



Glenn Springs Holdings, Inc.

A subsidiary of Occidental Petroleum

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July 15, 2022

Reference No. 11208111

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 – Q2-2022
EPA Docket No. RCRA-05-2020-0006
Former Cities Refinery, East Chicago, Indiana

This submission has been prepared on behalf of OXY USA Inc. (OXY) 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-05-2020-0006 with an effective date of January 24, 2020) for the Former Cities Refinery at 2500 Rear East Chicago Avenue, East Chicago, Indiana (EPA ID: INR000123927, formerly part of IND095267381) (Site).

This report is organized to address reporting requirements set out in Section VII of the AOC. This report summarizes the activities conducted for and at the Site from April 1, 2022 through June 30, 2022.

1. Summary of Work Performed during the Reporting Period (April 1, 2022 – June 30, 2022)

- Participated in project status calls including discussion on RFI progress with EPA, CITGO, OXY, and GHD on April 21st, and May 19th, 2022.
- Participated in Virtual RFI Investigation Results Public Information meeting on June 1, 2022.
- Initiated LNAPL degradation pilot study as outlined in a workplan submitted to EPA on November 29, 2021. EPA provided comments on the workplan on April 21, 2022, which were responded to on May 13, 2022 and subsequently approved by EPA on May 16, 2022. Weekly applications of the LNAPL degradation product were completed on a small area of oil-stained soil internal to the Site on May 31st, June 7th, June 14th, and June 21st, 2022. Post study soil samples are scheduled to be collected in July, and results of the pilot study and any recommendations for further assessment will be summarized in a subsequent quarterly progress report.
- Conducted visual inspections of on-Site manhole structures on May 31st, 2022 and June 26th, 2022.
- Conducted cleaning of on-Site manhole structures on June 26th, 2022. An estimated 15 gallons of oil and oily-water were recovered from the on-Site manhole structures, and will be containerized and disposed off-Site in accordance with applicable laws.
- Quarterly groundwater gauging and sampling event was conducted between June 9th – 16th, 2022.
- Conducted utility clearance and soft dig activities for two proposed monitoring wells downgradient of GSH-MW06-20 and north of Gary Road.

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

- Q1 2022 Quarterly Progress Report submitted April 14th, 2022.

3. Summary of Problems Encountered and Planned Resolutions

- Visual and olfactory impacts during soft dig activities at the two proposed monitoring wells downgradient of GSH-MW06-20. As a result, Oxy is exploring stepping out further with the proposed monitoring wells and are coordinating with relevant parties (neighboring land owners, City of East Chicago, utility owners). OXY will continue to collaborate with EPA and other relevant parties on selecting appropriate final well locations and a proposed schedule for installation.

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 draft comments on the RFI dated January 31st, 2022.
- Figure 1 presents the groundwater contours for the June 2022 gauging event.
- Figure 2 presents a summary of exceedances of groundwater screening criteria including up to the quarterly groundwater monitoring event completed in March 2022. The June 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 March 2022 quarterly monitoring event.

5. Anticipated Activities During the Next Reporting Period

- Complete validation of Q2-2022 quarterly sampling data.
- Conduct Q3-2022 quarterly sampling event (September 2022).
- Complete periodic inspections of on-Site manhole structures and removal of LNAPL, as needed.
- OXY is in the process of coordinating with relevant parties (neighboring land owners, City of East Chicago, utility owners) to facilitate the installation of two off-Site monitoring wells downgradient of GSH-MW06-20. OXY will continue to collaborate with EPA and other relevant parties on selecting appropriate final well locations and a proposed schedule for installation.
- Collect post study soil samples for LNAPL degradation pilot study, complete data review, and provide a summary of results.
- Environmental Indicator reports are scheduled to be submitted within 60 days of EPA final approval of the RFI Results Report.

6. Project Schedule

- Attachment A presents the currently anticipated project schedule completed in accordance with the AOC.

7. Percent Project Completed

- At the time of this report, the project is approximately 65% 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,

GLENN SPRINGS HOLDINGS, INC.



