



January 13, 2023

Reference No. 11209494

Renee Wawczak – Project Manager
United States Environmental Protection Agency
Region 5 [Mail Code LU-16J]
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590

Send Via E-mail
(Wawczak.Renee@epa.gov)

Dear Renee:

**Re: Quarterly Progress Report – Q4-2022
EPA Docket No. RCRA-05-2020-0005
CITGO Terminal, East Chicago, Indiana**

This submission has been prepared on behalf of CITGO Petroleum Corporation (CITGO) in accordance with the Section 3008(h) Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6928(h) Administrative Order on Consent (AOC) (RCRA Docket No: RCRA-05-2020-0005 with an effective date of January 24, 2020) for the CITGO Terminal at 2500 East Chicago Avenue, East Chicago, Indiana (EPA ID: IND 095267381) (Site).

This report is organized to address reporting requirements set out in Section VII of the AOC. This report summarizes the activities conducted at the Site from October 1, 2022 through December 31, 2022.

1. Summary of Work Performed during the Reporting Period (October 1, 2022 – December 31, 2022)

- Participated in monthly project status calls including discussion on RFI progress with EPA, OXY, CITGO, and GHD on October 19th, November 17th, and December 15th, 2022.
- Quarterly groundwater gauging and sampling event was conducted between December 5th – 13th, 2022.

2. Summary of Reports, and Other Deliverables Completed During the Reporting Period

- Submitted Q3 2022 Quarterly Progress Report on October 12th, 2022.
- Submitted Corrective Measures Proposal on December 14th, 2022.
- Submitted revised environmental indicators report CA 725 and CA750 on December 23rd, 2022.

3. Summary of Problems Encountered and Planned Resolutions

- None

4. Summary of Results of Sampling, Tests, or Other Data Received or Generated

- RFI field activities were completed in accordance with the plan outlined in the RFI Report submitted October 1, 2021, and slightly modified based on the response to EPA comments on the RFI dated January 31st, 2022.
- Figure 1 presents the groundwater contours for the December 2022 gauging event.
- Figure 2 presents a summary of exceedances of groundwater screening criteria including up to the quarterly groundwater monitoring event completed in September 2022. The December 2022 sampling event data is undergoing data validation and will be provided in the next quarterly status report.
- Table 1 presents the validated groundwater sampling results from the September 2022 quarterly monitoring event.



5. Anticipated Activities During the Next Reporting Period

- Complete validation of Q4-2022 quarterly sampling data
- Conduct Q1-2023 quarterly sampling event (March 2022)
- Based on discussion with EPA on December 15th, 2022, CITGO will submit a work plan for the evaluation and removal of LNAPL at CITGO-MW16-20.

6. Project Schedule

- Attachment A presents the currently anticipated project schedule.

7. Percent Project Completed

- At the time of this report, the project is approximately 80% completed.

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 have no personal knowledge that the information submitted is other than 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.

Should you have any questions on the above, please do not hesitate to contact us.

