



4.12.2023

Renee Wawczak

Project Manager

United State Environmental Protection Agency

Region 5 (Mail Code LU-16J0

77 W. Jackson Boulevard

Chicago, Illinois 60604-3590

Wawczak.Renee@epa.gov

Dear Renee:

RE: Quarterly Progress Report – Q1-2023

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 January 1 through March 31, 2023.

1. Summary of Work Performed during the Reporting Period:

- Participated in project status calls including discussion on RFI progress with EPA, CITGO, OXY, and GHD on January 19th, February 16th, and March 16th, 2023.
- Conducted visual inspections of on-Site manhole structures on January 30th, February 17th, and March 22nd, 2023.



- Conducted cleaning of on-Site manhole structures on February 17th, 2023. An estimated 3 gallons of oil and oily-water were recovered and containerized from the on-Site manhole structures. The oil and oily water will be disposed of off-Site in accordance with applicable laws.
- In accordance with the EPA approved work plan submitted December 22nd, 2022, GSH completed the installation of 1 additional monitoring well (GSH-MW18-23) on February 6th, 2023.
- The additional monitoring wells was sampled on February 15th, 2023.
- Quarterly groundwater gauging and sampling event was conducted between March 13th – 23rd, 2023, which included the additional monitoring well installed in February.

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

- LNAPL Degradation – FFT pilot study results summary submitted January 18, 2023
- Q4 2022 Quarterly Progress Report submitted January 13th, 2023.

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 draft comments on the RFI dated January 31st, 2022.
- Figure 1 presents the groundwater contours for the March 2023 gauging event.
- Figure 2 and Figure 3 present a summary of exceedances of groundwater screening criteria including up to the quarterly groundwater monitoring event completed in December 2022. The additional monitoring well sampled in February and the March 2023 sampling event data are undergoing data validation and will be provided in the next quarterly status report.
- Table 1 presents the validated groundwater sampling results from the December 2022 quarterly monitoring event.

5. Anticipated Activities During the Next Reporting Period

- Complete validation of Q1-2023 quarterly sampling data.
- Conduct Q2-2023 quarterly sampling event (June 2023)
- Complete periodic inspections of on-Site manhole structures and removal of LNAPL, as needed.
- Submit environmental indicator reports (CA 725 and CA 750)



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 75% completed.

In accordance with Section VI of the AOC, OXY is notifying USEPA that the OXY Project Manager is David Sweeten, who has previous experience with the Site. David's contact information is included in the header of the letter.

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.

Sincerely,

A handwritten signature in black ink that reads "David Sweeten".

David Sweeten

DIRECTOR OF OPERATIONS

GLENN SPRINGS HOLDINGS, INC.

✉ David_Sweeten@oxy.com

☎ 713.552.8941

📱 713.855.5988

JEP/kf/32

cc: Gillian Asque, EPA (asque.gillian@epa.gov)
Laura Whiting (Laura_Whiting@oxy.com)
Rick Passmore, Glenn Springs Holdings (Rick_Passmore@oxy.com)
Lloyd Landreth, Landreth Law (llandreth@landrethlaw.com)
Scott Buckner, CITGO (Sbuckne@citgo.com)
Mike Tomka, GHD (Michael.Tomka@ghd.com)
John-Eric Pardys, GHD (John-eric.Pardys@ghd.com)

