.I. Requirements for Management of Bulk Petroleum Secondary Containment Areas and Associated Drainage of Uncontaminated Stormwater for additional requirements.
- 8/ See Part IV.A. Best Management Practices Plan Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN005S, 006S, 007S, 010S, 012S, 013S, 015S, 016S: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters. 3/ 4/ 5/ 6/ 7/

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS 1/</u>			
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Toluene	-	-	-	-	8723 ug/l	Semi-Annually	Grab	-
Benzene	-	-	-	-	15.5 ug/l	Semi-Annually	Grab	-
Ethylbenzene	-	-	-	-	1244 ug/l	Semi-Annually	Grab	-
Semiannual Certification Statement 8/9/	-	-	-	-	REPORT Yes=0; No=1	Not Applicable	Not Applicable	-
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ The permittee shall not discharge chemical or non- chemical tank cleaning wastewaters, tank bottoms, water draws, or tank bottom sludge to dike areas or other permeable impoundments.
- 4/ During the first quarter inch of rainfall, storm water from process areas shall be collected and routed to DSN001 for treatment. Storm water from process areas received in excess of a quarter-inch rain may be discharged under the requirements listed above.
- 5/ See Part IV.A. Best Management Practices Plan Requirements.
- 6/ Monitoring requirements apply to DSN015.
- 7/ See Part IV.I. Requirements for Management of Bulk Petroleum Secondary Containment Areas and Associated Drainage of Uncontaminated Stormwater for additional requirements.
- 8/ The Permittee shall submit Semiannual Certification by July 28th and January 28th that all discharges during the preceding six month period from bulk petroleum secondary containment areas were in accordance with the conditions of the permit. The semiannual certification eDMR is now required to be submitted electronically instead of a separate statement.
- 9/ Reporting "0" for the semiannual certification statement certifies that all discharges associated with outfalls DSN005, DSN006, DSN007, DSN010, DSN012, DSN013, DSN015 and DSN016 met all permit requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

Such discharge shall be limited and monitored by the permittee as specified below:

DSN003S, 004S, 008S, 009S, 011S, 014S, 017S, 018S: Uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters. 3/ 5/ 6/ 7/

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>					<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Daily Maximum</u>	<u>Monthly Average</u>	<u>Daily Minimum</u>	<u>Daily Maximum</u>	<u>Monthly Average</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	REPORT S.U.	-	Semi-annual	Grab	-
Oil & Grease	-	-	-	15 mg/l	-	Semi-annual	Grab	-
Carbon, Total Organic (TOC)	-	-	-	110 mg/l	-	Semi-annual	Grab	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	-	-	-	-	Semi-annual	Estimate 4/	-
Toluene	-	-	-	-	8723 ug/l	Semi-Annually	Grab	-
Benzene	-	-	-	-	15.5 ug/l	Semi-Annually	Grab	-
Ethylbenzene	-	-	-	-	1244 ug/l	Semi-Annually	Grab	-
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ The permittee shall not discharge chemical or non- chemical tank cleaning wastewaters, tank bottoms, water draws, or tank bottom sludge to dike areas or other permeable impoundments.
- 4/ See Part IV.B. Stormwater Flow Measurement and Sampling Requirements.
- 5/ See Part IV.A. Best Management Practices Plan Requirements.
- 6/ Monitoring requirements apply to DSN004 only.
- 7/ See Part IV.I. Requirements for Management of Bulk Petroleum Secondary Containment Areas and Associated Drainage of Uncontaminated Stormwater for additional requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN003S (continued): DSN003S, 004S, 008S, 009S, 011S, 014S, 017S, 018S: Uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.
3/4/5

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Semiannual Certification Statement 6/7/	-	-	-	-	REPORT Yes=0; No=1	Not Applicable	Not Applicable	-

**THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF
VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.**

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ See Part IV.I. Requirements for Management of Bulk Petroleum Secondary Containment Areas and Associated Drainage of Uncontaminated Stormwater for additional requirements.
- 6/ The Permittee shall submit Semiannual Certification by July 28th and January 28th that all discharges during the preceding six month period from bulk petroleum secondary containment areas were in accordance with the conditions of the permit. The semiannual certification eDMR is now required to be submitted electronically instead of a separate statement.
- 7/ Reporting "0" for the semiannual certification statement certifies that all discharges associated with outfalls DSN003, DSN004, DSN008, DSN009, DSN011, DSN014, DSN017 and DSN018 met all permit requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

Such discharge shall be limited and monitored by the permittee as specified below:

DSN019S, 020S, 021S: Storm water runoff from non-process areas including employee parking lots, administrative buildings, warehouse and access roads.

<u>EFFLUENT</u> <u>CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Daily</u> <u>Maximum</u>	<u>Monthly</u> <u>Average</u>	<u>Daily</u> <u>Minimum</u>	<u>Daily</u> <u>Maximum</u>	<u>Monthly</u> <u>Average</u>	<u>Measurement</u> <u>Frequency 2/</u>	<u>Sample Type</u> <u>Seasonal</u>

No Monitoring Requirements Imposed.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

B. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this permit.

2. Test Procedures

For the purpose of reporting and compliance, permittees shall use one of the following procedures:

- a. For parameters with an EPA established Minimum Level (ML), report the measured value if the analytical result is at or above the ML and report "0" for values below the ML. Test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h). If more than one method for analysis of a substance is approved for use, a method having a minimum level lower than the permit limit shall be used. If the minimum level of all methods is higher than the permit limit, the method having the lowest minimum level shall be used and a report of less than the minimum level shall be reported as zero and will constitute compliance; however, should EPA approve a method with a lower minimum level during the term of this permit the permittee shall use the newly approved method.
- b. For pollutants parameters without an established ML, an interim ML may be utilized. The interim ML shall be calculated as 3.18 times the Method Detection Level (MDL) calculated pursuant to 40 CFR Part 136, Appendix B.

Permittees may develop an effluent matrix-specific ML, where an effluent matrix prevents attainment of the established ML. However, a matrix specific ML shall be based upon proper laboratory method and technique. Matrix-specific MLs must be approved by the Department, and may be developed by the permittee during permit issuance, reissuance, modification, or during compliance schedule.

In either case the measured value should be reported if the analytical result is at or above the ML and "0" reported for values below the ML.

- c. For parameters without an EPA established ML, interim ML, or matrix-specific ML, a report of less than the detection limit shall constitute compliance if the detection limit of all analytical methods is higher than the permit limit using the most sensitive EPA approved method. For the purpose of calculating a monthly average, "0" shall be used for values reported less than the detection limit.

The Minimum Level utilized for procedures A and B above shall be reported on the permittee's DMR. When an EPA approved test procedure for analysis of a pollutant does not exist, the Director shall approve the procedure to be used.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The facility name and location, point source number, date, time and exact place of sampling;
- b. The name(s) of person(s) who obtained the samples or measurements;
- c. The dates and times the analyses were performed;
- d. The name(s) of the person(s) who performed the analyses;
- e. The analytical techniques or methods used, including source of method and method number; and
- f. The results of all required analyses.

4. Records Retention and Production

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the above reports or the application for this permit, for a period of at least three years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records shall not be submitted unless requested.

All records required to be kept for a period of three years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

5. Monitoring Equipment and Instrumentation

All equipment and instrumentation used to determine compliance with the requirements of this permit shall be installed, maintained, and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, in accordance with accepted practices. The permittee shall develop and maintain quality assurance procedures to ensure proper operation and maintenance of all equipment and instrumentation. The quality assurance procedures shall include the proper use, maintenance, and installation, when appropriate, of monitoring equipment at the plant site.

C. DISCHARGE REPORTING REQUIREMENTS

1. Reporting of Monitoring Requirements

- a. The permittee shall conduct the required monitoring in accordance with the following schedule:

MONITORING REQUIRED MORE FREQUENTLY THAN MONTHLY AND MONTHLY shall be conducted during the first full month following the effective date of coverage under this permit and every month thereafter.

QUARTERLY MONITORING shall be conducted at least once during each calendar quarter. Calendar quarters are the periods of January through March, April through June, July through September, and October through December. The permittee shall conduct the quarterly monitoring during the first complete calendar quarter following the effective date of this permit and is then required to monitor once during each quarter thereafter. Quarterly monitoring may be done anytime during the quarter, unless restricted elsewhere in this permit, but it should be submitted with the last DMR due for the quarter, i.e., (March, June, September and December DMR's).

SEMIANNUAL MONITORING shall be conducted at least once during the period of January through June and at least once during the period of July through December. The permittee shall conduct the semiannual monitoring during the first complete calendar semiannual period following the effective date of this permit and is then required to monitor once during each semiannual period thereafter. Semiannual monitoring may be done anytime during the semiannual period, unless restricted elsewhere in this permit, but it should be submitted with the last DMR for the month of the semiannual period, i.e. (June and December DMR's).

ANNUAL MONITORING shall be conducted at least once during the period of January through December. The permittee shall conduct the annual monitoring during the first complete calendar annual period following the effective date of this permit and is then required to monitor once during each annual period thereafter. Annual monitoring may be done anytime during the year, unless restricted elsewhere in this permit, but it should be submitted with the December DMR.

- b. The permittee shall submit discharge monitoring reports (DMRs) on the forms provided by the Department and in accordance with the following schedule:

REPORTS OF MORE FREQUENTLY THAN MONTHLY AND MONTHLY TESTING shall be submitted on a **monthly** basis. The first report is due on the **28th day of (MONTH, YEAR)**. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF QUARTERLY TESTING shall be submitted on a **quarterly** basis. The first report is due on the **28th day of [Month, Year]**. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF SEMIANNUAL TESTING shall be submitted on a semiannual basis. The reports are due on the 28th day of JANUARY and the 28th day of JULY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF ANNUAL TESTING shall be submitted on an annual basis. The first report is due on the 28th day of JANUARY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

- c. Except as allowed by Provision I.C.1.c.(1) or (2), the permittee shall submit all Discharge Monitoring Reports (DMRs) required by Provision I.C.1.b by utilizing the Department's web-based Electronic Environmental (E2) Reporting System.

- (1) If the permittee is unable to complete the electronic submittal of DMR data due to technical problems originating with the Department's E2 Reporting system (this could include entry/submittal issues with an entire set of DMRs or individual parameters), the permittee is not relieved of their obligation to submit DMR data to the Department by the date specified in Provision I.C.1.b, unless otherwise directed by the Department.

If the E2 Reporting System is down on the 28th day of the month in which the DMR is due or is down for an extended period of time, as determined by the Department, when a DMR is required to be submitted, the permittee may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within 5 calendar days of the E2 Reporting System resuming operation, the permittee shall enter the data into the E2 Reporting System, unless an alternate timeframe is approved by the Department. An attachment should be included with the E2 DMR submittal verifying the original submittal date (date of the fax, copy of the dated e-mail, or hand-delivery stamped date), if applicable.

- (2) The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable.

Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The permittee shall submit the Department-approved DMR forms to the address listed in Provision I.C.1.e.

- (3) If a permittee is allowed to submit a hard copy DMR, the DMR must be legible and bear an original signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this permit.
- (4) If the permittee, using approved analytical methods as specified in Provision I.B.2, monitors any discharge from a point source for a limited substance identified in Provision I.A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR and the increased frequency shall be indicated on the DMR.
- (5) In the event no discharge from a point source identified in Provision I.A. of this permit and described more fully in the permittee's application occurs during a monitoring period, the permittee shall report "No Discharge" for such period on the appropriate DMR.

- d. All reports and forms required to be submitted by this permit, the AWPCA and the Department's Rules, shall be electronically signed (or, if allowed by the Department, traditionally signed) by a "responsible official" of the permittee as defined in ADEM Administrative Code Rule 335-6-5-.14 or a "duly authorized representative" of such official as defined in ADEM Administrative Code Rule 335-6-5-.14 and shall bear the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering 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."

- e. Discharge Monitoring Reports required by this permit, the AWPCA, and the Department's Rules that are being submitted in hard copy shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail containing Discharge Monitoring Reports shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

- f. All other correspondence and reports required to be submitted by this permit, the AWPCA, and the Department's Rules shall be addressed to:

Alabama Department of Environmental Management

Water Division
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

- g. If this permit is a re-issuance, then the permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.C.1.b above.

2. Noncompliance Notification

a. 24-Hour Noncompliance Reporting

The permittee shall report to the Director, within 24-hours of becoming aware of the noncompliance, any noncompliance which may endanger health or the environment. This shall include but is not limited to the following circumstances:

- (1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Provision I. A. of this permit which is denoted by an "(X)";
- (2) threatens human health or welfare, fish or aquatic life, or water quality standards;
- (3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a);
- (4) contains a quantity of a hazardous substance which has been determined may be harmful to public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4);
- (5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset; and
- (6) is an unpermitted direct or indirect discharge of a pollutant to a water of the state (unpermitted discharges properly reported to the Department under any other requirement are not required to be reported under this provision).

The permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c no later than five (5) days after becoming aware of the occurrence of such discharge.

- b. If for any reason, the permittee's discharge does not comply with any limitation of this permit, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c below, such report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I.C.1 of this permit after becoming aware of the occurrence of such noncompliance.

- c. Any written report required to be submitted to the Director or Designee by Part I.C.2 a. or b. shall be submitted using a Noncompliance Notification Form (ADEM Form 421) available on the Department's website (<http://adem.alabama.gov/DeptForms/Form421.pdf>) and include the following information:

- (1) A description of the discharge and cause of noncompliance;
- (2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
- (3) A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

D. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Anticipated Noncompliance

The permittee shall give the Director written advance notice of any planned changes or other circumstances regarding a facility which may result in noncompliance with permit requirements.

2. Termination of Discharge

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Provision I. A. of this permit have permanently ceased. This notification shall serve as sufficient cause for instituting procedures for modification or termination of the permit.

3. Updating Information

a. The permittee shall inform the Director of any change in the permittee's mailing address, telephone number or in the permittee's designation of a facility contact or office having the authority and responsibility to prevent and abate violations of the AWPCA, the Department's Rules, and the terms and conditions of this permit, in writing, no later than ten (10) days after such change. Upon request of the Director or his designee, the permittee shall furnish the Director with an update of any information provided in the permit application.

b. If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

4. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, revoking and re-issuing, suspending, or terminating this permit, in whole or in part, or to determine compliance with this permit.

5. Cooling Water and Boiler Water Additives

a. The permittee shall notify the Director in writing not later than thirty (30) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in a cooling or boiler system, not identified in the application for this permit, from which discharge is allowed by this permit. Notification is not required for additives that do not contain a heavy metal(s) as an active ingredient and that pass through a wastewater treatment system prior to discharge nor is notification required for additives that should not reasonably be expected to cause the cooling water or boiler water to exhibit toxicity as determined by analysis of manufacturer's data or testing by the permittee. Such notification shall include:

- (1) name and general composition of biocide or chemical;
- (2) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach;
- (2) quantities to be used;
- (3) frequencies of use;
- (4) proposed discharge concentrations; and
- (6) EPA registration number, if applicable.

b. The use of a biocide or additive containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in cooling or boiler system(s), from which a discharge regulated by this permit occurs, is prohibited except as exempted below. The use of a biocide or additive containing zinc, chromium or related compounds may be used in special circumstances if (1) the permit contains limits for these substances, or (2) the applicant demonstrates during the application process that the use of zinc, chromium or related compounds as a biocide or additive will not pose a reasonable potential to violate the applicable State water quality standards for these substances. The use of any additive, not identified in this permit or in the application for this permit or not exempted from notification under this permit is prohibited, prior to a determination by the Department that permit modification to control discharge of the additive is not required or prior to issuance of a permit modification controlling discharge of the additive.

6. Permit Issued Based On Estimated Characteristics

- a. If this permit was issued based on estimates of the characteristics of a process discharge reported on an EPA NPDES Application Form 2D (EPA Form 3510-2D), the permittee shall complete and submit an EPA NPDES Application Form 2C (EPA Form 3510-2C) no later than two years after the date that discharge begins. Sampling required for completion of the Form 2C shall occur when a discharge(s) from the process(s) causing the new or increased discharge is occurring. If this permit was issued based on estimates concerning the composition of a stormwater discharge(s), the permittee shall perform the sampling required by EPA NPDES Application Form 2F (EPA Form 3510-2F) no later than one year after the industrial activity generating the stormwater discharge has been fully initiated.
- b. This permit shall be reopened if required to address any new information resulting from the completion and submittal of the Form 2C and or 2F.

E. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the discharge limitations specified in Provision I. A. in accordance with the following schedule:

COMPLIANCE SHALL BE ATTAINED ON THE EFFECTIVE DATE OF THIS PERMIT

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities 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 to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

2. Best Management Practices

- a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization for dilution to meet water quality requirements.
- b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112 if required thereby.
- c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee. When submitted and approved, the BMP Plan shall become a part of this permit and all requirements of the BMP Plan shall become requirements of this permit.

3. Spill Prevention, Control, and Management

The permittee shall provide spill prevention, control, and/or management sufficient to prevent any spills of pollutants from entering a water of the state or a publicly or privately owned treatment works. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and which shall prevent the contamination of groundwater and such containment system shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided.

B. OTHER RESPONSIBILITIES

1. Duty to Mitigate Adverse Impacts

The permittee shall promptly take all reasonable steps to mitigate and minimize or prevent any adverse impact on human health or the environment resulting from noncompliance with any discharge limitation specified in Provision I. A. of this permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as necessary to determine the nature and impact of the noncomplying discharge.

2. Right of Entry and Inspection

The permittee shall allow the Director, or an authorized representative, upon the presentation of proper credentials and other documents as may be required by law to:

- a. enter upon the permittee's premises where a regulated facility or activity or point source is located or conducted, or where records must be kept under the conditions of the permit;
- b. have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
- c. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit; and
- d. sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

C. BYPASS AND UPSET

1. Bypass

- a. Any bypass is prohibited except as provided in b. and c. below:
- b. A bypass is not prohibited if:
 - (1) It does not cause any discharge limitation specified in Provision I. A. of this permit to be exceeded;

- (2) It enters the same receiving stream as the permitted outfall; and
 - (3) It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system.
 - c. A bypass is not prohibited and need not meet the discharge limitations specified in Provision I. A. of this permit if:
 - (1) It is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There are no feasible alternatives to the 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
 - (3) The permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the permittee is granted such authorization, and the permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.
 - d. The permittee has the burden of establishing that each of the conditions of Provision II.C.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in a. and an exemption, where applicable, from the discharge limitations specified in Provision I. A. of this permit.
- 2. Upset
 - a. A discharge which results from an upset need not meet the discharge limitations specified in Provision I. A. of this permit if:
 - (1) No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and
 - (2) No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.
 - b. The permittee has the burden of establishing that each of the conditions of Provision II. C.2.a. of this permit have been met to qualify for an exemption from the discharge limitations specified in Provision I.A. of this permit.

D. DUTY TO COMPLY WITH PERMIT, RULES, AND STATUTES

- 1. Duty to Comply
 - a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the AWPCA and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification; or denial of a permit renewal application.
 - b. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of the permit shall not be a defense for a permittee in an enforcement action.
 - c. The discharge of a pollutant from a source not specifically identified in the permit application for this permit and not specifically included in the description of an outfall in this permit is not authorized and shall constitute noncompliance with this permit.
 - d. The permittee shall take all reasonable steps, including cessation of production or other activities, to minimize or prevent any violation of this permit or to minimize or prevent any adverse impact of any permit violation.
 - e. Nothing in this permit shall be construed to preclude and negate the permittee's responsibility or liability to apply for, obtain, or comply with other ADEM, Federal, State, or Local Government permits, certifications, licenses, or other approvals.
- 2. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules.

3. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facilities, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Provision I. A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored. If control of discharge during loss or failure of the primary source of power is to be accomplished by means of alternate power sources, standby generators, or retention of inadequately treated effluent, the permittee must furnish to the Director within six months a certification that such control mechanisms have been installed.

4. Compliance with Statutes and Rules

- a. This permit has been issued under ADEM Administrative Code, Chapter 335-6-6. All provisions of this chapter, that are applicable to this permit, are hereby made a part of this permit. A copy of this chapter may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36130.
- b. This permit does not authorize the noncompliance with or violation of any Laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws. FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

E. PERMIT TRANSFER, MODIFICATION, SUSPENSION, REVOCATION, AND REISSUANCE

1. Duty to Reapply or Notify of Intent to Cease Discharge

- a. If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a complete permit application for reissuance of this permit at least 180 days prior to its expiration. If the permittee does not intend to continue discharge beyond the expiration of this permit, the permittee shall submit written notification of this intent which shall be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Administrative Code Rule 335-6-6-.09.
- b. Failure of the permittee to apply for reissuance at least 180 days prior to permit expiration will void the automatic continuation of the expiring permit provided by ADEM Administrative Code Rule 335-6-6-.06 and should the permit not be reissued for any reason any discharge after expiration of this permit will be an unpermitted discharge.

2. Change in Discharge

- a. The permittee shall apply for a permit modification at least 180 days in advance of any facility expansion, production increase, process change, or other action that could result in the discharge of additional pollutants or increase the quantity of a discharged pollutant such that existing permit limitations would be exceeded or that could result in an additional discharge point. This requirement applies to pollutants that are or that are not subject to discharge limitations in this permit. No new or increased discharge may begin until the Director has authorized it by issuance of a permit modification or a reissued permit.
- b. The permittee shall notify the Director as soon as it is known or there is reason to believe:
 - (1) 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 this permit, if that discharge will exceed the highest of the following notification levels:
 - (a) one hundred micrograms per liter;
 - (b) two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dini-trophenol; and one milligram per liter for antimony;
 - (c) five times the maximum concentration value reported for that pollutant in the permit application; or
 - (2) 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:
 - (a) five hundred micrograms per liter;
 - (b) one milligram per liter for antimony;
 - (c) ten times the maximum concentration value reported for that pollutant in the permit application.

3. Transfer of Permit

This permit may not be transferred or the name of the permittee changed without notice to the Director and subsequent modification or revocation and reissuance of the permit to identify the new permittee and to incorporate any other changes as may be required under the FWPCA or AWPCA. In the case of a change in name, ownership or control of the permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership or control, he may decide not to modify the existing permit and require the submission of a new permit application.

4. Permit Modification and Revocation

- a. This permit may be modified or revoked and reissued, in whole or in part, during its term for cause, including but not limited to, the following:
 - (1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to revoke and reissue this permit instead of terminating the permit;
 - (2) If a request to transfer this permit has been received, the Director may decide to revoke and reissue or to modify the permit; or
 - (3) If modification or revocation and reissuance is requested by the permittee and cause exists, the Director may grant the request.
- b. This permit may be modified during its term for cause, including but not limited to, the following:
 - (1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to modify this permit instead of terminating this permit;
 - (2) There are material and substantial alterations or additions to the facility or activity generating wastewater which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;
 - (3) The Director has received new information that was not available at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance;
 - (4) A new or revised requirement(s) of any applicable standard or limitation is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA;
 - (5) Errors in calculation of discharge limitations or typographical or clerical errors were made;
 - (6) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, when 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;
 - (7) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, permits may be modified to change compliance schedules;
 - (8) To agree with a granted variance under 301(c), 301(g), 301(h), 301(k), or 316(a) of the FWPCA or for fundamentally different factors;
 - (9) To incorporate an applicable 307(a) FWPCA toxic effluent standard or prohibition;
 - (10) When required by the reopener conditions in this permit;
 - (11) When required under 40 CFR 403.8(e) (compliance schedule for development of pretreatment program);
 - (12) Upon failure of the state to notify, as required by Section 402(b)(3) of the FWPCA, another state whose waters may be affected by a discharge permitted by this permit;
 - (13) When required to correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions; or
 - (14) When requested by the permittee and the Director determines that the modification has cause and will not result in a violation of federal or state law, regulations or rules.

5. Permit Termination

This permit may be terminated during its term for cause, including but not limited to, the following:

- a. Violation of any term or condition of this permit;
- b. The permittee's misrepresentation or failure to disclose fully all relevant facts in the permit application or during the permit issuance process or the permittee's misrepresentation of any relevant facts at any time;
- c. Materially false or inaccurate statements or information in the permit application or the permit;
- d. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;
- e. The permittee's discharge threatens human life or welfare or the maintenance of water quality standards;
- f. Permanent closure of the facility generating the wastewater permitted to be discharged by this permit or permanent cessation of wastewater discharge;
- g. New or revised requirements of any applicable standard or limitation that is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA that the Director determines cannot be complied with by the permittee; or
- h. Any other cause allowed by the ADEM Administrative Code, Chapter 335-6-6.

6. Permit Suspension

This permit may be suspended during its term for noncompliance until the permittee has taken action(s) necessary to achieve compliance.

7. Request for Permit Action Does Not Stay Any Permit Requirement

The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

F. COMPLIANCE WITH TOXIC POLLUTANT STANDARD OR PROHIBITION

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Provision I. A. of this permit, or controls a pollutant not limited in Provision I. A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the permittee shall attain compliance with the requirements of the standard or prohibition within the time period required by the standard or prohibition and shall continue to comply with the standard or prohibition until this permit is modified or reissued.

G. DISCHARGE OF WASTEWATER GENERATED BY OTHERS

The discharge of wastewater, generated by any process, facility, or by any other means not under the operational control of the permittee or not identified in the application for this permit or not identified specifically in the description of an outfall in this permit is not authorized by this permit.

PART III OTHER PERMIT CONDITIONS

A. CIVIL AND CRIMINAL LIABILITY

1. Tampering

Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained or performed under the permit shall, upon conviction, be subject to penalties as provided by the AWPCA.

2. False Statements

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be subject to penalties as provided by the AWPCA.

3. Permit Enforcement

a. Any NPDES permit issued or reissued by the Department is a permit for the purpose of the AWPCA and the FWPCA and as such any terms, conditions, or limitations of the permit are enforceable under state and federal law.

b. Any person required to have a NPDES permit pursuant to ADEM Administrative Code Chapter 335-6-6 and who discharges pollutants without said permit, who violates the conditions of said permit, who discharges pollutants in a manner not authorized by the permit, or who violates applicable orders of the Department or any applicable rule or standard of the Department, is subject to any one or combination of the following enforcement actions under applicable state statutes.

(1) An administrative order requiring abatement, compliance, mitigation, cessation, clean-up, and/or penalties;

(2) An action for damages;

(3) An action for injunctive relief; or

(4) An action for penalties.

c. If the permittee is not in compliance with the conditions of an expiring or expired permit the Director may choose to do any or all of the following provided the permittee has made a timely and complete application for reissuance of the permit:

(1) initiate enforcement action based upon the permit which has been continued;

(2) issue a notice of intent to deny the permit reissuance. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;

(3) reissue the new permit with appropriate conditions; or

(4) take other actions authorized by these rules and AWPCA.

4. Relief from Liability

Except as provided in Provision II.C.1 (Bypass) and Provision II.C.2 (Upset), nothing in this permit shall be construed to relieve the permittee of civil or criminal liability under the AWPCA or FWPCA for noncompliance with any term or condition of this permit.

B. 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 under Section 311 of the FWPCA, 33 U.S.C. Section 1321.

C. PROPERTY AND OTHER RIGHTS

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of federal, state, or local laws or regulations, nor does it authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any waters of the state or of the United States.

D. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, Section 22-22-9(c), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential.

E. EXPIRATION OF PERMITS FOR NEW OR INCREASED DISCHARGES

1. If this permit was issued for a new discharger or new source, this permit shall expire eighteen months after the issuance date if construction of the facility has not begun during the eighteen-month period.
2. If this permit was issued or modified to allow the discharge of increased quantities of pollutants to accommodate the modification of an existing facility and if construction of this modification has not begun during the eighteen month period after issuance of this permit or permit modification, this permit shall be modified to reduce the quantities of pollutants allowed to be discharged to those levels that would have been allowed if the modification of the facility had not been planned.
3. Construction has begun when the owner or operator has:
 - a. begun, or caused to begin as part of a continuous on-site construction program:
 - (1) any placement, assembly, or installation of facilities or equipment; or
 - (2) significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
 - b. entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph. The entering into a lease with the State of Alabama for exploration and production of hydrocarbons shall also be considered beginning construction.

F. COMPLIANCE WITH WATER QUALITY STANDARDS

1. On the basis of the permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit should assure compliance with the applicable water quality standards.
2. Compliance with permit terms and conditions notwithstanding, if the permittee's discharge(s) from point sources identified in Provision I. A. of this permit cause or contribute to a condition in contravention of state water quality standards, the Department may require abatement action to be taken by the permittee in emergency situations or modify the permit pursuant to the Department's Rules, or both.
3. If the Department determines, on the basis of a notice provided pursuant to this permit or any investigation, inspection or sampling, that a modification of this permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the AWPCA or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the discharge until the permit has been modified.

G. GROUNDWATER

Unless specifically authorized under this permit, this permit does not authorize the discharge of pollutants to groundwater. Should a threat of groundwater contamination occur, the Director may require groundwater monitoring to properly assess the degree of the problem and the Director may require that the Permittee undertake measures to abate any such discharge and/or contamination.

H. DEFINITIONS

1. Average monthly discharge limitation - means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).
2. Average weekly discharge limitation - means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).
3. Arithmetic Mean – means the summation of the individual values of any set of values divided by the number of individual values.

4. AWPCA - means the Alabama Water Pollution Control Act.
5. BOD – means the five-day measure of the pollutant parameter biochemical oxygen demand.
6. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.
7. CBOD – means the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand.
8. Daily discharge - means the discharge of a pollutant measured during any consecutive 24-hour period in accordance with the sample type and analytical methodology specified by the discharge permit.
9. Daily maximum - means the highest value of any individual sample result obtained during a day.
10. Daily minimum - means the lowest value of any individual sample result obtained during a day.
11. Day - means any consecutive 24-hour period.
12. Department - means the Alabama Department of Environmental Management.
13. Director - means the Director of the Department.
14. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other wastes into waters of the state". Code of Alabama 1975, Section 22-22-1(b)(8).
15. Discharge Monitoring Report (DMR) - means the form approved by the Director to accomplish reporting requirements of an NPDES permit.
16. DO – means dissolved oxygen.
17. 8HC – means 8-hour composite sample, including any of the following:
 - a. The mixing of at least 5 equal volume samples collected at constant time intervals of not more than 2 hours over a period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.
 - b. A sample continuously collected at a constant rate over period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.
18. EPA - means the United States Environmental Protection Agency.
19. FC – means the pollutant parameter fecal coliform.
20. Flow – means the total volume of discharge in a 24-hour period.
21. FWPCA - means the Federal Water Pollution Control Act.
22. Geometric Mean – means the Nth root of the product of the individual values of any set of values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered one (1).
23. Grab Sample – means a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the discharge.
24. Indirect Discharger – means a nondomestic discharger who discharges pollutants to a publicly owned treatment works or a privately owned treatment facility operated by another person.
25. Industrial User – means those industries identified in the Standard Industrial Classification manual, Bureau of the Budget 1967, as amended and supplemented, under the category "Division D – Manufacturing" and such other classes of significant waste producers as, by regulation, the Director deems appropriate.
26. MGD – means million gallons per day.
27. Monthly Average – means, other than for fecal coliform bacteria, the arithmetic mean of the entire composite or grab samples taken for the daily discharges collected in one month period. The monthly average for fecal coliform bacteria is the geometric mean of daily discharge samples collected in a one month period. The monthly average for flow is the arithmetic mean of all flow measurements taken in a one month period.

28. New Discharger – means a person, owning or operating any building, structure, facility or installation:
 - a. from which there is or may be a discharge of pollutants;
 - b. that did not commence the discharge of pollutants prior to August 13, 1979, and which is not a new source; and
 - c. which has never received a final effective NPDES permit for dischargers at that site.
29. NH3-N – means the pollutant parameter ammonia, measured as nitrogen.
30. Permit application - means forms and additional information that is required by ADEM Administrative Code Rule 335-6-6-.08 and applicable permit fees.
31. Point source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, 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." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).
32. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics specified in Provision I. A. of this permit.
33. Privately Owned Treatment Works – means any devices or system which is used to treat wastes from any facility whose operator is not the operator of the treatment works, and which is not a "POTW".
34. Publicly Owned Treatment Works – means a wastewater collection and treatment facility owned by the State, municipality, regional entity composed of two or more municipalities, or another entity created by the State or local authority for the purpose of collecting and treating municipal wastewater.
35. Receiving Stream – means the "waters" receiving a "discharge" from a "point source".
36. Severe property damage - means substantial physical damage to property, 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.
37. Significant Source – means a source which discharges 0.025 MGD or more to a POTW or greater than five percent of the treatment work's capacity, or a source which is a primary industry as defined by the U.S. EPA or which discharges a priority or toxic pollutant.
38. Solvent – means any virgin, used or spent organic solvent(s) identified in the F-Listed wastes (F001 through F005) specified in 40 CFR 261.31 that is used for the purpose of solubilizing other materials.
39. TKN – means the pollutant parameter Total Kjeldahl Nitrogen.
40. TON – means the pollutant parameter Total Organic Nitrogen.
41. TRC – means Total Residual Chlorine.
42. TSS – means the pollutant parameter Total Suspended Solids.
43. 24HC – means 24-hour composite sample, including any of the following:
 - a. the mixing of at least 12 equal volume samples collected at constant time intervals of not more than 2 hours over a period of 24 hours;
 - b. a sample collected over a consecutive 24-hour period using an automatic sampler composite to one sample. As a minimum, samples shall be collected hourly and each shall be no more than one twenty-fourth (1/24) of the total sample volume collected; or
 - c. a sample collected over a consecutive 24-hour period using an automatic composite sampler composited proportional to flow.
44. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge 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 preventive maintenance, or careless or improper operation.

45. Waters - means "[a]ll waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, Section 22-22-1(b)(2). Waters "include all navigable waters" as defined in Section 502(7) of the FWPCA, 22 U.S.C. Section 1362(7), which are within the State of Alabama.
46. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.
47. Weekly (7-day and calendar week) Average – is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The calendar week is defined as beginning on Sunday and ending on Saturday. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for the calendar week shall be included in the data for the month that contains the Saturday.

I. SEVERABILITY

The provisions of this permit are severable, and if any provision 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 remainder of this permit, shall not be affected thereby.

PART IV ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

A. BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS

1. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) Plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Plan Content

The permittee shall prepare and implement a best management practices (BMP) plan, which shall:

- a. Establish specific objectives for the control of pollutants:
 - (1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g. precipitation), or circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.
- b. Establish specific best management practices to meet the objectives identified under paragraph a. of this section, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented;
- c. Establish a program to identify and repair leaking equipment items and damaged containment structures, which may contribute to contaminated stormwater runoff. This program must include regular visual inspections of equipment, containment structures and of the facility in general to ensure that the BMP is continually implemented and effective;
- d. Prevent the spillage or loss of fluids, oil, grease, gasoline, etc. from vehicle and equipment maintenance activities and thereby prevent the contamination of stormwater from these substances;
- e. Prevent or minimize stormwater contact with material stored on site;
- f. Designate by position or name the person or persons responsible for the day to day implementation of the BMP;
- g. Provide for routine inspections, on days during which the facility is manned, of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the facility in general to ensure that the BMP is continually implemented and effective;
- h. Provide for the use and disposal of any material used to absorb spilled fluids that could contaminate stormwater;
- i. Develop a solvent management plan, if solvents are used on site. The solvent management plan shall include as a minimum lists of the solvents on site; the disposal method of solvents used instead of dumping, such as reclamation, contract hauling; and the procedures for assuring that solvents do not routinely spill or leak into the stormwater;
- j. Provide for the disposal of all used oils, hydraulic fluids, solvent degreasing material, etc. in accordance with good management practices and any applicable state or federal regulations;
- k. Include a diagram of the facility showing the locations where stormwater exits the facility, the locations of any structure or other mechanisms intended to prevent pollution of stormwater or to remove pollutants from stormwater, the locations of any collection and handling systems;

- l. Provide control sufficient to prevent or control pollution of stormwater by soil particles to the degree required to maintain compliance with the water quality standard for turbidity applicable to the waterbody(s) receiving discharge(s) under this permit;
 - m. Provide spill prevention, control, and/or management sufficient to prevent or minimize contaminated stormwater runoff. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and shall prevent the contamination of groundwater. The containment system shall also be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided;
 - n. Provide and maintain curbing, diking or other means of isolating process areas to the extent necessary to allow segregation and collection for treatment of contaminated stormwater from process areas;
 - o. Be reviewed by plant engineering staff and the plant manager; and
 - p. Bear the signature of the plant manager.
3. Compliance Schedule
- The permittee shall have reviewed (and revised if necessary) and fully implemented the BMP plan as soon as practicable but no later than six months after the effective date of this permit.
4. Department Review
- a. When requested by the Director or his designee, the permittee shall make the BMP available for Department review.
 - b. The Director or his designee may notify the permittee at any time that the BMP is deficient and require correction of the deficiency.
 - c. The permittee shall correct any BMP deficiency identified by the Director or his designee within 30 days of receipt of notification and shall certify to the Department that the correction has been made and implemented.
5. Administrative Procedures
- a. A copy of the BMP shall be maintained at the facility and shall be available for inspection by representatives of the Department.
 - b. A log of the routine inspection required above shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection.
 - c. The permittee shall provide training for any personnel required to implement the BMP and shall retain documentation of such training at the facility. This documentation shall be available for inspection by representatives of the Department. Training shall be performed prior to the date that implementation of the BMP is required.
 - d. BMP Plan Modification. The permittee shall amend the BMP plan whenever there is a change in the facility or change in operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.
 - e. BMP Plan Review. The permittee shall complete a review and evaluation of the BMP plan at least once every three years from the date of preparation of the BMP plan. Documentation of the BMP Plan review and evaluation shall be signed and dated by the Plant Manager.

B. STORMWATER FLOW MEASUREMENT AND SAMPLING REQUIREMENTS

1. Stormwater Flow Measurement
 - a. All stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches.

- b. The total volume of stormwater discharged for the event must be monitored, including the date and duration (in hours) and rainfall (in inches) for storm event(s) sampled. The duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event must be a minimum of 72 hours. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.
 - c. The volume may be measured using flow measuring devices, or estimated based on a modification of the Rational Method using total depth of rainfall, the size of the drainage area serving a stormwater outfall, and an estimate of the runoff coefficient of the drainage area. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.
2. Stormwater Sampling
 - a. A grab sample, if required by this permit, shall be taken during the first thirty minutes of the discharge (or as soon thereafter as practicable); and a flow-weighted composite sample, if required by this permit, shall be taken for the entire event or for the first three hours of the event.
 - b. All test procedures will be in accordance with part I.B. of this permit.

C. DISCHARGE INFORMATION ZONE (DIZ) REQUIREMENTS

1. The permittee shall, upon request for a permit renewal, perform a sediment and benthic community characterization utilizing the same sampling locations approved in the original DIZ study plan, unless a modified study plan is approved by the Department. The DIZ monitoring shall be repeated if the permittee fails accelerated testing and is required to initiate a Toxicity Reduction Evaluation (TRE) pursuant to Part IV.D. of this permit.
2. Monitoring shall be conducted during the same season as the original characterization and shall conform to the DIZ study plan, unless otherwise approved by the Department. Monitoring results shall be submitted to the Department along with the application for permit renewal or with the discharge monitoring report form in the event that repeated monitoring is required.
3. The permittee shall not allow biological damage or adverse water quality impacts to occur at the perimeter or outside the boundaries of the original characterization. If the biological monitoring shows evidence of biological damage or adverse water quality impacts at the perimeter, or outside the boundaries of the original characterization, the permittee will be in violation of this permit, unless the permittee can demonstrate that the cause of adverse impacts are due to a source other than the permittee's discharge, and will be required within 30 days after becoming aware of the violation to submit a plan to correct and eliminate the biological damage and adverse water quality impacts caused by the discharge.
4. The Department may suspend or otherwise modify the DIZ monitoring requirements if:
 - a. The Department determines, through review of discharger information and/or its own monitoring efforts, that the discharge is having no significant impact to coastal resources beyond 400 feet of the discharge point; or
 - b. The Department determines, through review of the discharge information and/or its own monitoring efforts, that the discharge monitoring is inadequate to detect significant impacts to coastal resources beyond 400 feet of the discharge point; or
 - c. The Department determines, based on available biological and chemical data that, due to the nature of the discharge, no significant impacts to coastal resources will occur beyond 400 feet of the discharge point; or deemed necessary by the Department to ensure protection of coastal resources.

D. DIOXIN MONITORING REQUIREMENTS

1. Collection of samples shall be done during a period when the catalytic reforming process is in use.
2. The method of analysis for each sample shall be EPA Method 1613 or another equivalent protocol approved by the State and EPA. If dioxin is not detected, the report of less than detectable shall be made. A report of less than detectable shall include the numeric value of the detection limit for the specific test format "<10" (if ten were the detection limit). Less than detectable results shall be considered zero for all purposes of compliance with this permit and applicable Department rules and for calculating averages.

