MEMO

ARCADIS Design & Consultancy for natural and built assets

To:

Brandon Alger – EGLE
Remediation and Redevelopment Division

Copies:

Todd Walton – Ford
Chuck Pinter – Ford

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28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
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From:

Kris Hinskey

Date:

November 21, 2019

Subject:

Ford Livonia Transmission Plant
Wastewater Treatment Plant Process Waste Line Break Memo
Livonia, Michigan

Ford Motor Company (Ford), as required by the Consent Decree (CD) filed on July 27, 2017 (No: 2:1712372-GAD-RSW), has prepared this Memo to provide an update on the Wastewater Treatment Plant (WWTP) process waste oily water release that occurred on August 13, 2019 at the Livonia Transmission Plant (Site). Chuck Pinter of Ford initially notified the Michigan Department of Environment, Great Lakes, and Energy (EGLE) of this release on August 14, 2019 and on August 23, 2019, Todd Walton of Ford submitted a 10-day notification to EGLE, **Attachment 1**. At a November 4, 2019 meeting, EGLE requested a memo summarizing the details of the release, the activities completed to clean up the release, and to provide multiple lines of evidence that the release did not contain constituents for concern (COC) which were provided in the CD.

On August 13, 2019, plant personnel observed that an aboveground pipe had broken near the on-site WWTP. The pipe is used to transfer oily process wastewater between the aboveground oil processing tank and the WWTP. The oily water was released to a gravel-covered area. The release was estimated to be 250 gallons and to cover an area approximately 160 square feet.

The plant personnel immediately responded to stop the release and repaired the pipe. In addition, visually observed impacted material (i.e. soils and stone) was excavated to a depth of 6 inches below ground surface (bgs). This impacted material was containerized in a lined roll-off box and any liquids recovered were containerized in 55-gallon drums. Upon completion of the shallow remediation, it was identified that one corner of the excavation contained a brown non-aqueous phase liquid (NAPL)-like liquid. The excavation continued in this area to a depth of 1.5 feet bgs. At this depth, a distinctly different black-colored NAPL-like material was identified similar to historic impacts being investigated as part of the

CD. The excavation was therefore backfilled. A total of two 55-gallon drums was filled with soil and absorbent pads and approximately 5.5 tons of soil and rock were disposed of offsite in a landfill. The WWTP area of the Site is included in the Remedial Investigation Response Activity Plan and groundwater is currently being sampled on a quarterly basis. Results are provided to EGLE on quarterly basis.

Lastly, the multiple lines of evidence that support the WWTP process line release did not contain the Sites COCs are summarized below:

- Ford provided the results from sampling that was conducted at five (5) manholes associated with the WWTP process waste lines. The data was provided to EGLE in the November 22, 2017 Progress Report. Samples collected from the five (5) manholes associated with the WWTP process waste lines identified low/estimated detections of 1,4-Dioxane, but no exceedances of the Site COCs (**Attachment 2).**
- On September 25, 2019, Ford collected a sample from the absorbent pads used to clean up the release and the results showed no detections for 1,1-dichloroethene, tetrachloroethene, trichloroethene, or vinyl chloride (**Attachment 3**).

If you have any questions, please feel free to contact me.

Attachments:
Attachment 1 – 10-Day Notification Email
Attachment 2 – Storm, Sanitary, and Process Waste Line Figure and Table from 2017 Progress Report
Attachment 3 – Absorbent Pad Analytical Report

ATTACHMENT 1

10-Day Notification Email

From:	Pinter, Chuck (C.H.)
To:	Taylor, Gustan
Subject:	FW: Ford Livonia - August 13 process line break
Date:	Wednesday, November 13, 2019 12:12:44 PM
Attachments:	image001.jpg

From: Walton, Todd (T.M.) <twalton@ford.com>
Sent: Friday, August 23, 2019 3:40 PM
To: 'algerb@michigan.gov' <algerb@michigan.gov>; Vens, Beth (EGLE) <VENSB@michigan.gov>; Owens, Paul (EGLE) <OWENSP@michigan.gov>; Reed, Krista (EGLE) <REEDK@michigan.gov>
Cc: Pinter, Chuck (C.H.) <cpinter@ford.com>; Hinskey, Kristoffer (Kristoffer.Hinskey@arcadis.com) <Kristoffer.Hinskey@arcadis.com>
Subject: Ford Livonia - August 13 process line break

Hi Brandon,

As required by the Consent Decree filed on July 27, 2017 (No: 2:1712372-GAD-RSW), I am writing to provide 10-day follow-up related to the oily water release that occurred on August 13, 2019 at the Livonia Transmission Plant. Chuck Pinter of Ford initially notified you of this release on August 14, 2019.

On August 13, 2019, plant personnel observed that an aboveground pipe had broken near the onsite Wastewater Treatment Plant (WWTP). This pipe is used to transfer oily process wastewater between the aboveground oil processing tank and the WWTP. The oily water was released to a gravel-covered area. The release was estimated to be 250 gallons and to cover an area approximately 20 feet x 8 feet wide.

The plant personnel immediately responded and repaired the pipe. In addition, visually observed impacted material was excavated to a depth of 6 inches below ground surface. This impacted material was contained in a lined roll-off box and any liquids recovered were contained in 55-gallon drums. Upon completion of the shallow remediation, it was identified that one corner of the excavation contained a brown NAPL-like liquid. The excavation continued in this area to a depth of 1.5 feet. At this depth, a distinctly different black-colored NAPL-like material was identified similar to historic impacts being investigated as part of the Consent Decree. The excavation was therefore backfilled. The WWTP area of the Livonia Transmission Plant is included in the Site Investigation Response Activity Plan and ongoing quarterly groundwater monitoring program and all results will be reported to EGLE as part of this ongoing work.

Please let me know if you have any additional questions.

Thanks, Todd

Sincerely,
Todd M. Walton

Ford Motor Company - Environmental Quality Office
Manager, Global Site Assessment & Remediation
Phone: (313) 845-1921
Email: twalton@ford.com

SESE logo

ATTACHMENT 2

Storm, Sanitary, and Process Waste Line Figure and Table from 2017 Progress Report

PW-01 (7/21/2017)
1,1-DCE: ND (< 1.7 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.7 µg/L)
PCE: ND (< 1.7 µg/L)
trans-1,2-DCE: ND (< 1.7 µg/L)
TCE: ND (< 1.7 µg/L)
VC: ND (< 1.7 µg/L)

MH-521 (7/21/2017)
1,1-DCE: ND (< 14 µg/L)
1,4-Dioxane: 0.33 J µg/L
cis-1,2-DCE: 60 µg/L
PCE: ND (< 14 µg/L)
trans-1,2-DCE: 30 µg/L
TCE: 440 µg/L
VC: 6.4 J µg/L

MH-523 (7/21/2017)
1,1-DCE: ND (< 6.7 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 27 µg/L
PCE: ND (< 6.7 µg/L)
trans-1,2-DCE: 10 µg/L
TCE: 180 µg/L
VC: ND (< 6.7 µg/L)

PW-04 (7/24/2017)
1,1-DCE: ND (< 10 µg/L)
1,4-Dioxane: 0.76 J µg/L
cis-1,2-DCE: ND (< 10 µg/L)
PCE: ND (< 10 µg/L)
trans-1,2-DCE: ND (< 10 µg/L)
TCE: ND (< 10 µg/L)
VC: ND (< 10 µg/L)

MH-263 (7/20/2017)
1,1-DCE: ND (< 2.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 8.6 µg/L
PCE: ND (< 2.0 µg/L)
trans-1,2-DCE: 3.1 µg/L
TCE: 54 µg/L
VC: ND (< 2.0 µg/L)

WW-01 (7/26/2017)
1,1-DCE: ND (< 13 µg/L)
1,4-Dioxane: 2.0 µg/L
cis-1,2-DCE: ND (< 13 µg/L)
PCE: ND (< 13 µg/L)
trans-1,2-DCE: ND (< 13 µg/L)
TCE: ND (< 13 µg/L)
VC: ND (< 13 µg/L)

MH-264 (7/20/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

PW-03 (7/24/2017)
1,1-DCE: ND (< 10 µg/L)
1,4-Dioxane: 2.6 µg/L
cis-1,2-DCE: ND (< 10 µg/L)
PCE: ND (< 10 µg/L)
trans-1,2-DCE: ND (< 10 µg/L)
TCE: ND (< 10 µg/L)
VC: ND (< 10 µg/L)

*SANITARY #2 (7/26/2017)
1,1-DCE: ND (< 1.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