Rick Passmore, OXY Project Manager

JEP/kf/24

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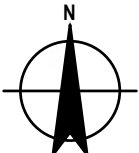
LEGEND

- 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
 - GROUNDWATER ELEVATION CONTOUR (FT AMSL)
 - GROUNDWATER FLOW DIRECTION
- 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

NOTE:
FORMER REFINERY AND CITGO TERMINAL MEASURED JUNE 9, 2022

0 300 600 ft

Coordinate System:
IN83-WF



FORMER CITIES REFINERY
EAST CHICAGO, INDIANA

GROUNDWATER CONTOUR MAP
JUNE 2022

Project No. 11208111
Date June 2022

FIGURE 1

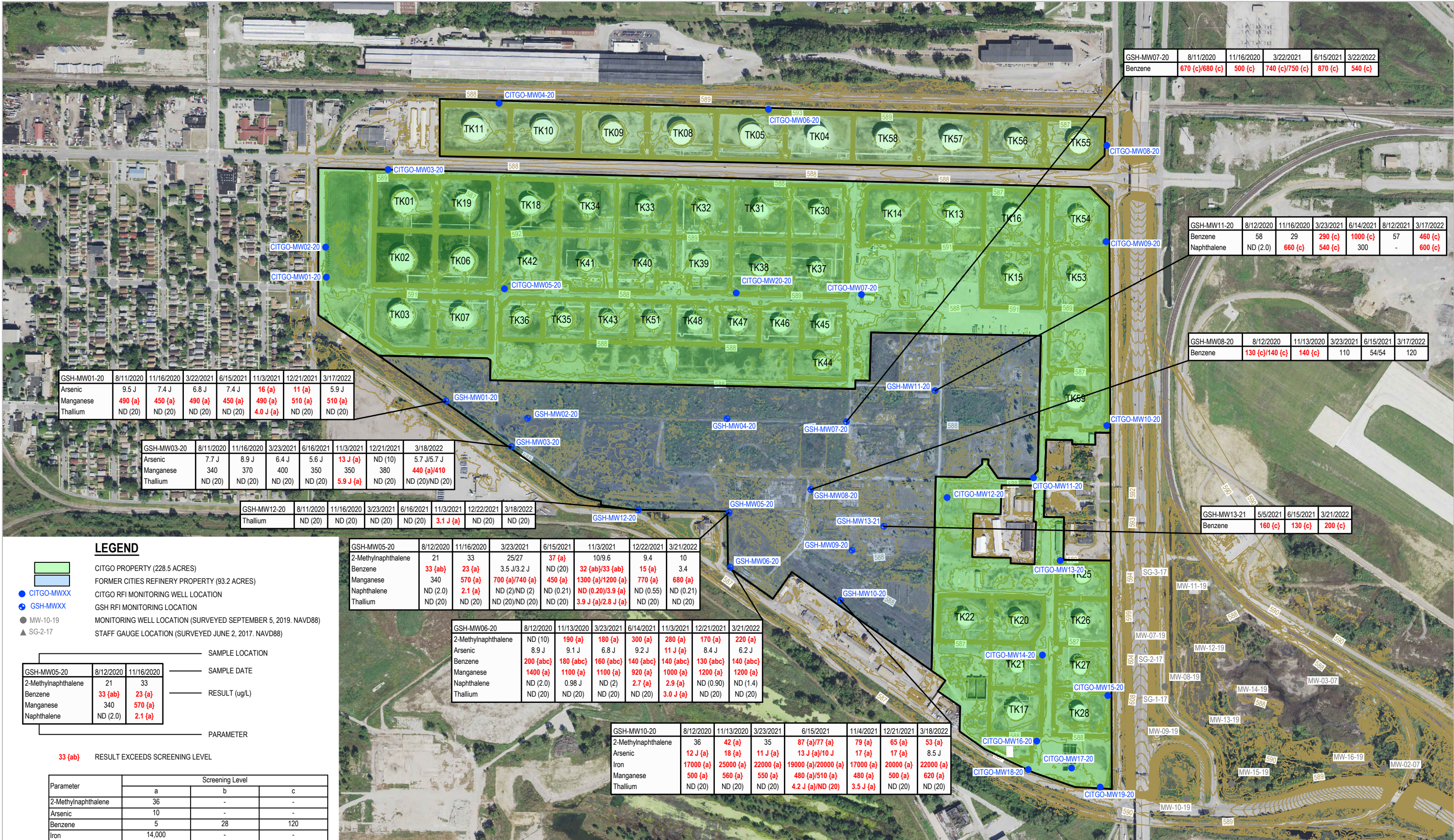


Table 1
Former Cities Refinery
Analytical Results Summary

Sample Location:	GSH-MW01-20	GSH-MW02-20	GSH-MW03-20	GSH-MW03-20	GSH-MW04-20	GSH-MW05-20	GSH-MW06-20	GSH-MW07-20	GSH-MW08-20	GSH-MW09-20	GSH-MW10-20	GSH-MW11-20	GSH-MW12-20	GSH-MW13-21
Sample ID:	WG-031722-DS-05	WG-031722-DS-01	WG-031822-DS-07	WG-031822-DS-09	WG-031722-DS-03	WG-032122-NN-12	WG-032122-NN-11	WG-032222-NN-14	WG-031722-NN-04	WG-031722-NN-02	WG-031822-NN-08	WG-031722-NN-06	WG-031822-DS-10	WG-032122-NN-13
Sample Date:	3/17/2022	3/17/2022	3/18/2022	(Duplicate)	3/17/2022	3/21/2022	3/21/2022	3/22/2022	3/17/2022	3/17/2022	3/18/2022	3/17/2022	3/18/2022	3/21/2022
Parameters														
Units														
Metals														
Arsenic	ug/L	5.9 J	9.6 J	5.7 J	5.7 J	13 J	15 U	6.2 J	10 J	15 U	15 U	8.5 J	15 U	15 U
Barium	ug/L	27	25	20	18	37	43	48	330	170	36	56	98	44
Beryllium	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Cadmium	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Calcium	ug/L	98000	120000	110000	120000	120000	150000	140000	170000	150000	82000	140000	140000	170000
Chromium	ug/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.3 J	1.8 J	1.6 J	1.4 J	4.0 U	1.2 J	1.2 J	1.0 J
Cobalt	ug/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.73 J	4.0 U	4.0 U	4.0 U	0.75 J	4.0 U
Copper	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	ug/L	13000	14000	3800	3600	17000	5100	5200	8300	8700	1500	22000	4700	7600
Lead	ug/L	10 U	10 U	3.7 J	10 U	4.0 J	8.3 J	10	9.4 J	17	10 U	4.0 J	5.4 J	6.6 J
Magnesium	ug/L	18000	14000	13000	15000	9000	20000	8900	46000	13000	9800	34000	14000	14000