3. Discharge monitoring reports shall be submitted no later than 28 days after the end of the quarter during which the samples were collected or no later than 28 days after receipt by the permittee of the results of the analysis, whichever is later.

E. DIOXIN REOPENER CLAUSE

1. Effluent limitations for 2,3,7,8-TCDD (dioxin) are based on a waste load allocation (WLA) to ensure compliance with the water quality standard for 2,3,7,8-TCDD (dioxin) adopted by the Department. Should the Department or EPA modify the water quality standard for 2,3,7,8-TCDD, the Department shall revise the WLA upon which this permit is based, and this permit shall be modified or revoked and reissued to adjust the effluent limitations to be consistent with the modified WLA.

F. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform short term chronic toxicity tests on the wastewater discharges required to be tested for chronic toxicity by Part I of this permit.
 - a. Test Requirements
 - (1) The samples shall be diluted, using an appropriate control water, to the Instream Waste Concentration (IWC) which is 4% effluent. The IWC is the actual concentration of effluent, after mixing, in the receiving stream during a 7-day, 2-year flow period.
 - b. Any test result that shows a statistically significant reduction in survival, growth, or reproduction between the control and the test at the 95% confidence level indicate chronic toxicity and constitute noncompliance with this permit
 - c. General Test Requirements:
 - (1) A minimum of three (3) 24-hour composite samples shall be obtained for use in the above biomonitoring tests and collected every other day so that the laboratory receives water samples on the first, third, and fifth day of the seven-day test period. The holding time for each composite sample shall not exceed 36 hours. The control water shall be a water prepared in the laboratory in accordance with the EPA procedure described in EPA 821-R-02-013 or the most current edition or another control water selected by the permittee and approved by the Department.
 - (2) Effluent toxicity tests in which the control survival is less than 80%, or in which the other requirements of the EPA Test Procedure are not met shall be unacceptable and the permittee shall rerun the tests as soon as practical within the monitoring period.
 - (3) In the event of an invalid test, upon subsequent completion of a valid test, the results of all tests, valid and invalid, are reported with an explanation of the tests performed and results.
 - d. Reporting Requirements:
 - (1) The permittee shall notify the Department in writing within 48 hours after toxicity has been demonstrated by the scheduled test(s).
 - (2) Biomonitoring test results obtained during each monitoring period shall be summarized and reported using the appropriate Discharge Monitoring Report (DMR) form approved by the Department. In accordance with Section 2. of this part, an effluent toxicity report containing the information in Section 2. shall be included with the DMR. Two copies of the test results must be submitted to the Department no later than 28 days after the month in which the tests were performed.
 - e. Additional Testing Requirements:
 - (1) If chronic toxicity is indicated (noncompliance with permit limit), the permittee shall perform four additional valid chronic toxicity tests in accordance with these procedures to determine the extent and duration of the toxic condition. The toxicity tests shall be performed once per week and shall be performed during the first four calendar weeks following the date on which the permittee became aware of the permit noncompliance and

the results of these tests shall be submitted no later than 28 days following the month in which the tests were performed.

- (2) After evaluation of the results of the follow-up tests, the Department will determine if additional action is appropriate and may require additional testing and/or toxicity reduction measures. The permittee may be required to perform a Toxicity Identification Evaluation (TIE) and/or a Toxicity Reduction Evaluation (TRE). The TIE/TRE shall be performed in accordance with the most recent protocols/guidance outlined by EPA (e.g., EPA/600/2-88/062, EPA/600/R-92/080, EPA/600R-92/081, EPA/833/B-99/022 and/or EPA/600/6-91/005F, etc.).

f. Test Methods:

- (1) The tests shall be performed in accordance with the latest edition of the "EPA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms" and shall be performed using the sheepshead minnow (*Cyprinodon variegatus*) and the mysid shrimp (*Mysidopsis bahia*).

2. Effluent toxicity testing reports

The following information shall be submitted with each discharge monitoring report unless otherwise directed by the Department. The Department may at any time suspend or reinstate this requirement or may increase or decrease the frequency of submittals.

a. Introduction

- (1) Facility Name, location and county
- (2) Permit number
- (3) Toxicity testing requirements of permit
- (4) Name of receiving water body
- (5) Contract laboratory information (if tests are performed under contract)
 - (a) Name of firm
 - (b) Telephone number
 - (c) Address
- (6) Objective of test

b. Plant Operations

- (1) Discharge operating schedule (if other than continuous)
- (2) Volume of discharge during sample collection to include Mean daily discharge on sample collection date (MGD, CFS, GPM)
- (3) Design flow of treatment facility at time of sampling

c. Source of Effluent and Dilution Water

- (1) Effluent samples
 - (a) Sampling point
 - (b) Sample collection dates and times (to include composite sample start and finish times)
 - (c) Sample collection method
 - (d) Physical and chemical data of undiluted effluent samples (water temperature, pH, alkalinity, hardness, specific conductance, total residual chlorine (if applicable), etc.)

- (e) Sample temperature when received at the laboratory
 - (f) Lapsed time from sample collection to delivery
 - (g) Lapsed time from sample collection to test initiation
- (2) Dilution Water Samples
 - (a) Source
 - (b) Collection date(s) and time(s) (where applicable)
 - (c) Pretreatment
 - (d) Physical and chemical characteristics (pH, hardness, water temperature, alkalinity, specific conductance, etc.)
- d. Test Conditions
 - (1) Toxicity test method utilized
 - (2) End point(s) of test
 - (3) Deviations from referenced method, if any, and reason(s)
 - (4) Date and time test started
 - (5) Date and time test terminated
 - (6) Type and volume of test chambers
 - (7) Volume of solution per chamber
 - (8) Number of organisms per test chamber
 - (9) Number of replicate test chambers per treatment
 - (10) Test temperature, pH and dissolved oxygen as recommended by the method (to include ranges)
 - (11) Feeding frequency, and amount and type of food
 - (12) Light intensity (mean)
- e. Test Organisms
 - (1) Scientific name
 - (2) Life stage and age
 - (3) Source
 - (4) Disease treatment (if applicable)
- f. Quality Assurance
 - (1) Reference toxicant utilized and source
 - (2) Date and time of most recent acute reference toxicant test(s), raw data, and current cusum chart(s)
 - (3) Dilution water utilized in reference toxicant test
 - (4) Results of reference toxicant test(s) (LC50, etc.), report concentration-response relationship and evaluate test sensitivity. The most recent reference toxicant test shall be conducted within 30-days of the routine.

- (5) Physical and chemical methods utilized
- g. Results
 - (1) Provide raw toxicity data in tabular form, including daily records of affected organisms in each concentration (including controls) and replicate
 - (2) Provide table of endpoints: LC50, NOAEC, Pass/Fail (as required in the applicable NPDES permit)
 - (3) Indicate statistical methods used to calculate endpoints
 - (4) Provide all physical and chemical data required by method
 - (5) Results of test(s) (LC50, NOAEC, Pass/Fail, etc.), report concentration-response relationship (**definitive test only**), report percent minimum significant difference (PMSD).
- h. Conclusions and Recommendations
 - (1) Relationship between test endpoints and permit limits
 - (2) Action to be taken

1/ Adapted from "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms", Fourth Edition, October 2002 (EPA 821-R-02-014).

G. REQUIREMENTS FOR MANAGEMENT OF BULK PETROLEUM SECONDARY CONTAINMENT AREAS AND ASSOCIATED DRAINAGE OF UNCONTAMINATED STORM WATER

1. The facility shall have a valid SPCC Plan pursuant to 40 CFR 112.
2. Best Management Practices (BMPs) are to be used in draining dike areas. BMP is defined as use of a portable oil skimmer or similar device or the use of absorbent material to remove oil and grease (as indicated by a sheen) immediately after draining.
 - a. Twice per week inspections of the area and removal of any leaked petroleum product;
 - b. Immediate cleanup of spilled or leaked petroleum product during handling operations, including fueling; and
 - c. All cleanup activities shall be conducted using dry sweep or other approaches that do not result in the creation of polluted wastewater or storm water runoff.
3. Monitoring records shall be maintained in the form of a log and shall contain the following information, as a minimum:
 - a. Date and time of inspections;
 - b. Any cleanup accomplished as a result of the inspection;
 - c. Time cleanup was initiated and the time it was completed;
 - d. Initials of the person making visual inspection and performing any cleanup; and
 - e. Description of any spillage occurring during petroleum handling, which shall include the date and time of the spill, estimated volume of spill, name of the person observing the spill, date and time the spill was cleaned up and the name of the person cleaning up the spill.
4. Monitoring records for diked drainage shall be maintained in the form of a log and shall contain the following information, at a minimum:
 - a. Date and time of discharge,
 - b. Estimated volume of discharge,
 - c. Initials of person making visual inspection and authorizing discharge.
5. The discharge shall have no sheen and there shall be no discharge of visible oil, floating solids or visible foam in other than trace amounts.
6. Semi-annual certification shall be submitted by July 28th and January 28th that all discharges were made in accordance with these requirements.



Alabama Department of Environmental Management
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(334) 271-7700 ■ FAX (334) 271-7950

FACT SHEET

**APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE POLLUTANTS TO WATERS OF
THE STATE OF ALABAMA**

Date: January 22, 2021

Prepared By: Ed Hughes

NPDES Permit No. AL0055859

1. Name and Address of Applicant:

Shell Chemical LP
400 Industrial Parkway Extension
Saraland, AL 36571

2. Name and Address of Facility:

Shell Chemical LP
400 Industrial Parkway Extension
Saraland, Alabama 36571

3. Description of Applicant's Type of Facility and/or Activity Generating the Discharge:

Individual Permit - Standard

4. Applicant's Receiving Waters

<u>Receiving Waters</u>	<u>Classification</u>
Chickasaw Creek	Tier 1, LWF

For the Outfall latitude and longitude see the permit application.

5. Permit Conditions:

See attached Rationale and Draft Permit.

6. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

a. Comment Period

The Alabama Department of Environmental Management proposes to issue this NPDES permit subject to the limitations and special conditions outlined above. This determination is tentative.

Interested persons are invited to submit written comments on the draft permit to the following address:

Russell A. Kelly, Chief

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)



Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

Permits and Services Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059
(334) 271-7714

All comments received prior to the closure of the public notice period (see public notice for date) will be considered in the formulation of the final determination with regard to this permit.

b. Public Hearing

A written request for a public hearing may be filed within the public notice period and must state the nature of the issues proposed to be raised in the hearing. A request for a hearing should be filed with the Department at the following address:

Russell A. Kelly, Chief
Permits and Services Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059
(334) 271-7714

The Director shall hold a public hearing whenever it is found, on the basis of hearing requests, that there exists a significant degree of public interest in a permit application or draft permit. The Director may hold a public hearing whenever such a hearing might clarify one or more issues involved in the permit decision. Public notice of such a hearing will be made in accordance with ADEM Admin. Code r. 335-6-6-.21.

c. Issuance of the Permit

All comments received during the public comment period shall be considered in making the final permit decision. At the time that any final permit decision is issued, the Department shall prepare a response to comments in accordance with ADEM Admin. Code r. 335-6-6-.21. **The permit record, including the response to comments, will be available to the public via the eFile System (<http://app.adem.alabama.gov/eFile/>) or an appointment to review the record may be made by writing the Permits and Services Division at the above address.**

Unless a request for a stay of a permit or permit provision is granted by the Environmental Management Commission, the proposed permit contained in the Director's determination shall be issued and effective, and such issuance will be the final administrative action of the Alabama Department of Environmental Management.

d. Appeal Procedures

As allowed under ADEM Admin. Code chap. 335-2-1, any person aggrieved by the Department's final administrative action may file a request for hearing to contest such action. Such requests should be received by the Environmental Management Commission within thirty days of issuance of the permit. Requests should be filed with the Commission at the following address:

Alabama Environmental Management Commission
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059

All requests must be in writing and shall contain the information provided in ADEM Admin. Code r. 335-2-1-.04.

ADEM PERMIT RATIONALE

PREPARED DATE: October 15, 2020

PREPARED BY: Ed Hughes

REVISED: March 24, 2021

Permittee Name: Shell Chemical LP

Facility Name: Shell Chemical LP

Permit Number: AL0055859

PERMIT IS REISSUANCE DUE TO EXPIRATION

DISCHARGE SERIAL NUMBERS & DESCRIPTIONS:

DSN001: Process wastewater discharge and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash and tank bottoms or water draws.

DSN002: Fire pump non-contact cooling water.

DSN005Q, 006Q, 007Q, 010Q, 012Q, 013Q, 015Q, 016Q: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.

DSN003S, 004S, 008S, 009S, 011S, 014S, 017S, 018S: Uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.

DSN019S, 020S, 021S: Storm water runoff from non-process areas including employee parking lots, administrative buildings, warehouse and access roads.

INDUSTRIAL CATEGORY: 40 CFR Part 419 Petroleum Refining, Subpart A – Topping Subcategory

MAJOR: Y

STREAM INFORMATION:

Receiving Stream: Chickasaw Creek

Classification: LWF

River Basin: Mobile

7Q10: 0.0 cfs

7Q2: 0.0 cfs

1Q10: 0.0 cfs

Annual Average Flow: 0.0 cfs

303(d) List: YES

Impairment: Mercury (Hg)

TMDL: No

The latest Water Quality Modeling for Shell Chemical LP's discharge to Chickasaw Creek states that there are no low-flow estimates for this location due to "tidal influence, meteorological data, and many other variables." Based on Best Professional judgement (BPJ), there is some dilution available because of the large volume of water at the

point of discharge. The Water Quality Section released a CORMIX Model that allows for a 16% dilution ratio for acute and 3.51% for chronic. Based on the design flow of the facility in 2017 (0.28 MGD), and the IWCs determined by the Cormix model, the 1Q10 and 7Q2 were calculated for the facility's discharge point. Calculations are shown below:

1Q10

$$IWC = \frac{(\text{Avg. Discharge from facility})}{(1Q10) + (\text{Avg. Discharge from facility})} \times 100\%$$

IWC = 16% for acute toxicity

Avg. Discharge = 0.28 MGD

1Q10 is applicable flow based on ADEM's General Guidance for Writing Water Quality Based Toxicity Permits

1Q10 = 1.47 MGD = 2.28 cfs

7Q2

$$IWC = \frac{(\text{Avg. Discharge from facility})}{(1Q10) + (\text{Avg. Discharge from facility})} \times 100\%$$

IWC = 3.51% for chronic toxicity

Avg. Discharge = 0.28 MGD

7Q2 is applicable flow based on ADEM's General Guidance for Writing Water Quality Based Toxicity Permits for LWF streams

7Q2 = 7.70 MGD = 11.92 cfs

The previous permit utilized an Annual Average Flow of 24.12 cfs. Based on Best Professional Judgement (BPJ), the same value will be used in this permit.

The revised flow summary is as follows:

Receiving Stream:	Chickasaw Creek
Classification:	LWF
River Basin:	Mobile
7Q2:	11.92 cfs
1Q10:	2.28 cfs
Annual Average Flow:	24.12 cfs

DISCUSSION:

Shell Chemical LP is a petroleum refinery that processes crude oils. The crude oils are sold or blended to produce unleaded gasoline, diesel, naphtha, jet fuel, kerosene, liquefied petroleum gas (LPG) and olefin fuels.

The receiving stream for all of the discharges discussed below is Chickasaw Creek. Chickasaw Creek has a use classification of Limited Warm Water Fishery and is currently listed on the Alabama 303(d) list for Mercury. This segment of Chickasaw Creek is considered a Tier I waterbody.

ADEM Administrative Rule 335-6-10-.12 requires applicants to new or expanded discharges to Tier II waters demonstrate that the proposed discharge is necessary for important economic or social development in the area in which the waters are located. The application submitted by the facility is not for a new or expanded discharge nor is

the receiving stream a Tier II waterbody. Therefore, the applicant is not required to demonstrate that the discharge is necessary for economic and social development.

0011: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Oxygen, Dissolved (DO)	-	-	6.0 mg/l	-	-	Monthly	Grab	WQBEL
BOD, 5-Day (20 Deg. C)	143 lbs/day	241 lbs/day	-	30 mg/l	45 mg/l	Weekly	Composite	WQBEL
pH	-	-	REPORT S.U.	-	REPORT S.U.	Continuous	Recorder	BPJ
Solids, Total Suspended	224.5 lbs/day	350.9 lbs/day	-	-	-	Weekly	Composite	EGL
Oil & Grease	79.9 lbs/day	153.8 lbs/day	-	-	-	Weekly	Grab	EGL
Nitrogen, Ammonia Total (As N)	26.3 lbs/day	58.0 lbs/day	-	12 mg/l	18 mg/l	Weekly	Composite	WQBEL
Nitrogen, Kjeldahl Total (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	BPJ
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	BPJ
Phosphorus, Total (As P)	-	-	-	-	REPORT mg/l	Monthly	Composite	BPJ
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Totalizer	BPJ
pH range excursions, >30 minutes	-	0 Occurrence/Month	-	-	-	Continuous	Calculated	EGL
Phenolic Compounds, Total	0.348 lbs/day	1.21 lbs/day	-	-	-	Monthly	Grab	EGL
Chemical Oxygen Demand (COD)	1339.5 lbs/day	2607.6 lbs/day	-	-	-	Monthly	Composite	EGL
pH Range Excursions, Monthly Total Accum	-	446 min	-	-	-	Continuous	Calculated	EGL

001Q: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Sulfide, Total (As S)	1.37 lbs/day	3.02 lbs/day	-	-	-	Quarterly	Grab	EGL
Chromium, Hexavalent (As Cr)	0.048 lbs/day	0.096 lbs/day	-	-	-	Quarterly	Grab	EGL
Chromium, Total (As Cr)	0.44 lbs/day	1.24 lbs/day	-	-	-	Quarterly	Composite	EGL
Mercury Total Recoverable	0.00167 lbs/day	0.0361 lbs/day	-	-	-	Quarterly	Grab	WQBEL

001S: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Toluene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ
Benzene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ
Ethylbenzene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ

001Y: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Chloride (As Cl)	-	-	-	-	REPORT mg/l	Annually	Composite	BPJ
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	-	0.00000000354 lbs/day	-	-	REPORT ppq	Annually	Composite	WQBEL
Solids, Total Dissolved	-	-	-	-	REPORT mg/l	Annually	Composite	BPJ

001T: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
P/F Statre 7 Day Chr Cyprinodon	-	-	-	-	0 pass(0)/fail(1)	Semi-Annually	24-Hr Composite	WQBEL
P/F Statre 7 Day Chr Mysid Bahia	-	-	-	-	0 pass(0)/fail(1)	Semi-Annually	24-Hr Composite	WQBEL

DSN005Q, 006Q, 007Q, 010Q, 012Q, 013Q, 015Q, 016Q: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	BPJ
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	BPJ
Carbon, Tot Organic (TOC)	-	-	-	-	110 mg/l	Quarterly	Grab	EGL
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	BPJ

DSN005S, 006S, 007S, 010S, 012S, 013S, 015S, 016S: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Toluene	-	-	-	-	8723 ug/l	Semi-Annually	Grab	WQBEL
Benzene	-	-	-	-	15.5 ug/l	Semi-Annually	Grab	WQBEL
Ethylbenzene	-	-	-	-	1244 ug/l	Semi-Annually	Grab	WQBEL
Semiannual Certification Statement	-	-	-	-	REPORT Yes=0; No=1	Semi-Annually	Not Applicable	BPJ
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ

DSN003S, 004S, 008S, 009S, 011S, 014S, 017S, 018S: Uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters.

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Semi-Annually	Grab	BPJ
Oil & Grease	-	-	-	-	15 mg/l	Semi-Annually	Grab	BPJ
Carbon, Tot Organic (TOC)	-	-	-	-	110 mg/l	Semi-Annually	Grab	BPJ
Toluene	-	-	-	-	8723 ug/l	Semi-Annually	Grab	WQBEL
Benzene	-	-	-	-	15.5 ug/l	Semi-Annually	Grab	WQBEL
Ethylbenzene	-	-	-	-	1244 ug/l	Semi-Annually	Grab	WQBEL
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Semi-Annually	Estimate	BPJ
Semiannual Certification Statement	-	-	-	-	REPORT Yes=0; No=1	Semi-Annually	Not Applicable	BPJ
Xylene	-	-	-	-	REPORT ug/l	Semi-Annually	Grab	BPJ

***Basis for Permit Limitation**

- BPJ – Best Professional Judgment
- WQBEL – Water Quality Based Effluent Limits
- EGL – Federal Effluent Guideline Limitations
- 303(d) – 303(d) List of Impaired Waters
- TMDL – Total Maximum Daily Load Requirements

Discussion

DSN001: Process wastewater discharge, boiler and cooling tower blowdown, sanitary wastewater, storm water, well water filter backwash, and tank bottoms or water draws.

The process wastewater discharges associated with this refining facility are regulated by 40 CFR Part 419 Petroleum Refining, Subpart A – Topping Subcategory (BPT/BCT/BAT). Limitations for the permit issuance prior to 1998 were based on production associated with a capacity and throughput of 50,000 barrels/day (bpd) of crude. In 1996 the production was increased to approximately 70,000 bpd. The permittee requested higher limits in 1998 to account for an increased production capacity from 50,000 to 85,000; however, the Department did not allow all of this increase due to backsliding concerns. As result, the 1998 permit was based on 50,000 bpd plus the difference between 85,000 bpd 70,000 bpd. In the 2005 permit, the limits were calculated in a similar manner but based on a reported production of 83,000 bpd. Production was reported to be the same in 2011, so limits for the 2011 permit remained consistent with the previous permit. The permittee has indicated that current production has not increased and remains at 83,000 bpd.

Calculations for the regulated pollutants using productions 70,000 and 83,000 bpd and the most stringent of 40CFR 419 BPT/BCT/BAT requirements are attached. Using the permitting approach utilized in prior issuances, the allocation associated with a production of 50,000 bpd (1993 permit limits) was added to the difference between calculated allocations for 83,000 and 70,000.

Calculated EGL limits are shown below.

<u>Parameter</u>	<u>Daily Maximum</u>	<u>Monthly average</u>
ppd	ppd	
TSS	350.9	224.5
COD	2607.6	1339.5
O&G	153.8	79.9
Phenolic compounds	1.21	0.348
Sulfide	3.02	1.37
Total Chromium	1.24	0.44
Hexavalent Chromium	.096	0.048
pH	Range of 6 to 9 s.u.	

Chromium, Hexavalent Chromium

Monitoring for both parameters is proposed to be continued at once per quarter based on BPJ and the company's history of compliance. Calculations of water quality based limits for Hex Chromium shown below confirm that EGL limits are more stringent.

Hex Chromium

$$\begin{aligned}\text{Monthly average mass limit} &= \text{marine chronic criterion} \times (7Q2 + \text{process flow}) \times 8.34 \\ &= .05 \text{ mg/l} \times (7.7 \text{ MGD} + .33 \text{ MGD}) \times 8.34 \\ &= 3.34 \text{ ppd}\end{aligned}$$

$$\begin{aligned}\text{Daily max mass limit} &= \text{marine acute criterion} \times (1Q10 + \text{process flow}) \times 8.34 \\ &= 1.1 \text{ mg/l} \times (1.473 \text{ MGD} + .33 \text{ MGD}) \times 8.34 \\ &= 16.5 \text{ ppd}\end{aligned}$$

ADEM water quality standards do not list marine WQ standards for Total Chromium.

COD, Oil & Grease, Phenolic compounds, Sulfides, TSS

The monitoring frequency for COD will remain at once per month. Phenolic compounds and sulfides monitoring will be continued at once per month and once per quarter, respectively. The facility requested to reduce the monitoring frequency for TSS and Oil and Grease to monthly. In order to remain consistent with other facilities in the area, TSS and Oil and Grease will continue to be monitored weekly.

BOD5, NH3-N (Water Quality Based Limits)

Limits for BOD5 and NH3 will be based on levels contained in previous permit issuances and consistent with the 2017 Waste load allocation Model. The daily BOD max limit will be 214.5 ppd and the monthly average will be 143 ppd. The daily maximum NH3 limit will be 58.0 ppd and the monthly average will be 26.3 ppd. The proposed limits for BOD and NH3 are more stringent than limits calculated using federal effluent guidelines. The facility requested to reduce the monitoring frequency for these parameters to monthly. In order to remain consistent with other facilities in the area, BOD5 and NH3-N will continue to be monitored weekly.

Biochemical Oxygen Demand, 5-day

In addition to the mass limitations, the existing BOD5 concentration limits of 45 mg/l as a daily max and 30 mg/l as a monthly average are being continued in this permit. These limits were based on BPJ using the Department's secondary treatment regulations ADEM 335-6-10-.08 as a guideline. The monitoring frequency is being continued at weekly.

Ammonia as Nitrogen

In addition to the mass based limits discussed above, the existing NH3-N concentration limits of 18 mg/l as a daily max and 12 mg/l as a monthly average are being continued. These limits were based on BPJ using municipal and refinery wastewater characterizations. The monitoring frequency is being continued at weekly.

Flow

Flow will continue to be monitored daily utilizing a flow totalizer.

pH

Based on the effluent guidelines, the permit limits pH between 6.0 – 9.0 s.u. Because pH monitoring is continuous, 99% compliance is required on a monthly basis with no single excursion outside the 6 – 9 s.u. range to exceed 30 minutes in duration. This pH range has shown to be protective of the receiving stream water quality.

Dissolved Oxygen

The existing dissolved oxygen minimum limit of 6.0 mg/l is continued in this permit. This limitation is based on Best Professional Judgment (BPJ) and has shown to be sufficient to ensure the in-stream dissolved oxygen standard is not violated. Based on the facility's request, monitoring will be reduced from once per 2 weeks to monthly.

Benzene, Ethylbenzene, Toluene, and Xylene

In order to be consistent with Departmental permitting policies, BETX will be monitored as four separate parameters. Monitoring shall be continued at semi-annual.

Tank water bottoms or draws have been shown to contain significant levels of volatile organics, specifically BETX. Therefore, the permit prohibits the discharge of these waters to diked areas or other permeable impoundments.

Total Dissolved Solids, Total Chlorides, Total Phosphorus, Nitrates + Nitrites and TKN

Monitoring for phosphorus and nitrate + nitrites will be once per month. Monthly monitoring will be added for TKN. To be consistent with current Department permitting strategy, monitoring will only be required during the growing season (April – October). The Department is in the process of developing standards for nutrients and the data collected may be needed to determine limitations in the future if necessary to protect water quality. Sampling for TDS and chlorides will be continued on an annually basis.

2,3,7,8-Tetrachloro-dibenzo-p-dioxin

This limit is based on the in-stream human health water quality criterion. In 2008 the Department developed a more stringent dioxin human health water quality criterion of 0.000000000267 mg/l for fish consumption. Calculations

were performed using this standard and the assumed annual average flow. A limit of 0.00000000354 ppd as a daily maximum was determined. This limit will be included in the permit with a continuation of the annual monitoring requirement. This monitoring shall be performed when the catalytic reforming process is in use.

Daily Max mass Limit = Human health criterion x (annual avg flow + process flow) x 8.34

Daily max mass limit = .000000000267mg/l x (15.58 MGD + .33 MGD) x 8.34
= 0.00000000354 ppd

Total Recoverable Mercury

Shell's NPDES outfall DSN001 discharges into Chickasaw Creek, which is on the Alabama 303(d) list as an impaired waterbody due to the presence of mercury. Therefore, monitoring for mercury on a once per quarter basis utilizing Method 1631E will be continued. Because the standard is listed as Total Recoverable Mercury, this parameter will be changed to total recoverable.

An updated allocation was calculated based on a process flow of 0.33 MGD and revised critical stream flows. An allocation of 0.00167 lbs/day (monthly average) and 0.0361 lbs/day (daily max) were determined (see calculations below). Shell's existing total mercury limitations are 0.0059 lbs/day (monthly average) and 0.2866 lbs/day (daily max). The revised calculated limits will be used in this draft because they are more stringent.

Monthly average mass limit = marine chronic criterion x (7Q2 + process flow) x 8.34
= .000025 mg/l x (7.7 MGD + .33 MGD) x 8.34
= 0.00167 ppd

Daily max mass limit = marine acute criterion x (1Q10 + process flow) x 8.34
= .0021 mg/l x (1.473 MGD + .33 MGD) x 8.34
= 0.0316 ppd

Discharge Information Zone (DIZ)

DIZ monitoring requirements apply at permit renewal and shall be conducted within the same season as the original characterization utilizing the same sampling locations approved in the original DIZ study plan. If the biological monitoring shows evidence of biological damage or adverse water quality impacts at the perimeter, or outside the boundaries of the original characterization, the permittee is in violation of the permit, unless the permittee can demonstrate that the cause of the adverse impacts are due to a source other than the permittee's discharge, and will be required, within 30 days after becoming aware of the violation to submit a plan to correct and eliminate the biological damage and adverse water quality impacts caused by the discharge. The results of the DIZ submitted with this permit application conclude that the discharge is not adversely impacting the environment in the study area.

Biomonitoring Requirements.

Whole effluent toxicity testing will continue to be required to test for the potential synergistic effects of the discharge. Based on the stream classification of Limited Warmwater Fishery and a dilution less than 100:1, chronic toxicity monitoring will be required. Testing is being required for salt water species because the receiving stream is tidally influenced. A CORMIX mixing zone analysis performed by the Department in 2017 determined the chronic IWC to be 3.51% based on an average process flow of 0.28 MGD. The application for reissuance indicates that the average process flow is currently 0.33 MGD. Based on this ADEM permitting procedure, the IWC will be rounded up to 4%. This will more than account for the slightly higher IWC as result of the flow increase from 0.28 to 0.33 MGD. The existing monitoring frequency of semi-annual is being continued.

Reasonable Potential

Since this facility is classified as a major industrial facility, the Department completed a Reasonable Potential Analysis (RPA) of the discharge based on lab data provided in the Permittee's application. The RPA identifies pollutants in the treated effluent that have the potential to contribute to excursions of Alabama's in-stream water quality standards. No pollutants were identified in this analysis.

DSN002: Fire pump non-contact cooling water

Because this discharge is intermittent, no chlorine is added, and the lengthy travel time to the receiving stream, there continues to be no monitoring requirements imposed on this outfall.

316(B) Requirements

This facility does not use surface water as a source of cooling water; therefore, 316(b) requirements do not apply.

DSN005, 006, 007, 010, 012, 013, 015, 016: Storm water runoff associated with petroleum refining operations, including uncontaminated storm water from secondary containment areas and uncontaminated hydrostatic test waters

It is believed that the most effective way to control the pollutants in storm water runoff is through the implementation of Best Management Practices (BMPs). For this reason, the facility is required to maintain a BMP Plan. The requirements for the plan calls for minimization of storm water contact with waste materials, products and by-products, and for prevention of spills or loss of fluids from equipment maintenance activities.

As a measure of the effectiveness of the BMP the permit requires monitoring for the following pollutants of concern: Flow, pH, total organic carbon (TOC), Benzene, Ethylbenzene, Toluene, Xylene, and Oil and Grease. Benzene, Ethylbenzene, Toluene, Xylene will be monitored semiannually. Water quality based limits are being added to the permit for Benzene, Ethylbenzene and Toluene. Flow, pH, total organic carbon (TOC) will be monitored quarterly. Oil and Grease will be limited to 15 mg/l as a daily max. TOC will be limited to 110 mg/l as a daily max based on the petroleum refining effluent guidelines for storm water, which is not co-mingled with or treated with process wastewater. Monitoring will be required at outfall DSN015. This outfall has been determined to be representative of the other storm water outfalls.

DSN003, 004, 008, 009, 011, 014, 017, 018: Uncontaminated hydrostatic test water and storm water from bulk petroleum secondary containment areas.

BMPs are imposed for discharges from petroleum storage areas. Only uncontaminated storm water and uncontaminated hydrostatic test water is authorized for discharge. A requirement for no oil sheen is imposed. This requirement coupled with the use of absorbents has been found through BPJ to be sufficient to ensure adequate removal of petroleum products.

As a measure of the effectiveness of the BMP the permit requires semi-annual monitoring for the following pollutants of concern: Flow, pH, total organic carbon (TOC), Benzene, Ethylbenzene, Toluene, Xylene and Oil and Grease. Water quality based limits are being added to the permit for Benzene, Ethylbenzene and Toluene. Oil and Grease will be limited to 15 mg/l as a daily max. TOC will be limited to 110 mg/l as a daily max based on the petroleum refining effluent guidelines for storm water which is not co-mingled with or treated with process wastewater. Monitoring will be required at outfall DSN004. This outfall has been determined to be representative of the other storm water outfalls.

DSN019: Storm water runoff from employee parking lot, access roads, and administrative building.

DSN020: Storm water runoff from warehouse and lay-down yard

DSN021: Storm water runoff from access roads north of Unit 2 area

It is believed that the most effective way to control the pollutants in storm water runoff is through the implementation of Best Management Practices (BMPs). For this reason, the facility is required to maintain a BMP Plan. The requirements for the plan calls for minimization of storm water contact with waste materials, products and by-products, and for prevention of spills or loss of fluids from equipment maintenance activities.

No monitoring requirements are imposed for these drainage areas.

Revision (March 24, 2021):

In this revision, Mercury monitoring is being changed from "Total" to "Total Recoverable" to be consistent with the form of Mercury listed in ADEM Water Quality Standards. Also effluent guideline calculations were revised to gain consistency with the approach used in previous permit issuances. Last, water quality based limits were added for Benzene, Ethylbenzene and Toluene at outfalls DSN004 and DSN015 to be consistent with Department requirements for discharges from bulk petroleum secondary containment areas. Monitor only is being required for the BETX components at outfall DSN001.

Production-Based Effluent Limits

Parameter	DAILY MAXIMUM (ppd)				MONTHLY AVERAGE (ppd)			
	1993 permit 50k bbls basis	70,000 bbls basis	83,000 bbls basis	2021 calculated Limitations ⁽¹⁾	1993 permit 50k bbls basis	70,000 bbls basis	83,000 bbls basis	2021 calculated Limitations ⁽¹⁾
BOD	--	--	--	241 ⁽²⁾	--	--	--	143 ⁽²⁾
TSS	269.75	306.06	387.24	350.93	172.34	196.75	248.94	224.52
COD	2010.42	2332.77	2929.99	2607.64	1030.72	1201.63	1510.38	1339.48
Oil and Grease	117.51	137.07	173.31	153.75	61.05	71.22	90.07	79.89
Phenolic Compounds	1.02	0.90	1.09	1.21	0.30	0.27	0.32	0.34
Ammonia as Nitrogen	--	--	--	58 ⁽²⁾	--	--	--	26.3 ⁽²⁾
Sulfide	2.25	2.67	3.44	3.02	1.02	1.21	1.56	1.37
Total Chromium	1.08	0.98	1.14	1.24	0.39	0.36	0.41	0.45
Hexavalent Chromium	0.09	0.08	0.09	0.10	0.04	0.03	0.04	0.04
pH	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9

(1) Proposed limitations are equal to allocation in the 1993 permit calculated using 50,000 bbls plus the difference of the allocation for 83,000 bbls and 70,000 bbls.

(2) Not calculated since allocations are based on water quality limitations.

Parameter	DAILY MAXIMUM (ppd)			MONTHLY AVERAGE (ppd)		
	2021 calculated Limitations	2011 Limitations	2021 Proposed Limitations	2021 calculated Limitations	2011 Limitations	2021 Proposed Limitations
BOD	241.00	241	241	143.0	143	143
TSS	350.90	350.9	350.9	224.5	224.5	224.5
COD	2607.60	2607.6	2607.6	1339.5	1339.5	1339.5
Oil and Grease	153.80	153.8	153.8	79.9	79.9	79.9
Phenolic Compounds	1.21	1.21	1.21	0.35	0.348	0.348
Ammonia as Nitrogen	58	58	58	26.3	26.3	26.3
Sulfide	3.02	3.02	3.02	1.37	1.37	1.37
Total Chromium	1.24	1.24	1.24	0.45	0.44	0.44
Hexavalent Chromium	0.10	0.096	0.096	0.05	0.048	0.048
pH	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9	6 to 9

**Effluent Limits Calculated from 40 CFR Part 419
Petroleum Refining Category - Subpart A Topping Subcategory
50 (1000 bbls)**

1993 Permit Limits*

	Daily Maximum PPD	Monthly Average PPD
BOD**	241	143
TSS	269.75	172.34
COD	2010.42	1030.72
Oil and Grease	117.51	61.05
Phenolic Compounds	1.019	0.298
Ammonia as Nitrogen**	58	26.30
Sulfide	2.25	1.02
Total Chromium	1.081	0.391
Hexavalent Chromium	0.0864	0.038
pH	within 6.0 to 9.0 S.U.	

* Limits calculated in 1993 were based on 50,000 barrels of production

** Limits were water quality based.

Effluent Limits Calculated from 40 CFR Part 419
Petroleum Refining Category - Subpart A Topping Subcategory
70 (1000 bbls)

Daily Feedstock¹ (Throughput)

Contaminated Runoff Flow

Capacity - maximum

Size Factor for 50.0 to 74.9 thousand bbls per day (70)

70 (x 1,000 bbls)²

86.2 (x 1,000 gallons)

70 (x 1,000 bbls)

1.16

Crude Process	Process Capacity	Capacity/ Throughput	Weighting Factor	Process Configuration
Atmospheric Crude Distillation	70	1.00		
Vacuum Crude Distillation	17.5	0.25		
Crude Desalting	70	1.00		
Total		2.25	1	2.25

Process Configuration

2.25

Process Factor (Process Configuration <2.49)

0.62

Process Allotment³

Parameter	Max 1 day		30 day average	
	per 1,000 bbl of fs ppd	ppd	per 1,000 bbl of fs ppd	ppd
BOD	8	402.75	4.25	213.96
TSS	5.6	281.93	3.6	181.24
COD	41.2	2074.17	21.3	1072.33
Oil and Grease	2.5	125.86	1.3	65.45
Phenolic Compounds	0.013	0.654	0.003	0.151
Ammonia as Nitrogen	0.99	49.84	0.45	22.65
Sulfide	0.053	2.67	0.024	1.21
Total Chromium	0.011	0.554	0.004	0.201
Hexavalent Chromium	0.0007	0.035	0.0003	0.015
pH	6 to 9		6 to 9	

Contaminated Runoff Allotment⁴

Parameter	Max 1 day		30 day average	
	per 1,000 gallons ppd	ppd	per 1,000 gallons ppd	ppd
BOD	0.40	34.48	0.22	18.96
TSS	0.28	24.14	0.18	15.52
COD	3.0	258.6	1.5	129.3
Oil and Grease	0.13	11.206	0.067	5.78
Phenolic Compounds	0.0029	0.250	0.0014	0.121
Ammonia as Nitrogen	0	0	0	0
Sulfide	0	0	0	0
Total Chromium	0.005	0.431	0.0018	0.155
Hexavalent Chromium	0.00052	0.0448	0.00023	0.0198
pH	6 to 9		6 to 9	

Total Allotment

Parameter	Max 1 day		30 day average	
	ppd		ppd	
BOD	437.23		232.93	
TSS	306.06		196.75	
COD	2332.77		1201.63	
Oil and Grease	137.07		71.22	
Phenolic Compounds	0.90		0.27	
Ammonia as Nitrogen	49.84		22.65	
Sulfide	2.67		1.21	
Total Chromium	0.98		0.36	
Hexavalent Chromium	0.08		0.03	
pH	6 to 9		6 to 9	

¹ Feedstock is defined as the crude oil and natural gas liquids fed to topping units

² Average feedstock and vacuum crude distillation was determined using maximum monthly data from 1997

³ Allotment calculated by multiplying effluent guideline limit by daily amt of feedstock (1,000 bbl) multiplied by the process factor, multiplied by the size factor.

⁴ Contaminated runoff allotment calculated by multiplying effluent guideline limit by average storm water flow.