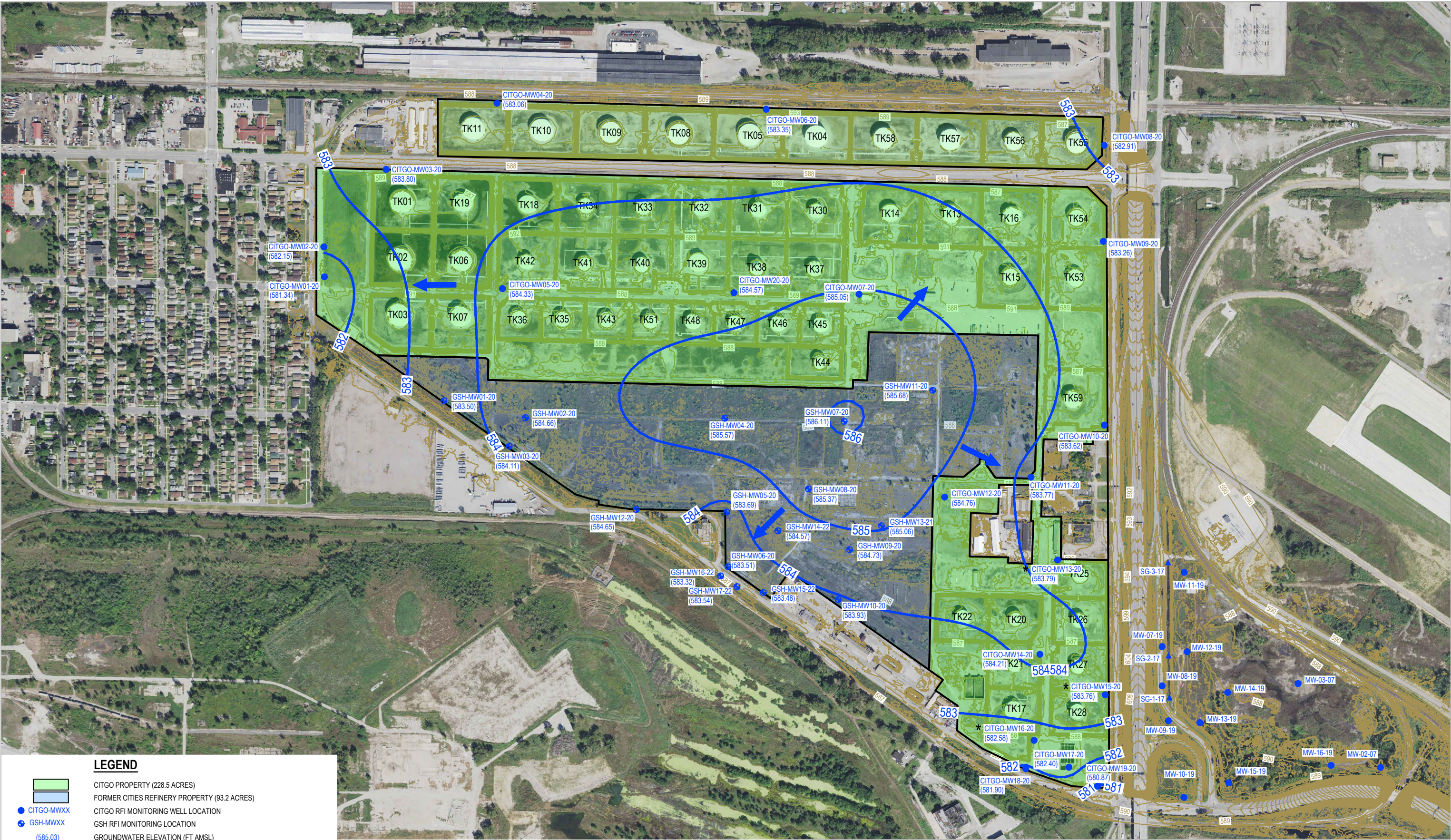
Respectfully submitted,

CITGO Petroleum Corporation

Scott Buckner, CITGO Project Manager

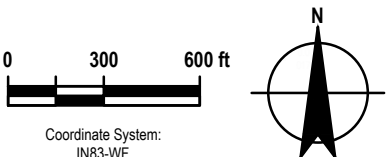
JEP/kf/18

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LEGEND

- CITGO PROPERTY (228.5 ACRES)
 - FORMER CITIES REFINERY PROPERTY (93.2 ACRES)
 - CITGO-MWXX
 - GSH-MWXX
 - (585.03)
 - MW-10-19
 - SG-2-17
 - *
 - 584.00
 -
- MONITORING WELL LOCATION (SURVEYED SEPTEMBER 5, 2019. NAVD88)
- STAFF GAUGE LOCATION (SURVEYED JUNE 2, 2017. NAVD88)
- A CORRECTED GROUNDWATER WAS CALCULATED BY SUBTRACTING THE DEPTH TO PRODUCT FROM THE TOP OF CASING AND ADDING THE RELATIVE DENSITY OF THE LNAPL (0.9) MULTIPLIED BY THE THICKNESS OF THE LNAPL
- GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- GROUNDWATER FLOW DIRECTION