Manganese	ug/L	510	940	410	440	780	680	1200	560	1200	390	620	2000	1600
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	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Potassium	ug/L	830	1300	1400	1300	690	2200	1900	12000	2100	1500	1200	2000	2500
Selenium	ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Silver	ug/L	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
Sodium	ug/L	2100	1900	1800	1900	10000	2700	2800	19000	2900	4700	3500	6700	12000
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
Vanadium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2.5 J	2.7 J	5.0 U	5.0 U	5.0 U	1.8 J	2.8 J
Zinc	ug/L	16 U	15 U	17 U	17 U	36 U	18 U	21 U	23 U	19 U	17 U	17 U	26 U	18 U
SVOAs														
1,2,4-Trichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
2,4,5-Trichlorophenol	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
2,4,6-Trichlorophenol	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
2,4-Dichlorophenol	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
2,4-Dimethylphenol	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	4.3 J	2.0 J	25 U	5.0 U	5.2 U	6.8 J	1.2 J
2,4-Dinitrophenol	ug/L	50 U	10 U	10 U	10 U	50 U	10 U	69 U	25 U	50 U	10 U	26 U	50 U	21 U
2,4-Dinitrotoluene	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
2,6-Dinitrotoluene	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
2-Chloronaphthalene	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
2-Chlorophenol	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
2-Methylnaphthalene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	10	220	22	25 U	5.0 U	53	160	64
2-Methylphenol	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
2-Nitroaniline	ug/L	50 U	10 U	2.0 U	2.0 U	50 U	2.1 U	14 U	5.1 U	50 U	10 U	5.2 U	50 U	2.0 U
2-Nitrophenol	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
3&4-Methylphenol	ug/L	-	-	2.0 U	2.0 U	-	2.1 U	14 U	0.85 J	-	-	5.2 U	-	4.2 U
3,3'-Dichlorobenzidine	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
3-Nitroaniline	ug/L	50 U	10 U	2.0 U	2.0 U	50 U	2.1 U	14 U	5.1 U	50 U	10 U	5.2 U	50 U	2.0 U
4,6-Dinitro-2-methylphenol	ug/L	50 U	10 U	5.0 U	5.0 U	50 U	5.2 U	34 U	13 U	50 U	10 U	13 U	50 U	5.0 U