*SANITARY #1 (7/26/2017)
1,1-DCE: ND (< 1.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-170 (7/20/2017)
1,1-DCE: ND (< 9.1 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 230 µg/L
PCE: ND (< 9.1 µg/L)
trans-1,2-DCE: ND (< 9.1 µg/L)
TCE: 160 µg/L
VC: 47 µg/L

*MH-124 (7/20/2017)
1,1-DCE: ND (< 1.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-730B (7/20/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 6.7 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: 13 µg/L
VC: 0.57 J µg/L

*SANITARY #5 (7/25/2017)
1,1-DCE: ND (< 20.0 µg/L)
cis-1,2-DCE: 2,000 µg/L
PCE: ND (< 20.0 µg/L)
trans-1,2-DCE: ND (< 20.0 µg/L)
TCE: 699 µg/L
VC: 465 µg/L

SANITARY #3
NOT SAMPLED FOR FOR LISTED COCs

*PLYMOUTH_RD. SANITARY LINE (7/20/2017)
1,1-DCE: ND (< 5.0 µg/L)
cis-1,2-DCE: 511 µg/L
PCE: ND (< 5.0 µg/L)
trans-1,2-DCE: ND (< 5.0 µg/L)
TCE: 226 µg/L
VC: 94.2 µg/L

MH-266 (7/18/2017)
1,1-DCE: ND (< 1.4 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 5.5 µg/L
PCE: ND (< 1.4 µg/L)
trans-1,2-DCE: 2.1 µg/L
TCE: 39 µg/L
VC: ND (< 1.4 µg/L)

PW-02 (7/21/2017)
1,1-DCE: ND (< 2.0 µg/L)
1,4-Dioxane: 0.34 J µg/L
cis-1,2-DCE: ND (< 2.0 µg/L)
PCE: ND (< 2.0 µg/L)
trans-1,2-DCE: ND (< 2.0 µg/L)
TCE: ND (< 2.0 µg/L)
VC: ND (< 2.0 µg/L)

MH-373 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

*MH-372 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: 0.34 J µg/L
VC: ND (< 1.0 µg/L)

MH-709 (7/20/2017)
1,1-DCE: ND (< 5.0 µg/L)
1,4-Dioxane: ND (< 4.0 µg/L)
cis-1,2-DCE: ND (< 5.0 µg/L)
PCE: ND (< 5.0 µg/L)
trans-1,2-DCE: ND (< 5.0 µg/L)
TCE: ND (< 5.0 µg/L)
VC: ND (< 5.0 µg/L)

MH-374 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: 0.47 J µg/L
VC: ND (< 1.0 µg/L)

MH-711B (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 5.0 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 1.9 µg/L
TCE: 37 µg/L
VC: ND (< 1.0 µg/L)

MH-597 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 4.7 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 1.7 µg/L
TCE: 35 µg/L
VC: ND (< 1.0 µg/L)

MH-719 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 3.5 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 1.2 µg/L
TCE: 25 µg/L
VC: ND (< 1.0 µg/L)

MH-470 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-380 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-704 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

CULVERT

MH-625 (7/26/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-711 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 4.4 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 1.6 µg/L
TCE: 29 µg/L
VC: ND (< 1.0 µg/L)

PW-05 (7/25/2017)
1,1-DCE: ND (< 10 µg/L)
1,4-Dioxane: 0.40 J µg/L
cis-1,2-DCE: ND (< 10 µg/L)
PCE: ND (< 10 µg/L)
trans-1,2-DCE: ND (< 10 µg/L)
TCE: ND (< 10 µg/L)
VC: ND (< 10 µg/L)

*SANITARY #4 (7/25/2017)
1,1-DCE: ND (< 1.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-642 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 2.8 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 0.98 J µg/L
TCE: 18 µg/L
VC: ND (< 1.0 µg/L)

MH-596 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: 0.39 J µg/L
cis-1,2-DCE: 0.90 J µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: 3.4 µg/L
VC: ND (< 1.0 µg/L)

MH-514 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-419 (7/19/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: 1.0 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: 0.35 J µg/L
TCE: 6.6 µg/L
VC: ND (< 1.0 µg/L)

MH-407 (7/18/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

MH-375 (7/20/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: 0.42 J µg/L
cis-1,2-DCE: 2.6 µg/L
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: 0.39 J µg/L
VC: 11 µg/L

MH-764A (7/20/2017)
1,1-DCE: ND (< 1.0 µg/L)
1,4-Dioxane: ND (< 2.0 µg/L)
cis-1,2-DCE: ND (< 1.0 µg/L)
PCE: ND (< 1.0 µg/L)
trans-1,2-DCE: ND (< 1.0 µg/L)
TCE: ND (< 1.0 µg/L)
VC: ND (< 1.0 µg/L)

LEVAN RD

WESTERN DIVERSION CHAMBER

PLYMOUTH RD

EASTERN DIVERSION CHAMBER

BELDEN CT

YALE ST

0 300 600
SCALE IN FEET

LEGEND

- PROCESS WASTE MANHOLE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- PROCESS WASTE LINE
- SANITARY SEWER LINE
- STORM WATER LINE
- FORD PROPERTY BOUNDARY

NOTES:

µg/L = MICROGRAMS PER LITER (PARTS PER BILLION)

COCs = CONSTITUENTS OF CONCERN

J = ESTIMATED CONCENTRATION ABOVE THE METHOD DETECTION LIMIT AND BELOW THE REPORTING LIMIT.

MDEQ = MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

"ND" INDICATES VALUE IS BELOW THE LABORATORY REPORTING LIMIT.

MH = MANHOLE

PW = PROCESS WASTE

WW = WET WELL

RESULTS COLLECTED FROM JULY, AUGUST, AND SEPTEMBER 2017 SAMPLING EVENTS.

*1,4-DIOXANE WAS NOT INCLUDED IN THIS ASSESSMENT.

COCs:
1,1-Dichloroethene (1,1-DCE)
1,4-Dioxane
cis-1,2-Dichloroethene (cis-1,2-DCE)
Tetrachloroethene (PCE)
Trichloroethene (TCE)
trans-1,2-Dichloroethene (trans-1,2-DCE)
Vinyl Chloride (VC)

THE GROUNDWATER SURFACE WATER INTERFACE (GSI) CRITERIA FOR 1,1-DCE is 2,800 µg/L, for 1,4-DIOXANE IS 2,800 µg/L, FOR CIS-1,2-DCE is 620 µg/L, for PCE is 60 µg/L, for trans-1,2-DCE is 1,500 µg/L, FOR TCE is 200 µg/L, AND FOR VC is 13 µg/L.

BLUE BOX INDICATES AN EXCEEDANCE OF MDEQ 2013 GSI CRITERIA

FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

STORM SEWER/PROCESS WASTE/ SANITARY MANHOLE ANALYTICAL RESULTS - COCS IN WATER

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FIGURE 11

CITY: Novi DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: MI001322.0001.10000 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GISProjects_ENV\NoviBrighton_MI\FordLivonia\GIS\docs\2017-11\Report\Figure 11 - Storm Sewer, Process Waste and Sanitary Water COC.mxd PLOTTED: 11/15/2017 3:14:46 PM BY: mgress

Table 5
Storm Sewer/Process Waste/Sanitary Water Analytical Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