Effluent Limits Calculated from 40 CFR Part 419
Petroleum Refining Category - Subpart A Topping Subcategory
83 (1000 bbls)

Daily Feedstock¹ (Throughput)

Contaminated Runoff Flow

Capacity - maximum

Size Factor for 75 to 99.9 thousand bbls per day (83)

83 (x 1,000 bbls)²

86.2 (x 1,000 gallons)

85 (x 1,000 bbls)

1.26

Crude Process	Process Capacity	Capacity/ Throughput	Weighting Factor	Process Configuration
Atmospheric Crude Distillation	85	1.02		
Vacuum Crude Distillation	30	0.36		
Crude Desalting	85	1.02		
Total		2.40	1	2.4

Process Configuration

2.40

Process Factor (Process Configuration <2.49)

0.62

Process Allotment³

Parameter	Max 1 day		30 day average	
	per 1,000 bbl of fs ppd	ppd	per 1,000 bbl of fs ppd	ppd
BOD	8	518.72	4.25	275.57
TSS	5.6	363.10	3.6	233.42
COD	41.2	2671.39	21.3	1381.08
Oil and Grease	2.5	162.10	1.3	84.29
Phenolic Compounds	0.013	0.843	0.003	0.195
Ammonia as Nitrogen	0.99	64.19	0.45	29.18
Sulfide	0.053	3.44	0.024	1.56
Total Chromium	0.011	0.713	0.004	0.259
Hexavalent Chromium	0.0007	0.045	0.0003	0.019
pH	6 to 9		6 to 9	

Contaminated Runoff Allotment⁴

Parameter	Max 1 day		30 day average	
	per 1,000 gallons ppd	ppd	per 1,000 gallons ppd	ppd
BOD	0.40	34.48	0.22	18.96
TSS	0.28	24.14	0.18	15.52
COD	3.0	258.6	1.5	129.3
Oil and Grease	0.13	11.206	0.067	5.78
Phenolic Compounds	0.0029	0.250	0.0014	0.121
Ammonia as Nitrogen	0	0	0	0
Sulfide	0	0	0	0
Total Chromium	0.005	0.431	0.0018	0.155
Hexavalent Chromium	0.00052	0.0448	0.00023	0.0198
pH	6 to 9		6 to 9	

Total Allotment

Parameter	Max / day	30 day average
	ppd	ppd
BOD	553.20	294.53
TSS	387.24	248.94
COD	2929.99	1510.38
Oil and Grease	173.31	90.07
Phenolic Compounds	1.09	0.32
Ammonia as Nitrogen	64.19	29.18
Sulfide	3.44	1.56
Total Chromium	1.14	0.41
Hexavalent Chromium	0.09	0.04
pH	6 to 9	6 to 9

¹ Feedstock is defined as the crude oil and natural gas liquids fed to topping units

² Average feedstock and vacuum crude distillation was determined using maximum monthly data from 1997

³ Allotment calculated by multiplying EGL by daily amt of feedstock (1,000 bbl) multiplied by the process factor, multiplied by the size factor.

⁴ Contaminated runoff allotment calculated by multiplying effluent guideline limit by average storm water flow.

Waste Load Allocation Summary

Page 1

REQUEST INFORMATION

Request Number:

3378

From:

Latoya Hall

In Branch/Section:

Industrial

Date Submitted: 11/17/2016

Date Required: 12/17/2016

FUND Code: 210

Date Permit application received by NPDES program: 4/1/2016

Receiving Waterbody:

Chickasaw Creek

Previous Stream Name:

Facility Name:

Shell Chemical LP

(Name of Discharger-WQ will use to file)

Previous Discharger Name:

River Basin:

Mobile

Outfall Latitude:

30.779669

(decimal degrees)

County:

Mobile

Outfall Longitude:

-88.059654

(decimal degrees)

Permit Number:

AL0055859

Permit Type:

Permit Reissuance

Permit Status:

Active

Type of Discharger:

INDUSTRIAL

Do other discharges exist that may impact the model?

☒ Yes☐ No

If yes, impacting dischargers names.

Stanley Brooks WWTP, Chickasaw Lagoon, Kimberly-Clark

Impacting dischargers permit numbers.

AL0055204, AL0020885, AL0002801

Existing Discharge Design Flow: 0.28

MGD

Proposed Discharge Design Flow: 0.28

MGD

Note: The flow rates given should be those requested for modeling.

Comments Included:

☐ Yes ☒ No

Information Verified By:

JBR

Year File Was Created:

1991

Response ID Number:

1587

Lat/Long Method:

Arcview

12 Digit HUC Code:

031602040305

Use Classification:

LWF

Site Visit Completed?

☒ Yes ☐ No

Date of Site Visit:

2/15/2017

Waterbody Impaired?

☒ Yes ☐ No

Date of WLA Response:

10/31/2017

Antidegradation:

☐ Yes ☒ No

Approved TMDL?

☐ Yes ☒ No

Waterbody Tier Level:

Tier I

Use Support Category:

5

Approval Date of TMDL:

Waste Load Allocation Information

Modeled Reach Length:

Miles:

Date of Allocation:

5/23/2017

Name of Model Used:

WASP

Allocation Type:

Annual

Model Completed by:

JBR

Type of Model Used:

Calibrated

Allocation Developed by:

Water Quality Branch

Waste Load Allocation Summary

Page 2

Annual Effluent Limits		Conventional Parameters				Other Parameters			
		Qw	MGD	Qw	MGD	Qw	MGD	Qw	MGD
Season		Season		Season		Season			
From		From		From		From			
Through		Through		Through		Through			
CBOD5	143 lbs/day			CBOD5		TP		TP	
NH3-N	26.3 lbs/day			NH3-N		TN		TN	
TKN				TKN		TSS		TSS	
D.O.	6 mg/L			D.O.					

"Monitor Only" Parameters for Effluent:			
Parameter	Frequency	Parameter	Frequency
TP	Monthly (Apr-Oct)		
NO2+NO3-N	Monthly (Apr-Oct)		
TKN	Monthly (Apr-Oct)		

Water Quality Characteristics Immediately Upstream of Discharge

Parameter	Summer	Winter
CBODu	mg/l	mg/l
NH3-N	mg/l	mg/l
Temperature	°C	°C
pH	su	su

Hydrology at Discharge Location

Drainage Area Qualifier	Drainage Area	sq mi.	Method Used to Calculate
Exact	Stream 7Q10	cfs	Coastal Area
	Stream 1Q10	cfs	Coastal Area
	Stream 7Q2	cfs	Coastal Area
	Annual Average	cfs	Coastal Area

Comments and/or Notations

Mixing Zone Analysis Summary

Page 1

REQUEST INFORMATION

request number: 3378

From: (Responsible Engineer) Latoya Hall In Branch/Section Industrial
Date Submitted: 11/17/2016 Date Required: 12/17/2016 FUND Code: 210
Date Permit application received by NPDES program: 4/1/2016

Receiving Waterbody: Chickasaw Creek
Previous Stream Name:
Facility Name: Shell Chemical LP (Name of Discharger-WQ will use to file)
Previous Discharger Name:
River Basin: Mobile Outfall Latitude: 30.779669 (decimal degrees)
County: Mobile Outfall Longitude: -88.059654 (decimal degrees)
Permit Number: AL0055859 Permit Type: Permit Reissuance
Permit Status: Active
Type of Discharger: INDUSTRIAL

Do other discharges exist that may impact the model?

☒ Yes ☐ No

If yes, impacting dischargers names:

Stanley Brooks WWTP, Chickasaw Lagoon, Kimberly-Clark

Impacting dischargers permit numbers:

AL0055204, AL0020885, AL0002801

Existing Discharge Design Flow: 0.28 MGD
Proposed Discharge Design Flow: 0.28 MGD

Note: The flow rates given should be those requested for modeling.

Seasonal limits requested? ☐ Yes ☒ No

If not seasonal, only the summer sections will be used

Comments Included

☒ Yes ☐ No

Information Verified By: JBR

Year File Was Started: 1991

12 Digit HUC Code: 031602040305

Use Classification: LWF

Site Visit Completed? ☒ Yes ☐ No

Date of MZ Response: 10/31/2017

Date of Site Visit: 2/15/2017

Hydrology

Drainage Area: sq. mi
Stream 7Q10: cfs
Stream 1Q10: cfs
Stream 7Q2: cfs
Annual Average: cfs

Method Used to Calculate

Coastal Area
Coastal Area
Coastal Area
Coastal Area

Date of MZ Analysis: 5/23/2017

Model Completed by: JBR

Pollutant Category:

Whole Effluent Toxicity (WET) ☒ Thermal ☐ Pathogens ☐

Mixing Zone Analysis Summary

Page 2

WET Parameters

Summer

Acute

Ambient Streamflow 0 cfs
ZID Length 2.25 Meters
ZID IWC 16 %

Chronic

Ambient Streamflow 0 cfs
Mixing Zone Length 121.9 Meters
Mixing Zone IWC 3.51 %

Winter

Acute

Ambient Streamflow cfs
ZID Length 2.25 Meters
ZID IWC %

Chronic

Ambient Streamflow cfs
Mixing Zone Length 121.9 Meters
Mixing Zone IWC %

Thermal Parameters

Summer

Ambient Streamflow cfs
Mixing Zone Length Meters
Max. Effluent Temp °C

Winter

Ambient Streamflow cfs
Mixing Zone Length Meters
Max. Effluent Temp °C

Pathogen Parameters

Summer

Ambient Streamflow cfs
ZID Length Meters
Max. Effluent Fecal Conc Cols/100 mls
Max. Effluent E. coli Conc Cols/100 mls
Monthly Average Effluent E. coli Conc Cols/100 mls
Max. Effluent Enterococci Conc (for coastal waters) Cols/100 mls

Winter

Ambient Streamflow cfs
ZID Length Meters
Max. Effluent Fecal Conc Cols/100 mls
Max. Effluent E. coli Conc Cols/100 mls
Monthly Average Effluent E. coli Conc Cols/100 mls
Max. Effluent Enterococci Conc (for coastal waters) Cols/100 mls

Comments
and/or
Notations

$Q_1 \cdot C_1 + Q_2 \cdot C_2 + Q_3 \cdot C_3 = Q \cdot C$									
ID	Pollutant	Category	Type	Background from upstream source (C ₁)	Background from upstream source (C ₂)	Background from upstream source (C ₃)	Background from upstream source (C ₄)	Enter Max Daily Discharge as reported by Applicant (C ₁)	Enter Avg Daily Discharge as reported by Applicant (C ₂)
				Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg
1	Antimony		Metals	0	0	0	0	0	0
2	Arsenic**	YES	Metals	0	0	0	0	11	0
3	Beryllium		Metals	0	0	0	0	0	0
4	Cadmium		Metals	0	0	0	0	0	0.236
5	Chromium / Chromium III**		Metals	0	0	0	0	4	0.210
6	Chromium / Chromium VI**		Metals	0	0	0	0	0	0
7	Copper**		Metals	0	0	0	0	4.6	0.388
8	Lead**		Metals	0	0	0	0	2	0.467
9	Mercury**		Metals	0	0	0	0	0.12	0.02
10	Nickel**		Metals	0	0	0	0	0	0.505
11	Selenium		Metals	0	0	0	0	0	0
12	Silver		Metals	0	0	0	0	0	0
13	Thallium		Metals	0	0	0	0	0	0
14	Zinc**		Metals	0	0	0	0	0	0.330
15	Cyanide		Metals	0	0	0	0	0	0
16	Total Phosphoric Compounds		Metals	0	0	0	0	0	0
17	Hardness (As CaCO ₃)		Metals	0	0	0	0	0	0
18	Acetone		VOC	0	0	0	0	0	0
19	Acrylonitrile	YES	VOC	0	0	0	0	0	0
20	Alkyls	YES	VOC	0	0	0	0	0	0
21	Benzene	YES	VOC	0	0	0	0	0	0
22	Bromobenzene	YES	VOC	0	0	0	0	0	0
23	Carbon Tetrachloride	YES	VOC	0	0	0	0	0	0
24	Chlorobenzene	YES	VOC	0	0	0	0	0	0
25	Chlorobenzene-Methane	YES	VOC	0	0	0	0	0	0
26	Chlorophene	YES	VOC	0	0	0	0	0	0
27	1,2-Dichloroethane	YES	VOC	0	0	0	0	0	0
28	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
29	1,1,1,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
30	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
31	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
32	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
33	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
34	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
35	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
36	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
37	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
38	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
39	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
40	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
41	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
42	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
43	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
44	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
45	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
46	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
47	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
48	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
49	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
50	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
51	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
52	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
53	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
54	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
55	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
56	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
57	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
58	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
59	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
60	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
61	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
62	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
63	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
64	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
65	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
66	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
67	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
68	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
69	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
70	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
71	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
72	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
73	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
74	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
75	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
76	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
77	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
78	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
79	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
80	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
81	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
82	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
83	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
84	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
85	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
86	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
87	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
88	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
89	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
90	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
91	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
92	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
93	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
94	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
95	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
96	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
97	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
98	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
99	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
100	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
101	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
102	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
103	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
104	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
105	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
106	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
107	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
108	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
109	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
110	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
111	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
112	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
113	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
114	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
115	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
116	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
117	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
118	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
119	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
120	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
121	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
122	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
123	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
124	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
125	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
126	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
127	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
128	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0
129	1,1,2,2-Tetrachloroethane	YES	VOC	0	0	0	0	0	0

0.33	Enter Q ₁ = wastewater discharge flow from facility (MGD)
9.5105857	Q ₂ = wastewater discharge flow (cfs) (this value is calculated from the MGD)
0	Enter flow from upstream discharge Qd2 = background stream flow in MGD above point of discharge
0	Qd2 = background stream flow from upstream source (cfs)
2.68	Enter TQ10, Q ₁ = background stream flow in cfs above point of discharge
2.23	Enter or estimated, TQ10, Q ₁ = background stream flow in cfs above point of discharge (TQ10 estimated at 75% of TQ10)
24.12	Enter Mean Annual Flow, Q ₁ = background stream flow in cfs above point of discharge
11.92	Enter TQ2, Q ₂ = background stream flow in cfs above point of discharge (For LVP class streams)
Enter to Left	Enter C ₁ = background in-stream pollutant concentration in µg/l (assuming this is zero "0" unless there is data)
Q ₁ + Qd2 + Q ₃	Q ₁ = resultant in-stream flow, after discharge
Calculated on other	C ₁ = resultant in-stream pollutant concentration in µg/l in the stream (after complete mixing occurs)
50	Enter, Background Hardness above point of discharge (assumed 50 South of Birmingham and 100 North of Birmingham)
7.00 u.u.	Enter, Background pH above point of discharge
YES	Enter, Is discharge to a stream? "YES" Other option would be to a Lake. (This changes the partition coefficients for the metals)

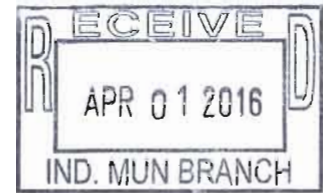
** Using Partition Coefficients

October 28, 2020

Facility Name: Shell Chemicals																			
NPOCS No.: AL0055319																			
Marine LWF classification:										Human Health Consumption Fish only (ug/l)									
										Carcinogen CL = Annual Average									
										Non-Carcinogen CL = 70/10									
ID	Pollutant	RPT	Carcinogen yes	Background from upstream source (C2) Daily Max	Max Daily Discharge as reported by Applicant (Cmax)	Water Quality Criteria (C1)	Draft Permit Limit (Cmax)	20% of Draft Permit Limit	RPT	Background from upstream source (C2) Monthly Ave	Reg Daily Discharge as reported by Applicant (Cmax)	Water Quality Criteria (C1)	Draft Permit Limit (Cmax)	20% of Draft Permit Limit	RPT	Water Quality Criteria (C1)	Draft Permit Limit (Cmax)	20% of Draft Permit Limit	RPT
1	Arsenic		YES	0	0	0	0	0	0	0	0	0	0	0	0	3.75E-02	3.75E-02	7.47E-01	No
2	Arsenic		YES	0	11	0	61.172	12.234708	No	0	0	0	0	0	0	8.25E-01	2.55E-01	5.00E-02	No
3	Beryllium		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
4	Cadmium		YES	0	0	0	40	249.955	49.9910028	No	0	0	0	0	0	0	0	0	No
5	Chromium Chromium II		YES	0	0	0	1100	5973.783	1174.75557	No	0	0	0	0	0	0	0	0	No
6	Chromium Chromium VI		YES	0	0	0	4A	29.995	5.9992201	No	0	0	0	0	0	0	0	0	No
7	Copper		YES	0	0	0	210	1312.254	262.451784	No	0	0	0	0	0	0	0	0	No
8	Lead		YES	0	0	0	210	1312.254	262.451784	No	0	0	0	0	0	0	0	0	No
9	Mercury		YES	0	0	0	210	1312.254	262.451784	No	0	0	0	0	0	0	0	0	No
10	Nickel		YES	0	0	0	74	482.417	96.483484	No	0	0	0	0	0	0	0	0	No
11	Selenium		YES	0	0	0	290	1512.374	302.47478	No	0	0	0	0	0	0	0	0	No
12	Silver		YES	0	0	0	18	11.673	2.3345792	No	0	0	0	0	0	0	0	0	No
13	Thallium		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
14	Zinc		YES	0	0	0	80	562.329	112.470758	No	0	0	0	0	0	0	0	0	No
15	Oxide		YES	0	0	0	0.15	0.912	0.18247078	No	0	0	0	0	0	0	0	0	No
16	Total Phenolic Compounds		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
17	Hardness (As CaCO3)		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
18	Acrolein		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
19	Acrylonitrile		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
20	Albin		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
21	Benzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
22	Bromobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
23	Carbon Tetrachloride		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
24	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
25	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
26	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
27	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
28	2-Chloro-Ethyl Ether		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
29	Chloroform		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
30	4-Chloro-1,2-Epoxy		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
31	4-Chloro-1,2-Epoxy		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
32	4-Chloro-1,2-Epoxy		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
33	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
34	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
35	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
36	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
37	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
38	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
39	1,2-Dichlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
40	Oxide		YES	0	0	0	0.71	4.437	0.8874603	No	0	0	0	0	0	0	0	0	No
41	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
42	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
43	Chlorobenzene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
44	1,1,2,2-Tetrachloro-Ethane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
45	Tetrachloro-Ethane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
46	Toluene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
47	Toluene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
48	Toluene		YES	0	0	0	0.21	1.312	0.26245178	No	0	0	0	0	0	0	0	0	No
49	Triphenyl (TBP)		YES	0	0	0	0.42	2.625	0.5250003	No	0	0	0	0	0	0	0	0	No
50	1,1,1-Trichloroethane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
51	1,1,1-Trichloroethane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
52	Trichloroethylene		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
53	Vinyl Chloride		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
54	2-Chloro-1,3-Dioxane		YES	0	0	0	13	81.235	16.2470758	No	0	0	0	0	0	0	0	0	No
55	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
56	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
57	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
58	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
59	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
60	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
61	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
62	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
63	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
64	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
65	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
66	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
67	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
68	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
69	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
70	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
71	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
72	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
73	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
74	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
75	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
76	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
77	2-Chloro-1,3-Dioxane		YES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No
78	2-Chloro-1,3-D																		



SHELL CHEMICALS



**NPDES
Permit Renewal Application
AL0055859**

**Shell Chemical LP
Saraland, Alabama**



March 2016

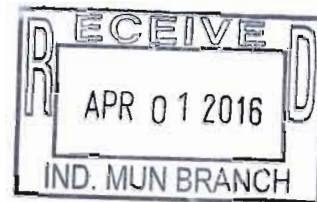


CH2M
4121 Carmichael Road
Suite 400
Montgomery, AL 36106
O +1 334 271 4444

www.ch2m.com

March 31, 2016

Latoya Hall
Alabama Department of Environmental Management
Industrial Section, Water Division
1400 Coliseum Blvd.
Montgomery, AL 36130-1463



Subject: Shell Chemical LP Mobile Site
Application to Renew NPDES Permit AL0055859

Dear Ms. Hall:

On behalf of Shell Chemical LP (Shell), we are submitting two copies (and one CD with electronic files) of an application package to renew the Shell Mobile Site's National Pollutant Discharge Elimination System (NPDES) permit. The Shell Mobile Site is currently permitted to discharge wastewater and stormwater through 21 outfalls to Chickasaw Creek under NPDES permit AL0055859. The existing permit expires on September 30, 2016.

With this application for renewal, Shell is providing the required Alabama Department of Environmental Management (ADEM) and U.S. Environmental Protection Agency (EPA) forms. The application package specifically includes the following required information:

- ADEM Form 187 (Attachment 1)
- EPA Forms 1, 2C, 2E, and 2F (Attachments 2 through 5)
- December 2015 Discharge Information Zone (DIZ) Study Report conducted by Payne Environmental Services (Attachment 6)

Shell completed the required sampling of the process and non-process wastewater outfalls (DSN001 and DSN002) on February 11, 2016. As approved by ADEM on November 17, 2015, Shell sampled stormwater outfalls DSN004 and DSN015 as representative of the remaining stormwater outfalls during a storm event on February 2, 2016. This 2016 application data, along with a compilation of Discharge Monitoring Report compliance data, as appropriate, are provided on EPA Forms 2C, 2E, and 2F.

With submittal of this application, Shell is requesting the following:

- The production basis for the effluent guideline limits remains at 83,000 barrels per day (bpd); this value continues to be the most reasonable production rate, and is supported by the production information provided in ADEM Form 187 and EPA Form 2C. We understand that at this production basis, existing effluent guideline limits for DSN001 will be continued from the current permit.

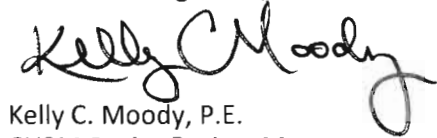
- Based on the Shell Mobile facility's historical compliance record, and the 5-year data trends shown in Attachment 7, Shell requests the following reduction in monitoring frequencies for DSN001:
 - Dissolved oxygen (DO) – from once every 2 weeks to monthly
 - Total suspended solids (TSS), biological oxygen demand (BOD), Ammonia-N, and oil and grease (O&G) – from weekly to monthly
 - Chromium (hexavalent and total), Sulfide, and Mercury – from quarterly to annual
 - Benzene, toluene, ethylbenzene, and xylenes (BTEX) and Toxicity – from semi-annual to annual
- As approved by ADEM for application sampling, Shell requests that stormwater outfalls DSN004 and DSN015 be designated as the representative outfalls for compliance monitoring with permit reissuance. In addition, Shell requests that the monitoring frequency for the stormwater outfalls be changed from quarterly and semi-annually to annually for all parameters.

Please note that Shell paid the required \$17,990 application fee through ADEM's online payment system on March 22, 2016. A copy of the fee receipt is provided in Attachment 8.

If you have any questions or need additional information as you begin to process the permit, please call me at (334) 215-9038 or Michael Hamner at (251) 679-7124.

Sincerely,

CH2M HILL Engineers, Inc.



Kelly C. Moody, P.E.
CH2M Senior Project Manager

c: Michael Hamner/Shell Chemical LP
J.P. Martin/CH2M

Application for NPDES Permit Renewal AL0055859

Prepared for
Shell Chemical LP

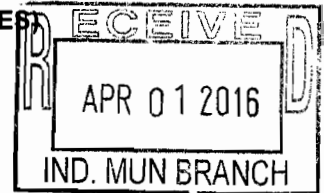
March 2016



4121 Carmichael Road
Suite 400
Montgomery AL 36106

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT APPLICATION SUPPLEMENTARY INFORMATION**

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION – INDUSTRIAL / MINING PERMIT SECTION
POST OFFICE BOX 301463
MONTGOMERY, ALABAMA 36130-1463



INSTRUCTIONS: APPLICATIONS SHOULD BE TYPED OR PRINTED IN INK AND SUBMITTED TO THE DEPARTMENT IN DUPLICATE. IF INSUFFICIENT SPACE IS AVAILABLE TO ADDRESS ANY ITEM, PLEASE CONTINUE ON AN ATTACHED SHEET OF PAPER. PLEASE MARK N/A IN THE APPROPRIATE BOX WHEN AN ITEM IS NON-APPLICABLE TO THE APPLICANT.

PURPOSE OF THIS APPLICATION

- | | |
|--|---|
| <input type="checkbox"/> INITIAL PERMIT APPLICATION FOR NEW FACILITY | <input type="checkbox"/> INITIAL PERMIT APPLICATION FOR EXISTING FACILITY |
| <input type="checkbox"/> MODIFICATION OF EXISTING PERMIT | <input checked="" type="checkbox"/> REISSUANCE OF EXISTING PERMIT |
| <input type="checkbox"/> REVOCATION & REISSUANCE OF EXISTING PERMIT | |

1. Facility Name: Shell Chemical LP (Mobile Site)

a. Operator Name: Shell Chemical LP (Mobile Site)

b. Is the operator identified in 1.a., the owner of the facility? Yes ☒ No ☐
If no, provide the name and address of the operator and submit information indicating the operator's scope of responsibility for the facility.

2. NPDES Permit Number AL 0 0 5 5 8 5 9

3. SID Permit Number (if applicable): IU - -

4. NPDES General Permit Number (if applicable) ALG

5. Facility Physical Location: (Attach a map with location marked; street, route no. or other specific identifier)

Street: 400 Industrial Parkway Extension

City: Saraland County: Mobile State: Alabama Zip: 36571

Facility (Front Gate) Latitude: 30 48' 00" N Longitude: 88 5' 59" W

6. Facility Mailing Address (Street or Post Office Box): 400 Industrial Parkway Extension

City: Saraland State: Alabama Zip: 36571

7. Responsible Official (as described on page 13 of this application):

Name and Title: Tammy Little, General Manager

Address: 400 Industrial Parkway Extension

City: Saraland

State: Alabama

Zip: 36571

Phone Number: 251-679-7120

EMAIL Address: Tammy.Little@shell.com

8. Designated Facility Contact:

Name and Title: Robert Pinckard, HSS&E Manager

Phone Number: 251-679-7176

EMAIL Address: Robert.Pinckard@shell.com

9. Designated Discharge Monitoring Report Contact:

Name and Title: Michael Hamner, Environmental Specialist

Phone Number: 251-679-7124

EMAIL Address: Michael.Hamner@shell.com

10. Type of Business Entity:

☐

Corporation

☐

General Partnership

☒

Limited Partnership

☐

Sole Proprietorship

☐

Other (Please Specify)

11. Complete this section if the Applicant's business entity is a Corporation

a) Location of Incorporation:

Address: _____

City: _____

County: _____

State: _____

Zip: _____

b) Parent Corporation of Applicant:

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

c) Subsidiary Corporation(s) of Applicant:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

d) Corporate Officers:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

e) Agent designated by the corporation for purposes of service:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

12. If the Applicant's business entity is a Partnership, please list the general partners.

Name: Shell Oil Company

Address: 910 Louisiana Street

City: Houston State: Texas Zip: 77002

Name: SCOGO, LP

Address: 910 Louisiana Street

City: Houston State: Texas Zip: 77002

13. If the Applicant's business entity is a Proprietorship, please enter the proprietor's information.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

14. Permit numbers for Applicant's previously issued NPDES Permits and identification of any other State of Alabama Environmental Permits presently held by the Applicant, its parent corporation, or subsidiary corporations within the State of Alabama:

<u>Permit Name</u>	<u>Permit Number</u>	<u>Held By</u>
See Attachment 187-2		
_____	_____	_____
_____	_____	_____
_____	_____	_____

15. Identify all Administrative Complaints, Notices of Violation, Directives, Administrative Orders, or Litigation concerning water pollution, if any, against the Applicant, its parent corporation or subsidiary corporations within the State of Alabama within the past five years (attach additional sheets if necessary):

<u>Facility Name</u>	<u>Permit Number</u>	<u>Type of Action</u>	<u>Date of Action</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SECTION B – BUSINESS ACTIVITY

1. Indicate applicable Standard Industrial Classification (SIC) Codes for all processes
(If more than one applies, list in order of importance:

- a. 2911 _____
- b. _____
- c. _____
- d. _____
- e. _____

2. If your facility conducts or will be conducting any of the processes listed below (regardless of whether they generate wastewater, waste sludge, or hazardous waste), place a check beside the category of business activity (check all that apply):

Industrial Categories

<input type="checkbox"/> Aluminum Forming	<input type="checkbox"/> Metal Molding and Casting
<input type="checkbox"/> Asbestos Manufacturing	<input type="checkbox"/> Metal Products
<input type="checkbox"/> Battery Manufacturing	<input type="checkbox"/> Nonferrous Metals Forming
<input type="checkbox"/> Can Making	<input type="checkbox"/> Nonferrous Metals Manufacturing
<input type="checkbox"/> Canned and Preserved Fruit and Vegetables	<input type="checkbox"/> Oil and Gas Extraction
<input type="checkbox"/> Canned and Preserved Seafood	<input type="checkbox"/> Organic Chemicals Manufacturing
<input type="checkbox"/> Cement Manufacturing	<input type="checkbox"/> Paint and Ink Formulating
<input type="checkbox"/> Centralized Waste Treatment	<input type="checkbox"/> Paving and Roofing Manufacturing
<input type="checkbox"/> Carbon Black	<input type="checkbox"/> Pesticides Manufacturing
<input type="checkbox"/> Coal Mining	<input checked="" type="checkbox"/> Petroleum Refining
<input type="checkbox"/> Coil Coating	<input type="checkbox"/> Phosphate Manufacturing
<input type="checkbox"/> Copper Forming	<input type="checkbox"/> Photographic
<input type="checkbox"/> Electric and Electronic Components Manufacturing	<input type="checkbox"/> Pharmaceutical
<input type="checkbox"/> Electroplating	<input type="checkbox"/> Plastic & Synthetic Materials
<input type="checkbox"/> Explosives Manufacturing	<input type="checkbox"/> Plastics Processing Manufacturing
<input type="checkbox"/> Feedlots	<input type="checkbox"/> Porcelain Enamel
<input type="checkbox"/> Ferroalloy Manufacturing	<input type="checkbox"/> Pulp, Paper, and Fiberboard Manufacturing
<input type="checkbox"/> Fertilizer Manufacturing	<input type="checkbox"/> Rubber
<input type="checkbox"/> Foundries (Metal Molding and Casting)	<input type="checkbox"/> Soap and Detergent Manufacturing
<input type="checkbox"/> Glass Manufacturing	<input type="checkbox"/> Steam and Electric
<input type="checkbox"/> Grain Mills	<input type="checkbox"/> Sugar Processing
<input type="checkbox"/> Gum and Wood Chemicals Manufacturing	<input type="checkbox"/> Textile Mills
<input type="checkbox"/> Inorganic Chemicals	<input type="checkbox"/> Timber Products
<input type="checkbox"/> Iron and Steel	<input type="checkbox"/> Transportation Equipment Cleaning
<input type="checkbox"/> Leather Tanning and Finishing	<input type="checkbox"/> Waste Combustion
<input type="checkbox"/> Metal Finishing	<input type="checkbox"/> Other (specify) _____
<input type="checkbox"/> Meat Products	

A facility with processes inclusive in these business areas may be covered by Environmental Protection (EPA) categorical standards. These facilities are termed "categorical users" and should skip to question 2 of Section C.

3. Give a brief description of all operations at this facility including primary products or services (attach additional sheets if necessary):

Shell Chemical LP (Mobile Site) is a petroleum refinery which processes crude oils. The crude oils are processed to produce unleaded gasoline, diesel, naphtha, jet fuel, kerosene, liquefied petroleum gas (LPG), and olefin feeds. Crude oil is received by pipeline, barge, and tanker, while final products are shipped by barge, truck, pipeline, or vessel.

SECTION C – WASTEWATER DISCHARGE INFORMATION

Facilities that checked activities in question 2 of Section B and are considered Categorical Industrial Users should skip to question 2 of this section.

1. **For Non-Categorical Users Only:** Provide wastewater flows for each of the processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- a. Number of batch discharges: _____ per day
- b. Average discharge per batch: _____ (GPD)
- c. Time of batch discharges _____ at _____
(days of week) (hours of day)
- d. Flow rate: _____ gallons/minute
- e. Percent of total discharge: _____

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow

2. **Complete this Section only if you are subject to Categorical Standards and plan to directly discharge the associated wastewater to a water of the State.** If Categorical wastewater is discharged exclusively via an indirect discharge to a public or privately-owned treatment works, check "Yes" in the appropriate space below and proceed directly to part 2.c .

[] Yes

For Categorical Users: Provide the wastewater discharge flows or production (whichever is applicable by the effluent guidelines) for each of your processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

2a.

Regulated Process	Applicable Category	Applicable Subpart	Type of Discharge Flow (batch, continuous, intermittent)
Petroleum Refining	40 CFR 419	Subpart A - Topping	Continuous

2b.

Process Description	Last 12 Months (gals/day) Highest Month Average*	Highest Flow Year of Last 5 (gals/day) Monthly Average*	Discharge Type (batch, continuous, intermittent)
Throughput	85,123 bpd	78,198 bpd	Continuous

*** Reported values should be expressed in units of the applicable Federal production-based standard. For example, flow (MGD), production (pounds per day), etc.**

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- Number of batch discharges: _____ per day
- Average discharge per batch: _____ (GPD)
- Time of batch discharges _____ at _____
(days of week) (hours of day)
- Flow rate: _____ gallons/minute

Percent of total discharge: _____

2c.

Non categorical Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- Number of batch discharges: _____ per day
- Average discharge per batch: _____ (GPD)
- Time of batch discharges _____ at _____
(days of week) (hours of day)
- Flow rate: _____ gallons/minute

Percent of total discharge: _____

2d.

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow
DSN002	N/A	N/A

All Applicants must complete Questions 3 – 5.

3. Do you have, or plan to have, automatic sampling equipment or continuous wastewater flow metering equipment at this facility?

Flow Metering	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Sampling Equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

If so, please indicate the present or future location of this equipment on the sewer schematic and describe the equipment below:

DSN001 is equipped with an automatic sampler, flow meter, and continuous monitors for pH and DO.

4. Are any process changes or expansions planned during the next three years that could alter wastewater volumes or characteristics? Yes ☐ No ☒ (If no, skip Question 5)

Briefly describe these changes and their anticipated effects on the wastewater volume and characteristics:

5. List the trade name and chemical composition of all biocides and corrosion inhibitors used:

Trade Name	Chemical Composition
See attachment 187-3	

For each biocide and/or corrosion inhibitor used, please include the following information:

- (1) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach,
- (2) quantities to be used,
- (3) frequencies of use,
- (4) proposed discharge concentrations, and
- (5) EPA registration number, if applicable

SECTION D – WATER SUPPLY

Water Sources (check as many as are applicable):

☒ Private Well☒ Municipal Water Utility (Specify City):☐ Surface Water☐ Other (Specify): See Attachment 187-4**IF MORE THAN ONE WELL OR SURFACE INTAKE, PROVIDE DATA FOR EACH ON AN ATTACHMENT**City: 0.01 *MGD Well: 0.4 *MGD Well Depth: _____ Ft. Latitude: See Att 187-4 Longitude: See Att 187-4

Surface Intake Volume: _____ *MGD Intake Elevation in Relation to Bottom _____ Ft.

Intake Elevation: _____ Ft. Latitude: _____ Longitude: _____

Name of Surface Water Source: _____

*** MGD – Million Gallons per Day****Cooling Water Intake Structure Information****Complete questions 1 and 2 if your water supply is provided by an outside source and not by an onsite water intake structure? (e.g., another industry, municipality, etc...)**

1. Does the provider of your source water operate a surface water intake? Yes ☐ No ☐
(If yes, continue, if no, go to Section E.)

a) Name of Provider _____ b) Location of Provider _____

c) Latitude: _____ Longitude: _____

2. Is the provider a public water system (defined as a system which provides water to the public for human consumption or which provides only treated water, not raw water)? Yes ☐ No ☐
(If yes, go to Section E, if no, continue.)

Only to be completed if you have a cooling water intake structure or the provider of your water supply uses an intake structure and does not treat the raw water.

3. Is any water withdrawn from the source water used for cooling? Yes ☐ No ☐
4. Using the average monthly measurements over any 12-month period, approximately what percentage of water withdrawn is used exclusively for cooling purposes? _____ %
5. Does the cooling water consist of treated effluent that would otherwise be discharged? Yes ☐ No ☐
(If yes, go to Section E, if no, complete questions 6 – 17.)
6. Is the cooling water used in a once-through or closed cycle cooling system? Yes ☐ No ☐
7. When was the intake installed?
(Please provide dates for all major construction/installation of intake components including screens)
8. What is the maximum intake volume?
(maximum pumping capacity in gallons per day)
9. What is the average intake volume?
(average intake pump rate in gallons per day average in any 30-day period)

10. How is the intake operated? (e.g., continuously, intermittently, batch)
11. What is the mesh size of the screen on your intake?
12. What is the intake screen flow-through area?
13. What is the through screen design intake flow velocity? _____ft/sec
14. What is the mechanism for cleaning the screen? (e.g., does it rotate for cleaning)
15. Do you have any additional fish detraction technology on your intake? Yes ☐ No ☐
16. Have there been any studies to determine the impact of the intake on aquatic organisms? Yes ☐ No ☐ (If yes please provide.)
17. Attach a site map showing the location of the water intake in relation to the facility, shoreline, water depth, etc.

SECTION E – WASTE STORAGE AND DISPOSAL INFORMATION

Provide a description of the location of all sites involved in the storage of solids or liquids that could be accidentally discharged to a water of the state, either directly or indirectly via such avenues as storm water drainage, municipal wastewater systems, etc., which are located at the facility for which the NPDES application is being made. Where possible, the location should be noted on a map and included with this application:

Description of Waste	Description of Storage Location
See attachment 187-5	

Provide a description of the location of the ultimate disposal sites of solid or liquid waste by-products (such as sludges) from any wastewater treatment system located at the facility.

Description of Waste	Quantity (lbs/day)	Disposal Method*
See attachment 187-5		

***Indicate which wastes identified above are disposed of at an off-site treatment facility and which are disposed of on-site. If any wastes are sent to an off-site centralized waste treatment facility, identify the waste and the facility.**

SECTION F – COASTAL ZONE INFORMATION

Is the discharge(s) located within 10-foot elevation of Mobile or Baldwin County?

Yes ☒ No ☐ If yes, then complete items A through M below:

YES NO

A. Does the project require new construction?

☐ ☒

B. Will the project be a source of new air emissions?

☐ ☒

C. Does the project involve dredging and/or filling?

☐ ☒

Has the Corps of Engineers (COE) permit been received?

☐ ☒

Corps Project Number _____

D. Does the project involve wetlands and/or submersed grassbeds?

☐ ☒

E. Are oyster reefs located near the project site?

☐ ☒

(Include a map showing project and discharge location with respect to oyster reefs)

F. Does the project involve the siting, construction and operation of an energy facility as defined in ADEM Admin. Code R. 335-8-1-.02(bb)?

☐ ☒

G. Does the project involve shoreline erosion mitigation?

☐ ☒

H. Does the project involve construction on beaches and dunes?

☐ ☒

I. Will the project interfere with public access to coastal waters?

☐ ☒

J. Does the project lie within the 100-year floodplain?

☒ ☐

K. Does the project involve the registration, sale, use, or application of pesticides?

☐ ☒

L. Does the project propose to construct a new well or alter an existing well to pump more than 50 GPD?

☐ ☒

M. Has the applicable permit been obtained?

☐ ☒

SECTION G – ANTI-DEGRADATION EVALUATION

In accordance with 40 CFR 131.12 and the Alabama Department of Environmental Management Administrative Code, Section 335-6-10-.04 for antidegradation, the following information must be provided, if applicable. It is the applicant's responsibility to demonstrate the social and economic importance of the proposed activity. If further information is required to make this demonstration, attach additional sheets to the application.

1. Is this a new or increased discharge that began after April 3, 1991?

Yes ☐ No ☒

If yes, complete question 2 below. If no, go to Section H.

2. Has an Anti-Degradation Analysis been previously conducted and submitted to the Department for the new or increased discharge referenced in question 1?

Yes ☐ No ☐

If yes, do not complete this section.

If no, and the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete questions A through F below and ADEM forms 311 and 313 (attached). Form 313 must be provided for each alternative considered technically viable.

Information required for new or increased discharges to high quality waters:

- A. What environmental or public health problem will the discharger be correcting?
- B. How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?
- C. How much reduction in employment will the discharger be avoiding?
- D. How much additional state or local taxes will the discharger be paying?
- E. What public service to the community will the discharger be providing?
- F. What economic or social benefit will the discharger be providing to the community?

SECTION H – EPA Application Forms

All Applicants must submit EPA permit application forms. More than one application form may be required from a facility depending on the number and types of discharges or outfalls found there. The EPA application forms are found on the Department's website at <http://www.adem.state.al.us/>. The EPA application forms must be submitted in duplicate as follows:

1. All applicants must submit Form 1.
2. Applicants for existing industrial facilities (including manufacturing facilities, commercial facilities, mining activities, and silvicultural activities) which discharge process wastewater must submit Form 2C.
3. Applicants for new industrial facilities which propose to discharge process wastewater must submit Form 2D.
4. Applicants for new and existing industrial facilities which discharge only non-process wastewater (i.e., non-contact cooling water and/or sanitary wastewater) must submit Form 2E.
5. Applicants for new and existing facilities whose discharge is composed entirely of storm water associated with industrial activity must submit Form 2F, unless exempted by § 122.26(c)(1)(ii). If the discharge is composed of storm water and non-storm water, the applicant must also submit Forms 2C, 2D, and/or 2E, as appropriate (in addition to Form 2F).