4-Bromophenyl phenyl ether	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
4-Chloro-3-methylphenol	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
4-Chloroaniline	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
4-Chlorophenyl phenyl ether	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
4-Methylphenol	ug/L	50 U	10 U	-	-	50 U	-	-	-	50 U	10 U	-	50 U	-
4-Nitroaniline	ug/L	50 U	10 U	2.0 U	2.0 U	50 U	2.1 U	14 U	5.1 U	50 U	10 U	5.2 U	50 U	2.0 U
4-Nitrophenol	ug/L	50 U	10 U	10 U	10 U	50 U	10 U	69 U	25 U	50 U	10 U	26 U	50 U	21 U
Acenaphthene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	1.8	8.4	3.4	2.1 J	3.6 J	2.3	25 U	3.9
Acenaphthylene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.16 J	1.1 J	0.51 U	25 U	5.0 U	0.52 U	25 U	0.35 J
Acetophenone	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
Anthracene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.46	1.4 U	0.56	25 U	3.2 J	0.52 U	25 U	1.1
Atrazine	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
Benzaldehyde	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.8	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
Benzo(a)anthracene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U
Benzo(a)pyrene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U
Benzo(b)fluoranthene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U
Benzo(g,h,i)perylene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U
Benzo(k)fluoranthene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U
Benzyl alcohol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U
bis(2-Chloroethoxy)methane	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	2.1 U
bis(2-Chloroethyl)ether	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	2.1 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
Butyl benzylphthalate (BBP)	ug/L	25 U	5.0 U	2.0 U	2.0 U	25 U	2.1 U	14 U	5.1 U	25 U	5.0 U	5.2 U	25 U	2.0 U
Caprolactam	ug/L	25 U	5.0 U	5.0 U	5.0 U	25 U	5.2 U	34 U	13 U	25 U	5.0 U	13 U	25 U	5.0 U
Carbazole	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0	21	34	42 J+	5.0 U	1.5 J	25 U	26
Chrysene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	0.75 J	0.52 U	25 U	0.50