ARCADIS Design & Consultancy for natural and built assets

Sample Location:	MDEQ Groundwater Surface Water Interface Criteria	MH-75	MH-124	MH-170	MH-263	MH-264	MH-266	MH-372	MH-373	MH-374	MH-375	MH-380	MH-407	MH-417	MH-419	MH-470	MH-514	MH-521	MH-523	MH-550	MH-596	MH-597	MH-625	MH-642	MH-704	MH-709
Sewer Type:		Storm																								
Sample Date:		8/16/2017	7/20/2017	7/20/2017	7/20/2017	7/20/2017	7/18/2017	7/18/2017	7/18/2017	7/18/2017	7/20/2017	7/18/2017	7/18/2017	8/16/2017	7/19/2017	7/18/2017	7/18/2017	7/21/2017	7/21/2017	8/16/2017	7/19/2017	7/18/2017	7/26/2017	7/19/2017	7/19/2017	7/20/2017
Consent Decree SVOCs																										
1,4-Dioxane	2,800	NS	NS	< 2.0	< 2.0	< 2.0	< 2.0	NS	< 2.0	< 2.0	0.42 J	< 2.0	< 2.0	NS	< 2.0	< 2.0	< 2.0	0.33 J	< 2.0	NS	0.39 J	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0
Consent Decree VOCs																										
1,1-Dichloroethene	130	NS	< 1.0	< 9.1	< 2.0	< 1.0	< 1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NS	< 1.0	< 1.0	< 1.0	< 14	< 6.7	NS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
cis-1,2-Dichloroethene	620	NS	< 1.0	230	8.6	< 1.0	5.5	< 1.0	< 1.0	< 1.0	2.6	< 1.0	< 1.0	NS	1	< 1.0	< 1.0	60	27	NS	0.90 J	4.7	< 1.0	2.8	< 1.0	< 5.0
Tetrachloroethene	60	NS	< 1.0	< 9.1	< 2.0	< 1.0	< 1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NS	< 1.0	< 1.0	< 1.0	< 14	< 6.7	NS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
trans-1,2-Dichloroethene	1,500	NS	< 1.0	< 9.1	3.1	< 1.0	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NS	0.35 J	< 1.0	< 1.0	30	10	NS	< 1.0	1.7	< 1.0	0.98 J	< 1.0	< 5.0
Trichloroethene	200	NS	< 1.0	160	54	< 1.0	39	0.34 J	< 1.0	0.47 J	0.39 J	< 1.0	< 1.0	NS	6.6	< 1.0	< 1.0	**440**	180	NS	3.4	35	< 1.0	18	< 1.0	< 5.0
Vinyl chloride	13	NS	< 1.0	**47**	< 2.0	< 1.0	< 1.4	< 1.0	< 1.0	< 1.0	11	< 1.0	< 1.0	NS	< 1.0	< 1.0	< 1.0	6.4 J	< 6.7	NS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
PCBs																										
Aroclor 1016	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1221	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1232	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1242	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1248	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1254	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1260	NA	< 0.096	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	< 0.095	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	< 0.095	< 0.096	< 0.096	< 0.095	< 0.097	0.092 J	< 0.096
Aroclor 1262	NA	NS	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	NS	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	NS	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096
Aroclor 1268	NA	NS	< 0.095	< 0.099	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096	< 0.098	< 0.098	< 0.096	< 0.099	NS	< 0.096	< 0.096	< 0.098	< 0.095	< 0.48	NS	< 0.096	< 0.096	< 0.095	< 0.097	< 0.096	< 0.096

Sample Location:	MDEQ Groundwater Surface Water Interface Criteria	MH-711	MH-711B	MH-719	MH-730	MH-730B	MH-738	MH-754	MH-756	MH-764A	PW-01	PW-02	PW-03	PW-04	PW-05	WW-01	Sanitary #1	Sanitary #2		Sanitary #3	Sanitary #4	Sanitary #5	Plymouth Rd. Sanitary Line		SL#2	
Sewer Type:		Storm									Process Waste						Sanitary									
Sample Date:		7/19/2017	7/18/2017	7/19/2017	8/16/2017	7/20/2017	8/16/2017	8/16/2017	8/16/2017	7/20/2017	7/21/2017	7/21/2017	7/24/2017	7/24/2017	7/25/2017	7/26/2017	7/26/2017	7/26/2017	8/30/2017	8/30/2017	7/25/2017	7/25/2017	7/20/2017	8/30/2017	8/31/2017	9/7/2017
Consent Decree SVOCs																										
1,4-Dioxane	2,800	< 2.0	< 2.0	< 2.0	NS	< 2.0	NS	NS	NS	< 2.0	< 2.0	0.34 J	2.6	0.76 J	0.40 J	2.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Consent Decree VOCs																										
1,1-Dichloroethene	130	< 1.0	< 1.0	< 1.0	NS	< 1.0	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	< 20.0	< 5.0	NS	NS	NS
cis-1,2-Dichloroethene	620	4.4	5	3.5	NS	6.7	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	**2,000**	511	NS	NS	NS
Tetrachloroethene	60	< 1.0	< 1.0	< 1.0	NS	< 1.0	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	< 20.0	< 5.0	NS	NS	NS
trans-1,2-Dichloroethene	1,500	1.6	1.9	1.2	NS	< 1.0	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	< 20.0	< 5.0	NS	NS	NS
Trichloroethene	200	29	37	25	NS	13	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	**699**	**226**	NS	NS	NS
Vinyl chloride	13	< 1.0	< 1.0	< 1.0	NS	0.57 J	NS	NS	NS	< 1.0	< 1.7	< 2.0	< 10	< 10	< 10	< 13	< 1.0	< 1.0	NS	NS	< 1.0	**465**	**94.2**	NS	NS	NS
PCBs																										
Aroclor 1016	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	< 0.095	< 0.095	< 0.19	< 0.095	< 0.096	< 0.095	< 0.095	< 0.20
Aroclor 1221	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	< 0.095	< 0.095	< 0.19	< 0.095	< 0.096	NS	< 0.095	< 0.20
Aroclor 1232	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	< 0.095	< 0.095	< 0.19	< 0.095	< 0.096	< 0.095	< 0.095	< 0.20
Aroclor 1242	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	0.11	< 0.095	< 0.19	< 0.095	0.27	0.016	< 0.095	< 0.20
Aroclor 1248	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	< 0.095	< 0.095	< 0.19	< 0.095	< 0.096	< 0.095	< 0.095	< 0.20
Aroclor 1254	NA	< 0.098	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	< 0.097	< 0.095	< 0.095	< 0.19	< 0.095	< 0.096	< 0.095	< 0.095	< 0.20
Aroclor 1260	NA	0.060 J	< 0.096	< 0.096	< 0.096	< 0.097	< 0.096	< 0.096	< 0.095	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	0.26	0.097	< 0.095	< 0.19	0.11	0.63	0.30	< 0.095	< 0.20
Aroclor 1262	NA	< 0.098	< 0.096	< 0.096	< 0.096	NS	NS	NS	NS	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor 1268	NA	< 0.098	< 0.096	< 0.096	< 0.096	NS	NS	NS	NS	< 0.095	< 1.9	< 0.96	< 9.7	< 13	< 300	<200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

See Notes on Last Page.

Table 5
Storm Sewer/Process Waste/Sanitary Water Analytical Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

ARCADIS Design & Consultancy for natural and built assets

Notes:

All results are in units of micrograms per liter (µg/L).

All results are compared to the Michigan Department of Environmental Quality (MDEQ) Part 201 Groundwater Surface Water Interface Criteria, December 31, 2013.

Bold	Result denotes exceedance of Groundwater Surface Water Interface Criteria.
<	Denotes result is less than laboratory minimum detection level.
J	Denotes result is less than the laboratory reporting level but greater than or equal to the minimum detection level and the concentration is an approximate value.

Abbreviations:

MH	Manhole sample
NA	Not Available
NS	Not sampled
PCB	Polychlorinated biphenyl
PW	Process Waste sample
SL	Compliance Sample Location
SVOC	Semi-Volatile organic compound
VOC	Volatile organic compound
WW	Wet Well sample

This document is a DRAFT document that has not received approval from the Michigan Department of Environmental Quality (MDEQ). This document was prepared pursuant to a court Consent Decree. The opinions, findings, and conclusions expressed are those of the authors and not those of the MDEQ.

ATTACHMENT 3

Absorbent Pad Analytical Report

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119528-1
Client Project/Site: Ford LTP - E202843

For:
Clean Harbors ES Industrial Services Inc
10480 Harrison Road
Romulus, Michigan 48174

Attn: Karen Kapala

Kris Brooks

Authorized for release by:
10/15/2019 8:06:18 PM

Kris Brooks, Project Manager II
(330)966-9790
kris.brooks@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Job ID: 240-119528-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: Clean Harbors ES Industrial Services Inc

Project: Ford LTP - E202843

Report Number: 240-119528-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 9/26/2019 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

TCLP VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for TCLP volatile organic compounds (GCMS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 10/03/2019 and analyzed on 10/04/2019 and 10/05/2019.

Sample C74 ABSORBENT + OIL DRUM (240-119528-1)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: C74 ABSORBENT + OIL DRUM (240-119528-1). Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 240-404214 recovered above the upper control limit for 1,1-dichloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: C74 ABSORBENT + OIL DRUM (240-119528-1), PIPE BURST OILY ABSORBENTS DRUM

Job ID: 240-119528-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

(240-119528-2) and (CCVIS 240-404214/4).

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

POLYCHLORINATED BIPHENYLS (PCBS)
Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were leached on 09/27/2019, prepared on 10/02/2019 and analyzed on 10/08/2019.

DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria low for C74 ABSORBENT + OIL DRUM (240-119528-1). Refer to the QC report for details.

Samples C74 ABSORBENT + OIL DRUM (240-119528-1)[100X] and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples were diluted due to the nature of the sample matrix: C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2). Elevated reporting limits (RLs) are provided.

The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2).4130147

The following sample was diluted due to the nature of the sample matrix: C74 ABSORBENT + OIL DRUM (240-119528-1). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

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

TCLP METALS (ICP)
Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010B. The samples were leached on 10/01/2019, prepared on 10/02/2019 and analyzed on 10/03/2019.