CITGO TERMINAL
EAST CHICAGO, INDIANA

Project No. 11209494
Date December 2022

**GROUNDWATER CONTOUR MAP
DECEMBER 2022**

FIGURE 1



Table 1
CITGO Terminal
East Chicago, Indiana
Analytical Results Summary

Sample Location:	CITGO-MW01-20	CITGO-MW01-20	CITGO-MW01-20	CITGO-MW02-20	CITGO-MW02-20	CITGO-MW03-20	CITGO-MW03-20	CITGO-MW03-20	CITGO-MW04-20	CITGO-MW04-20	CITGO-MW05-20	CITGO-MW06-20	CITGO-MW06-20	CITGO-MW07-20	CITGO-MW08-20	CITGO-MW08-20	CITGO-MW09-20
Sample ID:	WG-061022-SS-04	WG-061022-SS-06	WG-090822-DS-02	WG-061022-SS-08	WG-090822-DS-04	WG-061022-DS-09	WG-090822-DS-06	WG-090822-DS-08	WG-060922-JL-01	GW-091222-JL-13	WG-061022-SS-10	WG-060922-JL-03	GW-091222-JL-14	WG-061322-DS-14	WG-060922-SS-02	WG-090922-DS-09	WG-061322-NN-12
Sample Date:	6/10/2022	6/10/2022 (Duplicate)	9/8/2022	6/10/2022	9/8/2022	6/10/2022	9/8/2022	9/8/2022	6/9/2022	9/12/2022	6/10/2022	6/9/2022	9/12/2022	6/13/2022	6/9/2022	9/9/2022	6/13/2022
Parameters	Units																
VOAs																	
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	8.1	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Carbon disulfide	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U	-	1.0 U	-	34	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L	1.0 U	1.0 U	-	1.7	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	6.5	0.52 J	1.6
Dibromochloromethane	ug/L	1.0 U	1.0 U	-	1.0 U	-	3.0	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Isopropyl benzene	ug/L	1.0 U	1.0 U	-	1.4	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	0.67 J	0.54 J	1.0 U
Methyl acetate	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	10 U
Methyl cyclohexane	ug/L	1.0 U	1.0 U	-	2.0	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	0.77 J	0.40 J	0.59 J
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5.0 U	5.0 U	-	5.0 U	-	5.0 U	-	-	5.0 U	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Styrene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2.0 U	2.0 U	-	1.3 J	-	2.0 U	-	-	2.0 U	-	2.0 U	1.3 J	-	2.0 U	2.5	2.0 U
SVOAs																	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	-	0.93 U	-	0.93 U	0.96 U	-	0.96 U	0.96 U	0.96 U
2,4,5-Trichlorophenol	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
2,4,6-Trichlorophenol	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
2,4-Dichlorophenol	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
2,4-Dimethylphenol	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
2,4-Dinitrophenol	ug/L	10 U	9.3 U	-	9.6 U	-	12 U	-	-	9.3 U	-	9.3 U	9.6 U	-	9.6 U	9.6 U	9.6 U
2,4-Dinitrotoluene	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
2,6-Dinitrotoluene	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
2-Chloronaphthalene	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	-	0.93 U	-	0.93 U	0.96 U	-	0.96 U	0.96 U	0.96 U
2-Chlorophenol	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	-	0.93 U	-	0.93 U	0.96 U	-	0.96 U	0.96 U	0.96 U
2-Methylnaphthalene	ug/L	0.20 U	0.19 U	0.19 U	0.54	1.1	0.24 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
2-Methylphenol	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	-	0.93 U	-	0.93 U	0.96 U	-	0.96 U	0.96 U	0.96 U
2-Nitroaniline	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
2-Nitrophenol	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
3&4-Methylphenol	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
3,3'-Dichlorobenzidine	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
3-Nitroaniline	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4,6-Dinitro-2-methylphenol	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	-	4.6 U	-	4.6 U	4.8 U	-	4.8 U	4.8 U	4.8 U
4-Bromophenyl phenyl ether	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4-Chloro-3-methylphenol	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4-Chloroaniline	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4-Chlorophenyl phenyl ether	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4-Nitroaniline	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
4-Nitrophenol	ug/L	10 U	9.3 U	-	9.6 U	-	12 U	-	-	9.3 U	-	9.3 U	9.6 U	-	9.6 U	9.6 U	9.6 U
Acenaphthene	ug/L	0.20 U	0.19 U	-	2.1	-	0.24 U	-	-	0.19 U	-	0.19 U	0.19 U	-	1.0	1.8	1.3
Acenaphthylene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	-	0.19 U	-	0.19 U	0.19 U	-	0.19 U	0.19 U	0.19 U
Acetophenone	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	-	0.93 U	-	0.93 U	0.96 U	-	0.96 U	0.96 U	0.96 U
Anthracene	ug/L	0.20 U	0.19 U	-	0.36	-	0.24 U	-	-	0.19 U	-	0.19 U	0.19 U	-	0.19 U	0.19 U	1.2
Atrazine	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	-	1.9 U	-	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U