SECTION I – ENGINEERING REPORT/BMP PLAN REQUIREMENTS

See ADEM 335-6-6-.08(i) & (j)

SECTION J- RECEIVING WATERS

Receiving Water(s)	303(d) Segment? (Y / N)	Included in TMDL?* (Y / N)
Chickasaw Creek	Y	N

*If a TMDL Compliance Schedule is requested, the following should be attached as supporting documentation:

- (1) Justification for the requested Compliance Schedule (e.g. time for design and installation of control equipment, etc.);
- (2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department (sample collection dates, analytical results (mass and concentration), methods utilized, MDL/ML, etc. should be submitted as available);
- (3) Requested interim limitations, if applicable;
- (4) Date of final compliance with the TMDL limitations; and,
- (5) Any other additional information available to support requested compliance schedule.

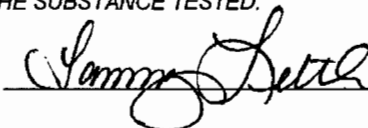
SECTION K - APPLICATION CERTIFICATION

THE INFORMATION CONTAINED IN THIS FORM MUST BE CERTIFIED BY A RESPONSIBLE OFFICIAL AS DEFINED IN ADEM ADMINISTRATIVE RULE 335-6-6-.09 "SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS" (SEE BELOW).

"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."

"I FURTHER CERTIFY UNDER PENALTY OF LAW THAT ALL ANALYSES REPORTED AS LESS THAN DETECTABLE IN THIS APPLICATION OR ATTACHMENTS THERETO WERE PERFORMED USING THE EPA APPROVED TEST METHOD HAVING THE LOWEST DETECTION LIMIT FOR THE SUBSTANCE TESTED."

SIGNATURE OF
RESPONSIBLE OFFICIAL:



DATE
SIGNED: 3-30-16

(TYPE OR PRINT)

NAME OF RESPONSIBLE OFFICIAL: Tammy Little

TITLE OF RESPONSIBLE OFFICIAL: General Manager

MAILING ADDRESS: 400 Industrial Parkway Extension

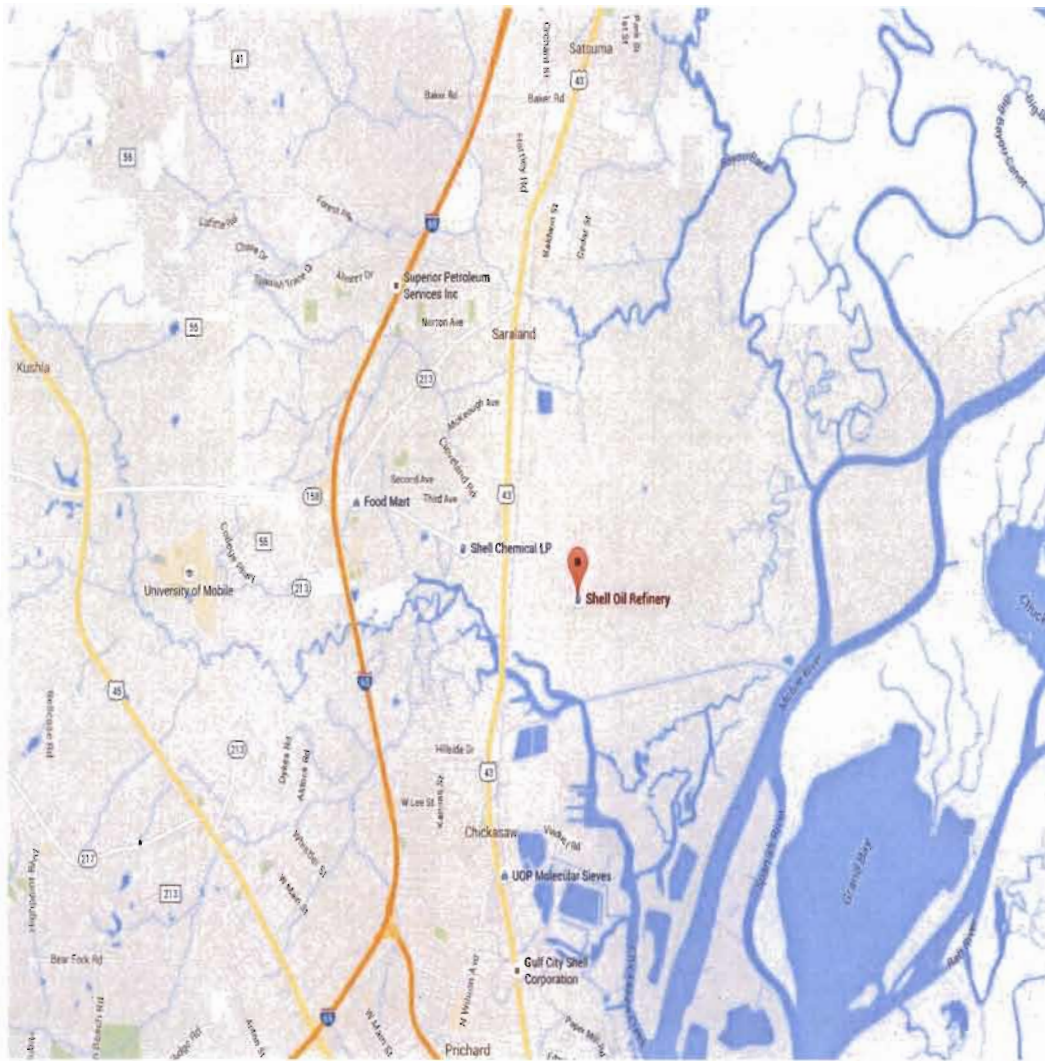
CITY, STATE, ZIP: Saraland, AL 36571

PHONE: 251-679-7120

335-6-6-.09 SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS.

- (1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:
 - (a) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a manager assigned or delegated in accordance with corporate procedures, with such delegation submitted in writing if required by the Department, who is responsible for manufacturing, production, or operating facilities and is authorized to make management decisions which govern the operation of the regulated facility;
 - (b) In the case of a partnership, by a general partner;
 - (c) In the case of a sole proprietorship, by the proprietor; or
 - (d) In the case of a municipal, state, federal, or other public entity, by either a principal executive officer, or ranking elected official.

**Attachment 187-1
Section A, Item 5
Facility Location Map**



**Shell Chemical LP
Highway 158 East, 400 Industrial Parkway Extension
Saraland, Alabama 36571**

Attachment 187-2

Permit Summary

Permit Name	Permit Number	Held By
Air		
Title V	503-4003	Shell Chemical LP
Water		
NPDES – Individual	AL0055859	Shell Chemical LP
NPDES – General	ALG340265	Shell Blakely Island Terminal
Solid Waste		
RCRA Generator	ALD020852422*	Shell Chemical LP
RCRA Generator	ALD9883174137*	Shell Blakely Island Terminal

*EPA ID Number

Attachment 187-3
Section C, Item V
Biocides and Corrosion Inhibitors

Additive Name	Product Name	96 Hour Median Tolerance Limit	Quantities to be Used	Frequency of Use	Proposed Discharge Concentration	EPA Registration Number
Nitritoltris (Methylenephosphoric acid) Phosphonic Acid	SURE-COOL ® 1392	>330 mg/L Bluegill Sunfish >330 mg/L Rainbow Trout 1,212 mg/L Channel Catfish 8,132 mg/L Sheepshead Minnow 4,575 mg/L Grass Shrimp 20 mg/L Green Algae	As needed	As needed	See **Note	N/A
No hazardous ingredients	NexGuard ® 22310	7,070 mg/L Rainbow Trout 1,086 mg/L Fathead Minnow >5,000 mg/L Inland Silverside >5,000 mg/L Mysid Shrimp	As needed	As needed	See **Note	N/A
Oxyalkylated Fatty Acid Fatty amine Oxyalkylated alcohol	EnterFast ® EC9009G	0.91 mg/L Fathead Minnow	As needed	As needed	See **Note	N/A
Aliphatic hydrocarbon Isopropanol Oxyalkylated alcohol Oxyalkylate Limonene Organic sulfonic acid	EnterFast ® 9008B	10.10 mg/L Rainbow Trout	As needed	As needed	See **Note	N/A
Methoxypropylamine	EC1008A	None	As needed	As needed	See **Note	N/A
Fatty acid amine condensate Amine Substituted Resin Heavy Aromatic Naphtha 1,2,4 – Trimethylbenzene Naphthalene	NALCO ® 303MC	1.09 mg/L Bluegill Sunfish 1.17 mg/L Rainbow Trout	As needed	As needed	See **Note	N/A
Sodium Bisulfate Potassium Bisulfate	NALCO 1720	382 mg/L Fathead Minnow >5,000 mg/L Rainbow Trout >5,000 mg/L Mysid Shrimp	As needed	As needed	See **Note	N/A
Heavy Aromatic Naphtha Naphthalene 1,2,4 – Trimethylbenzene Xylene Ethylbenzene	NALCO ® EC1010A	39.8 mg/L Fathead Minnow	As needed	As needed	See **Note	N/A
No hazardous ingredients	3D TRASAR ® 3DT196	1,588 mg/L Fathead Minnow 2,813 mg/L Rainbow Trout	As needed	As needed	See **Note	N/A
Phosphoric Acid	3D TRASAR ® 3DT177	>5,000 mg/L Inland Silverside 7,201 mg/L Fathead Minnow >10,000 mg/L Rainbow Trout 3,707 mg/L Mysid Shrimp	As needed	As needed	See **Note	N/A
Glutaraldehyde	H-550	22.4 mg/L Bluegill Sunfish 10.8 mg/L Fathead Minnow 12 mg/L Rainbow Trout 7.1 mg/L Mysid Shrimp	As needed	As needed	See **Note	N/A
Cyclohexylamine Monoethanolamine Methoxypropylamine	TRI-ACT ® 1800	194 mg/L Fathead Minnow 200 mg/L Rainbow Trout 1,454.3 mg/L Inland Silverside 614 mg/L Mysid Shrimp	As needed	As needed	See **Note	N/A

****Note: There are too many unknown variables to accurately calculate the concentration**
N/A = Not available

Attachment 187-4

Section D

Water Supply

Water Supply – Groundwater Sources**	Latitude	Longitude	Flow Capacity (MGD)
North No. 1	30° 46' 00"	88° 03' 00"	0.2
South No. 2	30° 46' 00"	88° 03' 00"	0.2
Southeast No.3*	30° 46' 00"	88° 03' 00"	0.25
Southwest No.4*	30° 46' 00"	88° 03' 00"	0.25

*Not currently in use

**Certificate OWR-0136.1

Attachment 187-5
Section E
Waste Storage and Disposal Information

Attachment 1-2 to EPA Form 1, includes the location of major material loading and tank farm areas. Significant materials stored throughout the site include crude oil, gasoline, diesel, naphtha, commercial butane, isobutane, normal butane, olefin feeds, wastewater, isopentane, propane, resid, jet fuel, ethanol, slop oil, caustic, and distillates. The capacities of the storage tanks are listed in the table below.

Crude oil is unloaded from barges at the Shell Mobile Site dock typically once or twice per day. Unloading of barges and tankers at the Blakely Terminal normally occurs 2 to 3 times per week. Barges typically supply 25,000-barrel (bbl) capacity. Tank trucks are loaded with finished product at the truck loading area. Truck capacities can range up to 10,000 gallons.

Tank No.	Substance Stored	Capacity (bbls)
501	Crude	55,000
502	Crude	55,000
503	Crude	55,000
504	Crude	55,000
505	Gasoline	55,000
506	Gasoline	55,000
507	Gasoline	55,000
508	Gasoline	55,000
801	Gasoline	80,000
802	Gasoline	80,000
803	Crude	80,000
804	Crude	80,000
805	Crude	80,000
806	Light Olefin Feed	80,000
807	Heavy Olefin Feed	80,000
808	Resid	80,000
V44	Isobutane	5,000
V43	Isobutane	5,000
V42	Commercial Butane	2,100
V41	Commercial Butane	2,100
V31	Normal Butane	2,100
V21	Wastewater	5,000
V22	Wastewater	2,500
V23	Wastewater	2,500
V24	Wastewater	2,500
V25	Wastewater	2,500
V26	Wastewater	2,500
V11	Propane	600

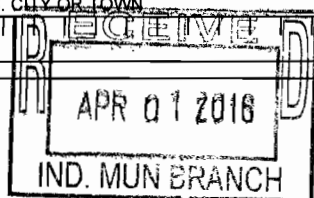
Tank No.	Substance Stored	Capacity (bbls)
V12	Propane	600
V13	Propane	600
V14	Propane	600
V15	Propane	600
V16	Propane	600
101	Gasoline	5,000
102	Gasoline	5,000
103	Wastewater	5,000
104	Caustic	5,000
105	Wastewater	5,000
106	Wastewater	5,000
107	Wastewater	5,000
108	Wastewater	5,000
109	Sour Water	5,000
110	Salt Water	5,000
111	Salt Water	5,000
113	Out of Service	700
114	Out of Service	700
115	Out of Service	700
116	Out of Service	700
201	Naphtha	25,000
202	Naphtha	25,000
203	Naphtha	25,000
204	Diesel	25,000
205	Diesel	25,000
206	Diesel	25,000
207	Diesel	25,000
208	Jet Fuel	25,000
209	Diesel	25,000
210	Jet Fuel	25,000
211	Ethanol	25,000
212	Jet Fuel A	25,000
1201	Jet Fuel	125,000
1202	Diesel	125,000
1203	Heavy Olefin Feed	125,000
1204	Heavy Olefin Feed	125,000

Attachment 187-5 Continued
Section E
Ultimate Disposal Sites

Description of Waste	Quantity*	Disposal Method
Digester Non-hazardous Biosolids	4.4 Million lbs	Offsite: Waste Management Chastang 17045 Highway 43 Mount Vernon, AL 36560 Offsite: Macland Disposal Center 11300 Highway 63 Moss Point, MS
DAF Material	3.85 Million lbs	Recycled Offsite: PSC Norco (Motiva Enterprises, LLC) 15536 River Road Norco, LA 70079

*Total for 2015

FORM 1 GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER				
				S	T/A			
				F	C			
				1	2			
				13	14			
				15				
LABEL ITEMS		PLEASE PLACE LABEL IN THIS SPACE		GENERAL INSTRUCTIONS				
I. EPA I.D. NUMBER				If a preprinted label has been provided, affix it in the designated space. Review the information carefully. If any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.				
III. FACILITY NAME								
V. FACILITY MAILING ADDRESS								
VI. FACILITY LOCATION								
II. POLLUTANT CHARACTERISTICS								
INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms .								
SPECIFIC QUESTIONS		Mark "X"		Mark "X"				
		YES	NO	FORM ATTACHED	YES	NO	FORM ATTACHED	
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)			X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
		18	17	16		19	20	21
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		X	D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
		22	23	24		25	26	27
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)			X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
		28	29	30		31	32	33
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)			X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
		34	35	36		37	38	39
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)			X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
		40	41	42		43	44	45
III. NAME OF FACILITY								
C SKIP Shell Chemical LP (Mobile Site)								
15 16 - 29 30 68								
IV. FACILITY CONTACT								
A. NAME & TITLE (last, first, & title)								
C Pinckard, Robert, HSS&E Manager								
15 16 45 46 48 49 51 52 55								
B. PHONE (area code & no.)								
(251) 679-7176								
V. FACILITY MAILING ADDRESS								
A. STREET OR P.O. BOX								
C 400 Industrial Parkway Extension								
15 16 45								
B. CITY OR TOWN								
C Saraland								
15 16 40 41 42 47 51								
C. STATE								
AL								
D. ZIP CODE								
36571								
VI. FACILITY LOCATION								
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER								
C 400 Industrial Parkway Extension								
15 16 45								
B. COUNTY NAME								
Mobile								
46 70								
C. CITY OR TOWN								
C Saraland								
15 16 40 41 42 47 51 52 54								
D. STATE								
AL								
E. ZIP CODE								
36571								
F. COUNTY CODE (if known)								
097								



VII. SIC CODES (4-digit, in order of priority)

VIII. OPERATOR INFORMATION

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box: if "Other," specify)E. STREET OR P.O. BOXF, CITY OR TOWN

X. EXISTING ENVIRONMENTAL PERMITS

B. UIC (Underground Injection of Fluids)

C. RCRA (Hazardous Wastes)

XI. MAP

XII. NATURE OF BUSINESS (provide a brief description)

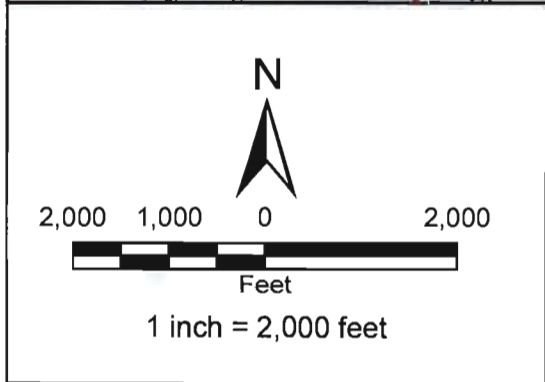
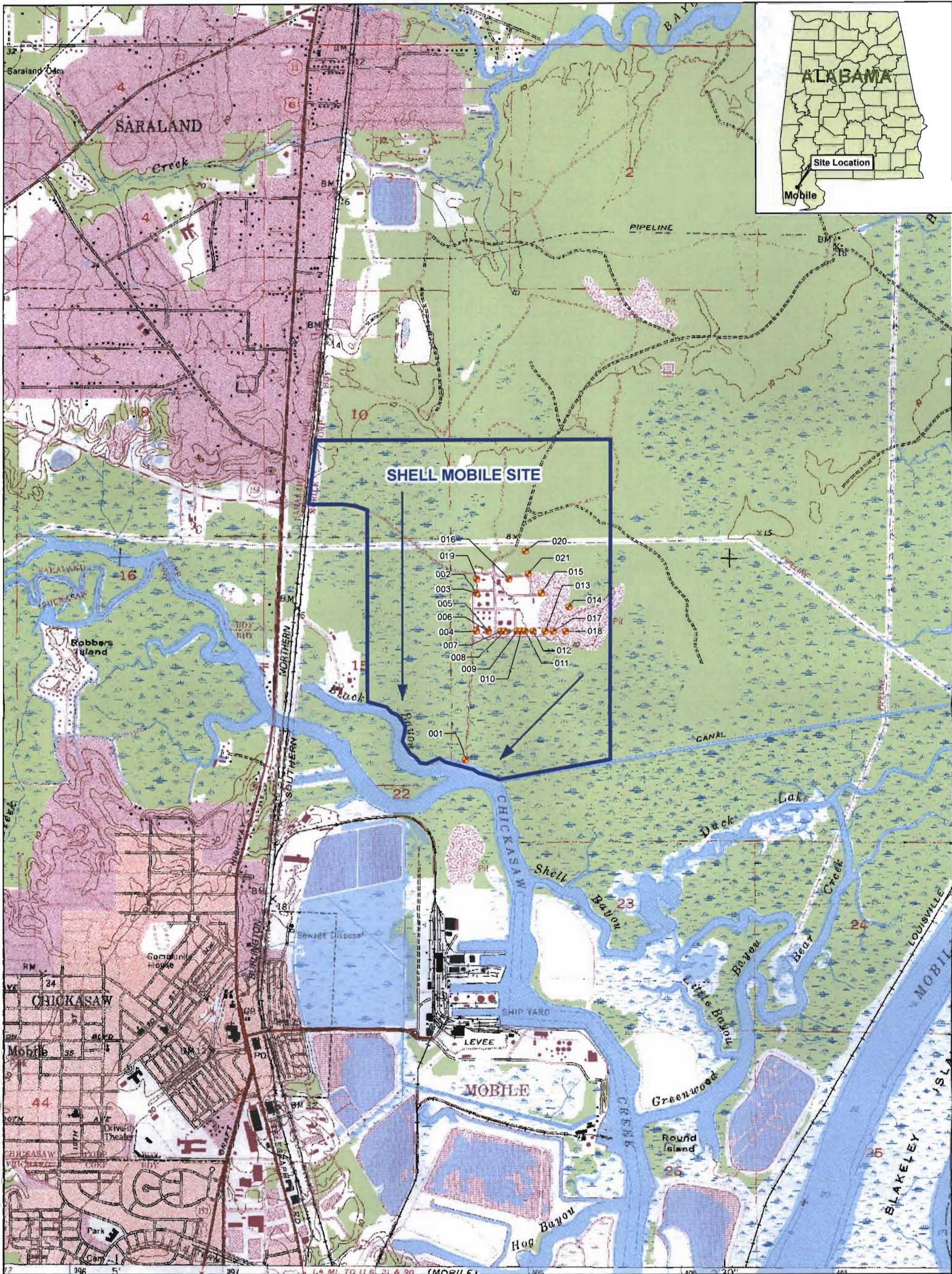
XIII. CERTIFICATION (see instructions)

B. SIGNATURE

C. DATE SIGNED

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (8-90)

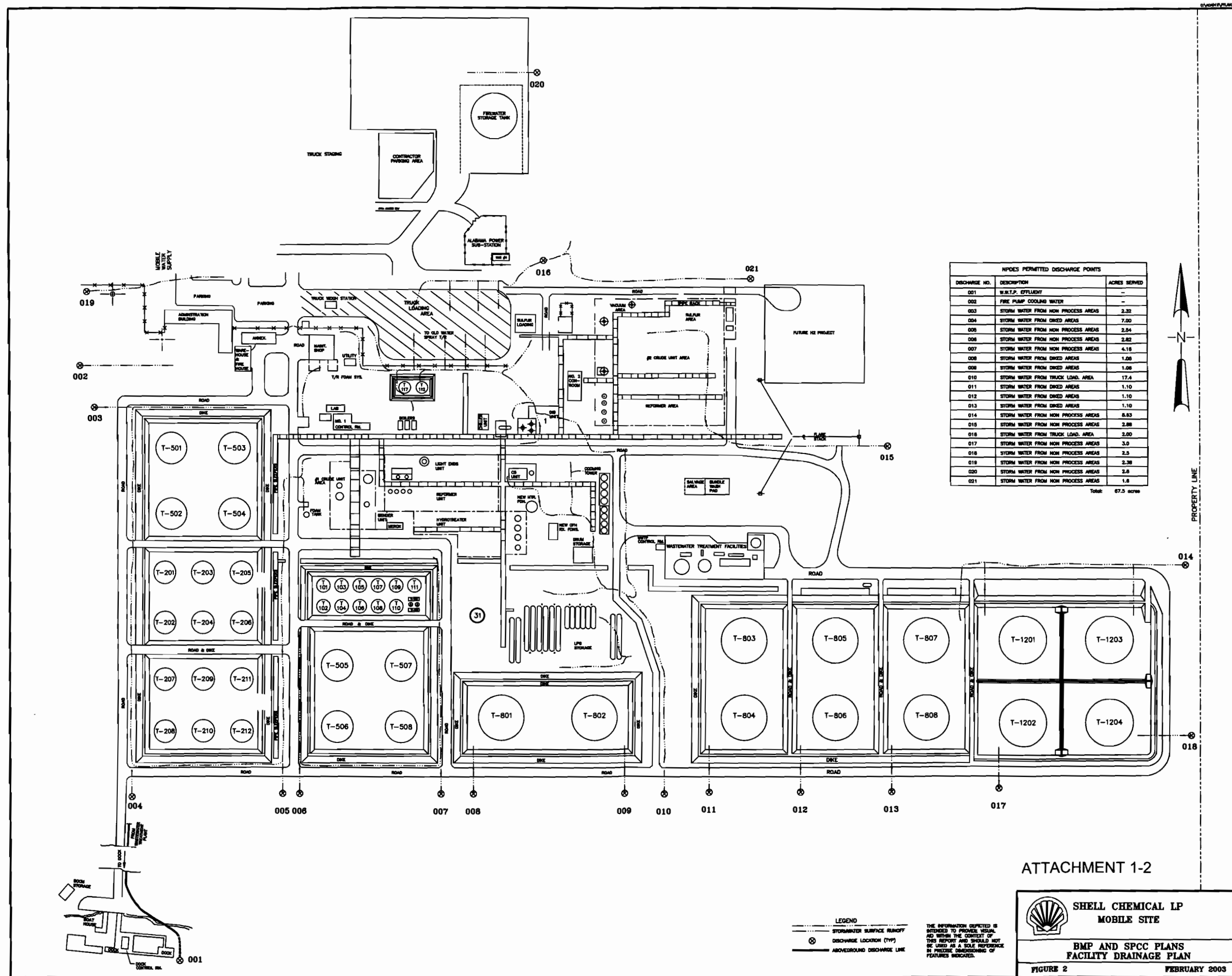


- Legend**
- Outfall Locations
 - Direction of Flow
 - Property Boundary

Attachment 1-1 Site Drainage Map


Shell Mobile Site
Saraland, Alabama





NPDES PERMITTED DISCHARGE POINTS		
DISCHARGE NO.	DESCRIPTION	ACRES SERVED
001	W.W.T.P. EFFLUENT	—
002	FIRE PUMP COOLING WATER	—
003	STORM WATER FROM NON PROCESS AREAS	2.32
004	STORM WATER FROM DIKED AREAS	7.00
005	STORM WATER FROM NON PROCESS AREAS	2.54
006	STORM WATER FROM NON PROCESS AREAS	2.82
007	STORM WATER FROM NON PROCESS AREAS	4.16
008	STORM WATER FROM DIKED AREAS	1.06
009	STORM WATER FROM DIKED AREAS	1.06
010	STORM WATER FROM TRUCK LOAD AREA	17.4
011	STORM WATER FROM DIKED AREAS	1.10
012	STORM WATER FROM DIKED AREAS	1.10
013	STORM WATER FROM DIKED AREAS	1.10
014	STORM WATER FROM NON PROCESS AREAS	8.83
015	STORM WATER FROM NON PROCESS AREAS	2.88
016	STORM WATER FROM TRUCK LOAD AREA	2.00
017	STORM WATER FROM NON PROCESS AREAS	3.0
018	STORM WATER FROM NON PROCESS AREAS	2.5
019	STORM WATER FROM NON PROCESS AREAS	2.38
020	STORM WATER FROM NON PROCESS AREAS	2.8
021	STORM WATER FROM NON PROCESS AREAS	1.8
Total:		67.5 acres

ATTACHMENT 1-2



SHELL CHEMICAL LP

MOBILE SITE

BMP AND SPCC PLANS

FACILITY DRAINAGE PLAN

FIGURE 2

FEBRUARY 2003

LEGEND
 ————— STORMWATER SURFACE RUNOFF
 ⊗ DISCHARGE LOCATION (TYP)
 ————— ABOVEGROUND DISCHARGE LINE

THE INFORMATION DEPICTED IS
 INTENDED TO PROVIDE VISUAL
 AID WITHIN THE CONTEXT OF
 THIS REPORT AND SHOULD NOT
 BE USED AS A SOLE REFERENCE
 IN PRECISE DETERMINING OF
 FEATURES INDICATED.

EPA I.D. NUMBER (copy from Item 1 of Form 1)

ALD020852422

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

Please print or type in the unshaded areas only.

FORM
2C
NPDES



U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
DSN001	30.00	47.00	38.00	88.00	3.00	30.00	Chickasaw Creek

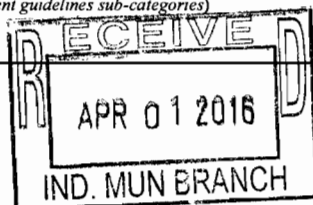
II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
DSN001	Petroleum Refinery	0.227 MGD	Equalization, Neutralization, Oil/Water	3	A
	Blakely Island Terminal Tank Oily		Separator, Activated Sludge, Aerobic Digestion,	2	K
	Contact Water (water entrained in crude)		Discharge to surface Water	4	A
	Stormwater (intermittent)			5	A
	Cooling Tower Blowdown	0.059 MGD	Cascade Aeration	x	x
	Well Water Filter Backwash	0.030 MGD	Cascade Aeration	x	x
	Sanitary Wastewater	0.014 MGD	Activated Sludge (separate system)	x	x
	Total:	0.330 MGD			

OFFICIAL USE ONLY (effluent guidelines sub-categories)



CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES (complete the following table)☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		B. TOTAL VOLUME (specify with units)		C. DURATION (in days)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES (complete Item III-B)☐ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☒ YES (complete Item III-C)☐ NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	
83,000	bbls of feedstock	Petroleum Refining, Topping Subcategory	DSN001

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (complete the following table)☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

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CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS			
A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.			
D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.			
1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
See Attachment 2C-2			

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS	
Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct? <input checked="" type="checkbox"/> YES (list all such pollutants below) <input type="checkbox"/> NO (go to Item VI-B)	
Benzene Cyclohexane Ethylbenzene Naphthalene Styrene Toluene Phenol	

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ YES (Identify the test(s) and describe their purposes below)

☐ NO (go to Section VIII)

DSN001
Species: P. Promelas (Fathead Minnow) and Ceriodaphnia
Type Test: 48 Hour acute freshwater screening
IWC of % Effluent 1.0%
Permitted Mortality Rate: <10% Mortality
Test Frequency: Once per 6 months
Results for the past 5 years: 0% significant difference

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

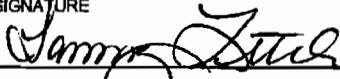
☒ YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
TestAmerica Pensacola	3356 McLemore Drive, Pensacola, FL 32514	850-471-6234	Mercury, Dioxin
Micro Methods Laboratory, Inc	6500 Sunplex Drive, Ocean Springs, MS 39564	228-875-6420	All except Mercury and Dioxin
Ramboll Environ	201 Summit View Drive, Suite 300, Brentwood, TN 370	615-277-7570	Acute Toxicity Testing

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my 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.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
Tammy Little, General Manager	(251) 679-7120
C. SIGNATURE	D. DATE SIGNED
	3/30/16

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages.
SEE INSTRUCTIONS.

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V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)											OUTFALL NO. DSN001	
PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	41	93	15	73	7.2	16	155	mg/L	ppd			
b. Chemical Oxygen Demand (COD)	257	566	257	566	125	259	40	mg/L	ppd			
c. Total Organic Carbon (TOC)	20	35	N/A	N/A	N/A	N/A	1	mg/L	ppd			
d. Total Suspended Solids (TSS)	208	239	133	161	36	74	157	mg/L	ppd			
e. Ammonia (as N)	13.2	37	5.4	12.9	1.4	2.6	157	mg/L	ppd			
f. Flow	VALUE 0.471 MGD		VALUE 0.438 MGD		VALUE 0.257 MGD		158	N/A	N/A	VALUE		
g. Temperature (winter)	VALUE N/A		VALUE N/A		VALUE N/A		N/A	°C		VALUE		
h. Temperature (summer)	VALUE 24		VALUE N/A		VALUE N/A		1	°C		VALUE		
i. pH	MINIMUM 6.75	MAXIMUM 8.69	MINIMUM 6.99	MAXIMUM 8.16			158	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	X		<3.7	<6.5	N/A	N/A	N/A	N/A	1	mg/L	ppd			
b. Chlorine, Total Residual		X	0.02	0.035	N/A	N/A	N/A	N/A	1	mg/L	ppd			
c. Color	X		39	N/A	N/A	N/A	N/A	N/A	1	Pt-Co Units	N/A			
d. Fecal Coliform	X		15	N/A	N/A	N/A	N/A	N/A	1	CFU/100mL	N/A			
e. Fluoride (16984-48-8)	X		<4.1	<7.25	N/A	N/A	N/A	N/A	1	mg/L	ppd			
f. Nitrate-Nitrite (as N)	X		0.15	0.265	N/A	N/A	N/A	N/A	1	mg/L	ppd			

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)						
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES				
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS					
g. Nitrogen, Total Organic (as N)	X		2.8	4.95	N/A	N/A	N/A	N/A	1	mg/L	ppd							
h. Oil and Grease	X		1.6	2.8	1.6	2.8	0.043	0.076	157	mg/L	ppd							
i. Phosphorus (as P), Total (7723-14-0)	X		12.5	26	12.5	26	2.5	5.9	36	mg/L	ppd							
j. Radioactivity																		
(1) Alpha, Total		X																
(2) Beta, Total		X																
(3) Radium, Total		X																
(4) Radium 226, Total		X																
k. Sulfate (as SO ₄) (14808-79-8)	X		69	122	N/A	N/A	N/A	N/A	1	mg/L	ppd							
l. Sulfide (as S)	X		<0.036	<0.064	N/A	N/A	N/A	N/A	1	mg/L	ppd							
m. Sulfite (as SO ₃) (14265-45-3)	X		2.5	4.42	N/A	N/A	N/A	N/A	1	mg/L	ppd							
n. Surfactants		X																
o. Aluminum, Total (7429-90-5)	X		0.054	0.096	N/A	N/A	N/A	N/A	1	mg/L	ppd							
p. Barium, Total (7440-39-3)	X		0.450	0.796	N/A	N/A	N/A	N/A	1	mg/L	ppd							
q. Boron, Total (7440-42-8)	X		0.740	1.31	N/A	N/A	N/A	N/A	1	mg/L	ppd							
r. Cobalt, Total (7440-48-4)		X																
s. Iron, Total (7439-89-6)	X		0.610	1.08	N/A	N/A	N/A	N/A	1	mg/L	ppd							
t. Magnesium, Total (7439-95-4)		X																
u. Molybdenum, Total (7439-98-7)	X		<0.0002	<0.0004	N/A	N/A	N/A	N/A	1	mg/L	ppd							
v. Manganese, Total (7439-96-5)	X		0.340	0.601	N/A	N/A	N/A	N/A	1	mg/L	ppd							
w. Tin, Total (7440-31-5)		X																
x. Titanium, Total (7440-32-6)	X		<0.00043	<0.0008	N/A	N/A	N/A	N/A	1	mg/L	ppd							

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CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT						4. UNITS		5. INTAKE (optional)							
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES				
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS					
METALS, CYANIDE, AND TOTAL PHENOLS																			
1M. Antimony, Total (7440-36-0)	X		X	<0.00085	<0.0015	N/A	N/A	N/A	N/A	1	mg/L	ppd							
2M. Arsenic, Total (7440-38-2)	X	X		0.011	0.0195	N/A	N/A	N/A	N/A	1	mg/L	ppd							
3M. Beryllium, Total (7440-41-7)	X		X	<0.00006	<0.0001	N/A	N/A	N/A	N/A	1	mg/L	ppd							
4M. Cadmium, Total (7440-43-9)	X		X	<0.00009	<0.0002	N/A	N/A	N/A	N/A	1	mg/L	ppd							
5M. Chromium, Total (7440-47-3)	X	X		0.004	0.005	0.004	0.005	0.001	0.002	16	mg/L	ppd							
6M. Copper, Total (7440-50-8)	X	X		0.0046	0.0081	N/A	N/A	N/A	N/A	1	mg/L	ppd							
7M. Lead, Total (7439-92-1)	X	X		0.002	0.0035	N/A	N/A	N/A	N/A	1	mg/L	ppd							
8M. Mercury, Total (7439-97-6)	X	X		0.00012	0.0002	0.00012	0.0002	0.00002	0.00005	13	mg/L	ppd							
9M. Nickel, Total (7440-02-0)	X		X	<0.0007	<0.001	N/A	N/A	N/A	N/A	1	mg/L	ppd							
10M. Selenium, Total (7782-49-2)	X	X		0.0056	0.0099	N/A	N/A	N/A	N/A	1	mg/L	ppd							
11M. Silver, Total (7440-22-4)	X		X	<0.00011	<0.0002	N/A	N/A	N/A	N/A	1	mg/L	ppd							
12M. Thallium, Total (7440-28-0)	X		X	<0.000026	<0.00005	N/A	N/A	N/A	N/A	1	mg/L	ppd							
13M. Zinc, Total (7440-66-6)	X		X	<0.0064	<0.011	N/A	N/A	N/A	N/A	1	mg/L	ppd							
14M. Cyanide, Total (57-12-5)	X		X	<0.0025	<0.004	N/A	N/A	N/A	N/A	1	mg/L	ppd							
15M. Phenols, Total	X		X	<0.0026	<0.005	N/A	N/A	N/A	N/A	1	mg/L	ppd							
DIOXIN																			
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	X		X	DESCRIBE RESULTS There was no 2,3,7,8-TCDD detected above the reporting limit of 9.5 pg/L.															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVR. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X		X	<10	<0.018	N/A	N/A	N/A	N/A	1	ug/L	ppd			
2V. Acrylonitrile (107-13-1)	X		X	<2.8	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
3V. Benzene (71-43-2)	X		X	<0.38	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
4V. Bis (Chloromethyl) Ether (1) (542-88-1)	X		X	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)			
5V. Bromoform (75-25-2)	X		X	<0.71	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
6V. Carbon Tetrachloride (56-23-5)	X		X	<0.5	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
7V. Chlorobenzene (108-90-7)	X		X	<0.5	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
8V. Chlorodibromomethane (124-48-1)	X		X	<0.5	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
9V. Chloroethane (75-00-3)	X		X	<0.76	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X		X	<2.0	<0.004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
11V. Chloroform (67-66-3)	X		X	<0.60	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
12V. Dichlorobromomethane (75-27-4)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
13V. Dichlorodifluoromethane (75-71-8)	X		X	<0.85	<0.0015	N/A	N/A	N/A	N/A	1	ug/L	ppd			
14V. 1,1-Dichloroethane (75-34-3)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
15V. 1,2-Dichloroethane (107-06-2)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
16V. 1,1-Dichloroethylene (75-35-4)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
17V. 1,2-Dichloropropane (78-87-5)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
18V. 1,3-Dichloropropylene (542-75-6)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
19V. Ethylbenzene (100-41-4)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
20V. Methyl Bromide (74-83-9)	X		X	<0.98	<0.002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
21V. Methyl Chloride (74-87-3)	X		X	<0.83	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			

(1) No longer required to be sampled.