Sample C74 ABSORBENT + OIL DRUM (240-119528-1)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following sample was diluted due to the nature of the sample matrix: C74 ABSORBENT + OIL DRUM (240-119528-1). Elevated reporting limits (RLs) are provided.

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

TCLP MERCURY
Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 10/01/2019, prepared on 10/02/2019 and analyzed on 10/03/2019.

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

CORROSIVITY
Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for Corrosivity in accordance with SW-846 Method 9045C. The samples were leached on 09/27/2019 and analyzed on 10/14/2019.

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

MOISTURE
Samples C74 ABSORBENT + OIL DRUM (240-119528-1) and PIPE BURST OILY ABSORBENTS DRUM (240-119528-2) were analyzed for Moisture in accordance with Moisture. The samples were leached on 09/27/2019 and analyzed on 09/30/2019.

Job ID: 240-119528-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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

Method Summary

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CAN
6010B	Metals (ICP)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9045C	pH	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
1311	TCLP Extraction	SW846	TAL CAN
3010A	Preparation, Total Metals	SW846	TAL CAN
3540C	Soxhlet Extraction	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
Part Size Red	Particle Size Reduction Preparation	None	TAL CAN
Part Size Red	Particle Size Reduction Preparation	None	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

None = None

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Clean Harbors ES Industrial Services Inc
Project/Site: Ford LTP - E202843

Job ID: 240-119528-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119528-1	C74 ABSORBENT + OIL DRUM	Solid	09/25/19 12:05	09/26/19 09:50	
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Solid	09/25/19 11:05	09/26/19 09:50	

Detection Summary

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: C74 ABSORBENT + OIL DRUM
Lab Sample ID: 240-119528-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Corrosivity	8.9	HF	0.1		SU	1		9045C	Total/NA
pH	8.9	HF	0.1		SU	1		9045C	Total/NA

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Lab Sample ID: 240-119528-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Corrosivity	7.7	HF	0.1		SU	1		9045C	Total/NA
pH	7.7	HF	0.1		SU	1		9045C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: C74 ABSORBENT + OIL DRUM
Lab Sample ID: 240-119528-1
Date Collected: 09/25/19 12:05
Matrix: Solid
Date Received: 09/26/19 09:50

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.10	U	0.10		mg/L			10/04/19 23:55	4
1,2-Dichloroethane	0.10	U	0.10		mg/L			10/04/19 23:55	4
2-Butanone (MEK)	1.0	U	1.0		mg/L			10/04/19 23:55	4
Benzene	0.10	U	0.10		mg/L			10/04/19 23:55	4
Carbon tetrachloride	0.10	U	0.10		mg/L			10/04/19 23:55	4
Chlorobenzene	0.10	U	0.10		mg/L			10/04/19 23:55	4
Chloroform	0.10	U	0.10		mg/L			10/04/19 23:55	4
Tetrachloroethene	0.10	U	0.10		mg/L			10/04/19 23:55	4
Trichloroethene	0.10	U	0.10		mg/L			10/04/19 23:55	4
Vinyl chloride	0.10	U	0.10		mg/L			10/04/19 23:55	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*66 - 120*		*10/04/19 23:55*	*4*
4-Bromofluorobenzene (Surr)	*90*		*72 - 120*		*10/04/19 23:55*	*4*
Toluene-d8 (Surr)	*92*		*72 - 120*		*10/04/19 23:55*	*4*
Dibromofluoromethane (Surr)	*99*		*64 - 121*		*10/04/19 23:55*	*4*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20
Barium	10	U	10		mg/L		10/02/19 14:00	10/03/19 17:17	20
Cadmium	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20
Chromium	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20
Lead	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20
Selenium	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20
Silver	1.0	U	1.0		mg/L		10/02/19 14:00	10/03/19 17:17	20

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020		mg/L		10/02/19 14:00	10/03/19 15:35	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Corrosivity	**8.9**	**HF**	0.1		SU			10/14/19 18:58	1
pH	**8.9**	**HF**	0.1		SU			10/14/19 18:58	1
Percent Solids	**79.3**		0.1		%			09/30/19 15:35	1
Percent Moisture	**20.7**		0.1		%			09/30/19 15:35	1

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: C74 ABSORBENT + OIL DRUM
Lab Sample ID: 240-119528-1
Date Collected: 09/25/19 12:05
Matrix: Solid
Date Received: 09/26/19 09:50
Percent Solids: 79.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1221	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1232	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1242	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1248	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1254	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100
Aroclor-1260	42000	U	42000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:16	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*0*	*X*	*14 - 128*	*10/02/19 09:38*	*10/08/19 19:16*	*100*
DCB Decachlorobiphenyl	*0*	*X*	*10 - 132*	*10/02/19 09:38*	*10/08/19 19:16*	*100*

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Lab Sample ID: 240-119528-2
Date Collected: 09/25/19 11:05
Matrix: Solid
Date Received: 09/26/19 09:50

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025		mg/L			10/05/19 00:18	1
1,2-Dichloroethane	0.025	U	0.025		mg/L			10/05/19 00:18	1
2-Butanone (MEK)	0.25	U	0.25		mg/L			10/05/19 00:18	1
Benzene	0.025	U	0.025		mg/L			10/05/19 00:18	1
Carbon tetrachloride	0.025	U	0.025		mg/L			10/05/19 00:18	1
Chlorobenzene	0.025	U	0.025		mg/L			10/05/19 00:18	1
Chloroform	0.025	U	0.025		mg/L			10/05/19 00:18	1
Tetrachloroethene	0.025	U	0.025		mg/L			10/05/19 00:18	1
Trichloroethene	0.025	U	0.025		mg/L			10/05/19 00:18	1
Vinyl chloride	0.025	U	0.025		mg/L			10/05/19 00:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*66 - 120*		*10/05/19 00:18*	*1*
4-Bromofluorobenzene (Surr)	*86*		*72 - 120*		*10/05/19 00:18*	*1*
Toluene-d8 (Surr)	*90*		*72 - 120*		*10/05/19 00:18*	*1*
Dibromofluoromethane (Surr)	*100*		*64 - 121*		*10/05/19 00:18*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1
Barium	0.50	U	0.50		mg/L		10/02/19 14:00	10/03/19 17:22	1
Cadmium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1
Chromium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1
Lead	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1
Selenium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1
Silver	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 17:22	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020		mg/L		10/02/19 14:00	10/03/19 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Corrosivity	**7.7**	**HF**	0.1		SU			10/14/19 19:26	1
pH	**7.7**	**HF**	0.1		SU			10/14/19 19:26	1
Percent Solids	**58.3**		0.1		%			09/30/19 15:35	1
Percent Moisture	**41.7**		0.1		%			09/30/19 15:35	1

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Lab Sample ID: 240-119528-2
Date Collected: 09/25/19 11:05
Matrix: Solid
Date Received: 09/26/19 09:50
Percent Solids: 58.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1221	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1232	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1242	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1248	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1254	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20
Aroclor-1260	12000	U	12000		ug/Kg	☼	10/02/19 09:38	10/08/19 19:37	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*48*		*14 - 128*	*10/02/19 09:38*	*10/08/19 19:37*	*20*
DCB Decachlorobiphenyl	*12*		*10 - 132*	*10/02/19 09:38*	*10/08/19 19:37*	*20*

Surrogate Summary

Client: Clean Harbors ES Industrial Services Inc
Project/Site: Ford LTP - E202843

Job ID: 240-119528-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-120)	(72-120)	(72-120)	(64-121)
LCS 240-404214/10	Lab Control Sample	101	92	95	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-120)	(72-120)	(72-120)	(64-121)
240-119528-1	C74 ABSORBENT + OIL DRUM	106	90	92	99
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	107	86	90	100
280-129021-A-1-B MS	Matrix Spike	104	95	98	101
280-129021-A-1-C MSD	Matrix Spike Duplicate	105	90	92	100
LB 240-404007/1-A MB	Method Blank	107	94	96	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCBP1
Lab Sample ID	Client Sample ID	(14-128)	(10-132)
240-119528-1	C74 ABSORBENT + OIL DRUM	0 X	0 X
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	48	12
240-119669-B-1-B MS	Matrix Spike	105	101
240-119669-B-1-C MSD	Matrix Spike Duplicate	111	102
LCS 240-403625/17-A	Lab Control Sample	99	113
MB 240-403625/16-A	Method Blank	100	117

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 240-404214/10
Matrix: Solid
Analysis Batch: 404214