Table 1
CITGO Terminal
East Chicago, Indiana
Analytical Results Summary

Sample Location:	CITGO-MW01-20	CITGO-MW01-20	CITGO-MW01-20	CITGO-MW02-20	CITGO-MW02-20	CITGO-MW03-20	CITGO-MW03-20	CITGO-MW03-20	CITGO-MW04-20	CITGO-MW04-20	CITGO-MW05-20	CITGO-MW06-20	CITGO-MW06-20	CITGO-MW07-20	CITGO-MW08-20	CITGO-MW08-20	CITGO-MW09-20
Sample ID:	WG-061022-SS-04	WG-061022-SS-06	WG-090822-DS-02	WG-061022-SS-08	WG-090822-DS-04	WG-061022-DS-09	WG-090822-DS-06	WG-090822-DS-08	WG-060922-JL-01	GW-091222-JL-13	WG-061022-SS-10	WG-060922-JL-03	GW-091222-JL-14	WG-061322-DS-14	WG-060922-SS-02	WG-090922-DS-09	WG-061322-NN-12
Sample Date:	6/10/2022	6/10/2022 (Duplicate)	9/8/2022	6/10/2022	9/8/2022	6/10/2022	9/8/2022	9/8/2022	6/9/2022	9/12/2022	6/10/2022	6/9/2022	9/12/2022	6/13/2022	6/9/2022	9/9/2022	6/13/2022
Parameters	Units																
Benzaldehyde	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	1.9 U	-	1.9 U	1.9 U	1.9 U	-	1.9 U	1.9 U	1.9 U
Benzo(a)anthracene	ug/L	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U	0.24 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	1.5
Benzo(a)pyrene	ug/L	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U	0.24 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.59
Benzo(b)fluoranthene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Benzo(g,h,i)perylene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Benzo(k)fluoranthene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Biphenyl (1,1-Biphenyl)	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
bis(2-Chloroethoxy)methane	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
bis(2-Chloroethyl)ether	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	4.6 U	-	4.6 U	4.8 U	4.8 U	-	4.8 U	4.8 U	-
Butyl benzylphthalate (BBP)	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	1.9 U	-	1.9 U	1.9 U	1.9 U	-	1.9 U	1.9 U	-
Caprolactam	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	4.6 U	-	4.6 U	4.8 U	4.8 U	-	2.3 J	4.8 U	-
Carbazole	ug/L	1.0 U	0.93 U	-	1.2	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Chrysene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Dibenz(a,h)anthracene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Dibenzofuran	ug/L	1.0 U	0.93 U	0.93 U	1.9	4.0	1.2 U	0.96 U	0.93 U	0.96 U	0.93 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	-
Diethyl phthalate	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	4.6 U	-	4.6 U	4.8 U	4.8 U	-	4.8 U	4.8 U	-
Dimethyl phthalate	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	1.9 U	-	1.9 U	1.9 U	1.9 U	-	1.9 U	1.9 U	-
Di-n-butylphthalate (DBP)	ug/L	5.0 U	4.6 U	-	4.8 U	-	6.0 U	-	4.6 U	-	4.6 U	4.8 U	4.8 U	-	4.8 U	4.8 U	-
Di-n-octyl phthalate (DnOP)	ug/L	2.0 U	1.9 U	-	1.9 U	-	2.4 U	-	1.9 U	-	1.9 U	1.9 U	1.9 U	-	1.9 U	1.9 U	-
Fluoranthene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Fluorene	ug/L	0.20 U	0.19 U	-	4.9	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.45	0.53	-
Hexachlorobenzene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Hexachlorobutadiene	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Hexachlorocyclopentadiene	ug/L	10 U	9.3 U	-	9.6 U	-	12 U	-	9.3 U	-	9.3 U	9.6 U	9.6 U	-	9.6 U	9.6 U	-
Hexachloroethane	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Indeno(1,2,3-cd)pyrene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Isophorone	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Naphthalene	ug/L	0.20 U	0.19 U	0.19 U	0.75	0.79	0.24 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	-
Nitrobenzene	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
N-Nitrosodi-n-propylamine	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
N-Nitrosodiphenylamine	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Pentachlorophenol	ug/L	10 U	9.3 U	-	9.6 U	-	12 U	-	9.3 U	-	9.3 U	9.6 U	9.6 U	-	9.6 U	9.6 U	-
Phenanthrene	ug/L	0.20 U	0.19 U	-	0.19 U	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
Phenol	ug/L	1.0 U	0.93 U	-	0.96 U	-	1.2 U	-	0.93 U	-	0.93 U	0.96 U	0.96 U	-	0.96 U	0.96 U	-
Pyrene	ug/L	0.20 U	0.19 U	-	0.48	-	0.24 U	-	0.19 U	-	0.19 U	0.19 U	0.19 U	-	0.19 U	0.19 U	-
SVOAsSIM																	
1,4-Dioxane	ug/L	0.20 U	0.20 U	-	0.20 U	-	0.10 J	-	-	0.20 U	-	0.20 U	0.20 U	-	0.20 U	0.20 U	-
Metals																	
Aluminum	ug/L	200 U	200 U	-	200 U	-	270	-	-	47 J	-	170 J	83 J	-	510	120 J	-
Antimony	ug/L	20 U	20 U	-	20 U	-	20 U	-	-	20 U	-	20 U	20 U	-	20 U	20 U	-
Arsenic	ug/L	21	20	42	15 U	15 U	15 U	15 U	15 U	15 U	15 U	13 J	5.2 J	15 U	12 J	4.9 J	-
Barium	ug/L	35 J	35 J	-	43 J	-	11 J	-	-	57 J	-	22 J	20 J	-	70 J	51 J	-
Beryllium	ug/L	5.0 U	5.0 U	-	5.0 U	-	5.0 U	-	-	5.0 U	-	5.0 U	5.0 U	-	0.78 J	5.2	-
Cadmium	ug/L	0.26 J	5.0 U	-	0.21 J	-	5.0 U	-	-	0.49 J	-	0.20 J	0.20 J	-	5.0 U	1.1 J	-
Calcium	ug/L	100000	100000	-	130000	-	37000	-	-	78000	-	69000	69000	-	94000	86000	-
Chromium	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	7.8 J	-	10 U	10 U	-
Cobalt	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	1.7 J	0.91 J	-
Copper	ug/L	25 U	25 U	-	25 U	-	25 U	-	-	25 U	-	25 U	25 U	-	25 U	25 U	-
Iron	ug/L	14000	13000	15000	7400	5000	390	120 J	110 J	570	2500	8400	980	2200	10000 J-	5900	4700
Lead	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	4.8 J	10 U	-
Magnesium	ug/L	12000	12000	-	13000	-	12000	-	-	14000	-	11000	9600	-	16000 J-	11000	-
Manganese	ug/L	590	570	720	600	460	14 J	10 J	8.9 J	340	500	250	280	400	730 J-	340	280
Mercury	ug/L	0.15 J+	0.20 U	-	0.20 U	-	0.20 U	-	-	0.20 U	-	0.20 U	0.20 U	-	0.20 U	0.20 U	-
Nickel	ug/L	40 U	40 U	-	40 U	-	40 U	-	-	40 U	-	40 U	4.5 J	-	40 U	40 U	-
Potassium	ug/L	1000 J	1000 J	-	1300 J	-	2200 J	-	-	2700 J	-	1700 J	1500 J	-	3800 J	1500 J	-
Selenium	ug/L	20 U	20 U	-	20 U	-	20 U	-	-	20 U	-	20 U	20 U	-	20 U	20 U	-
Silver	ug/L	10 U	10 U	-	10 U	-	10 U	-	-	10 U	-	10 U	10 U	-	10 U	10 U	-
Sodium	ug/L	5000 U	5000 U	-	4200 J	-	12000	-	-	46000	-	5000 U	5500	-	11000	3000 J	-
Thallium	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	-
Vanadium	ug/L	50 U	50 U	-	50 U	-	50 U	-	-	50 U	-	50 U	50 U	-	7.3 J	50 U	-
Zinc	ug/L	50 U	50 U	-	50 U	-	50 U	-	-	50 U	-	50 U	50 U	-	50 U	50 U	-
Fumigant																	
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.019 U	0.019 U	-	0.019 U	-	0.019 U	-	-	0.019 U	-	0.019 U	0.019 U	-	0.019 U	0.019 U	-
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.019 U	0.019 U	-	0.019 U	-	0.019 U	-	-	0.019 U	-	0.019 U	0.019 U	-	0.019 U	0.019 U	-