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X		X	<3.0	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
24V. Tetrachloroethylene (127-18-4)	X		X	<0.58	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
25V. Toluene (108-88-3)	X		X	<0.70	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
27V. 1,1,1-Trichloroethane (71-55-6)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
28V. 1,1,2-Trichloroethane (79-00-5)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
29V. Trichloroethylene (79-01-6)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
30V. Trichlorofluoromethane (75-69-4)	X		X	<0.52	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
31V. Vinyl Chloride (75-01-4)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X		X	<2.2	<0.004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
2A. 2,4-Dichlorophenol (120-83-2)	X		X	<3.0	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
3A. 2,4-Dimethylphenol (105-67-9)	X		X	<3.5	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X		X	<1.6	<0.003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
5A. 2,4-Dinitrophenol (51-28-5)	X		X	<3.4	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			
6A. 2-Nitrophenol (88-75-5)	X		X	<5.2	<0.009	N/A	N/A	N/A	N/A	1	ug/L	ppd			
7A. 4-Nitrophenol (100-02-7)	X		X	<2.1	<0.004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
8A. P-Chloro-M-Cresol (59-50-7)	X		X	<3.8	<0.007	N/A	N/A	N/A	N/A	1	ug/L	ppd			
9A. Pentachlorophenol (87-86-5)	X		X	<1.4	<0.002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
10A. Phenol (108-95-2)	X		X	<2.6	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
11A. 2,4,6-Trichlorophenol (88-05-2)	X		X	<3.5	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X		X	<0.16	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
2B. Acenaphylene (208-96-8)	X		X	<0.17	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
3B. Anthracene (120-12-7)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
4B. Benzidine (92-87-5)	X		X	<20	<0.035	N/A	N/A	N/A	N/A	1	ug/L	ppd			
5B. Benzo (a) Anthracene (56-55-3)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
6B. Benzo (a) Pyrene (50-32-8)	X		X	<0.12	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X		X	<0.15	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
8B. Benzo (ghi) Perylene (191-24-2)	X		X	<0.23	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
9B. Benzo (k) Fluoranthene (207-08-9)	X		X	<0.16	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X		X	<0.16	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X		X	<2.7	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
12B. Bis (2-Chloroisopropyl) Ether (102-80-1)	X		X	<0.16	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X		X	<2.0	<0.004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X		X	<0.20	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
15B. Butyl Benzyl Phthalate (85-68-7)	X		X	<0.19	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
16B. 2-Chloro-naphthalene (91-58-7)	X		X	<0.14	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X		X	<2.0	<0.004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
18B. Chrysene (218-01-9)	X		X	<0.19	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
19B. Dibenzo (a,h) Anthracene (53-70-3)	X		X	<0.24	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
20B. 1,2-Dichloro-benzene (95-50-1)	X		X	<0.50	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
21B. 1,3-Di-chloro-benzene (541-73-1)	X		X	<0.54	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			

CONTINUED FROM PAGE V-6

CONTINUED FROM PAGE VS

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1)	(2)	(1)	(2)	(1)	(2)				(1)	(2)	
				CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS				CONCENTRATION	MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)	X		X	<0.64	<0.001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
23B. 3,3-Dichlorobenzidine (91-94-1)	X		X	<2.6	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
24B. Diethyl Phthalate (84-66-2)	X		X	<0.24	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
25B. Dimethyl Phthalate (131-11-3)	X		X	<0.17	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
26B. Di-N-Butyl Phthalate (84-74-2)	X		X	<2.7	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
27B. 2,4-Dinitrotoluene (121-14-2)	X		X	<1.9	<0.003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
28B. 2,6-Dinitrotoluene (606-20-2)	X		X	<1.9	<0.003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
29B. Di-N-Octyl Phthalate (117-84-0)	X		X	<0.17	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
30B. 1,2-Diphenylhydrazine (as Azo-benzene) (122-66-7)	X		X	<1.0	<0.0018	N/A	N/A	N/A	N/A	1	ug/L	ppd			
31B. Fluoranthene (206-44-0)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
32B. Fluorene (86-73-7)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
33B. Hexachlorobenzene (118-74-1)	X		X	<0.17	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
34B. Hexachlorobutadiene (87-68-3)	X		X	<3.6	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			
35B. Hexachlorocyclopentadiene (77-47-4)	X		X	<2.6	<0.005	N/A	N/A	N/A	N/A	1	ug/L	ppd			
36B Hexachloroethane (67-72-1)	X		X	<4.2	<0.007	N/A	N/A	N/A	N/A	1	ug/L	ppd			
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X	<0.22	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
38B. Isophorone (78-59-1)	X		X	<0.14	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
39B. Naphthalene (91-20-3)	X		X	<0.17	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
40B. Nitrobenzene (98-95-3)	X		X	<0.13	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
41B. N-Nitrosodimethylamine (62-75-9)	X		X	<3.5	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X		X	<3.3	<0.006	N/A	N/A	N/A	N/A	1	ug/L	ppd			

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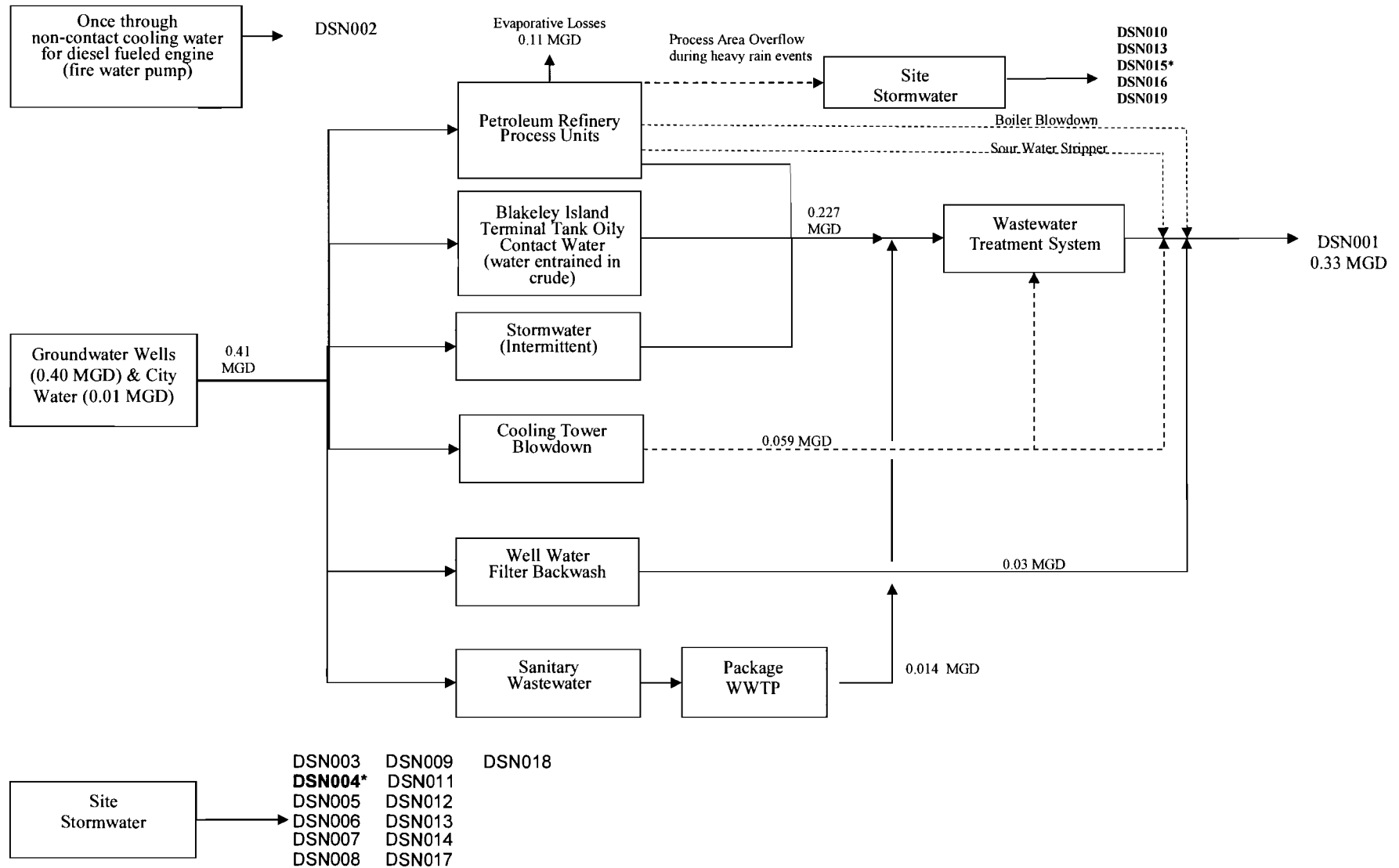
1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
44B. Phenanthrene (85-01-8)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
45B. Pyrene (129-00-0)	X		X	<0.21	<0.0004	N/A	N/A	N/A	N/A	1	ug/L	ppd			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X		X	<0.18	<0.0003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
2P. α-BHC (319-84-6)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
3P. β-BHC (319-85-7)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
4P. γ-BHC (58-89-9)	X		X	<0.01	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
5P. δ-BHC (319-86-8)	X		X	<0.0008	<0.000001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
6P. Chlordane (57-74-9)	X		X	<0.052	0.0001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
7P. 4,4'-DDT (50-29-3)	X		X	<0.002	<0.000003	N/A	N/A	N/A	N/A	1	ug/L	ppd			
8P. 4,4'-DDE (72-55-9)	X		X	<0.0009	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
9P. 4,4'-DDD (72-54-8)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
10P. Dieldrin (60-57-1)	X		X	<0.0012	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
11P. α-Endosulfan (115-29-7)	X		X	<0.0012	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
12P. β-Endosulfan (115-29-7)	X		X	<0.003	<0.000001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
13P. Endosulfan Sulfate (1031-07-8)	X		X	<0.0008	<0.000001	N/A	N/A	N/A	N/A	1	ug/L	ppd			
14P. Endrin (72-20-8)	X		X	<0.0012	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
15P. Endrin Aldehyde (7421-93-4)	X		X	<0.0011	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			
16P. Heptachlor (76-44-8)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd			

EPA I.D. NUMBER <i>(copy from Item 1 of Form 1)</i>	OUTFALL NUMBER
ALD020852422	DSN001

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES	
				(1)	(2)	(1)	(2)	(1)	(2)				(1)	(2)		
				CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS				CONCENTRATION	MASS		
GC/MS FRACTION – PESTICIDES (continued)																
17P. Heptachlor Epoxide (1024-57-3)	X		X	<0.001	<0.000002	N/A	N/A	N/A	N/A	1	ug/L	ppd				
18P. PCB-1242 (53469-21-9)	X		X	<0.014	<0.00002	N/A	N/A	N/A	N/A	1	ug/L	ppd				
19P. PCB-1254 (11097-69-1)	X		X	<0.023	<0.00004	N/A	N/A	N/A	N/A	1	ug/L	ppd				
20P. PCB-1221 (11104-28-2)	X		X	<0.088	0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd				
21P. PCB-1232 (11141-16-5)	X		X	<0.04	<0.0001	N/A	N/A	N/A	N/A	1	ug/L	ppd				
22P. PCB-1248 (12672-29-6)	X		X	<0.008	<0.00001	N/A	N/A	N/A	N/A	1	ug/L	ppd				
23P. PCB-1260 (11096-82-5)	X		X	<0.061	<0.0001	N/A	N/A	N/A	N/A	1	ug/L	ppd				
24P. PCB-1016 (12674-11-2)	X		X	<0.11	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd				
25P. Toxaphene (8001-35-2)	X		X	<0.12	<0.0002	N/A	N/A	N/A	N/A	1	ug/L	ppd				

**Attachment 2C-1
Item 2.B.
Shell Water Balance**



* stormwater outfalls requested as representative for compliance monitoring

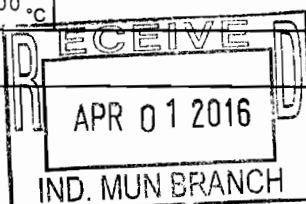
Attachment 2C-2

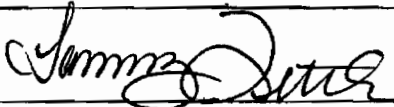
List of Pollutants in Table 2C-3

*Pollutants listed in Table 2C-3 of the instructions which you know or have reason to believe is discharged or may be discharged from any outfalls is listed in the table below:

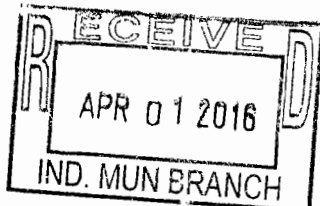
Pollutant	Source
Ammonium Chloride	Standard Solution
Benzene	Crude Oil Component
Cyclohexane	Crude Oil Component
Ethylbenzene	Crude Oil Component
Ferric Chloride	Standard Solution
Formaldehyde	Flocculent
Hydrochloric Acid	Flocculent
Hydrogen Sulfide	Feed Stock
Lead Nitrate	Standard Solution
Mercuric Sulfate	Digestion Solution
Naphthalene	Crude Oil Component
Nitric Acid	Standard Solution
Phosphoric Acid	Corrosion Inhibitor
Potassium Hydroxide	Standard Solution
Potassium Dichromate	Standard Solution
Sodium Hydroxide	Caustic Solution
Sulfuric Acid	Amine-sulfuric Acid
Styrene	Crude Oil Component
Toluene	Crude Oil Component
Xylene	Crude Oil Component
Zinc Sulfate	Corrosion Inhibitor

Please print or type in the unshaded areas only.		EPA ID Number (copy from Item 1 of Form 1) ALD020852422		Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.			
FORM <div style="font-size: 24pt; font-weight: bold;">2E</div> NPDES	<div style="display: flex; align-items: center; justify-content: center;"> <div> <h2 style="margin: 0;">Facilities Which Do Not Discharge Process Wastewater</h2> </div> </div>						
I. RECEIVING WATERS							
For this outfall, list the latitude and longitude, and name of the receiving water(s).							
Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
DSN002	30.00	47.00	23.00	88.00	3.00	32.00	Chickasaw Creek
II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)							
III. TYPE OF WASTE							
A. Check the box(es) indicating the general type(s) of wastes discharged.							
<input type="checkbox"/> Sanitary Wastes <input type="checkbox"/> Restaurant or Cafeteria Wastes <input checked="" type="checkbox"/> Noncontact Cooling Water <input type="checkbox"/> Other Nonprocess Wastewater (Identify)							
B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.							
N/A							
IV. EFFLUENT CHARACTERISTICS							
A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions). B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).							
Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)	Source of Estimate (if new discharger)	
Biochemical Oxygen Demand (BOD)	<0.00025 lbs	<2.0 mg/L			1.00		
Total Suspended Solids (TSS)	<0.00063 lbs	<3.2 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	N/A	N/A			N/A		
Total Residual Chlorine (if chlorine is used)	0.000003 lbs	0.02 mg/L			1.00		
Oil and Grease	<0.00060 lbs	<1.7 mg/L			1.00		
*Chemical oxygen demand (COD)	<0.00125 lbs	<6.4 mg/L			1.00		
*Total organic carbon (TOC)	0.00044 lbs	3.5 mg/L			1.00		
Ammonia (as N)	<0.00001 lbs	<0.022 mg/L			1.00		
Discharge Flow	Value 15 gal/ discharge event				1.00		
pH (give range)	Value 7.85				1.00		
Temperature (Winter)	N/A °C			N/A °C	N/A		
Temperature (Summer)	20.00 °C			N/A °C	1.00		
*If noncontact cooling water is discharged							



V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?	
If yes, briefly describe the frequency of flow and duration.	<input checked="checked" type="checkbox"/> Yes <input type="checkbox"/> No
DSN002 discharges once through non-contact cooling water used for a diesel-fueled engine that is used to run the fire water pump. The pump would only be used in the event of an emergency (i.e. fire) or to test the pump itself. The testing of the pump occurs no more frequently than once per week.	
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)	
N/A	
VII. OTHER INFORMATION (Optional)	
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.	
VIII. CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my 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.	
A. Name & Official Title Tammy Little, General Manager	B. Phone No. (area code & no.) (251) 679-7120
C. Signature 	D. Date Signed 3-30-16

Please print or type in the unshaded areas only.

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Continued from the Front

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
	See Attachment 2F-3				

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas, and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

See Attachment 2F-4

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
	See Attachment 2F-5	

V. Nonstormwater Discharges

A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharged from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name and Official Title (type or print)	Signature	Date Signed
Michael Hammer, Environmental Specialist	<i>Michael Hammer</i>	3/29/16

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

A dry weather visual inspection is conducted monthly at all outfalls as part of the facility's Best Management Practices (BMP) Plan required by Shell's NPDES Permit.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

See Attachment 2F-6

Continued from Page 2

EPA ID Number (copy from Item 1 of Form 1)
ALD02085422**VII. Discharge Information**

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided.
Table VII-A, VII-B, VII-C are included on separate sheets numbers VII-1 and VII-2.

E. Potential discharges not covered by analysis - Is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☒ Yes (list all such pollutants below)☐ No (go to Section IX)

Benzene
Ethylbenzene
Naphthalene
Xylene

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ Yes (list all such pollutants below)☐ No (go to Section IX)

DSN001
Species: P. Promelas (Fathead Minnow) and Ceriodaphnia
Type Test: 48 hour acute freshwater screening
IWC of % Effluent: 1.0%
Permitted Mortality Rate: < 10% Mortality
Test Frequency: Once per 6 months
Results for the past 5 years: 0% significant difference

IX. Contract Analysis Information

Were any of the analyses reported in Item VII performed by a contract laboratory or consulting firm?

☒ Yes (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)☐ No (go to Section X)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
TestAmerica Pensacola	3356 McLemore Drive, Pensacola, FL 32514	850-471-6234	Mercury, Dioxin
Micro Methods Laboratory, Inc	6500 Sunplex Drive, Ocean Springs, MS 39564	228-875-6420	All except Mercury and Dioxin

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my 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.

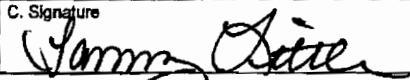
A. Name & Official Title (Type Or Print)

Tammy Little

B. Area Code and Phone No.

(251) 679-7120

C. Signature



D. Date Signed

3-30-16

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

EPA Form 3510-2F (1-92) Page VII-1 Continue on Reverse

(4) Permitted for nitrate, but the lab reported nitrate+nitrite.

Outfall DSN004

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

[illegible]

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gallons/minute or specify units)	6. Total flow from rain event (gallons or specify units)
2 Feb 16	20	0.30	>72 hours	1414 gpm	28,274 gal

7. Provide a description of the method of flow measurement or estimate.

Rational Method:

Peak discharge in gpm = Runoff coefficient x Rainfall intensity in inches x Drainage area in acres x conversion factors

Runoff coefficient of 0.50 was used as the recommended value for Light Industrial land use (Source: Source:Design and Construction of Sanitary and Storm Sewers, Manual No. 37, 1986)

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Oil and Grease	<1.60 mg/L	N/A	N/A	N/A	1.00	Plant Operations
Biological Oxygen Demand (BOD ₅)	2.8 mg/L	14 mg/L	N/A	N/A	1.00	Plant Operations
Chemical Oxygen Demand (COD)	11 mg/L	<10 mg/L	N/A	N/A	1.00	Plant Operations
Total Suspended Solids (TSS)	63 mg/L	19 mg/L	N/A	N/A	1.00	Plant Operations
Total Nitrogen ⁽⁵⁾	0.12 mg/L	0.15 mg/L	N/A	N/A	1.00	Plant Operations
Total Phosphorus	<0.032 mg/L	<0.032 mg/L	N/A	N/A	1.00	Plant Operations
pH	Minimum 6.65	Maximum	Minimum	Maximum	1.00	Plant Operations

[illegible]

⁽⁶⁾ Permitted for nitrate, but the lab reported nitrate+nitrite.

Outfall DSN015

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

[illegible]

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gallons/minute or specify units)	6. Total flow from rain event (gallons or specify units)
2 Feb 16	20	0.30	>72 hours	1414 gpm	28,274 gal

7. Provide a description of the method of flow measurement or estimate.

Rational Method:
Peak discharge in gpm=Runoff coefficient x Rainfall intensity in inches x Drainage area in acres x conversion factors
Where:
Runoff coefficient of 0.50 was used as the recommended value for Light Industrial land use (Source: Source:Design and Construction of Sanitary and Storm Sewers, Manual No. 37, 1986)

Attachment 2F-1

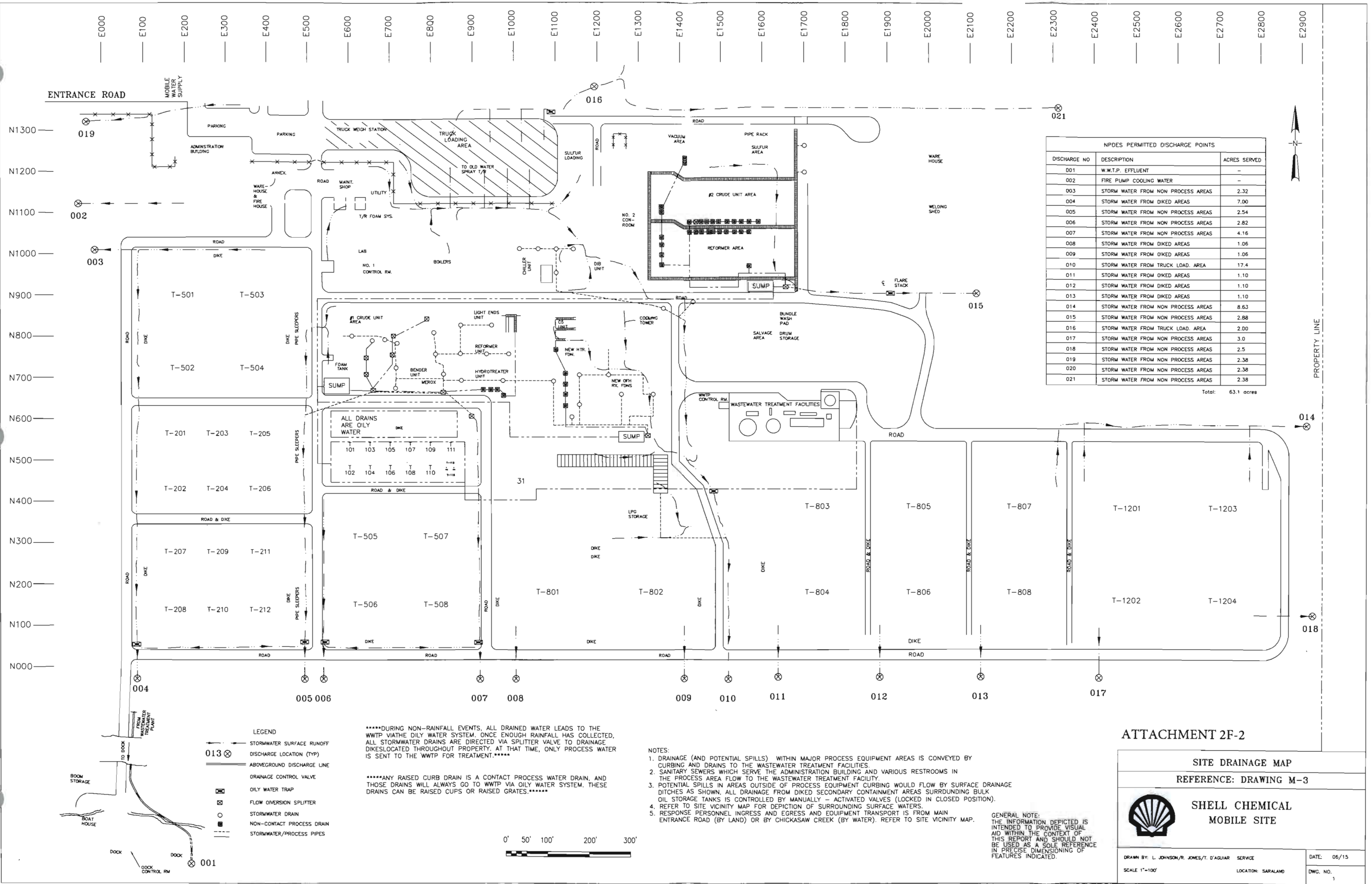
Item 1.A.

List of Outfall Locations

Outfall Number	Latitude	Longitude	Receiving Water
003	30°47'23"	88°03'32"	Chickasaw Creek
004*	30°47'15"	88°03'32"	Chickasaw Creek
005	30°47'15"	88°03'29"	Chickasaw Creek
006	30°47'15"	88°03'29"	Chickasaw Creek
007	30°47'15"	88°03'26"	Chickasaw Creek
008	30°47'15"	88°03'25"	Chickasaw Creek
009	30°47'15"	88°03'22"	Chickasaw Creek
010	30°47'15"	88°03'21"	Chickasaw Creek
011	30°47'15"	88°03'20"	Chickasaw Creek
012	30°47'15"	88°03'18"	Chickasaw Creek
013	30°47'15"	88°03'15"	Chickasaw Creek
014	30°47'20"	88°03'14"	Chickasaw Creek
015*	30°47'23"	88°03'16"	Chickasaw Creek
016	30°47'26"	88°03'24"	Chickasaw Creek
017	30°47'15"	88°03'13"	Chickasaw Creek
018	30°47'15"	88°03'10"	Chickasaw Creek
019	30°47'26"	88°03'32"	Chickasaw Creek
020	30°47'32"	88°03'20"	Chickasaw Creek
021	30°47'27"	88°03'11"	Chickasaw Creek

*stormwater outfalls requested as representative for compliance monitoring

M-3 1" = 1' RWA 12/98



NPDES PERMITTED DISCHARGE POINTS		
DISCHARGE NO	DESCRIPTION	ACRES SERVED
001	W.W.T.P. EFFLUENT	-
002	FIRE PUMP COOLING WATER	-
003	STORM WATER FROM NON PROCESS AREAS	2.32
004	STORM WATER FROM DIKED AREAS	7.00
005	STORM WATER FROM NON PROCESS AREAS	2.54
006	STORM WATER FROM NON PROCESS AREAS	2.82
007	STORM WATER FROM NON PROCESS AREAS	4.16
008	STORM WATER FROM DIKED AREAS	1.06
009	STORM WATER FROM DIKED AREAS	1.06
010	STORM WATER FROM TRUCK LOAD AREA	17.4
011	STORM WATER FROM DIKED AREAS	1.10
012	STORM WATER FROM DIKED AREAS	1.10
013	STORM WATER FROM DIKED AREAS	1.10
014	STORM WATER FROM NON PROCESS AREAS	8.63
015	STORM WATER FROM NON PROCESS AREAS	2.88
016	STORM WATER FROM TRUCK LOAD AREA	2.00
017	STORM WATER FROM NON PROCESS AREAS	3.0
018	STORM WATER FROM NON PROCESS AREAS	2.5
019	STORM WATER FROM NON PROCESS AREAS	2.38
020	STORM WATER FROM NON PROCESS AREAS	2.38
021	STORM WATER FROM NON PROCESS AREAS	2.38
Total:		63.1 acres

*****DURING NON-RAINFALL EVENTS, ALL DRAINED WATER LEADS TO THE WWTP VIA THE DILY WATER SYSTEM. ONCE ENOUGH RAINFALL HAS COLLECTED, ALL STORMWATER DRAINS ARE DIRECTED VIA SPLITTER VALVE TO DRAINAGE DIKES LOCATED THROUGHOUT PROPERTY. AT THAT TIME, ONLY PROCESS WATER IS SENT TO THE WWTP FOR TREATMENT.*****

*****ANY RAISED CURB DRAIN IS A CONTACT PROCESS WATER DRAIN, AND THOSE DRAINS WILL ALWAYS GO TO WWTP VIA OILY WATER SYSTEM. THESE DRAINS CAN BE RAISED CUPS OR RAISED GRATES.*****

NOTES:

1. DRAINAGE (AND POTENTIAL SPILLS) WITHIN MAJOR PROCESS EQUIPMENT AREAS IS CONVEYED BY CURBING AND DRAINS TO THE WASTEWATER TREATMENT FACILITIES.
2. SANITARY SEWERS WHICH SERVE THE ADMINISTRATION BUILDING AND VARIOUS RESTROOMS IN THE PROCESS AREA FLOW TO THE WASTEWATER TREATMENT FACILITY.
3. POTENTIAL SPILLS IN AREAS OUTSIDE OF PROCESS EQUIPMENT CURBING WOULD FLOW BY SURFACE DRAINAGE DITCHES AS SHOWN. ALL DRAINAGE FROM DIKED SECONDARY CONTAINMENT AREAS SURROUNDING BULK OIL STORAGE TANKS IS CONTROLLED BY MANUALLY - ACTIVATED VALVES (LOCKED IN CLOSED POSITION).
4. REFER TO SITE VICINITY MAP FOR DEPICTION OF SURROUNDING SURFACE WATERS.
5. RESPONSE PERSONNEL INGRESS AND EGRESS AND EQUIPMENT TRANSPORT IS FROM MAIN ENTRANCE ROAD (BY LAND) OR BY CHICKASAW CREEK (BY WATER). REFER TO SITE VICINITY MAP.

GENERAL NOTE:
THE INFORMATION DEPICTED IS INTENDED TO PROVIDE VISUAL AID WITHIN THE CONTEXT OF THIS REPORT AND SHOULD NOT BE USED AS A SOLE REFERENCE IN PRECISE DIMENSIONING OF FEATURES INDICATED.

ATTACHMENT 2F-2

SITE DRAINAGE MAP

REFERENCE: DRAWING M-3



SHELL CHEMICAL
MOBILE SITE

DRAWN BY: L. JOHNSON/R. JONES/T. D'AGUIAR SERVICE

DATE: 05/15

SCALE 1"=100'

LOCATION: SARALAND

DWG. NO. 1

Attachment 2F-3**Item IV.A.****Area Drained and Impervious Surface for Outfalls**

Outfall Number	Area of Impervious Surface (acres)	Total Area Drained (acres)
DSN003	0	2.32
DSN004*	0	7.0
DSN005	0.32	2.54
DSN006	0.42	2.82
DSN007	4.16	4.16
DSN008	0	1.06
DSN009	0	1.06
DSN010	3.22	17.4
DSN011	0	1.10
DSN012	0	1.10
DSN013	0	1.10
DSN014	0	8.63
DSN015*	2.88	2.88
DSN016	0.82	2.0
DSN017	0	3.0
DSN018	0	2.5
DSN019	2.22	2.38
DSN020	0	2.8
DSN021	0	1.6

*storm water outfalls requested as representative for compliance monitoring

Attachment 2F-4
Item IV.B.
Narrative Description of Significant Materials

Attachment 1-2 to EPA Form 1, includes the location of major material loading and tank farm areas. Significant materials stored throughout the site include crude oil, gasoline, diesel, naphtha, commercial butane, isobutane, normal butane, olefin feeds, wastewater, isopentane, propane, resid, jet fuel, ethanol, slop oil, caustic, and distillates. The capacities of the storage tanks are listed in the table below.

Crude oil is unloaded from barges at the Shell Mobile Site dock typically once or twice per day. Unloading of barges and tankers at the Blakely Terminal normally occurs 2 to 3 times per week. Barges typically supply 25,000-barrel (bbl) capacity. Tank trucks are loaded with finished product at the truck loading area. Truck capacities can range up to 10,000 gallons.

Herbicide 2-4-D Amine 4 is applied to areas by spraying where unwanted weeds are present. The first application is usually in February or March and follow-up treatments are applied when needed on a quarterly basis.

Gly Star Pro is used as a pest control product and is applied quarterly around the exterior of the buildings and office trailers. None of the pesticides or herbicides used at the facility are stored onsite.

General fertilizer typically is applied twice a year in front of the administration building, the truck rack grassy area, and the area behind the maintenance shop and utility building. The fertilizer is stored in bags inside the utility building.

Tank No.	Substance Stored	Capacity (bbls)
501	Crude	55,000
502	Crude	55,000
503	Crude	55,000
504	Crude	55,000
505	Gasoline	55,000
506	Gasoline	55,000
507	Gasoline	55,000
508	Gasoline	55,000
801	Gasoline	80,000
802	Gasoline	80,000
803	Crude	80,000
804	Crude	80,000
805	Crude	80,000
806	Light Olefin Feed	80,000

Tank No.	Substance Stored	Capacity (bbls)
807	Heavy Olefin Feed	80,000
808	Resid	80,000
V44	Isobutane	5,000
V43	Isobutane	5,000
V42	Commercial Butane	2,100
V41	Commercial Butane	2,100
V31	Normal Butane	2,100
V21	Wastewater	5,000
V22	Wastewater	2,500
V23	Wastewater	2,500
V24	Wastewater	2,500
V25	Wastewater	2,500
V26	Wastewater	2,500
V11	Propane	600
V12	Propane	600
V13	Propane	600
V14	Propane	600
V15	Propane	600
V16	Propane	600
101	Gasoline	5,000
102	Gasoline	5,000
103	Wastewater	5,000
104	Caustic	5,000
105	Wastewater	5,000
106	Wastewater	5,000
107	Wastewater	5,000
108	Wastewater	5,000
109	Sour Water	5,000
110	Salt Water	5,000
111	Salt Water	5,000
113	Out of Service	700
114	Out of Service	700
115	Out of Service	700
116	Out of Service	700
201	Naphtha	25,000
202	Naphtha	25,000
203	Naphtha	25,000
204	Diesel	25,000
205	Diesel	25,000
206	Diesel	25,000
207	Diesel	25,000
208	Jet Fuel	25,000
209	Diesel	25,000
210	Jet Fuel	25,000

Tank No.	Substance Stored	Capacity (bbls)
211	Ethanol	25,000
212	Jet Fuel A	25,000
1201	Jet Fuel	125,000
1202	Diesel	125,000
1203	Heavy Olefin Feed	125,000
1204	Heavy Olefin Feed	125,000

Attachment 2F-5

Item IV.C.

Description of Control Measures to Reduce Pollutants

Secondary containments have been provided for individual tanks. The following table lists the discharge pipes that are equipped with valves that can be closed to stop the discharge of stormwater.

STORM WATER CONTROL MEASURES

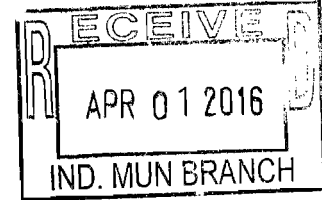
Outfall	Description	Code from Table 2-1
DSN002	Stormwater from lab parking lot and permit shack parking lot and stormwater runoff from road near dike	4-A
DSN003	Stormwater from diked area containing tanks T-501 and T-503 and stormwater runoff from road near dike	4-A
DSN004	Stormwater from diked areas containing tanks T-502 and T-504, and also T-201 through T-212, and stormwater runoff from road near dike	4-A
DSN005	Stormwater runoff from asphalt road near dikes and curbed pump areas due east of tank T-501 through T-212	4-A
DSN006	Stormwater from diked storage area containing tanks T-101 through T-106 and stormwater runoff from non-process area near dike and from nearby uncurbed process areas	4-A
DSN007	Stormwater from diked storage areas containing tanks T-505 through T-508, and T-107 through T-111, T-113 through T-116, and stormwater runoff from non-process area near the dike and from nearby uncurbed process areas	4-A
DSN008	Stormwater from diked area containing tank T-801	4-A
DSN009	Stormwater from diked area containing tank T-802	4-A
DSN010	Stormwater from diked storage areas containing tank T-803, and stormwater runoff from non-process areas of the facility including the truck loading area, LPG storage, maintenance shop, and control room. Stormwater runoff from Unit No. 1 non-curbed areas	4-A
DSN011	Stormwater from diked area containing tank T-804	4-A
DSN012	Stormwater from diked area containing tank T-806 and pump pad southeast of T-806	4-A
DSN013	Stormwater from diked area containing tank T-808 and pump pad southeast of T-808	4-A
DSN014	Stormwater runoff from diked storage areas containing tanks T-805, T-807, T-1201, and T-1203 and stormwater runoff from non-process areas of the facility	4-A
DSN017	Stormwater from diked area containing tank T-1202	4-A
DSN018	Stormwater from diked area containing tank T-1204	4-A
DSN019	Stormwater from administrative building and road leading into facility	4-A
DSN020	Stormwater from contractor parking area, freshwater storage tank, and contractor trailers	4-A
DSN021	Stormwater from area around Linde facility, and roadway along the sulfur recovery unit and vacuum unit	4-A
Notes: EPA = U.S. Environmental Protection Agency N/A = not applicable LPG = liquefied petroleum gas		

Attachment 2F-6
Item VI.
Significant Leaks or Spills

Date	Location of Spill	Material Spilled	Amount of Material Spilled
1/31/2012	Plant	Gasoline	
02/16/2012	Tank Farm	Crude	30 gallons
03/05/2012	Barge Dock	Crude	>3 gallons
06/11/2012	Ditch	Crude	
08/08/2012	Barge Dock	Crude	
02/12/2013	Tank Farm	Crude	
05/16/2013	Tank Farm	Diesel	30 gallons
11/15/2013	Plant	Crude/Process Water	
1/8/2014	Truck Rack	Diesel	63 kg
7/10/2014	Tank Farm	Wastewater	42 kg
9/15/2014	Tank Farm	Crude	99 kg
1/9/2015	Waste Water Treatment Plant	Naptha	2861 kg
1/15/2015	Truck Rack	Kerosene	93 kg
9/11/2015	Tank Farm	Crude	207 kg

December 31, 2015

**Mr. Mike Hamner
Environmental Specialist
Shell Chemical LP, Mobile Site
400 Industrial Parkway Ext.
Saraland, Alabama 36571**



**Re: Discharge Information Zone (DIZ) Study Report
Shell Chemical LP
Mobile Site, Mobile County, Alabama
Payne Environmental Project No.: 15-060-00**

Dear Mr. Hamner:

Payne Environmental Services appreciates the opportunity to provide our professional services on this project. The intent of this report is to provide Shell Chemical LP with documentation of the DIZ monitoring, performed on September 5, 2015, to fulfill the requirements of their National Pollutant Discharge Elimination System (NPDES) permit.

Shell Chemical LP discharges treated process wastewater into Chickasaw Creek in Saraland, Mobile County, Alabama and as a result, the NPDES permit contains Discharge Information Zone (DIZ) monitoring requirements. Based on the requirements of Alabama Department of Environmental Management (ADEM) Administration Code 8-2-12, all existing coastal wastewater dischargers must measure basic physiochemical parameters of the water column, collect sediment samples for textural characterization and chemical analysis, and collect, identify, and enumerate benthic infaunal organisms to determine possible biological impacts within the DIZ study area.

Shell Chemical LP requested that Payne Environmental Services conduct a DIZ study for their Mobile Site to comply with the upcoming NPDES permit renewal, including *in situ* water quality measurements, sediment collections for textural and chemical analysis, and benthic infaunal collections/analysis. This report provides the results of the requested DIZ study conducted on September 5, 2015. The study design and methodology of this survey are based upon the approved study design used in previous surveys and complies with the guidelines provided by ADEM.

MONITORING METHODS

Study Area/ Station Locations

The study area is located approximately one mile upstream of the Port of Chickasaw on Chickasaw Creek in Saraland, Alabama. Monitoring was conducted at a total of four different stations. Three stations were located within the DIZ survey area and the fourth was used as a “reference” station to determine background conditions. Station 1 was located approximately 400 feet upstream from the discharge point and 1/3 the width of Chickasaw Creek from the northern bank. Stations 2 and 3 were located approximately 400 feet and 800 feet downstream from the discharge point, respectively, and 1/3 the width of Chickasaw Creek from the northern bank. The fourth “reference” station was located approximately one mile upstream from the discharge point, 300 feet upstream of the Highway 43 bridge, and 1/4 the width of Chickasaw Creek from the southwest bank. The reference station was used to document the natural variability of benthic infaunal communities found outside the possible zone of influence of the Shell discharge. The other three stations were used to evaluate the biological impact, if any, resulting from effluent discharge entering Chickasaw Creek from the Shell Site. Sampling stations were located as close as possible to previous survey locations and were recorded using a GPS unit. A site vicinity map is attached as Figure 1.

In Situ Monitoring of Water Quality

Measurements of water temperature, conductivity, dissolved oxygen, salinity, and pH were performed in situ at all sampling locations utilizing a YSI Professional Plus Quatro Multi-Parameter Water Quality Sonde equipped with a Professional Plus Data Logger. Measurements were recorded near the surface (approximately 1-foot), 5-foot depth (from the surface, if possible), at station mid-depth, and near the bottom. Water clarity was determined at each station using a Secchi disk.

Sediment Textural and Chemical Analysis Monitoring

Bottom sediment samples were collected at each monitoring station for textural (grain size) and chemical (metals) analyses. Four (4) replicate samples were collected at each station and only the top 5-cm of each sample was retained for analysis. Two (2) sediment samples per station were analyzed for grain size distribution utilizing ASTM Method D422 and textural classification using Folk's Terminology (Folk, 1974). The two remaining sediment samples per station underwent chemical analyses to determine concentrations of aluminum, arsenic, cadmium, chromium, copper, iron, manganese, lead, tin, zinc, and mercury. Douglas Haywick, Ph.D., of the University of South Alabama, Department of Earth Sciences performed the grain size analyses. Sediment chemical analyses were performed by TestAmerica Laboratories, Inc. of Mobile, Alabama.

Benthic Infaunal Monitoring

Benthic infaunal samples were collected at each monitoring station using a stainless steel Standard (9-inch by 9-inch) Ponar grab sampler. Based upon the species saturation curve generated from data obtained during previous surveys in the immediate vicinity, three (3) replicate grab samples were taken at each sampling station. Samples were sieved in the field using a 0.5-mm mesh sieve, transferred to clean labeled sample containers, and preserved with rose bengal-stained 5% formalin. All sample containers were labeled externally and internally in the field. Sample labels made of water-resistant paper were placed inside each sample container. Information on the label included: a sample identification number (which corresponded to the number entered in the field notebook for that sample), the sampling date, water body, and location from which the sample was collected. Samples were transported to the laboratory following collection, where they were thoroughly rinsed and cleaned with fresh water, examined visually, and placed aside for enumeration. After most of the fine silt was washed from the sample, the organisms that remained were flushed into sample jars containing 70-80% isopropanol.

Samples were sorted in the laboratory using a dissecting microscope. Organisms and recognizable fragments were picked out of debris with forceps for counting. The sorted macroinvertebrates were transferred to glass vials containing 70% ethanol and stored for further analysis.

All benthic organisms, except juveniles, damaged individuals, or other forms lacking necessary taxonomic characteristics, were identified to the lowest possible identification level (LPIL). Most identification to order and family were made using a stereoscope microscope. Diptera larvae and small annelids were mounted on slides using CMPC-10 mounting media and examined under high magnification for specific identification.

The identified organisms were then enumerated and analyzed with respect to taxonomic listing, biological community parameters, and faunal characteristics. Community parameters include, but are not limited to, total number of taxa, total number of individuals (per taxa), Shannon-Weiner Diversity (H'), Equitability, or Evenness Index (J'), and Dominance ($1-J'$).

Gulf Benthic Taxonomy Assessment performed the benthic infaunal assessment and taxonomic characterization. A voucher collection of each species encountered during the survey was prepared and provided for quality assurance purposes.