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			1.00	1.19		mg/L		119	69 - 137		
1,2-Dichloroethane			1.00	1.07		mg/L		107	70 - 132		
2-Butanone (MEK)			2.00	1.63		mg/L		82	44 - 149		
Benzene			1.00	1.01		mg/L		101	77 - 124		
Carbon tetrachloride			1.00	1.10		mg/L		110	58 - 145		
Chlorobenzene			1.00	0.961		mg/L		96	80 - 120		
Chloroform			1.00	1.09		mg/L		109	74 - 128		
Tetrachloroethene			1.00	0.993		mg/L		99	76 - 120		
Trichloroethene			1.00	0.985		mg/L		98	73 - 129		
Vinyl chloride			1.00	0.908		mg/L		91	61 - 143		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 120*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*
Toluene-d8 (Surr)	*95*		*72 - 120*
Dibromofluoromethane (Surr)	*102*		*64 - 121*

Lab Sample ID: LB 240-404007/1-A MB
Matrix: Solid
Analysis Batch: 404214

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025		mg/L			10/04/19 19:50	1
1,2-Dichloroethane	0.025	U	0.025		mg/L			10/04/19 19:50	1
2-Butanone (MEK)	0.25	U	0.25		mg/L			10/04/19 19:50	1
Benzene	0.025	U	0.025		mg/L			10/04/19 19:50	1
Carbon tetrachloride	0.025	U	0.025		mg/L			10/04/19 19:50	1
Chlorobenzene	0.025	U	0.025		mg/L			10/04/19 19:50	1
Chloroform	0.025	U	0.025		mg/L			10/04/19 19:50	1
Tetrachloroethene	0.025	U	0.025		mg/L			10/04/19 19:50	1
Trichloroethene	0.025	U	0.025		mg/L			10/04/19 19:50	1
Vinyl chloride	0.025	U	0.025		mg/L			10/04/19 19:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*66 - 120*		*10/04/19 19:50*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*10/04/19 19:50*	*1*
Toluene-d8 (Surr)	*96*		*72 - 120*		*10/04/19 19:50*	*1*
Dibromofluoromethane (Surr)	*103*		*64 - 121*		*10/04/19 19:50*	*1*

Lab Sample ID: 280-129021-A-1-B MS
Matrix: Solid
Analysis Batch: 404214

Client Sample ID: Matrix Spike
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene	0.10	U	4.00	4.61		mg/L		115	64 - 132		
1,2-Dichloroethane	0.10	U	4.00	4.30		mg/L		106	69 - 130		
2-Butanone (MEK)	1.0	U	8.00	6.75		mg/L		84	49 - 147		
Benzene	0.10	U	4.00	4.03		mg/L		101	75 - 121		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-129021-A-1-B MS
Matrix: Solid
Analysis Batch: 404214

Client Sample ID: Matrix Spike
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	0.10	U	4.00	4.16		mg/L		104	57 - 139
Chlorobenzene	0.10	U	4.00	3.78		mg/L		95	78 - 120
Chloroform	0.10	U	4.00	4.31		mg/L		108	71 - 126
Tetrachloroethene	0.10	U	4.00	3.83		mg/L		96	70 - 120
Trichloroethene	0.10	U	4.00	3.84		mg/L		96	59 - 142
Vinyl chloride	0.10	U	4.00	3.49		mg/L		87	63 - 134

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*66 - 120*
4-Bromofluorobenzene (Surr)	*95*		*72 - 120*
Toluene-d8 (Surr)	*98*		*72 - 120*
Dibromofluoromethane (Surr)	*101*		*64 - 121*

Lab Sample ID: 280-129021-A-1-C MSD
Matrix: Solid
Analysis Batch: 404214

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	0.10	U	4.00	4.59		mg/L		115	64 - 132	0	17
1,2-Dichloroethane	0.10	U	4.00	4.37		mg/L		108	69 - 130	1	14
2-Butanone (MEK)	1.0	U	8.00	7.18		mg/L		90	49 - 147	6	29
Benzene	0.10	U	4.00	4.00		mg/L		100	75 - 121	1	14
Carbon tetrachloride	0.10	U	4.00	4.20		mg/L		105	57 - 139	1	15
Chlorobenzene	0.10	U	4.00	3.71		mg/L		93	78 - 120	2	15
Chloroform	0.10	U	4.00	4.31		mg/L		108	71 - 126	0	15
Tetrachloroethene	0.10	U	4.00	3.71		mg/L		93	70 - 120	3	14
Trichloroethene	0.10	U	4.00	3.90		mg/L		97	59 - 142	1	16
Vinyl chloride	0.10	U	4.00	3.36		mg/L		84	63 - 134	4	17

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*66 - 120*
4-Bromofluorobenzene (Surr)	*90*		*72 - 120*
Toluene-d8 (Surr)	*92*		*72 - 120*
Dibromofluoromethane (Surr)	*100*		*64 - 121*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-403625/16-A
Matrix: Solid
Analysis Batch: 404043

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403625

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1
Aroclor-1221	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1
Aroclor-1232	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1
Aroclor-1242	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1
Aroclor-1248	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1
Aroclor-1254	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 240-403625/16-A
Matrix: Solid
Analysis Batch: 404043

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403625

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1260	50	U	50		ug/Kg		10/02/19 09:38	10/04/19 09:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*14 - 128*	*10/02/19 09:38*	*10/04/19 09:21*	*1*
DCB Decachlorobiphenyl	*117*		*10 - 132*	*10/02/19 09:38*	*10/04/19 09:21*	*1*

Lab Sample ID: LCS 240-403625/17-A
Matrix: Solid
Analysis Batch: 404043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403625

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			1000	961		ug/Kg		96	47 - 120		
Aroclor-1260			1000	994		ug/Kg		99	46 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*99*		*14 - 128*
DCB Decachlorobiphenyl	*113*		*10 - 132*

Lab Sample ID: 240-119669-B-1-B MS
Matrix: Solid
Analysis Batch: 404043

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 403625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016	95	U	1930	1780		ug/Kg	☼	92	31 - 120		
Aroclor-1260	95	U	1930	1680		ug/Kg	☼	87	21 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*105*		*14 - 128*
DCB Decachlorobiphenyl	*101*		*10 - 132*

Lab Sample ID: 240-119669-B-1-C MSD
Matrix: Solid
Analysis Batch: 404043

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 403625

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	95	U	1880	1790		ug/Kg	☼	95	31 - 120	1	30
Aroclor-1260	95	U	1880	1630		ug/Kg	☼	87	21 - 122	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*111*		*14 - 128*
DCB Decachlorobiphenyl	*102*		*10 - 132*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-403682/2-A
Matrix: Solid
Analysis Batch: 403954

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403682

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1
Barium	0.50	U	0.50		mg/L		10/02/19 14:00	10/03/19 16:02	1
Cadmium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1
Chromium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1
Lead	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1
Selenium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1
Silver	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 16:02	1

Lab Sample ID: LCS 240-403682/3-A
Matrix: Solid
Analysis Batch: 403954

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403682

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			2.00	2.18		mg/L		109	50 - 150		
Barium			2.00	1.94		mg/L		97	50 - 150		
Cadmium			1.00	1.01		mg/L		101	50 - 150		
Chromium			1.00	1.04		mg/L		104	50 - 150		
Lead			1.00	0.959		mg/L		96	50 - 150		
Selenium			2.00	2.27		mg/L		113	50 - 150		
Silver			0.100	0.104		mg/L		104	50 - 150		

Lab Sample ID: LB 240-403525/1-B
Matrix: Solid
Analysis Batch: 403954

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 403682

Analyte	LB Result	LB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1
Barium	0.50	U	0.50		mg/L		10/02/19 14:00	10/03/19 15:58	1
Cadmium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1
Chromium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1
Lead	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1
Selenium	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1
Silver	0.050	U	0.050		mg/L		10/02/19 14:00	10/03/19 15:58	1

Lab Sample ID: 240-119526-B-2-D MS ^5
Matrix: Solid
Analysis Batch: 403954

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 403682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	0.050	U	5.00	5.34		mg/L		107	75 - 125		
Barium	0.50	U	50.0	49.8		mg/L		99	75 - 125		
Cadmium	0.050	U	1.00	1.03		mg/L		103	75 - 125		
Chromium	0.050	U	5.00	5.15		mg/L		103	75 - 125		
Lead	0.050	U	5.00	5.05		mg/L		101	75 - 125		
Selenium	0.050	U	1.00	1.14		mg/L		114	75 - 125		
Silver	0.050	U	1.00	1.00		mg/L		100	75 - 125		