Footnotes:
U Not detected at the associated reporting limit.
J Estimated concentration.

Table 1
CITGO Terminal
East Chicago, Indiana
Analytical Results Summary

Sample Location:		CITGO-MW09-20	CITGO-MW09-20	CITGO-MW10-20	CITGO-MW10-20	CITGO-MW11-20	CITGO-MW11-20	CITGO-MW12-20	CITGO-MW14-20	CITGO-MW17-20	CITGO-MW17-20	CITGO-MW18-20	CITGO-MW18-20	CITGO-MW19-20	CITGO-MW19-20	CITGO-MW19-20	CITGO-MW20-20
Sample ID:		WG-061322-NN-15	WG-090922-NN-05	WG-061322-NN-16	WG-090922-NN-07	WG-061322-AC-13	WG-090822-NN-01	WG-061322-AC-18	WG-061322-DS-19	WG-061022-JL-07	GW-091222-DS-12	WG-061322-DS-17	WG-090822-NN-03	WG-061022-JL-05	GW-091222-JL-10	GW-091222-JL-11	WG-061022-DS-11
Sample Date:		6/13/2022	9/9/2022	6/13/2022	9/9/2022	6/13/2022	9/8/2022	6/13/2022	6/13/2022	6/10/2022	9/12/2022	6/13/2022	9/8/2022	6/10/2022	9/12/2022	9/12/2022	6/10/2022
		(Duplicate)														(Duplicate)	
Parameters		Units															
VOAs																	
1,1,1-Trichloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,2,4-Trichlorobenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,2-Dichlorobenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,2-Dichloropropane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,3-Dichlorobenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
1,4-Dichlorobenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	10 U	-	10 U	-	40 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
2-Hexanone	ug/L	10 U	-	10 U	-	40 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	10 U	-	10 U	-	40 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
Acetone	ug/L	10 U	-	10 U	-	40 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
Benzene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	1.3	1.0 U	1.0 U	2.0	2.4	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Bromoform	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Bromomethane (Methyl bromide)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Carbon disulfide	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Carbon tetrachloride	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Chlorobenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	57	-	1.0 U	-	1.0 U	-	-	1.0 U
Chloroethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Chloromethane (Methyl chloride)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Cyclohexane	ug/L	1.8	-	1.0 U	-	180	-	1.0 U	1.0 U	8.4	-	2.6	-	1.0 U	-	-	1.6
Dibromochloromethane	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Ethylbenzene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Isopropyl benzene	ug/L	1.0 U	-	1.0 U	-	35	-	1.0 U	1.0 U	3.2	-	1.0 U	-	1.0 U	-	-	1.0 U
Methyl acetate	ug/L	10 U	-	10 U	-	40 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
Methyl cyclohexane	ug/L	0.65 J	-	1.0 U	-	120	-	1.0 U	1.0 U	2.5	-	0.39 J	-	1.0 U	-	-	1.6
Methyl tert butyl ether (MTBE)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	0.57 J
Methylene chloride	ug/L	5.0 U	-	5.0 U	-	20 U	-	5.0 U	5.0 U	5.0 U	-	5.0 U	-	5.0 U	-	-	5.0 U
Styrene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Tetrachloroethene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Toluene	ug/L	1.0 U	-	1.0 U	-	2.3 J	-	1.0 U	1.0 U	0.70 J	-	1.0 U	-	1.0 U	-	-	1.0 U
trans-1,2-Dichloroethene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Trichloroethene	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Vinyl chloride	ug/L	1.0 U	-	1.0 U	-	4.0 U	-	1.0 U	1.0 U	1.0 U	-	1.0 U	-	1.0 U	-	-	1.0 U
Xylenes (total)	ug/L	2.0 U	-	2.0 U	-	2.9 J	-	2.0 U	2.0 U	1.3 J	-	2.0 U	-	2.0 U	-	-	0.73 J
SVOAs																	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
2,4,5-Trichlorophenol	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
2,4,6-Trichlorophenol	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
2,4-Dichlorophenol	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
2,4-Dimethylphenol	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
2,4-Dinitrophenol	ug/L	10 U	-	9.6 U	-	9.6 U	-	9.3 U	11 U	9.6 U	-	9.6 U	-	9.6 U	-	-	10 U
2,4-Dinitrotoluene	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
2,6-Dinitrotoluene	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
2-Chloronaphthalene	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
2-Chlorophenol	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
2-Methylnaphthalene	ug/L	0.21 U	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.23 U	0.68	0.50	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.20 U
2-Methylphenol	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
2-Nitroaniline	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
2-Nitrophenol	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
3&4-Methylphenol	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
3,3'-Dichlorobenzidine	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
3-Nitroaniline	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4,6-Dinitro-2-methylphenol	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
4-Bromophenyl phenyl ether	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4-Chloro-3-methylphenol	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4-Chloroaniline	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4-Chlorophenyl phenyl ether	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4-Nitroaniline	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
4-Nitrophenol	ug/L	10 U	-	9.6 U	-	9.6 U	-	9.3 U	11 U	9.6 U	-	9.6 U	-	9.6 U	-	-	10 U
Acenaphthene	ug/L	1.7	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.28	-	0.19 U	-	0.19 U	-	-	0.24
Acenaphthylene	ug/L	0.21 U	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.19 U	-	0.19 U	-	0.19 U	-	-	0.20 U
Acetophenone	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Anthracene	ug/L	1.5	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.19 U	-	0.19 U	-	0.19 U	-	-	0.20 U
Atrazine	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U