RESULTS AND DISCUSSION

Hydrographic conditions were fairly consistent throughout the study area. Water depths at the four stations ranged from 9 feet at the reference station 4 to 19 feet at station 2. Surface water temperatures ranged from 27.94°C-30.50°C, mid-depth and 5-foot measurements ranged from 29.89°C-30.89°C, and near-bottom temperatures ranged from 29°C-30.44°C. Dissolved oxygen (DO) concentrations were consistent with late summer stratification and salt wedge intrusion from Mobile Bay. With little mixing occurring between water layers, higher DO levels were observed in the surface and 5-foot measurements, while lower DO levels were observed at the mid-depth and near bottom measurements. Surface DO levels ranged from 5.90 to 7.71 mg/l, 5-foot measurements ranged from 6.70 to 7.78 mg/L, mid-depth DO ranged from 1.72 to 4.48 mg/l, and near-bottom DO levels ranged from 0.12 to 1.12 mg/l. Hypoxic conditions were documented at all stations at depth. The low levels can be attributed to high salinity levels, high water temperature, and low vertical mixing due to an established halocline. Specific conductivity and salinity levels were slightly lower at the upstream reference station than the downstream stations. Surface, mid-depth, and near bottom specific conductivity levels ranged from 2846 $\mu\text{S}/\text{cm}$ to 22862 $\mu\text{S}/\text{cm}$ at the reference station. Surface, 5-foot, mid-depth, and near bottom specific conductivity levels ranged from 6687 $\mu\text{S}/\text{cm}$ to 45054 $\mu\text{S}/\text{cm}$ at the downstream stations, with higher levels observed at depth. Surface, mid-depth, and near bottom salinity levels ranged from 1.44 ppt to 12.26 ppt at the reference station. Surface, 5-foot, mid-depth, and near bottom salinity levels ranged from 2.99 ppt to 26.73 ppt at the downstream stations, with higher levels again observed at depth. Surface pH levels ranged from 7.67 to 8.01 standard units (SU), 5-foot levels ranged from 7.59 to 7.82 SU, mid-depth levels ranged from 7.47 to 7.64 SU, and near bottom levels ranged from 7.43 to 8.40 SU. Water clarity displayed little variation between sampling locations. Surface water clarity depths ranged from 0.91 meters at station 3 to 1.19 meters at Stations 1. Station depths ranged from 2.74 meters for the Reference Station to 5.79 meters for Station 2. A summary of the hydrographic conditions encountered during this survey can be found in Table 1.

All of the sediment chemical analysis can be found within Table 2. In general, sediment heavy metal concentrations were less than those found in the DIZ Survey performed in 2009. However, station 2 did have slightly higher metal concentrations than the previous study. A complete copy of the ICP metals and mercury analytical results can be found within Appendix A. Comparative trend analysis can be found in Appendix A.1.

Summarized textural characterization data is provided in Table 3. Generally, stations had proportionately higher percentages of sand, with the exception of the reference station 4 which had a high proportion of silt. Sediments with the description sandy silt or sand were the most abundant types observed. Gravel was not present in any samples. A full copy of the sediment textural analysis report can be found in Appendix B.

Benthic infaunal community composition observed during the present survey is in general agreement with previous analyses despite the salt wedge intrusion being present. Annelid worms (Class Clitellata and Polychaeta) were the most numerically dominant taxon encountered during this survey accounting for nearly 97 % of the total organisms found in the survey area. In past surveys, annelids also comprised the numerically dominant taxa. Vestigial numbers of organisms such as arthropods, molluscs, and other miscellaneous taxa made up the remaining three percent.

Species diversity was relatively low at all stations, similar to previous surveys. The total number of taxa ranged from 1 at Station 2 to 13 at the reference station 4. Species diversity ranged from 0 at Station 2 to 0.630 at Station 1. Summary biological community statistics for each sampling location are presented in Table 4. The Benthic Macroinvertebrate Individuals by Station Report and complete taxonomic listing of benthic infauna collected can be found in Appendix C.

CONCLUSION

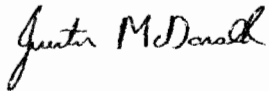
Overall, sampling results were consistent across all sampling stations with the exception of meiofauna diversity and density. Results showed that the reference station 4 had greater species abundance comprised of several additional taxa not present at the remaining stations. This variation is likely due to varying environmental conditions between the stations such as depth and soil composition. The reference station 4 was the shallowest of the sampling stations, and was the only station with silty soil often associated with annelids. For the reasons mentioned, the differences observed across sampling stations is thought to be naturally occurring and not the result of Shell discharge.

It should also be noted that species composition varied when compared to results from previous studies. However, the taxa present are not uncommon to the area, and frequently occur in oligohaline waters of the northern Gulf of Mexico. It was determined that the shift in species present was due to sampling occurring during different times of the year along with late summer stratification due to salt wedge encroachment.

Additionally, hydrographic conditions (dissolved oxygen, salinity, conductivity) observed during the study varied greatly when compared with previous studies. However, as stated earlier in the report, all of the mentioned parameters are directly influenced by seasonal salt wedge encroachment observed during late summer months in Mobile Bay.

We appreciate the opportunity to provide our professional services to Shell Chemical LP, as related to the Discharge Information Zone Survey for the Mobile Site. If you should have any questions concerning this information, or if we can be of any further assistance, please feel free to contact us.

Respectfully,
PAYNE ENVIRONMENTAL SERVICES

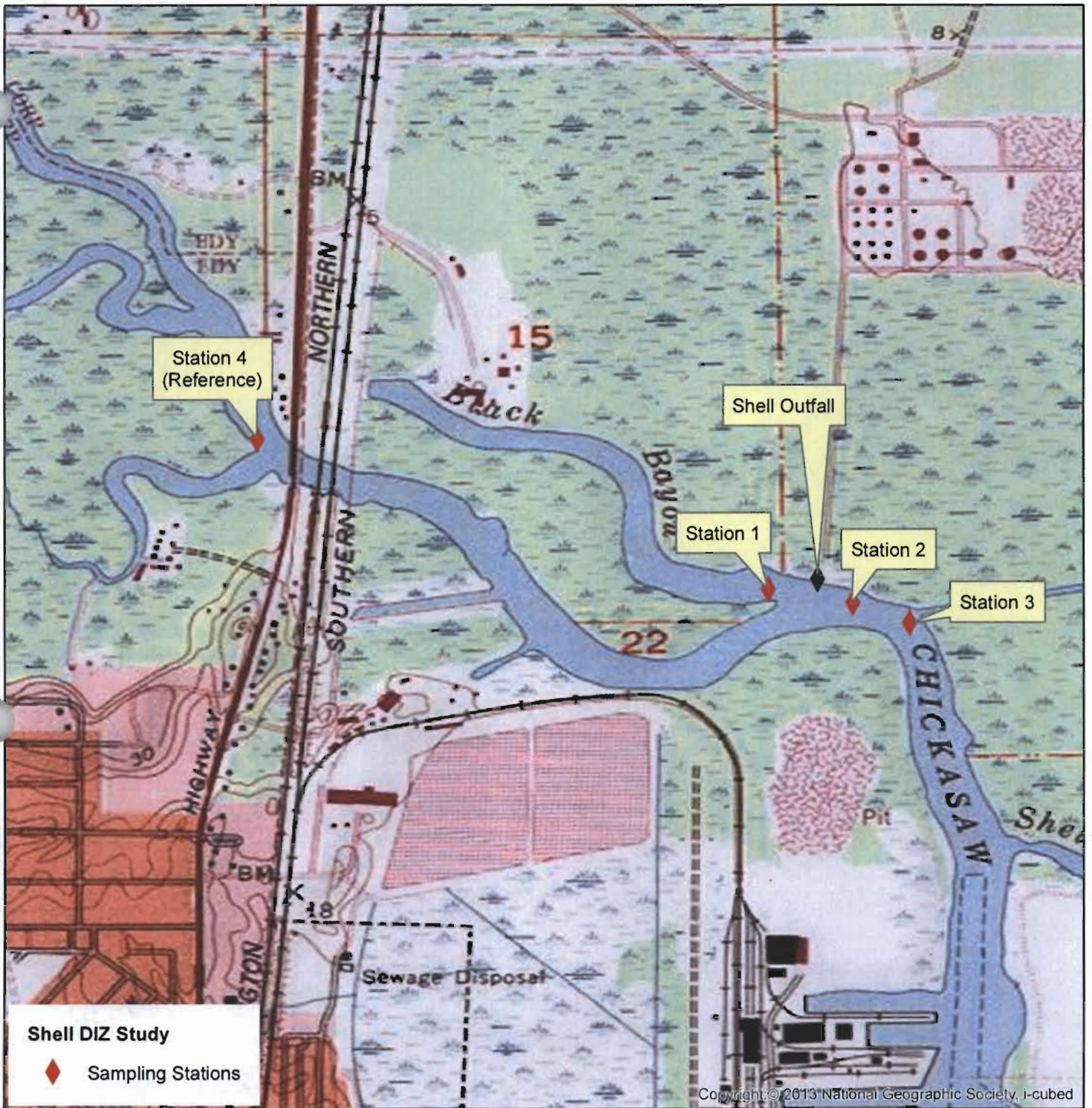


Justin C. McDonald, B.S.
Project Manager/ Staff Biologist



Charles N. Greer, Jr., P.E.
Senior Project Engineer


Attachments: as stated



Shell Chemical LP
Discharge Information Zone Monitoring
Saraland, Mobile County, AL

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Figure 1
Site Vicinity Map

Parameter Measured	Water Level	Sampling Station			
		Ref	1	2	3
Specific Conductivity (µS/cm)	S	2846	7034	6687	9024
	5 ft.	n/a	12083	11422	12426
	MD	13100	19767	27404	19907
	B	22862	43498	45054	34547
Dissolved Oxygen (%)	S	74.8	97.5	104.0	105.3
	5 ft.	n/a	102.7	104.7	92.1
	MD	61.0	35.5	23.0	59.6
	B	10.1	2.6	1.8	15.9
Dissolved Oxygen (mg/l)	S	5.90	7.41	7.71	7.70
	5 ft.	n/a	7.61	7.78	6.70
	MD	4.48	2.46	1.72	4.20
	B	0.72	0.17	0.12	1.12
pH (SU)	S	7.93	7.82	8.01	7.67
	5 ft.	n/a	7.63	7.82	7.59
	MD	7.54	7.64	7.63	7.47
	B	7.52	8.40	7.43	7.51
Salinity (ppt)	S	1.44	3.48	2.99	4.41
	5 ft.	n/a	6.10	5.51	6.47
	MD	6.75	10.32	14.57	10.55
	B	12.26	25.61	26.73	18.87
Water Temp. (°C)	S	27.94	29.78	30.50	30.33
	5 ft.	n/a	30.89	30.44	30.28
	MD	30.28	30.44	29.89	30.22
	B	29.78	29.06	29.00	29.50
Station Depth (m)		2.74	4.21	5.79	4.88
Secchi Depth (m)		1.07	1.19	1.04	0.91
S = surface; MD = mid-depth; B = bottom					
Shell Chemical LP Discharge Information Zone Monitoring Saraland, Mobile County, AL					Table - 1 Hydrographic Conditions

Job No.: 15-060-00

Sampling Station No.	Sample I.D. No.	Metals Concentration (mg/Kg) ¹										
		Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Tin	Zinc	Mercury
Ref	REP 1	4700	1.4	<1.0	7	21	9300	17	34	<6.3	45	0.062
	REP 2	12000	4.0	<1.9	17	18	18000	33	84	<12	96	0.140
1	REP 1	8600	2.3	<1.1	13	13	13000	19	46	<6.6	72	0.25
	REP 2	2700	1.2	<0.85	4.7	4.4	6200	7.5	28	<5.1	24	0.05
2	REP 1	840	1.8	<1.0	2.2	6.8	4600	2.7	28	<6.1	15	0.040
	REP 2	1700	2.0	<0.91	3.5	4.5	4400	6	17	<5.5	27	0.037
3	REP 1	320	<0.76	<0.76	<1.5	<1.5	1100	1.2	2.4	<4.6	3.6	<0.019
	REP 2	280	<0.74	<0.74	<1.5	<1.5	800	<0.74	2	<4.4	3.2	<0.017


1 - EPA Method 6010B non-detect concentration limits for metals analyzed in this study vary over size and % moisture. The specific limits can be found in Appendix C of this report.


Shell Chemical LP
Discharge Information Zone Monitoring
Saraland, Mobile County, Alabama

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Table - 2
Chemical Analysis Data

Job No. 15-060-00

Sampling Station	Sample I.D.	% Composition				Folk's Description
		Gravel	Sand	Silt	Clay	
Ref	Rep 1	0.00	19.60	53.60	26.80	Sandy Silt (sZ)
	Rep 2	0.00	18.50	60.00	21.50	Sandy Silt (sZ)
1	Rep 1	0.00	49.20	27.50	23.30	Sandy Mud (sM)
	Rep 2	0.00	66.00	20.20	13.80	Muddy Sand (mS)
2	Rep 1	0.00	94.50	0.00	7.10	Sand (S)
	Rep 2	0.00	76.50	11.30	12.20	Muddy Sand (mS)
3	Rep 1	0.00	95.50	0.00	5.80	Sand (S)
	Rep 2	0.00	89.80	2.60	7.60	Clayey Sand (cS)
Shell Chemical LP Discharge Information Zone Monitoring Saraland, Mobile County, Alabama						Table 3. Summary of Grain Size Analysis Across Sample Sites

BENTHIC PARAMETERS									
Sampling Station No.		Total No. Taxa	Mean No. of Taxa per Sample	Total No. Individuals	Mean No. of Individuals per Sample	Mean Density (nos/m2)*	H' Shannon-Weiner Diversity Index	Hmax' Species Richness Index	J' Equitability Index
Ref	13	4.3	589	196.3	2136.3	0.522	1.114	0.469	0.531
1	7	2.3	25	8.3	90.7	0.630	0.845	0.746	0.254
2	1	0.3	1	0.3	3.6	0.000	0.000	N/A	N/A
3	5	1.7	17	5.7	61.7	0.379	0.699	0.542	0.458
* Based on Ponar Grab Factor of 3.627									
Shell Chemical LP Discharge Information Zone Monitoring Saraland, Mobile County, AL								Table - 4 Benthic Parameters	

Job No. 15-060-00

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-110665-1

Client Project/Site: Shell DIZ Study

For:

Payne Environmental

PO BOX 850862

Mobile, Alabama 36685

Attn: Justin McDonald



Authorized for release by:

9/23/2015 10:19:35 AM

Mike Nance, Service Center Manager

(251)666-6633

mike.nance@testamericainc.com

LINKS

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results through

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Job ID: 400-110665-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-110665-1

Comments

No additional comments.

Receipt

The samples were received on 9/8/2015 11:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

Metals

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Sample Summary

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-110665-1	STATION 1-1	Solid	09/05/15 10:30	09/08/15 11:38
400-110665-2	STATION 1-2	Solid	09/05/15 10:31	09/08/15 11:38
400-110665-3	STATION 2-1	Solid	09/05/15 11:19	09/08/15 11:38
400-110665-4	STATION 2-2	Solid	09/05/15 11:39	09/08/15 11:38
400-110665-5	STATION 3-1	Solid	09/05/15 12:45	09/08/15 11:38
400-110665-6	STATION 3-2	Solid	09/05/15 12:50	09/08/15 11:38
400-110665-7	STATION 4-1	Solid	09/05/15 09:16	09/08/15 11:38
400-110665-8	STATION 4-2	Solid	09/05/15 09:17	09/08/15 11:38

Client Sample Results

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 1-1

Date Collected: 09/05/15 10:30

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-1

Matrix: Solid

Percent Solids: 50.8

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8600		22		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Arsenic	2.3		1.1		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Cadmium	<1.1		1.1		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Chromium	13		2.2		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Copper	13		2.2		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Iron	13000		22		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Manganese	46		2.2		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Lead	19		1.1		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Tin	<6.6		6.6		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1
Zinc	72		4.4		mg/Kg	☼	09/15/15 16:57	09/17/15 18:56	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.25		0.025		mg/Kg	☼	09/11/15 11:02	09/13/15 16:05	1

Client Sample ID: STATION 1-2

Date Collected: 09/05/15 10:31

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-2

Matrix: Solid

Percent Solids: 60.5

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2700		17		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Arsenic	1.2		0.85		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Cadmium	<0.85		0.85		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Chromium	4.7		1.7		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Copper	4.4		1.7		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Iron	6200		17		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Manganese	28		1.7		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Lead	7.5		0.85		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Tin	<5.1		5.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1
Zinc	24		3.4		mg/Kg	☼	09/15/15 16:57	09/17/15 19:00	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.049		0.022		mg/Kg	☼	09/11/15 11:02	09/13/15 16:06	1

Client Sample ID: STATION 2-1

Date Collected: 09/05/15 11:19

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-3

Matrix: Solid

Percent Solids: 53.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	840		20		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Arsenic	1.8		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Cadmium	<1.0		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Chromium	2.2		2.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Copper	6.8		2.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Iron	4600		20		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Manganese	28		2.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Lead	2.7		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1

TestAmerica Pensacola

Client Sample Results

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 2-1

Lab Sample ID: 400-110665-3

Date Collected: 09/05/15 11:19

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 53.4

Method: 6010B - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tin	<6.1		6.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1
Zinc	15		4.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:03	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.040		0.024		mg/Kg	☼	09/11/15 11:02	09/13/15 16:08	1

Client Sample ID: STATION 2-2

Lab Sample ID: 400-110665-4

Date Collected: 09/05/15 11:39

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 51.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1700		18		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Arsenic	2.0		0.91		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Cadmium	<0.91		0.91		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Chromium	3.5		1.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Copper	4.5		1.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Iron	4400		18		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Manganese	17		1.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Lead	6.0		0.91		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Tin	<5.5		5.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1
Zinc	27		3.6		mg/Kg	☼	09/15/15 16:57	09/17/15 19:07	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.037		0.026		mg/Kg	☼	09/11/15 11:02	09/13/15 16:09	1

Client Sample ID: STATION 3-1

Lab Sample ID: 400-110665-5

Date Collected: 09/05/15 12:45

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 66.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	320		15		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Arsenic	<0.76		0.76		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Cadmium	<0.76		0.76		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Chromium	<1.5		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Copper	<1.5		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Iron	1100		15		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Manganese	2.4		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Lead	1.2		0.76		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Tin	<4.6		4.6		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1
Zinc	3.6		3.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:20	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.019		0.019		mg/Kg	☼	09/11/15 11:02	09/13/15 16:10	1

TestAmerica Pensacola

Client Sample Results

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 3-2

Date Collected: 09/05/15 12:50

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-6

Matrix: Solid

Percent Solids: 73.0

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	280		15		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Arsenic	<0.74		0.74		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Cadmium	<0.74		0.74		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Chromium	<1.5		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Copper	<1.5		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Iron	800		15		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Manganese	2.0		1.5		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Lead	<0.74		0.74		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Tin	<4.4		4.4		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1
Zinc	3.2		2.9		mg/Kg	☼	09/15/15 16:57	09/17/15 19:24	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.017		0.017		mg/Kg	☼	09/11/15 11:02	09/13/15 16:12	1

Client Sample ID: STATION 4-1

Date Collected: 09/05/15 09:16

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-7

Matrix: Solid

Percent Solids: 48.0

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4700		21		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Arsenic	1.4		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Cadmium	<1.0		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Chromium	7.0		2.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Copper	21		2.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Iron	9300		21		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Manganese	34		2.1		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Lead	17		1.0		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Tin	<6.3		6.3		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1
Zinc	45		4.2		mg/Kg	☼	09/15/15 16:57	09/17/15 19:27	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.062		0.026		mg/Kg	☼	09/11/15 11:02	09/13/15 16:13	1

Client Sample ID: STATION 4-2

Date Collected: 09/05/15 09:17

Date Received: 09/08/15 11:38

Lab Sample ID: 400-110665-8

Matrix: Solid

Percent Solids: 27.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	12000		38		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Arsenic	4.0		1.9		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Cadmium	<1.9		1.9		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Chromium	17		3.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Copper	18		3.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Iron	18000		38		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Manganese	84		3.8		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1
Lead	33		1.9		mg/Kg	☼	09/15/15 16:57	09/17/15 19:31	1

TestAmerica Pensacola

Client Sample Results

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 4-2

Lab Sample ID: 400-110665-8

Date Collected: 09/05/15 09:17

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 27.4

Method: 6010B - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tin	<12		12		mg/Kg	⊛	09/15/15 16:57	09/17/15 19:31	1
Zinc	96		7.7		mg/Kg	⊛	09/15/15 16:57	09/17/15 19:31	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14		0.048		mg/Kg	⊛	09/11/15 11:02	09/13/15 16:14	1

QC Sample Results

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 400-274457/1-A
Matrix: Solid
Analysis Batch: 274993

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274457

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<9.4		9.4		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Arsenic	<0.47		0.47		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Cadmium	<0.47		0.47		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Chromium	<0.94		0.94		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Copper	<0.94		0.94		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Iron	<9.4		9.4		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Manganese	<0.94		0.94		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Lead	<0.47		0.47		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Tin	<2.8		2.8		mg/Kg		09/15/15 16:57	09/17/15 18:09	1
Zinc	<1.9		1.9		mg/Kg		09/15/15 16:57	09/17/15 18:09	1

Lab Sample ID: LCS 400-274457/2-A
Matrix: Solid
Analysis Batch: 274993

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274457

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	981	1010		mg/Kg		103	80 - 120
Arsenic	98.1	95.6		mg/Kg		97	80 - 120
Cadmium	49.0	47.2		mg/Kg		96	80 - 120
Chromium	98.1	97.8		mg/Kg		100	80 - 120
Copper	98.1	101		mg/Kg		103	80 - 120
Iron	981	1010		mg/Kg		103	80 - 120
Manganese	98.1	102		mg/Kg		104	80 - 120
Lead	98.1	96.8		mg/Kg		99	80 - 120
Tin	98.1	97.0		mg/Kg		99	80 - 120
Zinc	98.1	96.2		mg/Kg		98	80 - 120

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 400-274015/14-A
Matrix: Solid
Analysis Batch: 274209

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274015

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.013		0.013		mg/Kg		09/11/15 11:02	09/13/15 15:44	1

Lab Sample ID: LCS 400-274015/15-A
Matrix: Solid
Analysis Batch: 274209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0663	0.0698		mg/Kg		105	80 - 120

TestAmerica Pensacola

Lab Chronicle

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 1-1

Lab Sample ID: 400-110665-1

Date Collected: 09/05/15 10:30

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 1-1

Lab Sample ID: 400-110665-1

Date Collected: 09/05/15 10:30

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 50.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 18:56	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:05	DN1	TAL PEN

Client Sample ID: STATION 1-2

Lab Sample ID: 400-110665-2

Date Collected: 09/05/15 10:31

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 1-2

Lab Sample ID: 400-110665-2

Date Collected: 09/05/15 10:31

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 60.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 19:00	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:06	DN1	TAL PEN

Client Sample ID: STATION 2-1

Lab Sample ID: 400-110665-3

Date Collected: 09/05/15 11:19

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 2-1

Lab Sample ID: 400-110665-3

Date Collected: 09/05/15 11:19

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 53.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN

TestAmerica Pensacola

Lab Chronicle

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 2-1

Lab Sample ID: 400-110665-3

Date Collected: 09/05/15 11:19

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 53.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1	274993	09/17/15 19:03	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:08	DN1	TAL PEN

Client Sample ID: STATION 2-2

Lab Sample ID: 400-110665-4

Date Collected: 09/05/15 11:39

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 2-2

Lab Sample ID: 400-110665-4

Date Collected: 09/05/15 11:39

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 51.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 19:07	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:09	DN1	TAL PEN

Client Sample ID: STATION 3-1

Lab Sample ID: 400-110665-5

Date Collected: 09/05/15 12:45

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 3-1

Lab Sample ID: 400-110665-5

Date Collected: 09/05/15 12:45

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 66.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 19:20	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:10	DN1	TAL PEN

TestAmerica Pensacola

Lab Chronicle

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 3-2

Lab Sample ID: 400-110665-6

Date Collected: 09/05/15 12:50

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 3-2

Lab Sample ID: 400-110665-6

Date Collected: 09/05/15 12:50

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 73.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 19:24	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:12	DN1	TAL PEN

Client Sample ID: STATION 4-1

Lab Sample ID: 400-110665-7

Date Collected: 09/05/15 09:16

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 4-1

Lab Sample ID: 400-110665-7

Date Collected: 09/05/15 09:16

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 48.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN
Total/NA	Analysis	6010B		1	274993	09/17/15 19:27	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:13	DN1	TAL PEN

Client Sample ID: STATION 4-2

Lab Sample ID: 400-110665-8

Date Collected: 09/05/15 09:17

Matrix: Solid

Date Received: 09/08/15 11:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	273860	09/10/15 15:48	JLB	TAL PEN

Client Sample ID: STATION 4-2

Lab Sample ID: 400-110665-8

Date Collected: 09/05/15 09:17

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 27.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			274457	09/15/15 16:57	CLM	TAL PEN

TestAmerica Pensacola

Lab Chronicle

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Client Sample ID: STATION 4-2

Lab Sample ID: 400-110665-8

Date Collected: 09/05/15 09:17

Matrix: Solid

Date Received: 09/08/15 11:38

Percent Solids: 27.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1	274993	09/17/15 19:31	GESP	TAL PEN
Total/NA	Prep	7471A			274015	09/11/15 11:02	DN1	TAL PEN
Total/NA	Analysis	7471A		1	274209	09/13/15 16:14	DN1	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: Payne Environmental
Project/Site: Shell DIZ Study

TestAmerica Job ID: 400-110665-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL PEN
7471A	Mercury (CVAA)	SW846	TAL PEN
Moisture	Percent Moisture	EPA	TAL PEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

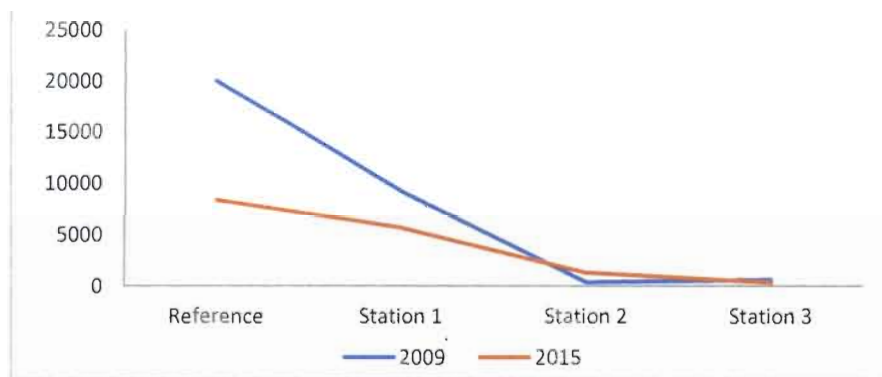


400-110665 COC

Client Information		Sample:		Lab PM:		Carrier Tracking No(s):		
Client Contact: Justin McDonald		Phone:		Nance, Mike M E-Mail: mike.nance@testamericainc.com		COC No: 400-48117-22479.1		
Company: Payne Environmental						Page: Page 1 of 1		
Address: PO BOX 850862		Due Date Requested:		Analysis Requested		Job #:		
City: Mobile		TAT Requested (days):				Preservation Codes:		
State, Zip: AL, 36685						A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify)		
Phone:		PO #: Purchase Order not required				Other:		
Email: jmcDonald@payne-env.com		WO #:						
Project Name: Shell DIZ Study		Project #: 40006032						
Site:		SSOW#:						
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Filter/Filtered Sample (Yes or No) (Date)	Moisture	Total Number of Containers	Special Instructions/Note:
Station 1-1	9/5/2015	10:30	G	Solid				Relinquished on Ice
Station 1-2	9/5/2015	10:31	G	Solid				
Station 2-1	9/5/2015	11:19	G	Solid				
Station 2-2	9/5/2015	11:39	G	Solid				
Station 3-1	9/5/2015	12:45	G	Solid				
Station 3-2	9/5/2015	12:50	G	Solid				
Station 4-1	9/5/2015	9:16	G	Solid				
Station 4-2	9/5/2015	9:17	G	Solid				
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological								
Deliverable Requested: I, II, III, IV, Other (specify) _____					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Empty Kit Relinquished by: _____					Special Instructions/QC Requirements:			
Relinquished by: Justin McDonald		Date/Time: 9/8/2015 11:38		Received by: Julia Breunler		Date/Time: 9/8/15 1138		
Relinquished by: _____		Date/Time: _____		Received by: _____		Date/Time: _____		
Relinquished by: _____		Date/Time: _____		Received by: _____		Date/Time: _____		
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: 400-110645		Cooler Temperature(s) °C and Other Remarks: 2°C #5592					

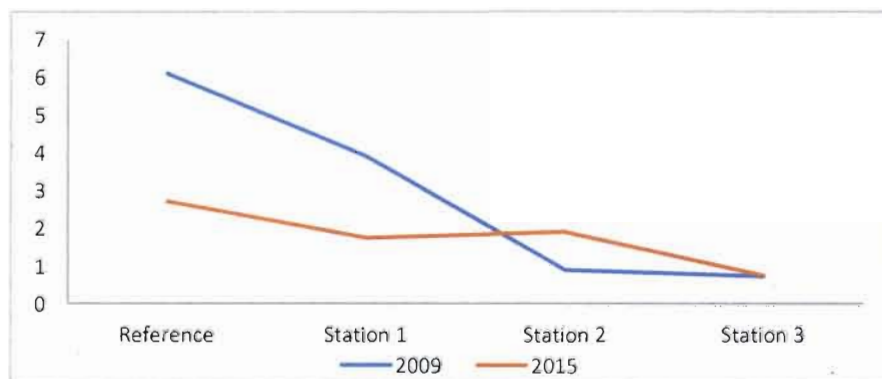
Al/Metals Concentration (mg/Kg)

	2009	2015
Reference	20000	8350
Station 1	9200	5650
Station 2	350	1270
Station 3	590	300



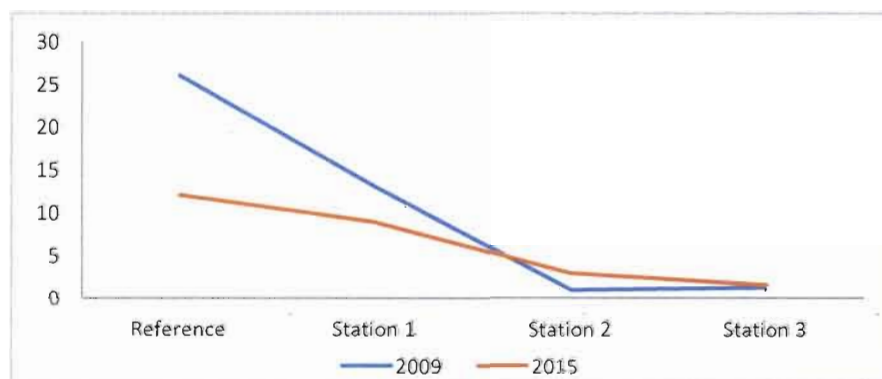
As/Metals Concentration (mg/Kg)

	2009	2015
Reference	6.1	2.7
Station 1	3.9	1.75
Station 2	0.89	1.9
Station 3	0.73	0.75



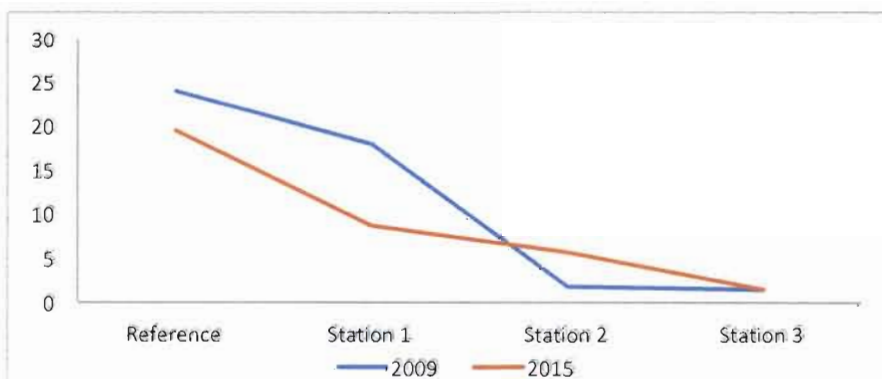
Cr/Metals Concentration (mg/Kg)

	2009	2015
Reference	26	12
Station 1	13	8.9
Station 2	0.89	2.9
Station 3	1.2	1.5



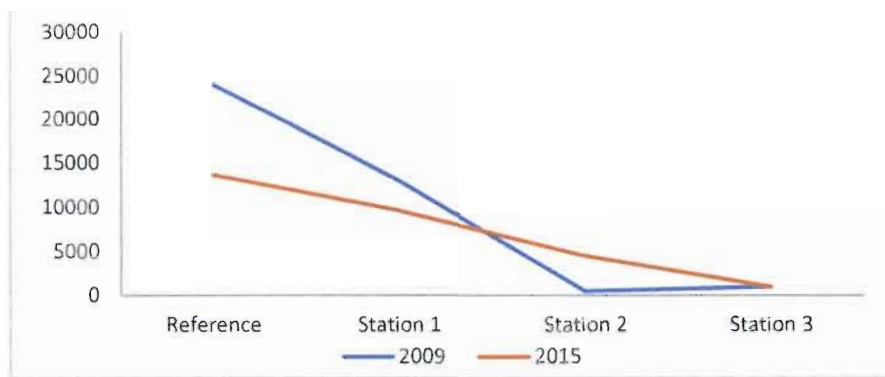
Cu/Metals Concentration (mg/Kg)

	2009	2015
Reference	24	19.5
Station 1	18	8.7
Station 2	1.8	5.7
Station 3	1.5	1.5



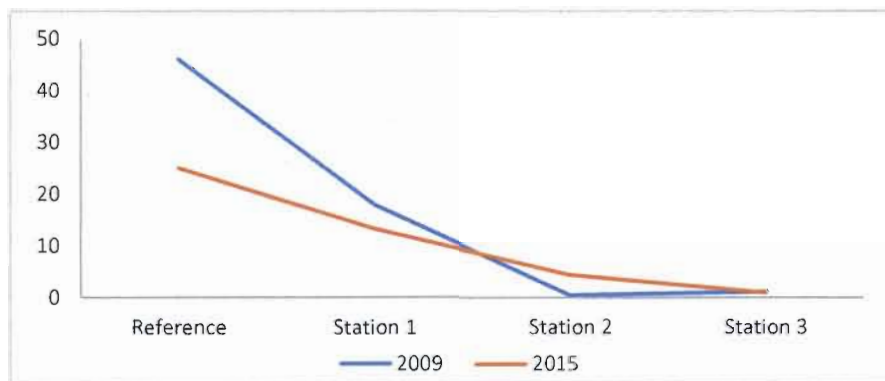
Fe/Metals Concentration (mg/Kg)

	2009	2015
Reference	24000	13650
Station 1	13000	9600
Station 2	480	4500
Station 3	1000	950



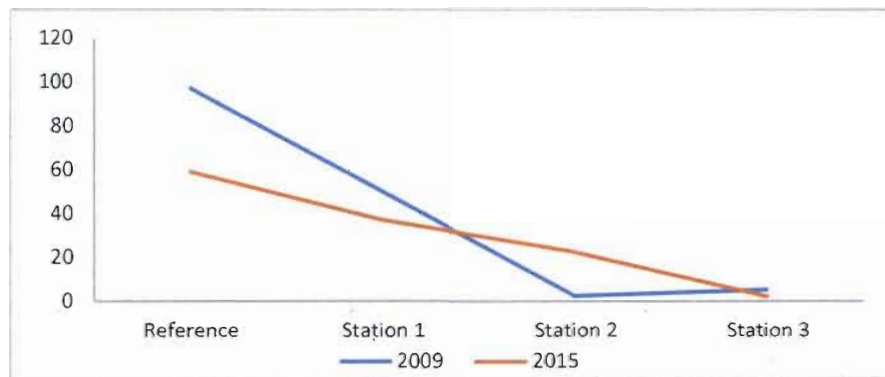
Pb/Metals Concentration (mg/Kg)

	2009	2015
Reference	46	25
Station 1	18	13.3
Station 2	0.44	4.4
Station 3	1.1	0.97



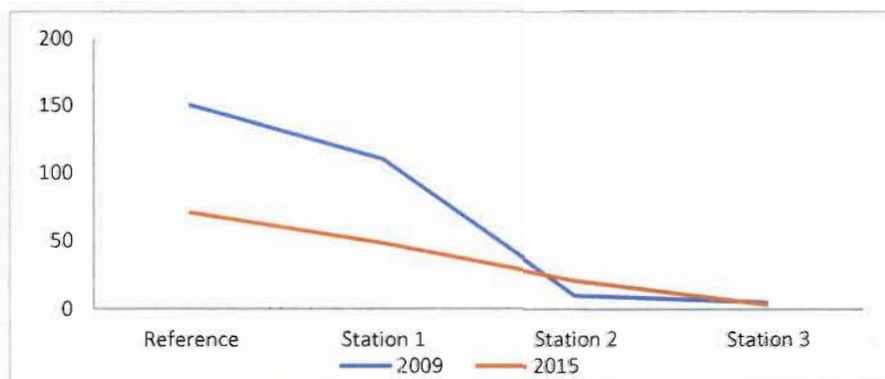
Mn/Metals Concentration (mg/Kg)

	2009	2015
Reference	97	59
Station 1	50	37
Station 2	2.4	22.5
Station 3	5.2	2.2



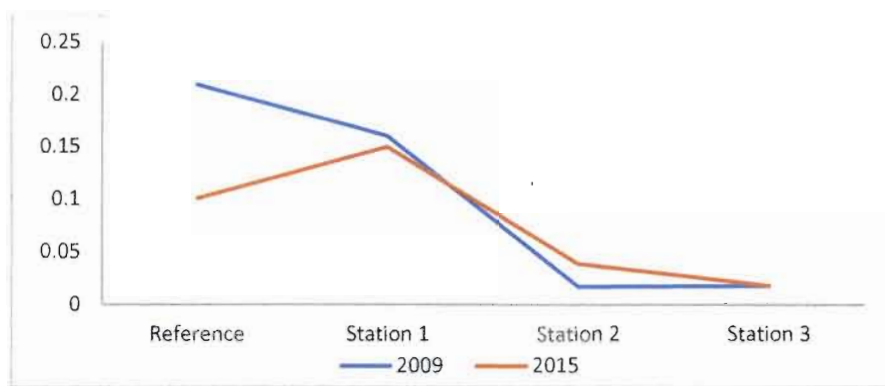
Zn/Metals Concentration (mg/Kg)

	2009	2015
Reference	150	70.5
Station 1	110	48
Station 2	9.8	21
Station 3	5	3.4

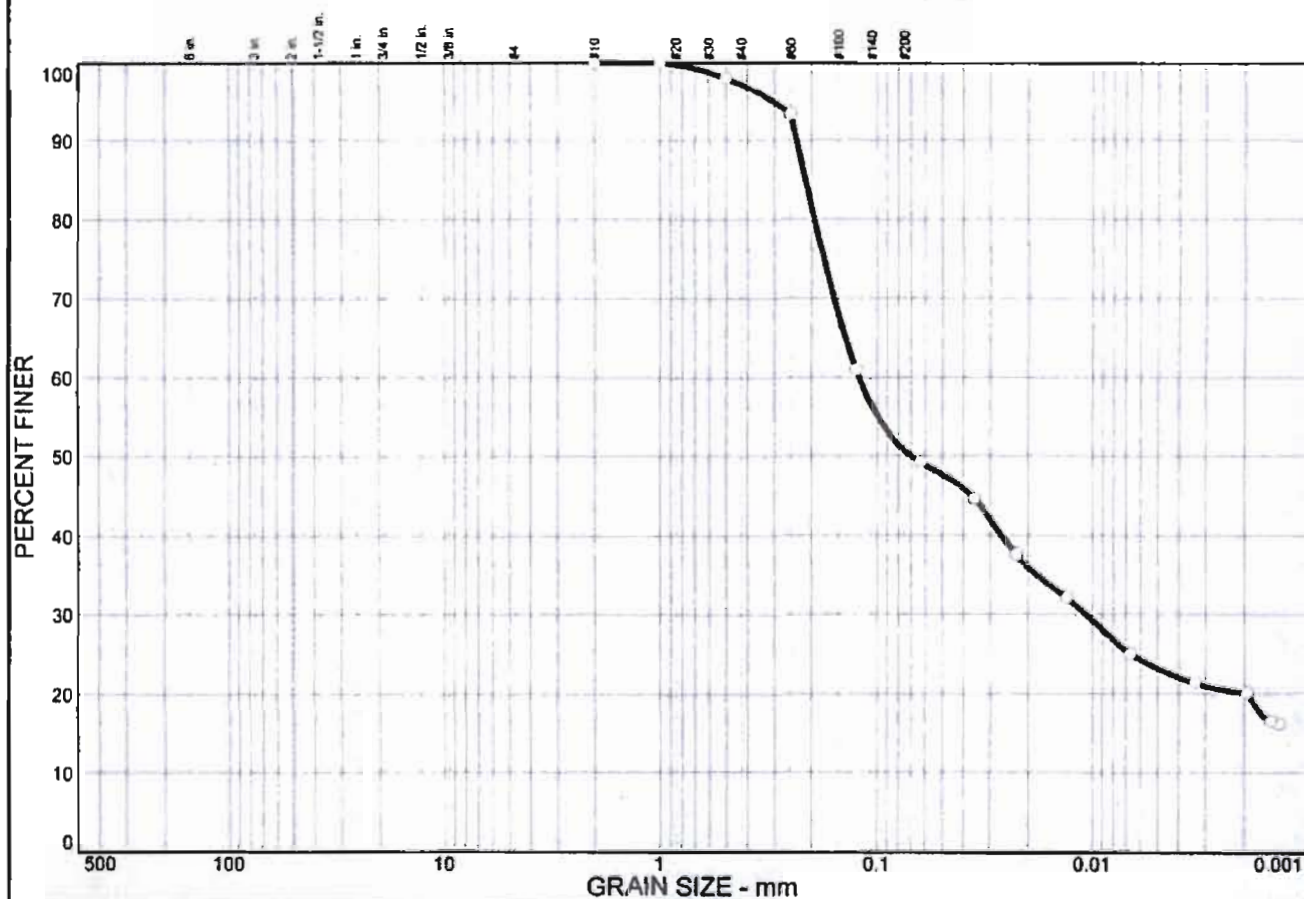


Hg/Metals Concentration (mg/Kg)