Table 1
Former Cities Refinery
Analytical Results Summary

Sample Location:		GSH-MW01-20	GSH-MW02-20	GSH-MW03-20	GSH-MW03-20	GSH-MW04-20	GSH-MW05-20	GSH-MW06-20	GSH-MW07-20	GSH-MW08-20	GSH-MW09-20	GSH-MW10-20	GSH-MW11-20	GSH-MW12-20	GSH-MW13-21
Sample ID:		WG-031722-DS-05	WG-031722-DS-01	WG-031822-DS-07	WG-031822-DS-09	WG-031722-DS-03	WG-032122-NN-12	WG-032122-NN-11	WG-032222-NN-14	WG-031722-NN-04	WG-031722-NN-02	WG-031822-NN-08	WG-031722-NN-06	WG-031822-DS-10	WG-032122-NN-13
Sample Date:		3/17/2022	3/17/2022	3/18/2022	3/18/2022	3/17/2022	3/21/2022	3/21/2022	3/22/2022	3/17/2022	3/17/2022	3/18/2022	3/17/2022	3/18/2022	3/21/2022
Parameters	Units				(Duplicate)										
SVOAs cont'd															
Fluoranthene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21	1.4 U	1.2	25 U	2.2 J	0.52 U	25 U	0.20 U	0.61
Fluorene	ug/L	4.2 J	0.77 J	0.20 U	0.20 U	25 U	2.8	7.6	2.2	3.6 J	24	1.6	25 U	0.20 U	6.3
Hexachlorobenzene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U	0.42 U
Hexachlorobutadiene	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
Hexachlorocyclopentadiene	ug/L	25 U	5.0 U	10 U	10 U	25 U	10 U	69 U	25 U	25 U	5.0 U	26 U	25 U	10 U	21 U
Hexachloroethane	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
Indeno(1,2,3-cd)pyrene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	25 U	0.20 U	0.42 U
Isophorone	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
Naphthalene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.21 U	1.4 U	0.51 U	25 U	5.0 U	0.52 U	600	0.20 U	6.9
Nitrobenzene	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
N-Nitrosodi-n-propylamine	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
N-Nitrosodiphenylamine	ug/L	25 U	5.0 U	1.0 U	1.0 U	25 U	1.0 U	6.9 U	2.5 U	25 U	5.0 U	2.6 U	25 U	1.0 U	2.1 U
Pentachlorophenol	ug/L	50 U	10 U	10 U	10 U	50 U	10 U	69 U	25 U	50 U	10 U	26 U	50 U	10 U	21 U
Phenanthrene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	4.4	15	2.0	25 U	52	1.8	25 U	0.20 U	7.2
Phenol	ug/L	25 U	0.72 J	1.0 U	1.0 U	25 U	1.0 U	6.9 U	5.3	25 U	5.0 U	2.6 U	8.7 J	1.0 U	1.0 J
Pyrene	ug/L	25 U	5.0 U	0.20 U	0.20 U	25 U	0.63	1.4 U	0.76	25 U	6.1	0.52 U	25 U	0.20 U	1.4
SVOAsSIM															
1,4-Dioxane	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	0.14 J	0.20 U	0.20 U	0.20 U	0.19 J
VOAs															
1,1,1-Trichloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,1-Dichloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,1-Dichloroethene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,2-Dichloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,2-Dichloropropane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	20 U	20 U	10 U	10 U	20 U	10 U	10 U	5.6 J	100 U	20 U	10 U	100 U	10 U	50 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	50 U	10 U	10 U	50 U	10 U	50 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	20 U	50 U	10 U	10 U	50 U	10 U	50 U
Acetone	ug/L	20 U	20 U	10 U	10 U	20 U	26	75 J	15 J	75 J	20 U	10 U	100 U	10 U	29 J
Benzene	ug/L	2.0 U	24	1.0 U	1.0 U	2.0 U	3.4	140	540	120	2.0 U	1.9	460	1.0 U	200
Bromodichloromethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Bromoform	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Bromomethane (Methyl bromide)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Carbon disulfide	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Carbon tetrachloride	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Chlorobenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Chloroethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Chloroform (Trichloromethane)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Chloromethane (Methyl chloride)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Cyclohexane	ug/L	2.4	2.0 U	1.0 U	1.0 U	17	290	370	540	550	3.4	49	520	1.0 U	62
Dibromochloromethane	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Ethylbenzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	41	40	23	25	2.0 U	1.4	380	1.0 U	150
Isopropyl benzene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	55	46	31	33	2.0 U	2.4	41	1.0 U	14
Methyl acetate	ug/L	5.0 U	5.0 U	10 U	10 U	5.0 U	10 U	10 U	20 U	25 U	5.0 U	10 U	25 U	10 U	50 U
Methyl cyclohexane	ug/L	5.2	2.0 U	1.0 U	1.0 U	2.0 U	230	160	300	180	13	40	400	1.0 U	58
Methyl tert butyl ether (MTBE)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Methylene chloride	ug/L	2.0 U	2.0 U	5.0 U	5.0 U	2.0 U	5.0 U	5.0 U	10 U	10 U	2.0 U	5.0 U	10 U	5.0 U	25 U
Styrene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Tetrachloroethene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Toluene	ug/L	1.4 J	2.0 U	1.0 U	1.0 U	2.0 U	4.0	12	84	47	2.0 U	3.0	100	1.0 U	42
trans-1,2-Dichloroethene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Trichloroethene	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Trichlorofluoromethane (CFC-11)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Trifluorotrichloroethane (CFC-113)	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Vinyl chloride	ug/L	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	10 U	2.0 U	1.0 U	10 U	1.0 U	5.0 U
Xylenes (total)	ug/L	2.2 J	4.0 U	2.0 U	2.0 U	4.0 U	26	64	120	140	4.0 U	4.0	210	2.0 U	51