Table 1
CITGO Terminal
East Chicago, Indiana
Analytical Results Summary

Sample Location:		CITGO-MW09-20	CITGO-MW09-20	CITGO-MW10-20	CITGO-MW10-20	CITGO-MW11-20	CITGO-MW11-20	CITGO-MW12-20	CITGO-MW14-20	CITGO-MW17-20	CITGO-MW17-20	CITGO-MW18-20	CITGO-MW18-20	CITGO-MW19-20	CITGO-MW19-20	CITGO-MW19-20	CITGO-MW20-20
Sample ID:		WG-061322-NN-15	WG-090922-NN-05	WG-061322-NN-16	WG-090922-NN-07	WG-061322-AC-13	WG-090822-NN-01	WG-061322-AC-18	WG-061322-DS-19	WG-061022-JL-07	GW-091222-DS-12	WG-061322-DS-17	WG-090822-NN-03	WG-061022-JL-05	GW-091222-JL-10	GW-091222-JL-11	WG-061022-DS-11
Sample Date:		6/13/2022	9/9/2022	6/13/2022	9/9/2022	6/13/2022	9/8/2022	6/13/2022	6/13/2022	6/10/2022	9/12/2022	6/13/2022	9/8/2022	6/10/2022	9/12/2022	(Duplicate)	6/10/2022
Parameters	Units	(Duplicate)															
Benzaldehyde	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
Benzo(a)anthracene	ug/L	1.4	3.7	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.23 U	1.7	0.59	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.20 U
Benzo(a)pyrene	ug/L	0.45	1.4	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.23 U	0.86	0.32	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.20 U
Benzo(b)fluoranthene	ug/L	0.59	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.93	-	0.19 U	-	0.19 U	-	-	0.20 U
Benzo(g,h,i)perylene	ug/L	0.28	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.54	-	0.19 U	-	0.19 U	-	-	0.20 U
Benzo(k)fluoranthene	ug/L	0.21 U	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.19 U	-	0.19 U	-	0.19 U	-	-	0.20 U
Biphenyl (1,1-Biphenyl)	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
bis(2-Chloroethoxy)methane	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
bis(2-Chloroethyl)ether	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
Butyl benzylphthalate (BBP)	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
Caprolactam	ug/L	5.2 U	-	2.2 J	-	4.8 U	-	3.6 J	5.7 U	4.8 U	-	4.4 J	-	4.8 U	-	-	5.0 U
Carbazole	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	18	-	0.96 U	-	0.96 U	-	-	1.0 U
Chrysene	ug/L	2.0	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	3.1	-	0.26	-	0.19 U	-	-	0.37
Dibenz(a,h)anthracene	ug/L	0.21 U	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.19 U	-	0.19 U	-	0.19 U	-	-	0.20 U
Dibenzofuran	ug/L	5.6	16	0.96 U	1.0 U	0.96 U	1.0 U	0.93 U	1.1 U	0.96 U	0.61 J	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	1.0 U
Diethyl phthalate	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
Dimethyl phthalate	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
Di-n-butylphthalate (DBP)	ug/L	5.2 U	-	4.8 U	-	4.8 U	-	4.6 U	5.7 U	4.8 U	-	4.8 U	-	4.8 U	-	-	5.0 U
Di-n-octyl phthalate (DnOP)	ug/L	2.1 U	-	1.9 U	-	1.9 U	-	1.9 U	2.3 U	1.9 U	-	1.9 U	-	1.9 U	-	-	2.0 U
Fluoranthene	ug/L	4.1	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	1.5	-	0.19 U	-	0.19 U	-	-	0.21
Fluorene	ug/L	18	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	1.6	-	0.19 U	-	0.19 U	-	-	1.3
Hexachlorobenzene	ug/L	0.21 U	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.19 U	-	0.19 U	-	0.19 U	-	-	0.20 U
Hexachlorobutadiene	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Hexachlorocyclopentadiene	ug/L	10 U	-	9.6 U	-	9.6 U	-	9.3 U	11 U	9.6 U	-	9.6 U	-	9.6 U	-	-	10 U