	2009	2015
Reference	0.21	0.101
Station 1	0.16	0.15
Station 2	0.017	0.039
Station 3	0.018	0.018



Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	49.2	27.5	23.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	98.0		
0.25 in.	93.4		
0.125 in.	61.1		
0.063 in.	49.3		

* (no specification provided)

Soil Description

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₈₅= 0.213

D₆₀= 0.121

D₅₀= 0.0688

D₃₀= 0.0106

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO=

Remarks

Plant material removed from coarsest fractions

Sample No.:

Source of Sample:

Date: Sept 30, 2015

Location: Station 1, Rep 1

Elev./Depth:

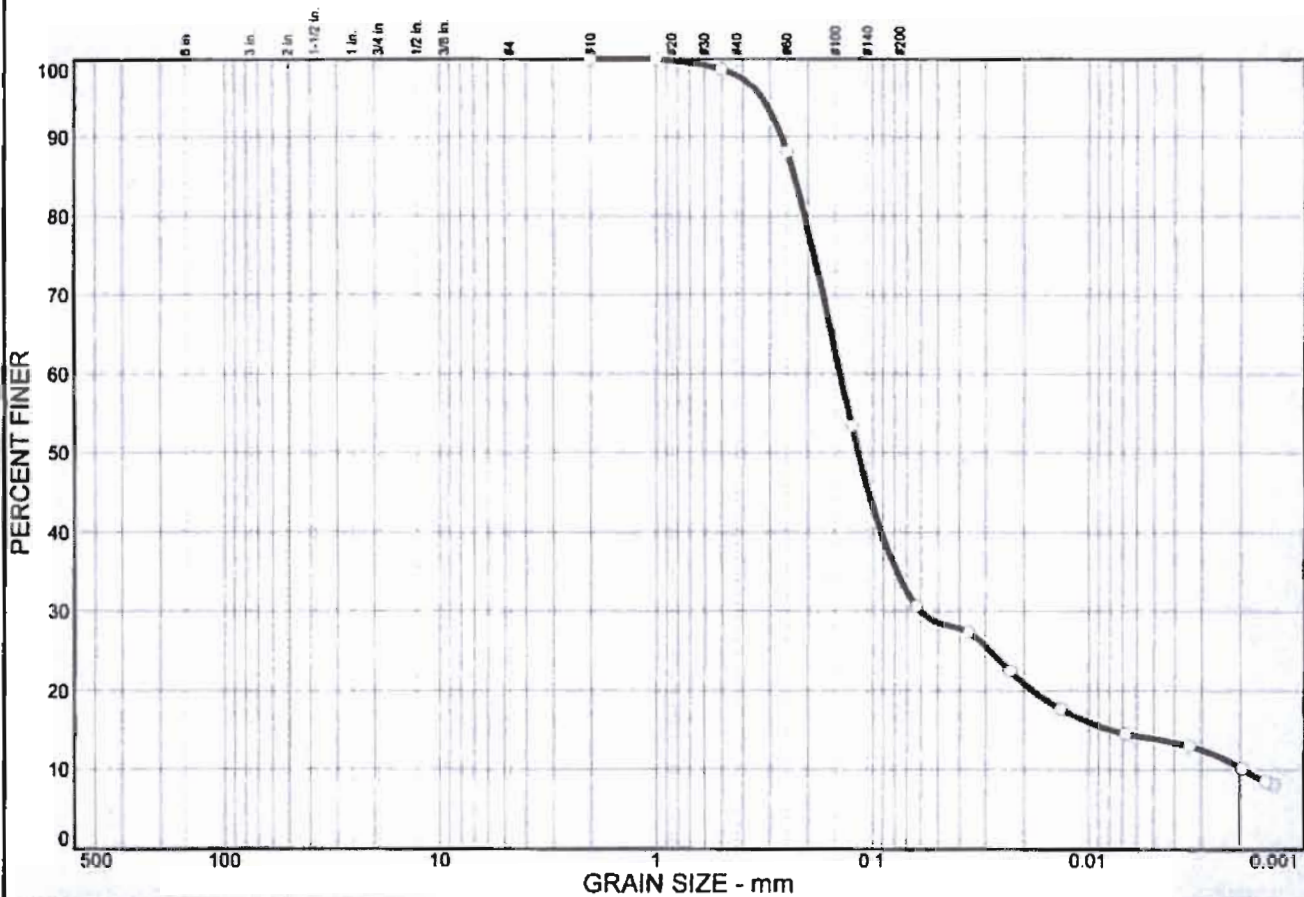
**UNIVERSITY
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Client: Payne Environmental
Project: Chickasaw Creek; Shell DIZ Study

Project No:

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	66.0	20.2	13.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	98.7		
0.25 in.	88.1		
0.125 in.	53.4		
0.063 in.	30.6		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.231 D₆₀= 0.142 D₅₀= 0.117
D₃₀= 0.0601 D₁₅= 0.0079 D₁₀= 0.0019
C_u= 73.71 C_c= 13.25

Classification

USCS= AASHTO=

Remarks

Plant material removed from coarsest sand fractions

Sample No.:
Location: Station 1, Rep 2

Source of Sample:

Date: Sept. 30,
Elev./Depth:

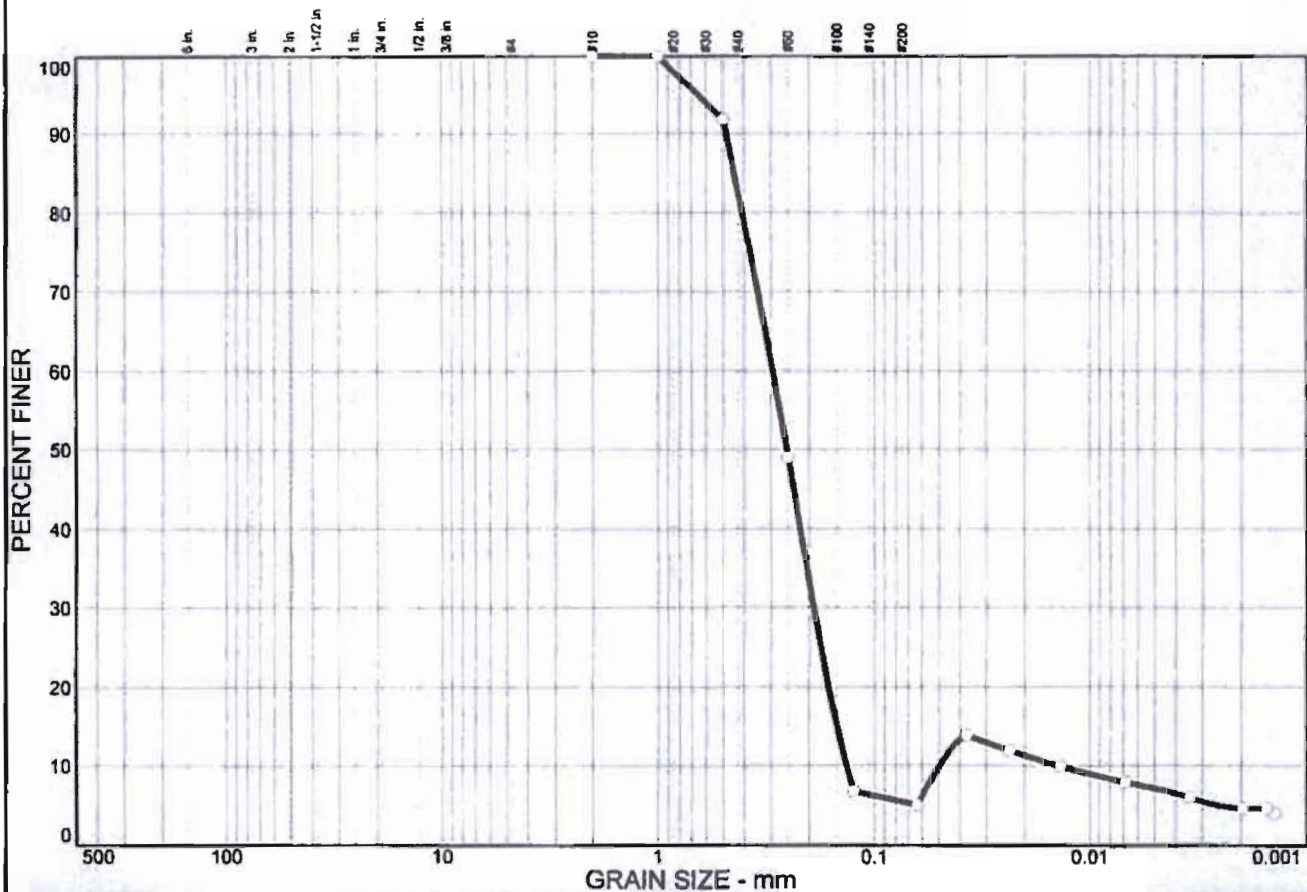
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Project No:

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	94.5		7.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	91.8		
0.25 in.	49.0		
0.125 in.	6.8		
0.063 in.	5.0		

(no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.445 D₆₀= 0.295 D₅₀= 0.254
D₃₀= 0.191 D₁₅= 0.150 D₁₀= 0.0141
C_u= 20.98 C_c= 8.75

Classification

USCS= AASHTO=

Remarks

Plant material removed from coarsest fractions

Sample No.:

Location: Station 2, Rep 1

Source of Sample:

Date: Sept 30, 2015

Elev./Depth:

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Project No:

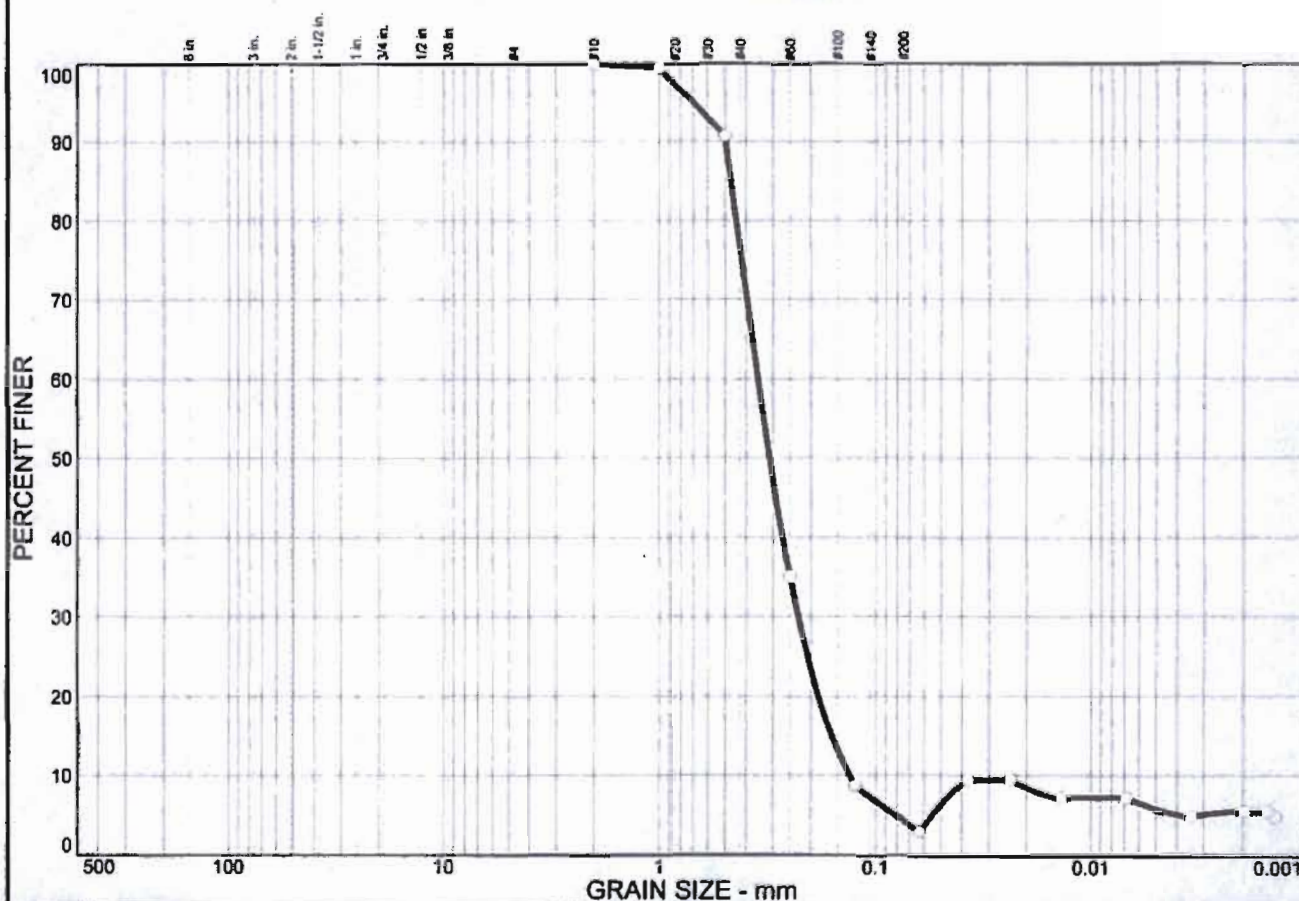
Figure

Grain size distribution curve for a sample of sand. The graph plots Percent Finer (Y-axis, 0 to 100) against Grain Size in mm (X-axis, logarithmic scale from 500 to 0.001). The curve shows a sharp drop in percent finer between 0.6 mm and 0.075 mm, indicating a well-sorted sand. The curve is labeled with sieve numbers: #20, #30, #40, #60, #100, #140, and #200.

Grain Size (mm)	Sieve	Percent Finer (%)
500		100
100		100
60	#20	100
47.5	#30	98
40	#40	95
250	#60	75
75	#100	32
425	#40	22
250	#60	24
150	#100	22
75	#200	17
425	#40	14
250	#60	12
150	#100	11
75	#200	10
425	#40	8

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	95.5		5.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	99.5		
0.5 in.	90.7		
0.25 in.	35.0		
0.125 in.	8.8		
0.063 in.	3.0		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.469 D₆₀= 0.352 D₅₀= 0.311
D₃₀= 0.229 D₁₅= 0.159 D₁₀= 0.132
C_u= 2.67 C_c= 1.13

Classification

USCS= AASHTO=

Remarks

Sample No.:
Location: Station 3, Rep 1

Source of Sample:

Date: Sept. 30,
Elev./Depth:

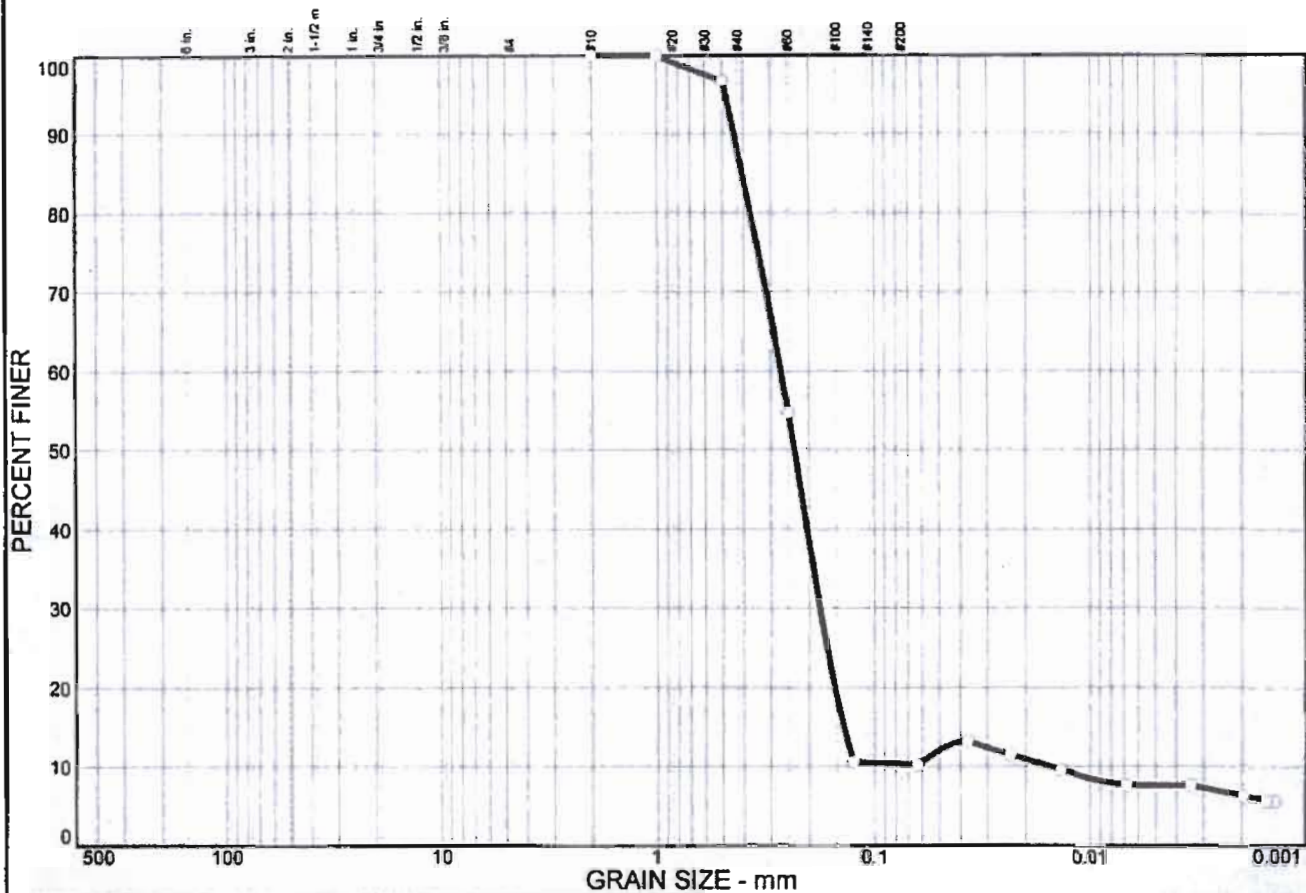
**UNIVERSITY
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Project: Chickasaw Creek; Shell DIZ Study

Project No:

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	89.8	2.6	7.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	96.7		
0.25 in.	54.6		
0.125 in.	10.5		
0.063 in.	10.1		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.406 D₆₀= 0.270 D₅₀= 0.235
D₃₀= 0.179 D₁₅= 0.139 D₁₀= 0.0158
C_u= 17.15 C_c= 7.49

Classification

USCS= AASHTO=

Remarks

Some plant material removed in coarsest sand fractions

Sample No.:

Location: Station 3, Rep 2

Source of Sample:

Date: Sept. 30,

Elev./Depth:

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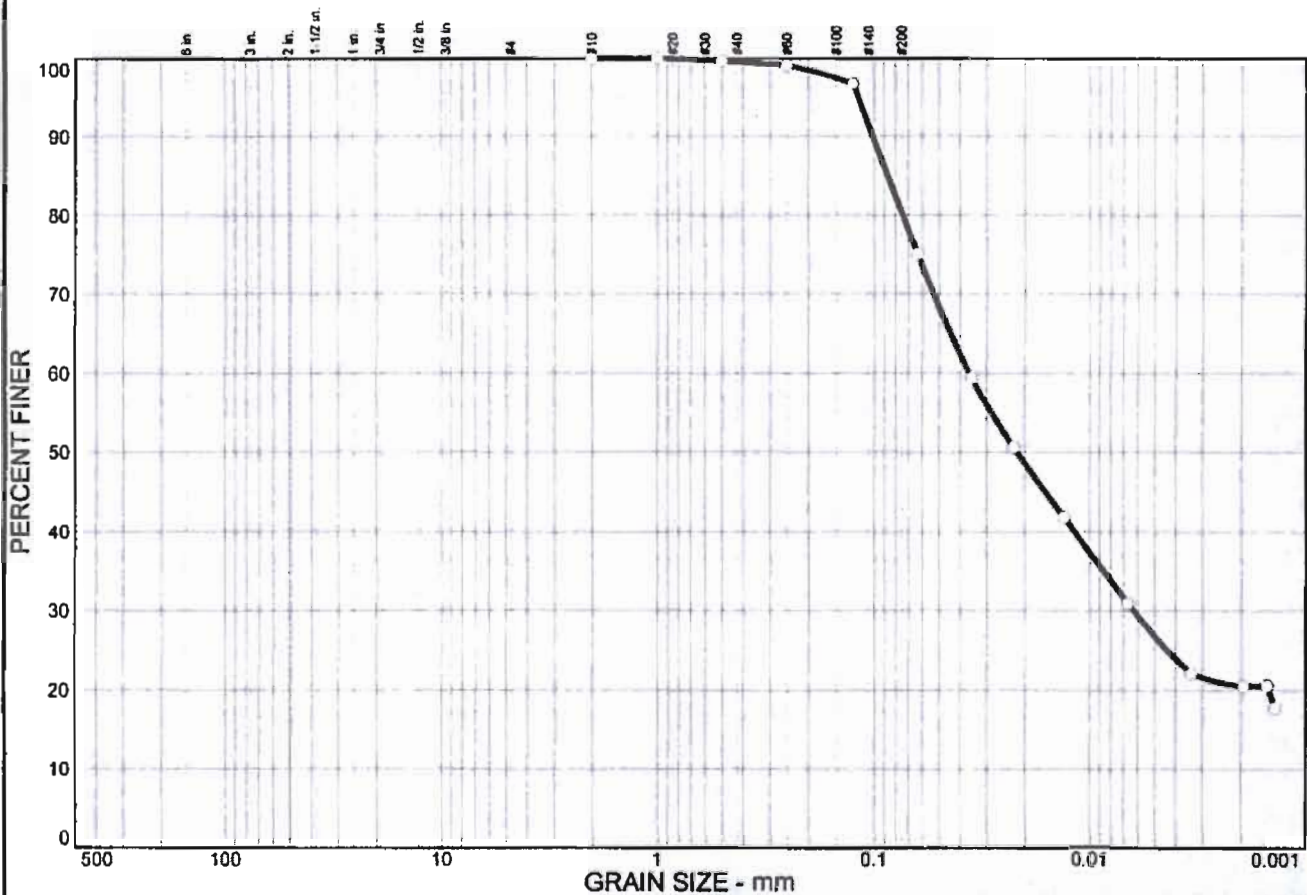
Client: Payne Environmental

Project: Chickasaw Creek; Shell DIZ Study

Project No:

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	19.6	53.6	26.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	99.7		
0.25 in.	99.1		
0.125 in.	96.7		
0.063 in.	75.0		

* (no specification provided)

Soil Description

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₈₅= 0.0868 D₆₀= 0.0361 D₅₀= 0.0218
 D₃₀= 0.0063 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= AASHTO=

Remarks
 Plant material removed from coarsest sand fractions

Sample No.:

Location: Station 4, Rep 1

Source of Sample:

Date: Sept. 30,
Elev./Depth:

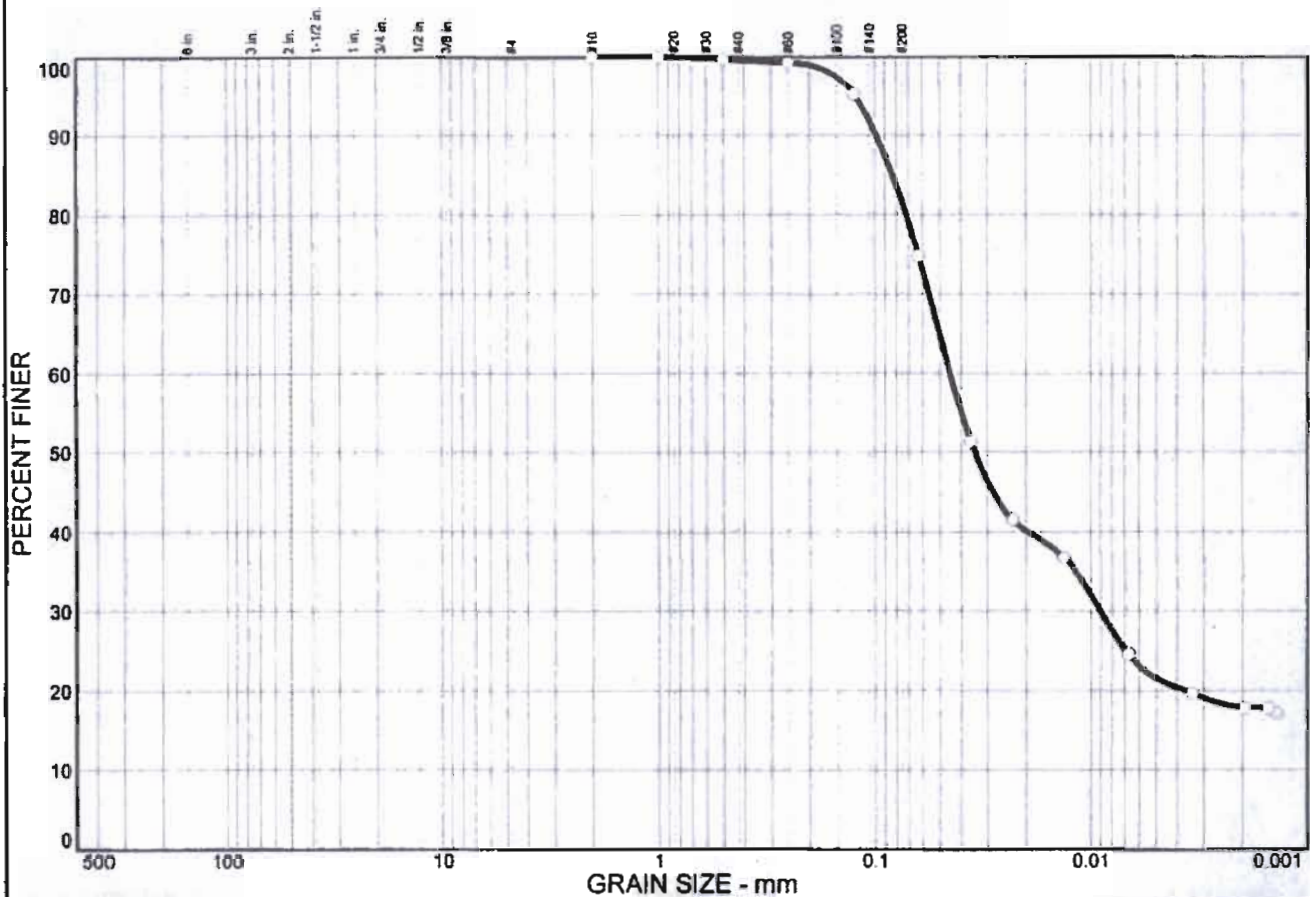
**UNIVERSITY
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Client: Payne Environmental
Project: Chickasaw Creek; Shell DIZ Study

Project No.:

Figure

Particle Size Distribution Report



% +75 MM	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	18.5	60.0	21.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.00 in.	100.0		
1.00 in.	100.0		
0.5 in.	99.7		
0.25 in.	99.3		
0.125 in.	95.1		
0.063 in.	74.7		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.0831 D₆₀= 0.0449 D₅₀= 0.0344
D₃₀= 0.0091 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Minor plant material removed from coarsest sand fractions

Sample No.:

Location: Station 4, Rep 2

Source of Sample:

Date: Sept. 30,

Elev./Depth:

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Client: Payne Environmental
Project: Chickasaw Creek; Shell DIZ Study

Project No:

Figure

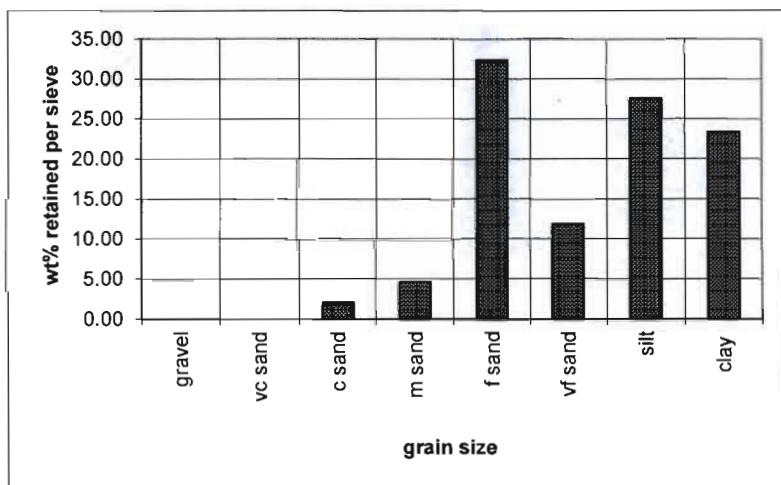
Grain Size Data (histogram generation)

*Histogram plot
data*

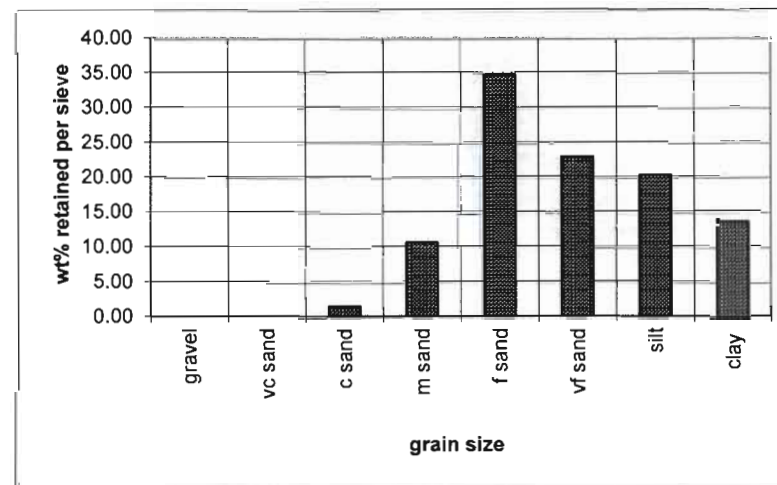
gravel
vc sand
c sand
m sand
f sand
vf sand
silt
clay

sta 1 rep 1	sta 1 rep 2	sta 2rep 1	sta 2 rep 2	sta 3 rep 1	sta 3 rep 2	sta 4 rep 1	sta 4 rep 1
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00
2.00	1.34	8.17	3.33	8.79	3.32	0.27	0.30
4.57	10.60	42.85	20.84	55.80	42.08	0.61	0.43
32.32	34.66	42.14	43.81	26.21	44.10	2.41	4.21
11.84	22.85	1.88	9.69	5.71	0.43	21.71	20.36
27.50	20.20	0.00	11.30	0.00	2.60	53.60	60.00
23.30	13.80	7.10	12.20	5.80	7.60	26.80	21.50

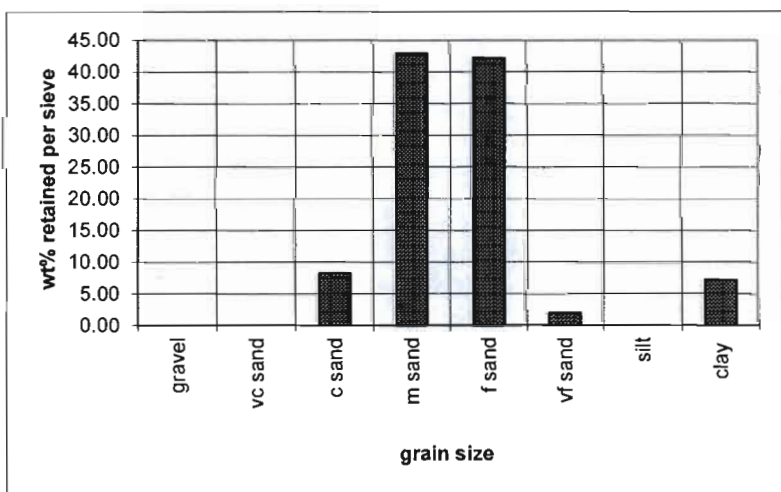
Grain Size Histogram; , sample - sta 1 rep 1



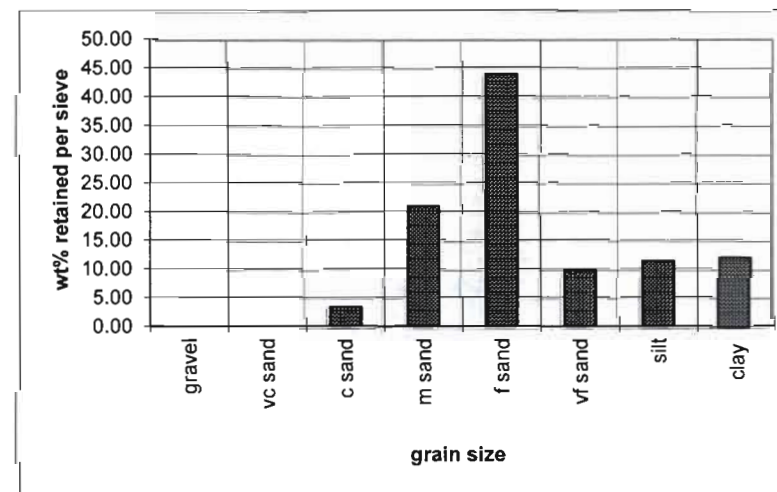
Grain Size Histogram; , sample - sta 1 rep 2



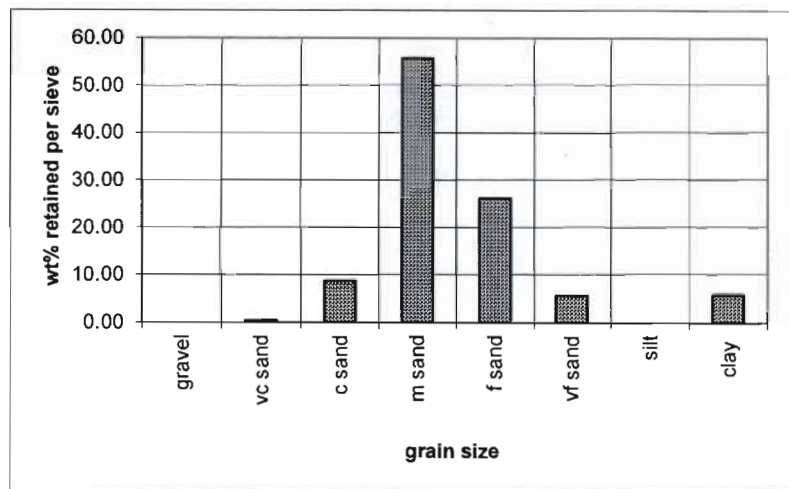
Grain Size Histogram; , sample - sta 2 rep 1



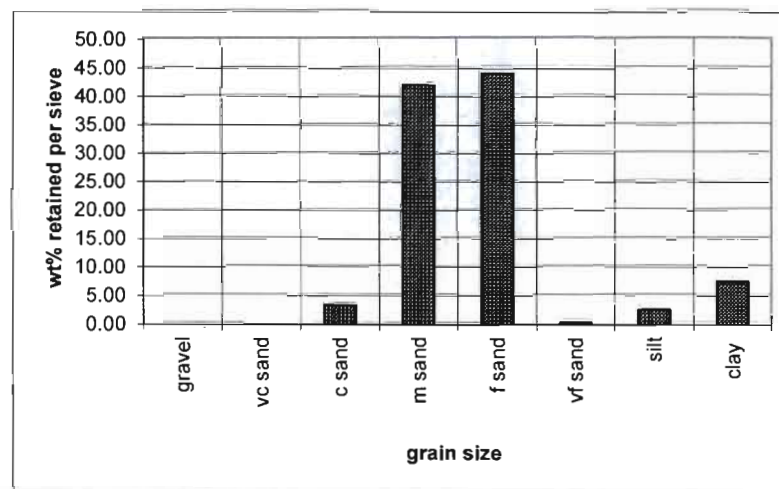
Grain Size Histogram; , sample - sta 2 rep 2



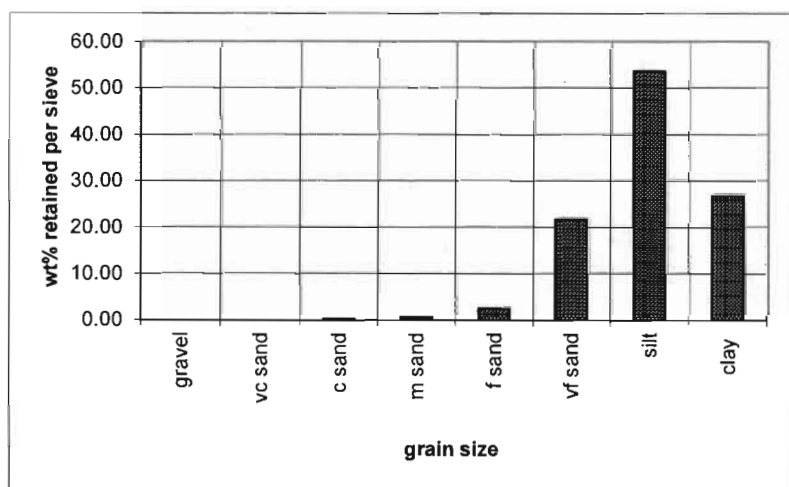
Grain Size Histogram; , sample - sta 3 rep 1



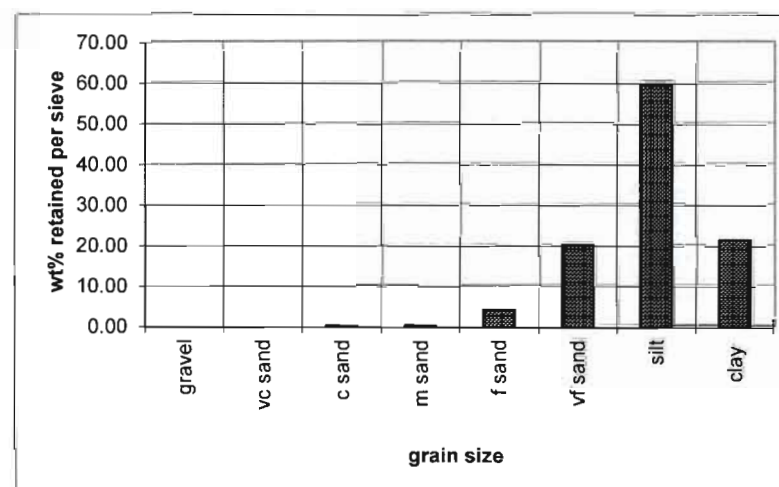
Grain Size Histogram; , sample - sta 3 rep 2



Grain Size Histogram; , sample - sta 4 rep 1



Grain Size Histogram; , sample - sta 4 rep 1



BENTHIC INFAUNAL ASSESSMENT AND TAXONOMIC CHARACTERIZATION OF THE SHELL
CHEMICAL PLANT LP MOBILE SITE DISCHARGE OUTFALL ON THE CHICKASAW CREEK,
MOBILE, AL

by

Jerry A. McLelland, PhD

submitted to

Payne Environmental Services
Project No.: 15-060-00

c/o

Justin C. McDonald, B.S.
Staff Biologist/Project Manager

October 27, 2015

Contact information:

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BENTHIC INFAUNAL ASSESSMENT AND TAXONOMIC CHARACTERIZATION OF THE SHELL
CHEMICAL PLANT LP MOBILE SITE DISCHARGE OUTFALL ON THE CHICKASAW CREEK,
MOBILE, AL

Jerry A. McLelland, PhD
Gulf Benthic Taxonomy Assessment

Background.

Macrobenthic samples were collected by Payne Environmental Services on September 5, 2015 to assess the infaunal community within the Discharge Information Zone (DIZ) associated with the Shell Chemical Plant LP Mobile Site discharge outfall (PES Project number 15-060-00). Three replicate samples from each of four stations were collected for a total of 12 samples. The four stations were located mid-channel ranging in depth from 9 to 19 feet and with meso to high salinity values recorded near the bottom of the water column (see Table 1).