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

Lab Sample ID: 240-119526-B-2-E MSD ^5
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: TCLP
Analysis Batch: 403954
Prep Batch: 403682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.050	U	5.00	5.60		mg/L		112	75 - 125	5	20
Barium	0.50	U	50.0	52.9		mg/L		105	75 - 125	6	20
Cadmium	0.050	U	1.00	1.09		mg/L		109	75 - 125	5	20
Chromium	0.050	U	5.00	5.44		mg/L		109	75 - 125	6	20
Lead	0.050	U	5.00	5.30		mg/L		106	75 - 125	5	20
Selenium	0.050	U	1.00	1.19		mg/L		119	75 - 125	4	20
Silver	0.050	U	1.00	1.05		mg/L		105	75 - 125	5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-403688/2-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 403957
Prep Batch: 403688

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020		mg/L		10/02/19 14:00	10/03/19 12:27	1

Lab Sample ID: LCS 240-403688/3-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 403957
Prep Batch: 403688

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00500	0.00458		mg/L		92	80 - 120		

Lab Sample ID: LB 240-403525/1-C
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: TCLP
Analysis Batch: 403957
Prep Batch: 403688

Analyte	LB Result	LB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020		mg/L		10/02/19 14:00	10/03/19 12:24	1

Lab Sample ID: 240-119526-B-2-G MS
Client Sample ID: Matrix Spike
Matrix: Solid
Prep Type: TCLP
Analysis Batch: 403957
Prep Batch: 403688

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	0.0020	U	0.00500	0.00463		mg/L		93	80 - 120		

Lab Sample ID: 240-119526-B-2-H MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: TCLP
Analysis Batch: 403957
Prep Batch: 403688

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0020	U	0.00500	0.00482		mg/L		96	80 - 120	4	20

Method: 9045C - pH

Lab Sample ID: LCS 240-405609/23
Matrix: Solid
Analysis Batch: 405609

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Corrosivity			5.31	5.3		SU		100	97 - 103		
pH			5.31	5.3		SU		100	97 - 103		

Lab Sample ID: LCS 240-405609/44
Matrix: Solid
Analysis Batch: 405609

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Corrosivity			5.31	5.3		SU		101	97 - 103		
pH			5.31	5.3		SU		101	97 - 103		

Lab Sample ID: 240-119528-2 DU
Matrix: Solid
Analysis Batch: 405609

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Corrosivity	7.7	HF		7.0		SU				NaN	20
pH	7.7	HF		7.0		SU				10	20

QC Association Summary

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

GC/MS VOA

Processed Batch: 402890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	Part Size Red	
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	Part Size Red	

Leach Batch: 404007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	1311	402890
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	1311	402890
LB 240-404007/1-A MB	Method Blank	TCLP	Solid	1311	
280-129021-A-1-B MS	Matrix Spike	TCLP	Solid	1311	
280-129021-A-1-C MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Analysis Batch: 404214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	8260B	404007
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	8260B	404007
LB 240-404007/1-A MB	Method Blank	TCLP	Solid	8260B	404007
LCS 240-404214/10	Lab Control Sample	Total/NA	Solid	8260B	
280-129021-A-1-B MS	Matrix Spike	TCLP	Solid	8260B	404007
280-129021-A-1-C MSD	Matrix Spike Duplicate	TCLP	Solid	8260B	404007

GC Semi VOA

Processed Batch: 402887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	Part Size Red	
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	Part Size Red	

Prep Batch: 403625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	3540C	402887
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	3540C	402887
MB 240-403625/16-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-403625/17-A	Lab Control Sample	Total/NA	Solid	3540C	
240-119669-B-1-B MS	Matrix Spike	Total/NA	Solid	3540C	
240-119669-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3540C	

Analysis Batch: 404043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-403625/16-A	Method Blank	Total/NA	Solid	8082A	403625
LCS 240-403625/17-A	Lab Control Sample	Total/NA	Solid	8082A	403625
240-119669-B-1-B MS	Matrix Spike	Total/NA	Solid	8082A	403625
240-119669-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8082A	403625

Analysis Batch: 404544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	8082A	403625
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	8082A	403625

Metals

Processed Batch: 402890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	Part Size Red	
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	Part Size Red	

Leach Batch: 403525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	1311	402890
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	1311	402890
LB 240-403525/1-B	Method Blank	TCLP	Solid	1311	
LB 240-403525/1-C	Method Blank	TCLP	Solid	1311	
240-119526-B-2-D MS ^5	Matrix Spike	TCLP	Solid	1311	
240-119526-B-2-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	1311	
240-119526-B-2-G MS	Matrix Spike	TCLP	Solid	1311	
240-119526-B-2-H MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Prep Batch: 403682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	3010A	403525
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	3010A	403525
LB 240-403525/1-B	Method Blank	TCLP	Solid	3010A	403525
MB 240-403682/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-403682/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-119526-B-2-D MS ^5	Matrix Spike	TCLP	Solid	3010A	403525
240-119526-B-2-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	3010A	403525

Prep Batch: 403688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	7470A	403525
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	7470A	403525
LB 240-403525/1-C	Method Blank	TCLP	Solid	7470A	403525
MB 240-403688/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-403688/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-119526-B-2-G MS	Matrix Spike	TCLP	Solid	7470A	403525
240-119526-B-2-H MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	403525

Analysis Batch: 403954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	6010B	403682
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	6010B	403682
LB 240-403525/1-B	Method Blank	TCLP	Solid	6010B	403682
MB 240-403682/2-A	Method Blank	Total/NA	Solid	6010B	403682
LCS 240-403682/3-A	Lab Control Sample	Total/NA	Solid	6010B	403682
240-119526-B-2-D MS ^5	Matrix Spike	TCLP	Solid	6010B	403682
240-119526-B-2-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	6010B	403682

Analysis Batch: 403957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	TCLP	Solid	7470A	403688
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	TCLP	Solid	7470A	403688
LB 240-403525/1-C	Method Blank	TCLP	Solid	7470A	403688
MB 240-403688/2-A	Method Blank	Total/NA	Solid	7470A	403688
LCS 240-403688/3-A	Lab Control Sample	Total/NA	Solid	7470A	403688

Metals (Continued)

Analysis Batch: 403957 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119526-B-2-G MS	Matrix Spike	TCLP	Solid	7470A	403688
240-119526-B-2-H MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	403688

General Chemistry

Processed Batch: 402887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	Part Size Red	
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	Part Size Red	
240-119528-2 DU	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	Part Size Red	

Analysis Batch: 403275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	Moisture	402887
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	Moisture	402887

Analysis Batch: 405609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119528-1	C74 ABSORBENT + OIL DRUM	Total/NA	Solid	9045C	402887
240-119528-2	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	9045C	402887
LCS 240-405609/23	Lab Control Sample	Total/NA	Solid	9045C	
LCS 240-405609/44	Lab Control Sample	Total/NA	Solid	9045C	
240-119528-2 DU	PIPE BURST OILY ABSORBENTS DRUM	Total/NA	Solid	9045C	402887

Lab Chronicle

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: C74 ABSORBENT + OIL DRUM
Lab Sample ID: 240-119528-1
Date Collected: 09/25/19 12:05
Matrix: Solid
Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			404007	10/03/19 18:20	DRJ	TAL CAN
TCLP	Analysis	8260B		4	404214	10/04/19 23:55	TJL1	TAL CAN
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			403525	10/01/19 17:35	DRJ	TAL CAN
TCLP	Prep	3010A			403682	10/02/19 14:00	SLD	TAL CAN
TCLP	Analysis	6010B		20	403954	10/03/19 17:17	WKD	TAL CAN
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			403525	10/01/19 17:35	DRJ	TAL CAN
TCLP	Prep	7470A			403688	10/02/19 14:00	SLD	TAL CAN
TCLP	Analysis	7470A		1	403957	10/03/19 15:35	DTN	TAL CAN
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Analysis	9045C		1	405609	10/14/19 18:58	AGC	TAL CAN
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Analysis	Moisture		1	403275	09/30/19 15:35	JMB	TAL CAN

Client Sample ID: C74 ABSORBENT + OIL DRUM
Lab Sample ID: 240-119528-1
Date Collected: 09/25/19 12:05
Matrix: Solid
Date Received: 09/26/19 09:50
Percent Solids: 79.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Prep	3540C			403625	10/02/19 09:38	ZMF	TAL CAN
Total/NA	Analysis	8082A		100	404544	10/08/19 19:16	LSH	TAL CAN