Hexachloroethane	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Indeno(1,2,3-cd)pyrene	ug/L	0.21 U	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	0.27	-	0.19 U	-	0.19 U	-	-	0.20 U
Isophorone	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Naphthalene	ug/L	0.21 U	0.48	0.19 U	0.20 U	0.24	0.21 U	0.19 U	0.23 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.20 U
Nitrobenzene	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
N-Nitrosodi-n-propylamine	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
N-Nitrosodiphenylamine	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Pentachlorophenol	ug/L	10 U	-	9.6 U	-	9.6 U	-	9.3 U	11 U	9.6 U	-	9.6 U	-	9.6 U	-	-	10 U
Phenanthrene	ug/L	2.7	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	1.1	-	0.19 U	-	0.19 U	-	-	0.20 U
Phenol	ug/L	1.0 U	-	0.96 U	-	0.96 U	-	0.93 U	1.1 U	0.96 U	-	0.96 U	-	0.96 U	-	-	1.0 U
Pyrene	ug/L	11	-	0.19 U	-	0.19 U	-	0.19 U	0.23 U	5.5	-	0.19 U	-	0.19 U	-	-	1.2
SVOAsSIM																	
1,4-Dioxane	ug/L	0.20 U	-	0.20 U	-	0.20 U	-	0.20 U	0.21 U	0.20 U	-	0.20 U	-	0.20 U	-	-	0.20 U
Metals																	
Aluminum	ug/L	1900	-	200 U	-	780	-	200 U	83 J	290	-	110 J	-	350	-	-	60 J
Antimony	ug/L	20 U	-	20 U	-	20 U	-	20 U	20 U	20 U	-	20 U	-	20 U	-	-	20 U
Arsenic	ug/L	15 U	15 U	15 U	15 U	7.8 J	6.6 J	4.6 J	8.6 J	15 U	15 U	15 U	15 U	7.0 J	15 U	15 U	23
Barium	ug/L	38 J	-	31 J	-	62 J	-	15 J	21 J	63 J	-	55 J	-	100 J	-	-	40 J
Beryllium	ug/L	0.78 J	-	5.0 U	-	5.0 U	-	5.0 U	5.0 U	5.0 U	-	5.0 U	-	5.0 U	-	-	5.0 U
Cadmium	ug/L	5.0 U	-	5.0 U	-	5.0 U	-	5.0 U	5.0 U	5.0 U	-	5.0 U	-	0.32 J	-	-	0.21 J
Calcium	ug/L	72000	-	48000	-	130000	-	60000	38000	110000	-	71000	-	120000	-	-	59000
Chromium	ug/L	4.6 J	-	10 U	-	10 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
Cobalt	ug/L	2.6 J	-	0.82 J	-	1.1 J	-	10 U	10 U	10 U	-	0.89 J	-	10 U	-	-	10 U
Copper	ug/L	3.6 J	-	25 U	-	25 U	-	25 U	25 U	25 U	-	25 U	-	25 U	-	-	25 U
Iron	ug/L	6400 J-	4700	4500 J-	5000	11000 J-	5200	1500 J-	220 J-	8000	5300	8500 J-	10000	11000	6100	5900	1400
Lead	ug/L	11	-	3.1 J	-	5.9 J	-	10 U	10 U	10 U	-	10 U	-	4.6 J	-	-	10 U
Magnesium	ug/L	13000 J-	-	6300 J-	-	7700 J-	-	4400 J-	1500 J-	11000	-	8100 J-	-	15000	-	-	6400
Manganese	ug/L	640 J-	760	520 J-	680	790 J-	440	210 J-	41 J-	560	430	380 J-	480	680	700	670	370
Mercury	ug/L	0.20 U	-	0.20 U	-	0.20 U	-	0.20 U	0.20 U	0.20 U	-	0.20 U	-	0.20 U	-	-	0.20 U
Nickel	ug/L	4.0 J	-	40 U	-	40 U	-	40 U	40 U	40 U	-	40 U	-	40 U	-	-	40 U
Potassium	ug/L	1600 J	-	950 J	-	2500 J	-	2300 J	1400 J	2000 J	-	1600 J	-	2400 J	-	-	3100 J
Selenium	ug/L	20 U	-	20 U	-	20 U	-	20 U	20 U	20 U	-	20 U	-	20 U	-	-	20 U
Silver	ug/L	10 U	-	10 U	-	10 U	-	10 U	10 U	10 U	-	10 U	-	10 U	-	-	10 U
Sodium	ug/L	2800 J	-	2900 J	-	2700 J	-	4000 J	2100 J	3300 J	-	3800 J	-	120000	-	-	11000
Thallium	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	6.5 J	20 U	20 U	20 U	6.0 J	3.7 J	20 U
Vanadium	ug/L	8.5 J	-	50 U	-	50 U	-	34 J	7.4 J	50 U	-	50 U	-	50 U	-	-	50 U
Zinc	ug/L	50 U	-	50 U	-	50 U	-	50 U	50 U	50 U	-	50 U	-	50 U	-	-	50 U
Fumigant																	
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.019 U	-	0.019 U	-	0.019 U	-	0.019 U	0.019 U	0.019 U	-	0.019 U	-	0.019 U	-	-	0.019 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.019 U	-	0.019 U	-	0.019 U	-	0.019 U	0.019 U	0.019 U	-	0.019 U	-	0.019 U	-	-	0.019 U
Footnotes:																	
	U Not de J Estima																