Table 1. Physical data recorded for the four DIZ stations on Chickasaw Creek, September 5, 2015.

	<u>Salinity (Bottom)</u>	<u>Depth (ft)</u>	<u>Distance from Shore (ft)</u>
Station 1	25.61 ppt	13.8	92.1
Station 2	26.73 ppt	19	246.7
Station 3	18.87 ppt	16	150.3
Station 4	12.26 ppt	9	56.9

Field Procedures.

Benthic samples were collected using a petite ponar grab and screened in the field through a 0.5mm sieve to remove much of the fine silt while retaining organisms and large detritus. Samples were placed in plastic jars, labeled, preserved with rose bengal-stained 5% formalin, and returned to the GBTA laboratory for analysis. Rose bengal, a protein stain, facilitates the detection of benthic organisms among the sediment and detritus in the samples during the laboratory sorting process. Sample substrate returned to the lab included leaf litter detritus, fine silt and coarse sand grains from the bottom sediment.

Laboratory Procedures and Data Analysis.

Samples were washed with fresh water and rescreened at 0.5mm to remove formalin and remaining fine sediment. Sorting was conducted under a stereoscopic dissecting microscope to remove all macrobenthic organisms and recognizable fragments. Specimens were counted and identified to the lowest possible taxonomic category with representative reference material being retained and transferred to 70% ethanol for storage. Chironomid (Diptera) larvae and small annelids were mounted on slides using CMPC-10 mounting media and examined under high magnification for specific identification.

A numerical database was constructed using Microsoft Access and data was further condensed and organized in spreadsheet format using Microsoft Excel. Metrics of species diversity (H'), equitability (J') and dominance were calculated using formulae incorporated in the Excel spreadsheet. Species diversity is the number of different species in a particular area (species richness) weighted by some measure of abundance such as number of individuals or biomass. The Shannon-Weiner Diversity Index (H') is the most popular mathematical expression of species richness and evenness in use in ecological investigation, including benthic monitoring studies. According to Pielou (1966), who studied the use of H' in detail, the index is appropriate to use when random samples are drawn from a large community in which the total numbers of species is known. H' is calculated as $-\sum p_i \log(p_i)$, where p_i is the proportion of the total number of specimens i expressed as a proportion of the total number of species for all species in the ecosystem. The product of $p_i \log(p_i)$ for each species in the ecosystem is summed and multiplied by -1 to give H' . The species equitability index (J'), also known as Evenness, is another measure of how well the abundance of individuals is spread among the number of species. It is calculated as H'/H_{\max} , where H_{\max} is the maximum possible value of H' , and equals the log of S , which is the number of species (species richness). The index of dominance, a measure of how a population is dominated by one or a few species, is calculated simply as $1/J'$.

Results and Observations.

A total of 632 organisms from all stations were examined representing 17 nominal taxa from five phyla. Numerical and diversity data are presented in Table 2 and a complete phylogenetic listing of organisms encountered appears in Appendix I.

In terms of total numbers counted for all stations (Fig. 1), annelids comprised the largest percentage of organisms (97%) followed by vestigial numbers of other organisms including molluscs and arthropods. Annelids were also much more diverse in number of species with half (9) of the total 18 taxa recorded. It is worth noting that of the 17 taxa

encountered during this study, five were previously recorded from the Chickasaw Creek watershed (ADEM 1997), and three of these were annelids.

Among the four benthic stations, total numbers of organisms and total taxa were higher at station 4, owing to a large population of annelids associated with the fine silt conditions there (Fig. 2). Station 2, the deepest of the

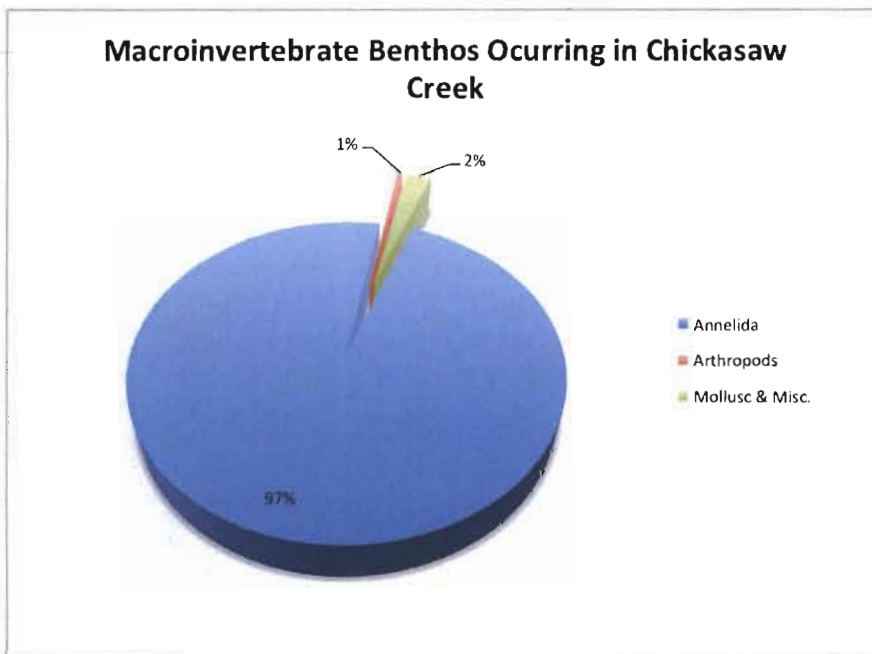


Figure 1. Comparison of major taxonomic groups in the study area. Percentage values based on total numbers counted over four stations.

four stations, was devoid of organisms except for one small gastropod, probably because of near anoxic conditions at the bottom. Station 1 had the highest H' diversity, reflecting a low index of dominance (Fig. 3). The latter value was highest at Station 4 owing mainly to large numbers of the polychaete, *Streblospio gynobranchiata*. Diversity indices were not computed for Station 2 because of the occurrence of a single individual.

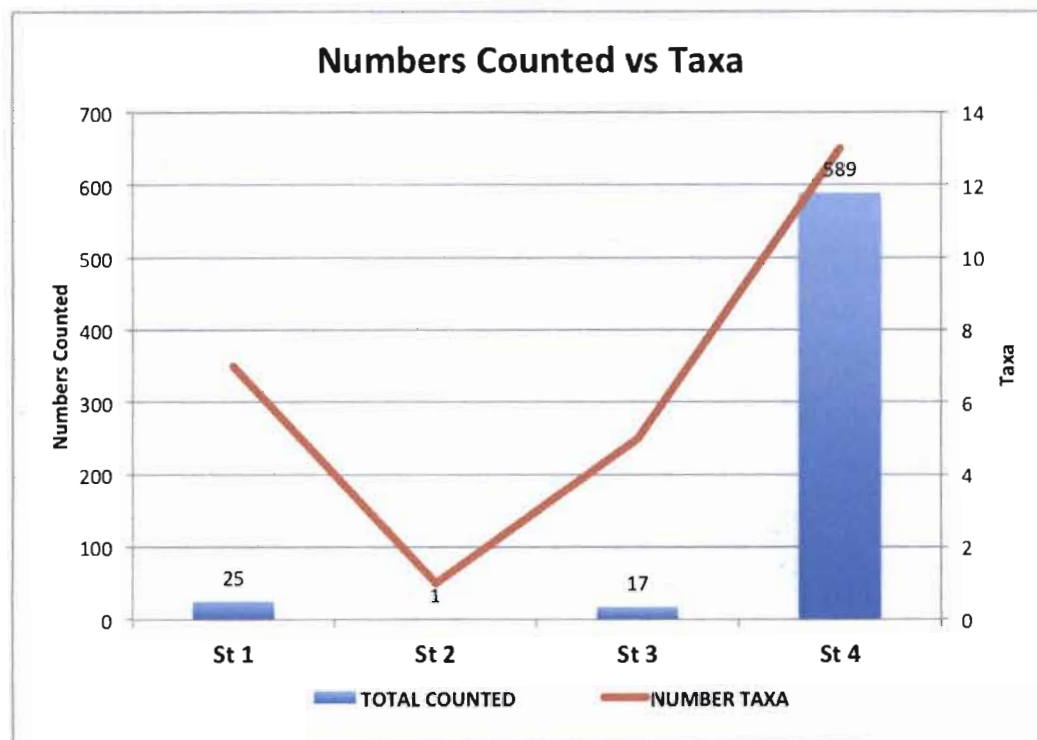


Figure 2. Macrofaunal density and richness at four stations within the study area. Values pooled over three replicate samples per station.

Faunal Observations.

The annelid community was the dominant faunal group at stations 1, 3 and 4 with representatives from two classes, Clitellata and Polychaeta, and five families (see Table 2). All species encountered were typical of oligohaline, estuarine conditions with high nutrient loads and fine sediment (Heard 1982). Station 4, the shallowest of the four stations had the highest number of annelids and was dominated by the small spionid polychaete, *Streblospio gynobranchiata*. This species is usually found associated with its annelid cohorts, *Mediomastus ambiseta* and *Hobsonia florida* in quiet backwaters and bays along the northern Gulf of Mexico. The tiny nereid polychaete, *Stenoninereis martini*, widespread in the western coastal Atlantic and Caribbean regions, occurred at three stations. It is typically found locally in shallow low salinity waters but can tolerate a wide range of oxygen availability and salinities from 0 to 30 ppt (Heard 1982); in fact, its type locality is the tropical island of St. Martin in the British West Indies.

Arthropods were sparse at the four stations with only two insects and one crustacean, a total of three specimens, present in the samples. The beetle *Ancyronyx varietatus* (Fig. 4), represented by a single occurrence at Station 1, is often found on submerged wood or roots in southern streams and rivers (Eppler 2010) and is known to be

“sensitive to sewage and industrial wastes” (Sinclair 1964). The single occurrence of the cumacean, *Cylaspis varians* at Station 4 represents a population known to be common in upper meso- to euryhaline waters of estuaries and inner continental shelf waters (Wass 1972; Watling 1979) including Mobile Bay, AL (Modlin and Dardeau 1987).

Molluscs of note occurring at Station 4 included two specimens of the large clam, *Rangia cuneata* and the false mussel, *Mytilopsis leucophaeta*. The former is a common inhabitant of low salinity, high turbidity waters with soft-mud bottoms along the Gulf of Mexico and coastal Atlantic states (Heard, 1982), while the latter is typically found in immense numbers in brackish waters and is often confused with the similar zebra mussel (*Dreissena polymorpha*), a fresh water invasive species that is becoming problematic in northern waterways (MDC 2015).

Miscellaneous taxa encountered during this study consisted of one polyp of the hydroid *Garveia* sp. and four small ribbon worms (Nemertea), all found at Station 4.

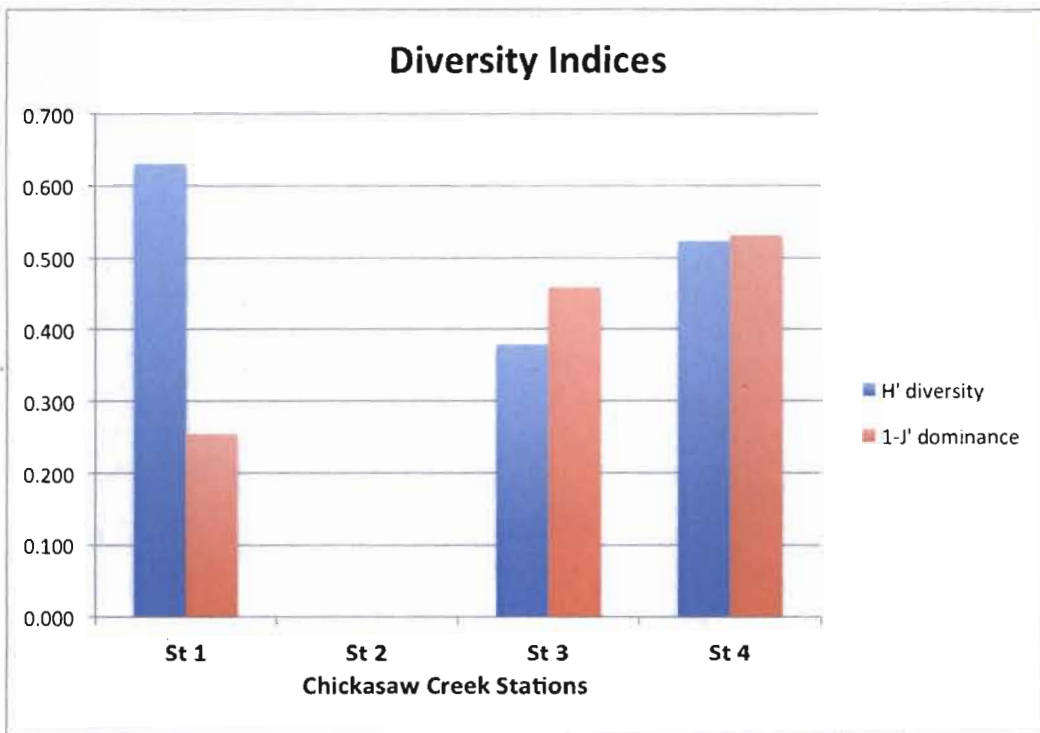


Figure 3. Diversity indices among four stations within the study area. Based on pooled data from three replicate samples per station.

Summary.

The macrobenthic community within the Shell Chemical Plant discharge outfall study area on Chickasaw Creek was characterized by organisms associated with the lower-depth salt wedge intrusion near the mouth of the Creek and typical of estuarine, meso-oligohaline habitats along the northern Gulf of Mexico. The shallowest station nearest to shore (Station 4) had the highest density of organisms (589) and the most taxa present (13), while the deepest of the four stations, and that furthest from shore (Station 2), was essentially devoid of benthic fauna, most likely due to near anoxic conditions at the bottom of the water column. Overall, annelids comprised the large majority of benthic fauna occurring in the samples with 614 total organisms (97%), while there were just three arthropods (1%) and 15 molluscs and others (2%). The most common taxa encountered were the annelids, *Streblospio gynobranchiata*, *Hobsonia florida*, *Mediomastus ambiseta* and *Tubificoides heterochaetus*, all of which were common at Station 4. The small nereid polychaete, *Stenoninereis martini* occurred at three of the four stations, although in small numbers. Because of the overall small number of organisms encountered in the samples, H' diversity values were low, reaching a maximum of 0.687 at Station 1 which had only 25 total organisms spread out over 7 taxa.



Figure 4. *Ancyronyx variegatus* (Coleoptera: Elmidae) from Station 1 sample.

Table 2. Summary of macroinvertebrate data pooled over station series from collections made in September 2015 in the Shell Chemical Plant Discharge Information Zone. Values represent a composite of numbers counted from three replicate ponar grab samples per station.

Taxa/Station	St 1	St 2	St 3	St 4
ANNELIDA				
Clitellata				
Family Tubificidae				
<i>Tubificoides heterochaetus</i>	2	0	0	24
Polychaeta				
Family Ampharetidae				
<i>Hobsonia florida</i>	0	0	0	99
Family Capitellidae				
<i>Capitella capitata complex</i>	0	0	0	1
<i>Mediomastus ambiseta</i>	1	0	1	79
Family Nereididae				
<i>Stenoninereis martini</i>	9	0	13	9
Family Spionidae				
<i>Boccardiella ligerica</i>	0	0	0	1
<i>Streblospio gynobranchiata</i>	10	0	0	363
Unid. Spionidae	1	0	1	0
ARTHROPODA				
Insecta				
Order Coleoptera				
Family Elmidae				
<i>Ancyronyx variegatus</i>	1	0	0	0
Order Diptera				
Family Chironomidae				
<i>Polypedilum sp.</i>	0	0	1	0
Malacostraca				
Order Cumacea				
Family Bodotriidae				
<i>Cyclaspis varians</i>	0	0	0	1
MOLLUSCA				
Bivalvia				
Order Veneroida				
Family Dreissenidae				
<i>Mytilopsis leucophaeta</i>	1	0	0	4

Taxa/Station	St 1	St 2	St 3	St 4
Family Mactridae				
<i>Rangia cuneata</i>	0	0	0	2
Gastropoda				
Unid. Gastropoda	0	1	1	0
Order Heterostropha				
Family Pyramidellidae				
<i>Sayella sp.</i>	0	0	0	1
MISC TAXA				
Cnidaria				
<i>Garveia sp.</i>	0	0	0	1
Nemertea				
Unid. Nemertea	0	0	0	4
TOTAL COUNTED	25	1	17	589
TOTAL / m2 *	90.7	3.6	61.7	2136.3
* based on ponar grab factor of 3.627				
NUMBER TAXA	7	1	5	13

diversity indices

Hmax'	0.845	0.000	0.699	1.114
H' diversity	0.630	0.000	0.379	0.522
J' evenness (equitability)	0.746	N/A	0.542	0.469
1-J' dominance	0.254	N/A	0.458	0.531

MAJOR GROUPS - Total numbers

Annelida	23	0	15	576
Arthropods	1	0	1	1
Mollusc & Misc.	1	1	1	12

MAJOR GROUPS - Percent total

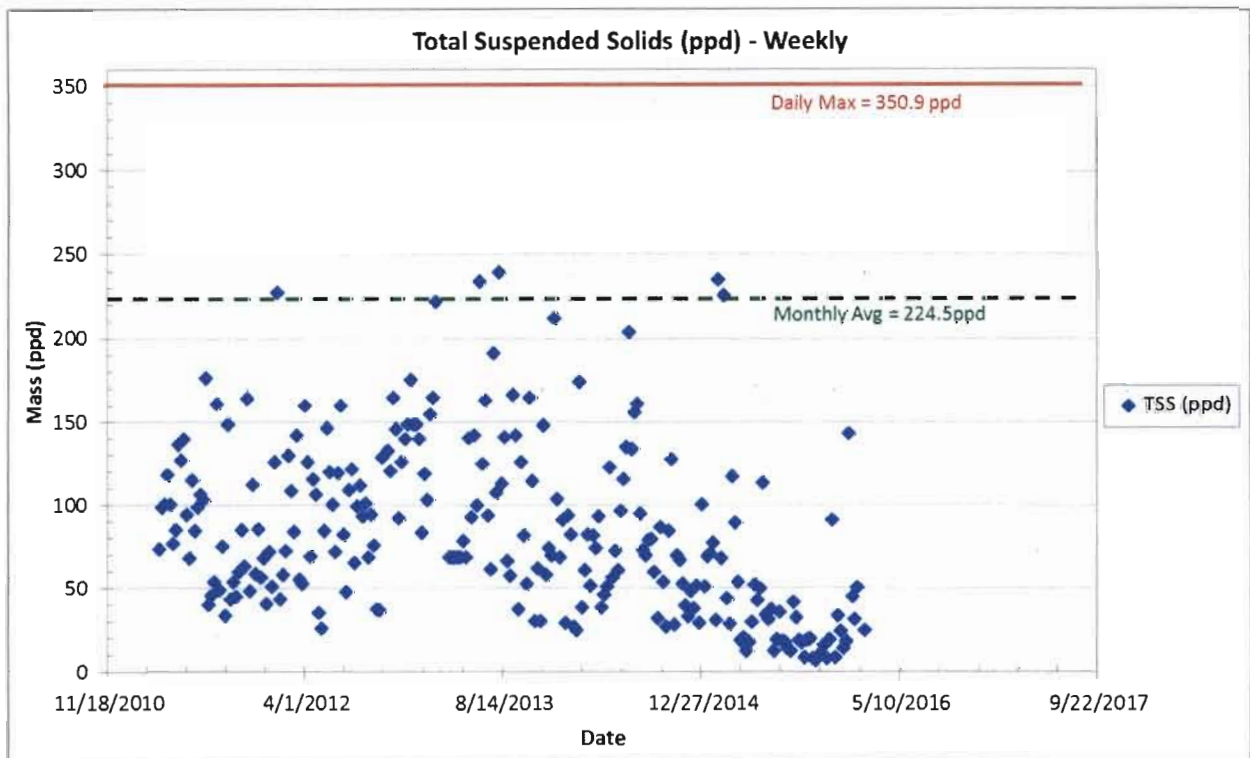
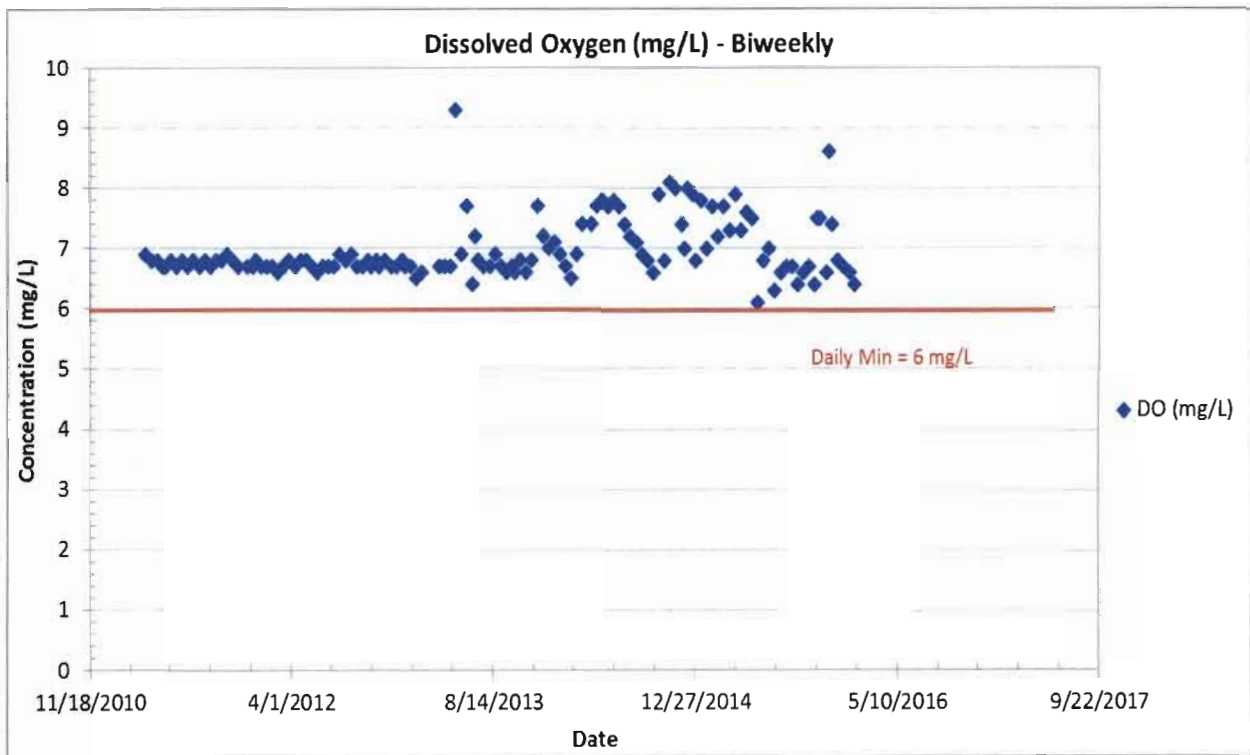
Annelida	92	0	88.2	97.8
Arthropods	4	0	5.9	0.2
Mollusc & Misc.	4	100	5.9	2.0

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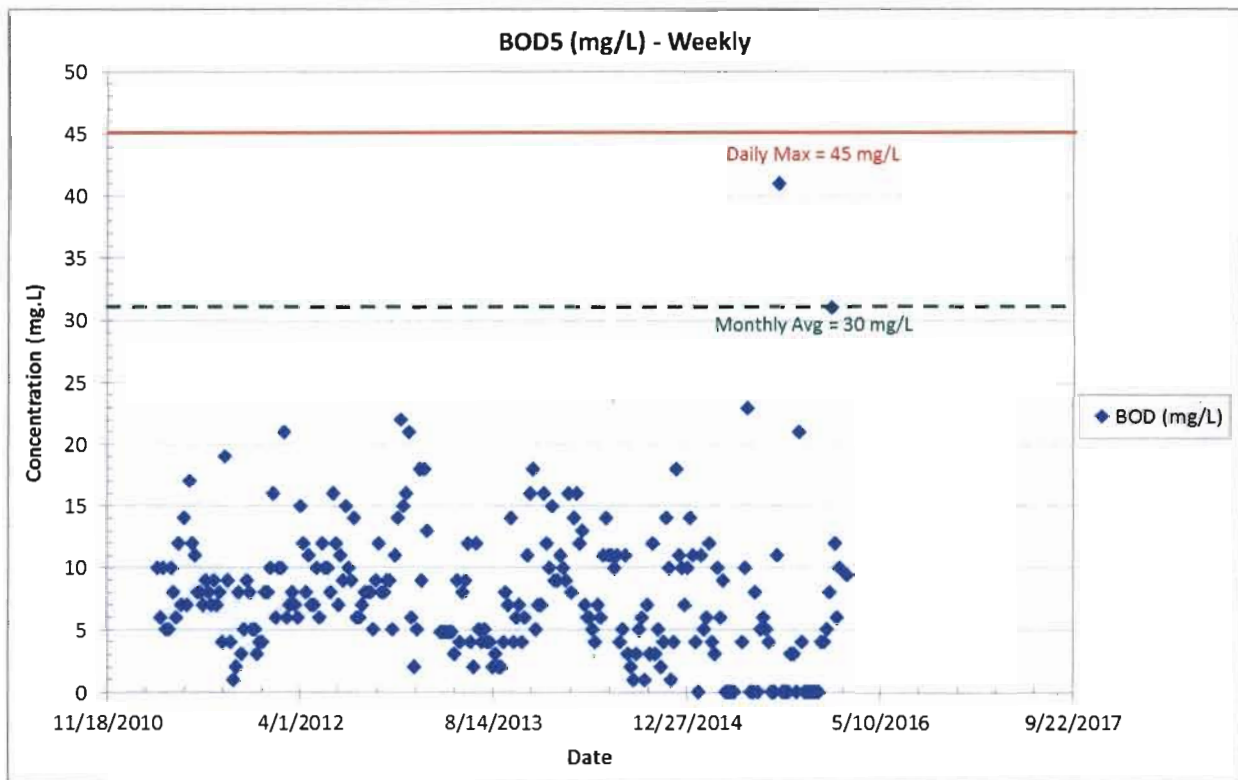
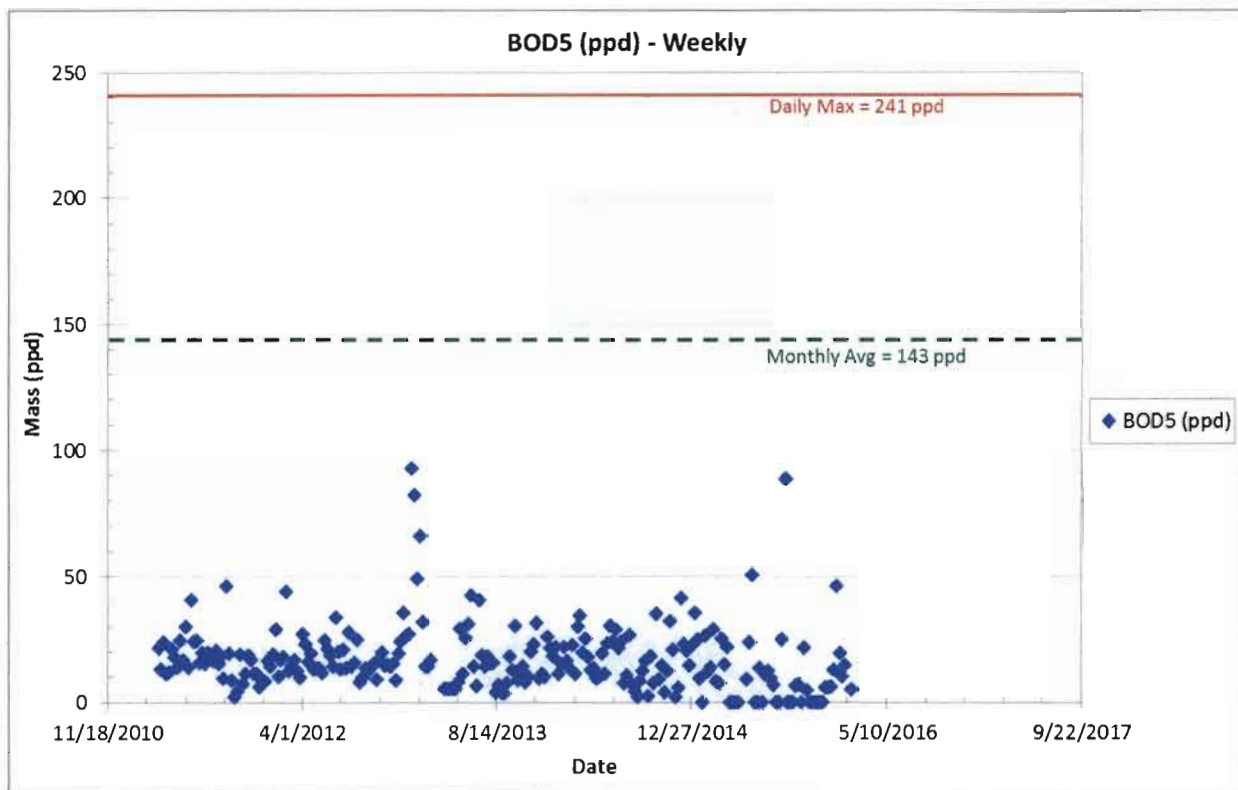
Appendix I. Phylogenetic List of Organisms Encountered in the Chickasaw Creek Discharge Information Zone (DIZ).

Phylum	Class	Subclass	Order	Suborder	Family	Taxon	Authority
Annelida	Clitellata	Oligochaeta	Haplotaxida		Tubificidae	<i>Tubificoides heterochaetus</i>	(Lastokin, 1937)
	Polychaeta	Aciculata	Phyllodocida	Nereidiformia	Nereididae	<i>Stenoninereis martini</i>	Wesenberg-Lund, 1958
		Canalipalpata	Spionida	Spioniformia	Spionidae	<i>Boccardiella ligerica</i>	(Ferronniere, 1898)
						<i>Streblospio gynobranchiata</i>	Rice & Levin, 1998
						Unid. Spionidae	
			Terebellida	Terebellomorpha	Ampharetidae	<i>Hobsonia florida</i>	Hartman, 1951
		Scolecida			Capitellidae	<i>Capitella capitata</i> complex	(Fabricius, 1780)
						<i>Mediomastus ambiseta</i>	(Hartman, 1947)
Arthropoda	Insecta	Pterygota	Coleoptera	Polyphaga	Elmidae	<i>Ancyronyx variegatus</i>	(Germar, 1824)
			Diptera	Nematocera	Chironomidae	<i>Polypedilum</i> sp.	Keiffer, 1912
	Malacostraca	Eumalacostraca	Cumacea		Bodotriidae	<i>Cyclopsis varians</i>	Calman, 1912
Cnidaria	Hyrozoa	Hydroidolina	Anthoathecata	Filifera	Bougainvilliidae	<i>Garveia</i> sp.	
Mollusca	Bivalvia	Heterodonta	Veneroida		Dreissenidae	<i>Mytilopsis leucophaeta</i>	(Conrad, 1831)
					Mactridae	<i>Rangia cuneata</i>	(Sowerby, 1831)
	Gastropoda		Heterostropha		Pyramidellidae	<i>Sayella</i> sp.	
						Unid. Gastropoda	
Nemertea						Unid. Nemertea	

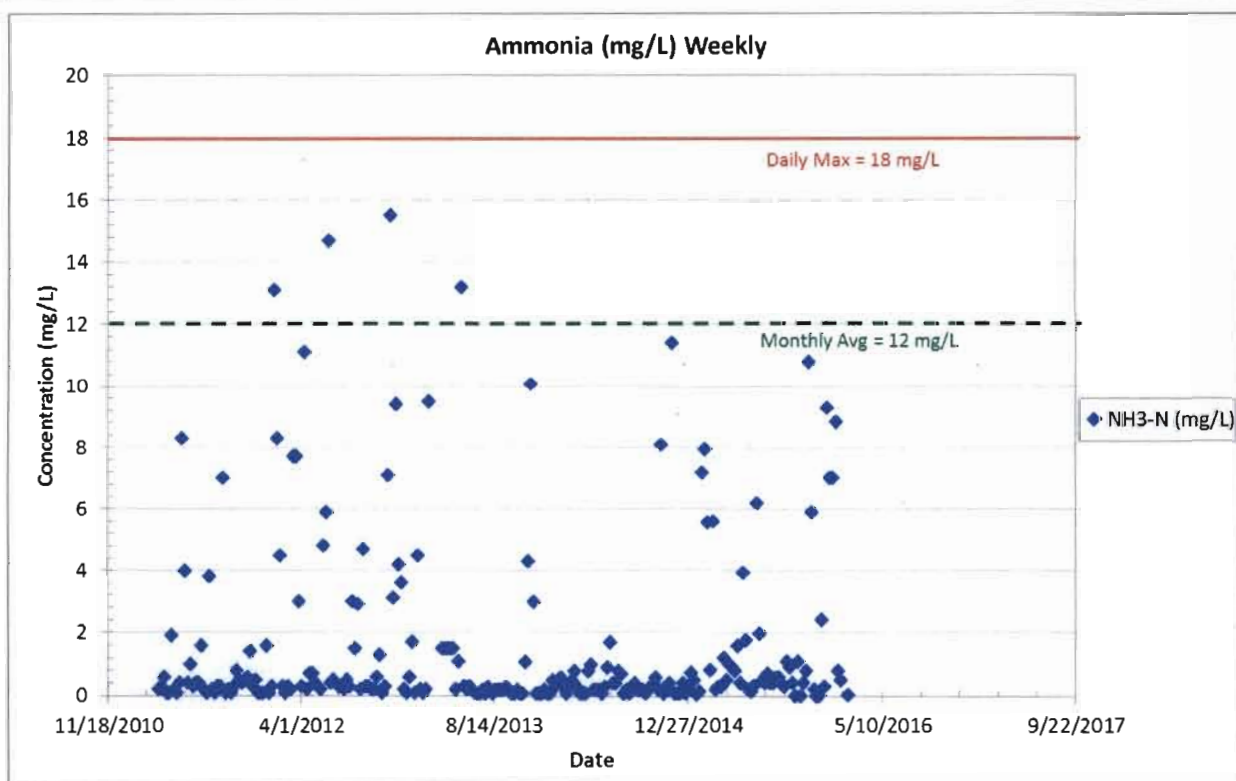
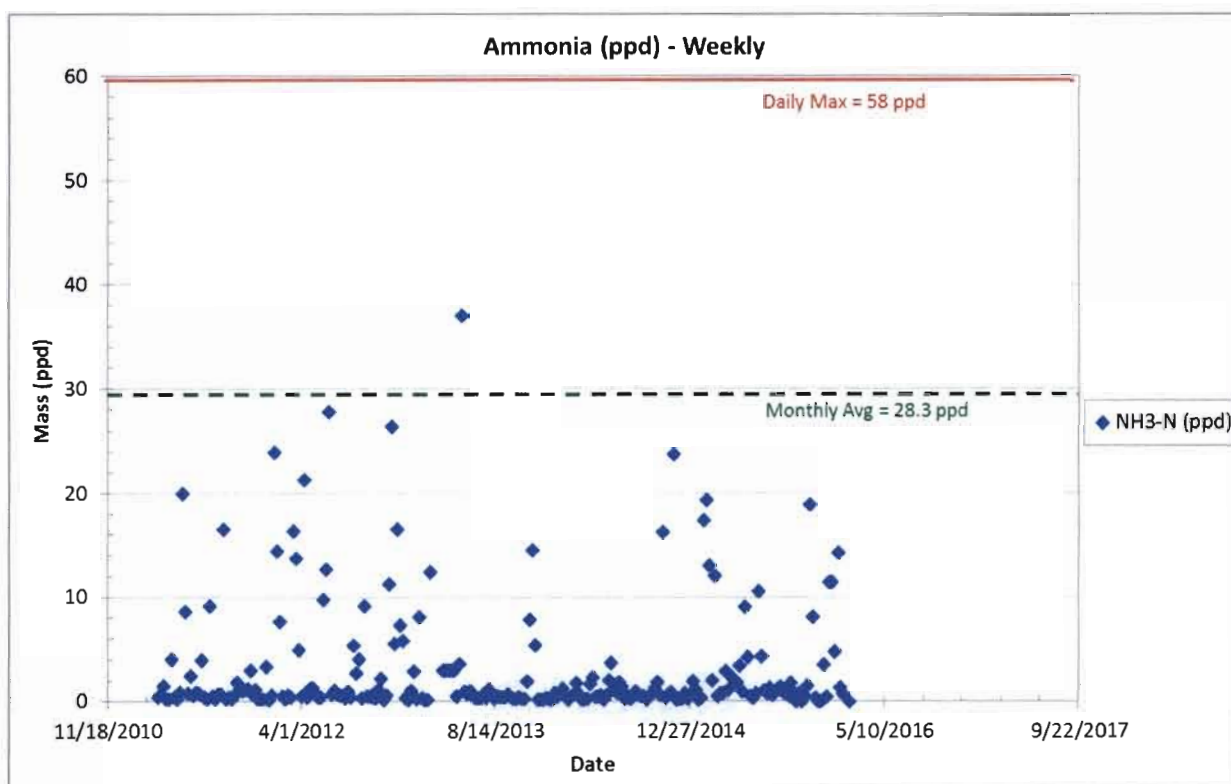


Monthly Average limit provided for reference only; data points represent individual weekly samples

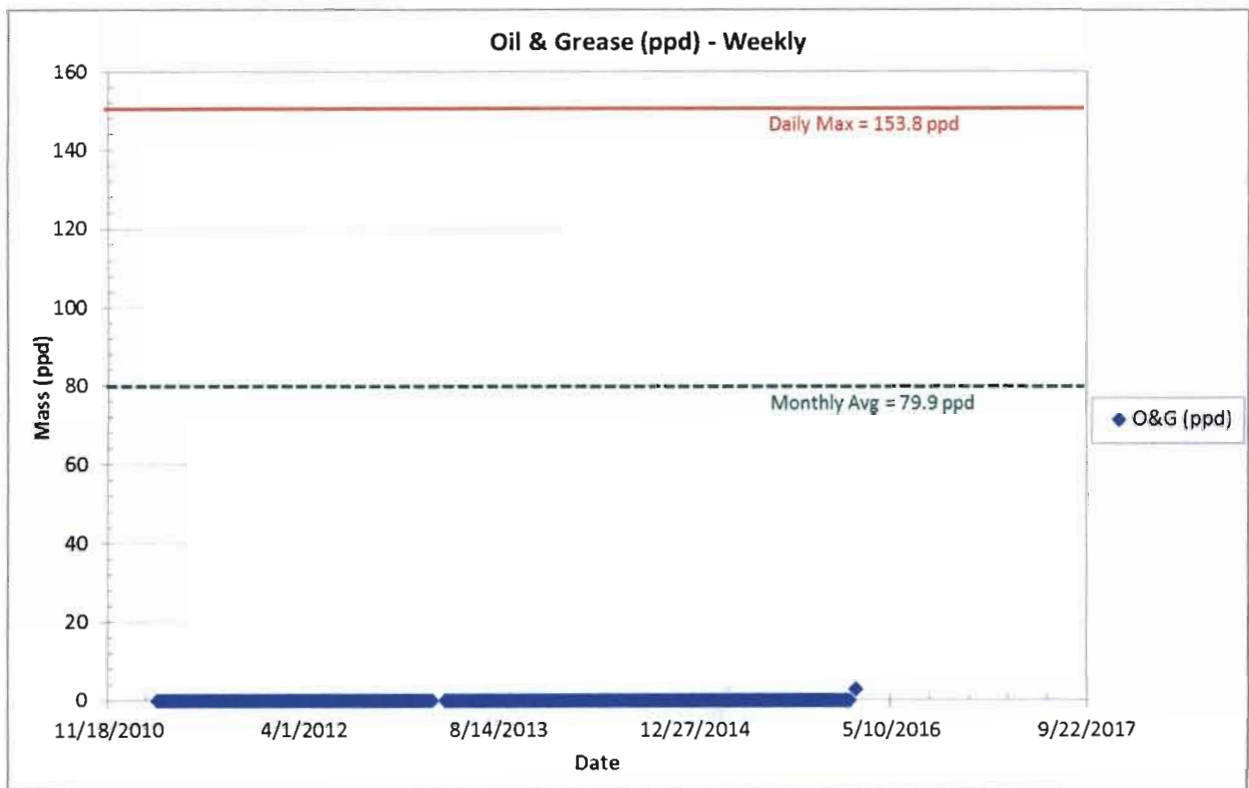




Monthly Average limits provided for reference only; data points represent individual weekly samples



Monthly Average limits provided for reference only; data points represent individual weekly samples



Monthly Average limit provided for reference only; data points represent individual weekly samples