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Lab Sample ID: 240-119528-2
Date Collected: 09/25/19 11:05
Matrix: Solid
Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			404007	10/03/19 18:20	DRJ	TAL CAN
TCLP	Analysis	8260B		1	404214	10/05/19 00:18	TJL1	TAL CAN
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			403525	10/01/19 17:35	DRJ	TAL CAN
TCLP	Prep	3010A			403682	10/02/19 14:00	SLD	TAL CAN
TCLP	Analysis	6010B		1	403954	10/03/19 17:22	WKD	TAL CAN
TCLP	Processed	Part Size Red			402890	09/27/19 10:57	POP	TAL CAN
TCLP	Leach	1311			403525	10/01/19 17:35	DRJ	TAL CAN
TCLP	Prep	7470A			403688	10/02/19 14:00	SLD	TAL CAN
TCLP	Analysis	7470A		1	403957	10/03/19 15:37	DTN	TAL CAN
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Analysis	9045C		1	405609	10/14/19 19:26	AGC	TAL CAN
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Analysis	Moisture		1	403275	09/30/19 15:35	JMB	TAL CAN

Lab Chronicle

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Client Sample ID: PIPE BURST OILY ABSORBENTS DRUM
Lab Sample ID: 240-119528-2

Date Collected: 09/25/19 11:05
Matrix: Solid
Date Received: 09/26/19 09:50
Percent Solids: 58.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Processed	Part Size Red			402887	09/27/19 10:55	POP	TAL CAN
Total/NA	Prep	3540C			403625	10/02/19 09:38	ZMF	TAL CAN
Total/NA	Analysis	8082A		20	404544	10/08/19 19:37	LSH	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Clean Harbors ES Industrial Services Inc
Job ID: 240-119528-1
Project/Site: Ford LTP - E202843

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Chain of Custody Record

380361

eurofins | Environment Testing TestAmerica

Address. _____

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Kris Brooks	Site Contact: Karen Kapala	Date: 9-25-19	COC No
Company Name: Clean Harbors	Tel/Email: 330-966-9790	Lab Contact:	Carrier:	1 of 1 COCs
Address: 10480 Harrison	Analysis Turnaround Time			Sampler: Mark Jordan
City/State/Zip: Romulus, MI 48174	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 313-319-4313	TAT if different from Below _____			Walk-in Client
Fax:	☒ 2 weeks			Lab Sampling
Project Name	☐ 1 week			
Site: Ford Livonia Transmission	☐ 2 days			Job / SDG No.
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCLP Metals	TCLP VOCs	PH	PCB's	Sample Specific Notes
C74 ABSORBENT + OIL DRUM	9/25/19	12:05	G		3			X	X	X	X	
PIPE BURST OILY ABSORBENTS DRUM	9/25/19	11:05	G		3			X	X	X	X	

240-119528 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd. _____ Corr'd. _____ Therm ID No _____

	Company	Date/Time	Received by	Company	Date/Time
Relinquished by:	Clean Harbors	9-25-19 1215		ETAL	9/25/19 1215
Relinquished by:	ETAL	9/25/19 1540		ETAL	9/26/19 9:50
Relinquished by.	Company	Date/Time	Received in Laboratory by	Company	Date/Time.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

FORD WASTE SAMPLING FIELD FORM

CLIENT: Cuchan Hanson

TECHNICIAN: (print name) Marie Jordan

SITE: Ford LTP Pipe Burst Oily Absorbents C74 Absorbent + Oil

TECHNICIAN: (signature)

DATE(S): 9-25-19

ON-SITE HOURS: 1.5 HR

WEATHER: Indoor

TRAVEL: 1.5 HR.

EQUIPMENT USED (check all that apply)

Coliwasa	☐	# Used _____
Disposable Bailer	☐	# Used _____
Auger:	☐	
Coring device	☐	

Other Equipment Used (please list) Scissors + Poly Cup

SAMPLED FROM:

Roll off	☐	
Drum(s)	☒	2
Tote	☐	
Tank	☐	

Other (describe)

TYPE OF SAMPLING EVENT

Grab ☒

Composite ☐ (If checked) On-site ☐ Lab weighted per increment ☐

SAMPLE MATRIX

Oil: ☒ Water: ☒ Soil: ☐ Liquid: ☐ Other (Explain): ☒ Absorbent Material Solid

DESCRIPTION OF SAMPLE COLLECTION AND COMMENTS:

C74 Absorbent + Oil Drum - Full drum consisting of oil fabric filter material + oily foam padding material w/ occasional absorbent pads. Took 10-12 discrete samples w/ scissors from top + middle layers of drum. Could not reach bottom of drum. No standing visible oil. Filled (3) 1L jar.

Pipe Burst Oily Absorbents Drum

Drum was full + consisted of a variety of different types of absorbent pads / filter material, approximately 5% of the bottom portion of drum was full of a water oily mix. Majority of absorbent material was saturated w/ this liquid. Took 8-10 discrete samples from top + middle layers of drum. Took 5 grab samples of standing water / oil w/ poly cup. Filled (3) 1L jars.

Reference quote or sampling plan #: On Sampling Plan. Was sampling plan followed: Yes ☐ No ☐

If No, Ford approval is needed.

Ford authorizing signature:

Ford Waste Sampling Field Form version 1 5-29-2014

TestAmerica Proposed Field Sampling Plan
Drum with oil and solid material

Sampling charges are estimates. The client will be billed for actual hours worked in 15 minutes increments with one (1) hour minimum on site. Sampling charges have been quoted to complete the sampling plan listed below. If the TestAmerica field tech is unable to obtain a sample utilizing the plan below, due to no fault of theirs (information listed below was not what they encountered on site), they will check with the TWM or Ford representative while on site to see if an alternative plan can be implemented, additional charges may apply. If unable to sample, the client will still be charged for the sampling event.

DRUM SAMPLING
Proposed Sampling Plan for sampling drums:
Container - Drums, plan assumes the top of the drum can be removed
Quantity – 2
Samples: 2
Matrix: Oil and Solid material
Episodic Waste Stream Characterization:

A TestAmerica field technician will collect three (3) random full depth core aliquots from the drum using an appropriate coring device. The three (3) aliquots from the drum will be composited together on site and placed into its own sample container. Any remaining sample volume will be returned to the appropriate drum. The sample container(s) will be labeled and sent to the laboratory for analysis. The Drum ID will be recorded on the field sheet.

If none of the coring devices work adequately, then discrete sampling will be performed. Discrete random samples will be collected and composited from a minimum of three depth locations in the drum, including the top middle and bottom of the container. Discrete samples will be collected from more than three depths if the waste does not appear to be uniform.

Test – Total VOCs, TCLP Metals, PCBs, pH

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 119528**
Canton Facility

Client Clean Harbors Site Name

Cooler Received on 9/20/19 Opened on 9/20/19

Cooler unpacked by: Gil Brown

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 2714 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 7.1 °C Corrected Cooler Temp. 8.8 °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity X	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC991818
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Chain of Custody Record

380361

eurofins | Environment Testing TestAmerica

Address. _____

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: KRIS BROOKS	Site Contact: KAREN KAPALA	Date: 9-25-19	COC No
Company Name: CLEAN HARBORS	Tel/Email: 330-966-9790	Lab Contact:	Carrier:	1 of 1 COCs
Address: 10480 HARRISON	Analysis Turnaround Time			Sampler: MARK JORDAN
City/State/Zip: ROMULUS, MI 48174	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 313-319-4313	TAT if different from Below _____			Walk-in Client
Fax:	☒ 2 weeks			Lab Sampling
Project Name	☐ 1 week			
Site: FORD LIVONIA TRANSMISSION	☐ 2 days			Job / SDG No
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCLP METALS	TCLP VOCS	PH	PCB's	Sample Specific Notes
C74 ABSORBENT + OIL DRUM	9/25/19	12:05	G		3			X	X	X	X	
PIPE BURST OILY ABSORBENTS DRUM	9/25/19	11:05	G		3			X	X	X	X	

240-119528 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd. _____ Corr'd. _____ | Therm ID No _____

	Company	Date/Time		Company	Date/Time
Relinquished by:	Clean Harbors	9-25-19 1215	Received by:	ETAL	9/25/19 1215
Relinquished by:	ETAL	9/25/19 1540	Received by:	ETAL	9/26/19 9:50
Relinquished by.	Company	Date/Time	Received in Laboratory by	Company	Date/Time.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

FORD WASTE SAMPLING FIELD FORM

CLIENT: Cuchan Hamden

TECHNICIAN: (print name) Marie Jordan

SITE: Ford LTP Pipe Burst Oily Absorbents C74 Absorbent + Oil

TECHNICIAN: (signature)

DATE(S): 9-25-19

ON-SITE HOURS: 1.5 HR

WEATHER: Indoor

TRAVEL: 1.5 HR.