Footnotes:
U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
R Rejected.

July 15, 2022

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Reference No. 11208111

ATTACHMENT A
Project Schedule

Draft Project Schedule - AOC Former Cities Refinery East Chicago, IN																	
ID	Task Name	Duration	Start	Finish	2022 Q1	Q2	Q3	Q4	2023 Q1	Q2	Q3	Q4	2024 Q1	Q2	Q3		
1	<u>Administrative</u>	965 days	<u>Fri 1/24/20</u>	<u>Mon 10/16/23</u>													
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	<u>Fri 10/1/21</u>	<u>Thu 6/15/23</u>													
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	Fri 7/1/22	Fri 7/1/22		◆ To Be Determined											
26	EPA Review and Approval of RFI Work Plan(s), as needed	1 day	Fri 7/1/22	Fri 7/1/22		◆ To Be Determined											
27	RFI Field Activities, as needed	1 day	Fri 7/1/22	Fri 7/1/22		◆ 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	<u>Fri 7/1/22</u>	<u>Fri 7/1/22</u>													
30	Interim Corrective Measures Work Plan(s), as needed	1 day	Fri 7/1/22	Fri 7/1/22		◆ To Be Determined											
31	Interim Corrective Measures Implementation, as needed (90 days following submittal of Interim Corrective Measures Work Plan and Schedule)	1 day	Fri 7/1/22	Fri 7/1/22		◆ To Be Determined											
32	Interim Corrective Measures Report (Either prior to or as part of the Environmental Indicators Report)	1 day	Fri 7/1/22	Fri 7/1/22		◆ To Be Determined											
33	<u>Final Corrective Measures</u>	570 days	<u>Mon 5/16/22</u>	<u>Fri 7/19/24</u>													
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	Installation of Off-Site Monitoring Wells (Estimated Schedule)	2 days	Wed 6/1/22	Thu 6/2/22		◆											
37	Final Corrective Measures Proposal - Within 90 Days following 2 quarters of Data from Off-Site Monitoring Wells	1 day	Fri 12/9/22	Fri 12/9/22					◆								
38	EPA review and comments, supplemental information / investigation request (if needed)	3 mons	Mon 12/12/22	Fri 3/3/23													
39	Public review and comment	2 mons	Mon 3/6/23	Fri 4/28/23													
40	EPA Final Decision	2 mons	Mon 5/1/23	Fri 6/23/23													
41	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	Mon 6/26/23	Fri 5/24/24													
42	Final Remedy Construction Completion Report (Including an Operation and Maintenance Plan)	2 mons	Mon 5/27/24	Fri 7/19/24													
Project: Former Cities Refinery, East Chicago, IN Date: Wed 4/13/223:35 PM		Expected Timeframe ◆ Contingent Timeframe ◆	Expected Date ◆ 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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