CITGO Petroleum Corporation

2316 Terminal Drive
Arlington Heights, IL 60005

ATTACHMENT A

Project Schedule

Draft Project Schedule - AOC CITGO Terminal East Chicago, IN																
ID	Task Name	Duration	Start	Finish	2022				2023				2024			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
1	<u>Administrative</u>	965 days	Fri 1/24/20	Mon 10/16/23												
2	Effective Date of AOC	1 day	Fri 1/24/20	Fri 1/24/20												
3	Semi-Annual Meetings - Meeting with EPA either by phone or in person on at least a semi-annual basis	261 days	Fri 7/29/22	Fri 7/28/23												
7	Quarterly Reports - Fifteenth day of the month after the end of each quarter	392 days	Fri 4/15/22	Mon 10/16/23												
15	Financial Assurance Update (Updated annually and/or with subsequent work plans)	523 days	Mon 9/20/21	Thu 9/21/23												
18	<u>RFI</u>	444 days	Fri 10/1/21	Thu 6/15/23												
19	On-going Quarterly Groundwater Monitoring and Off-Site Investigation (Exact Dates TBD)	262 days	Wed 6/15/22	Thu 6/15/23												
25	Additional RFI Work Plan(s), as needed	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
26	EPA Review and Approval of RFI Work Plan(s), as needed	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
27	RFI Field Activities, as needed	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
28	Submit RFI Report - No later than October 1, 2021	1 day	Fri 10/1/21	Fri 10/1/21												
29	<u>Interim Corrective Measures, as needed</u>	1 day	Tue 11/1/22	Tue 11/1/22	I											
30	Interim Corrective Measures Work Plan(s), as needed	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
31	Interim Corrective Measures Implementation, as needed (90 days following submittal of Interim Corrective Measures Work Plan and Schedule)	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
32	Interim Corrective Measures Report (Either prior to or as part of the Environmental Indicators Report)	1 day	Tue 11/1/22	Tue 11/1/22	◆ To Be Determined											
33	<u>Final Corrective Measures</u>	573 days	Mon 5/16/22	Wed 7/24/24												
34	Public Meeting, including 30-Day Comment Period (Exact Date TBD)	30 days	Mon 5/16/22	Fri 6/24/22												
35	Environmental Indicators Report(s) - 60 Days following EPA Final Comments on RFI	1 day	Mon 8/22/22	Mon 8/22/22												
36	Final Corrective Measures Proposal - Within 135 Days following EPA Final Comments on RFI	1 day	Wed 12/14/22	Wed 12/14/22												
37	EPA review and comments, supplemental information / investigation request (if needed)	3 mons	Thu 12/15/22	Wed 3/8/23												
38	Public review and comment	2 mons	Thu 3/9/23	Wed 5/3/23												
39	EPA Final Decision	2 mons	Thu 5/4/23	Wed 6/28/23												
40	Final Corrective Measures Implementation - (According to the schedule in the Final Decision, i.e. much of the construction completed within one year, or within a reasonable period of time after EPA selects the final corrective measures)	12 mons	Thu 6/29/23	Wed 5/29/24												
41	Final Remedy Construction Completion Report (Including an Operation and Maintenance Plan)	2 mons	Thu 5/30/24	Wed 7/24/24												
Project: CITGO Terminal, East Chicago, IN Date: Tue 10/11/2211:48 AM		Expected Timeframe Expected Date Contingent Timeframe Fixed Date	Summary Manual Progress													
Note: Per AOC, 'days' refers to calendar days Schedule subject to change based on regulatory reviews/approvals, weather, and other factors beyond Respondent's control DRAFT																
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