EQUIPMENT USED (check all that apply)

Coliwasa	☐	# Used _____
Disposable Bailer	☐	# Used _____
Auger:	☐	
Coring device	☐	

Other Equipment Used (please list) Scissors + Poly Cup

SAMPLED FROM:

Roll off	☐	
Drum(s)	☒	2
Tote	☐	
Tank	☐	

Other (describe)

TYPE OF SAMPLING EVENT

Grab ☒

Composite ☐ (If checked) On-site ☐ Lab weighted per increment ☐

SAMPLE MATRIX

Oil: ☒ Water: ☒ Soil: ☐ Liquid: ☐ Other (Explain): ☒ Absorbent Material Solid

DESCRIPTION OF SAMPLE COLLECTION AND COMMENTS:

C74 Absorbent + Oil Drum - Full drum consisting of oil fabric filter material + oily foam padding material w/ occasional absorbent pads. Took 10-12 discrete samples w/ scissors from top + middle layers of drum. Could not reach bottom of drum. No standing visible oil. Filled (3) 1L jar.

Pipe Burst Oily Absorbents Drum

Drum was full + consisted of a variety of different types of absorbent pads / filter material, approximately 5% of the bottom portion of drum was full of a water oily mix. Majority of absorbent material was saturated w/ this liquid. Took 9-10 discrete samples from top + middle layers of drum. Took 5 grab samples of standing water / oil w/ poly cup. Filled (3) 1L jars.

Reference quote or sampling plan #: On Sampling Plan. Was sampling plan followed: Yes ☐ No ☐

If No, Ford approval is needed.

Ford authorizing signature:

Ford Waste Sampling Field Form version 1 5-29-2014

TestAmerica Proposed Field Sampling Plan
Drum with oil and solid material

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Proposed Sampling Plan for sampling drums:
Container - Drums, plan assumes the top of the drum can be removed
Quantity – 2
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Matrix: Oil and Solid material
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If none of the coring devices work adequately, then discrete sampling will be performed. Discrete random samples will be collected and composited from a minimum of three depth locations in the drum, including the top middle and bottom of the container. Discrete samples will be collected from more than three depths if the waste does not appear to be uniform.

Test – Total VOCs, TCLP Metals, PCBs, pH

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 119528**
Canton Facility

Client Clean Harbors Site Name _____ Cooler unpacked by: Cal Brown

Cooler Received on 9/20/19 Opened on 9/20/19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 2714 Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 7.1 °C Corrected Cooler Temp. 8.8 °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity X	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC991818
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

_____

_____

_____

_____

_____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT

October 16, 2019

Karen Kapala
Clean Harbors
36200 Plymouth Road

Livonia, MI US 48150

CADENA project ID: E202843
Project: Ford LTP - Waste characterizations
Project number:
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 119528-1
Sample date: 2019-09-25
Report received by CADENA: 2019-10-15
Initial Data Verification completed by CADENA: 2019-10-16
Number of Samples:2
Sample Matrices:Other
Test Categories:GCMS VOC, GC Other, Metals and General Chemistry
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GC PCB sample -001 surrogate recoveries were diluted to below reliably quantifiable levels so were not used to qualify client sample results.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

WASTE ANALYSIS RESULTS

Client Name: Ford Motor Company
Contractor Name: Clean Harbors (formerly Veolia Environmental Services)
Client Project Number:
Site Name: Livonia Transmission
CADENA Project ID: E202843 **Date Received:** 2019-09-26
Laboratory: TestAmerica - North Canton **Date Reported:** 2019-10-15
Laboratory Submittal: 119528-1
Criteria Set: RCRA TCLP waste characterizations
Criteria Set Description:RCRA TCLP Leachate regulatory levels and sample results as mg/L

Parameter	CAS#	TCLP Leachate Regulatory Levels (mg/L)	Sample Location / Lab Sample ID / Sample Date / Sample Matrix			
			C74 ABSORBENT + OIL DRUM 2401195281 9/25/2019 Solid Waste		PIPE BURST OILY ABSORBENTS DRUM 2401195282 9/25/2019 Solid Waste	
GC/MS VOC			**TCLP RESULT (mg/L)**	**Qualifier Code**	**TCLP RESULT (mg/L)**	**Qualifier Code**
1,1-Dichloroethylene(mg/l)	75-35-4	0.7	<0.10		<0.025	
1,2-Dichloroethane(mg/l)	107-06-2	0.5	<0.10		<0.025	
Methyl ethyl ketone(mg/l)	78-93-3	200.0	<1.0		<0.25	
Benzene(mg/l)	71-43-2	0.5	<0.10		<0.025	
Carbon Tetrachloride(mg/l)	56-23-5	0.5	<0.10		<0.025	
Chlorobenzene(mg/l)	108-90-7	100.0	<0.10		<0.025	
Chloroform(mg/l)	67-66-3	6.0	<0.10		<0.025	
Tetrachloroethylene(mg/l)	127-18-4	0.7	<0.10		<0.025	
Trichloroethylene(mg/l)	79-01-6	0.5	<0.10		<0.025	
Vinyl chloride(mg/l)	75-01-4	0.2	<0.10		<0.025	
Metals						
Arsenic(mg/l)	7440-38-2	5.0	<1.0		<0.050	
Barium(mg/l)	7440-39-3	100.0	<10		<0.50	
Cadmium(mg/l)	7440-43-9	1.0	<1.0		<0.050	
Chromium(mg/l)	7440-47-3	5.0	<1.0		<0.050	
Lead(mg/l)	7439-92-1	5.0	<1.0		<0.050	
Mercury(mg/l)	7439-97-6	0.2	<0.0020		<0.0020	
Selenium(mg/l)	7782-49-2	1.0	<1.0		<0.050	
Silver(mg/l)	7440-22-4	5.0	<1.0		<0.050	

GENERAL NOTES:

Units indicated in the "Parameter" column apply to both the criteria and the analytical results.
Results which exceeded Laboratory Reporting Limits are indicated in bold.
Laboratory Reporting Limit is > regulatory limit - **FURTHER ACTION REQUIRED**
Sample result is greater than or equal to referenced regulatory limit.

WASTE ANALYSIS RESULTS

Client Name: Ford Motor Company
Contractor Name: Clean Harbors (formerly Veolia Environmental Services)
Client Project Number:
Site Name: Livonia Transmission
CADENA Project ID: E202843 **Date Received:** 2019-09-26
Laboratory: TestAmerica - North Canton **Date Reported:** 2019-10-15
Laboratory Submittal: 119528-1
Criteria Set: PCB Analyses and Characterization Results
Criteria Set Description:PCB and non-TCLP Characteristics Results

Parameter	CAS#	PCB and Characteristics	Sample Location / Lab Sample ID / Sample Date / Sample Matrix			
			C74 ABSORBENT + OIL DRUM 2401195281 9/25/2019 Solid Waste		PIPE BURST OILY ABSORBENTS DRUM 2401195282 9/25/2019 Solid Waste	
			RESULT	Qualifier Code	RESULT	Qualifier Code
PCB-1016(mg/kg)	12674-11-2	50	<42		<12	
PCB-1221(mg/kg)	11104-28-2	50	<42		<12	
PCB-1232(mg/kg)	11141-16-5	50	<42		<12	
PCB-1242(mg/kg)	53469-21-9	50	<42		<12	
PCB-1248(mg/kg)	12672-29-6	50	<42		<12	
PCB-1254(mg/kg)	11097-69-1	50	<42		<12	
PCB-1260(mg/kg)	11096-82-5	50	<42		<12	
TOTAL PCBs (mg/kg)	1336-36-3	50	<42		<12	
Corrosivity(pH units)	E-10219	gt 12.5 or lt 2	**8.9**		**7.7**	
pH(pH units)	E-10139	gt 12.5 or lt 2	**8.9**		**7.7**	

GENERAL NOTES:

Units indicated in the "Parameter" column apply to both the criteria and the analytical results.
Results which exceeded Laboratory Reporting Limits are indicated in bold.
Laboratory Reporting Limit is > regulatory limit - **FURTHER ACTION REQUIRED**
Sample result is greater than referenced regulatory limit.
Result should be considered to be estimated. See comments section below for details.
FURTHER ACTION MAY BE REQUIRED

Qualifier Code and Submittal Specific Comments:

pH - A sample must be Aqueous (contain at least 20% water) for a pH result to be reported. If there is an indication that the sample may not be Aqueous and a pH result is reported, then the lab should provide a water analysis result (e.g. Karl Fisher).
pH - If an aqueous sample has a pH >2 but <12.5 or if the sample is non-aqueous it could still be Corrosive under 40 CFR Part 261.22 (2) if it shows Corrosivity Towards Steel using test method 1110A.

Arcadis of Michigan, LLC

28550 Cabot Drive

Suite 500

Novi, Michigan 48377

Tel 248 994 2240

Fax 248 994 2241

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