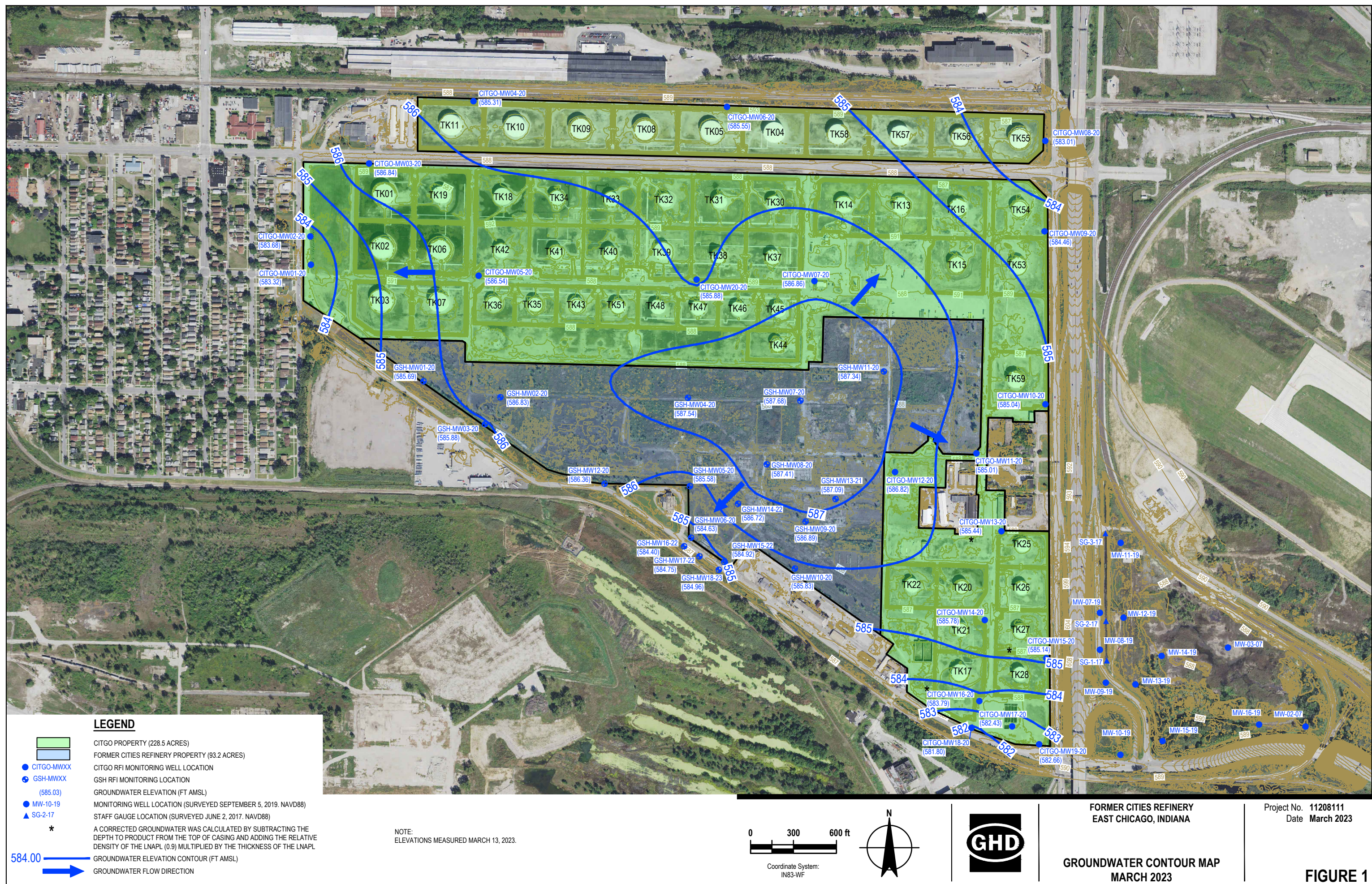






Table 1
Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:		GSH-MW01-20	GSH-MW02-20	GSH-MW03-20	GSH-MW04-20	GSH-MW05-20	GSH-MW05-20	GSH-MW06-20	GSH-MW07-20	GSH-MW08-20	GSH-MW08-20	GSH-MW09-20	GSH-MW10-20	GSH-MW11-20
Sample ID:		WG-120722-NN-04	WG-120722-AC-01	WG-120722-NN-07	WG-120722-AC-03	WG-120822-NN-10	WG-120822-NN-12	WG-120822-NN-14	WG-120822-DS-13	WG-120822-AC-09	WG-120822-AC-11	WG-120722-AC-05	WG-120822-AC-15	WG-120722-DS-06
Sample Date:		12/7/2022	12/7/2022	12/7/2022	12/7/2022	12/8/2022	12/8/2022	12/8/2022	12/8/2022	12/8/2022	12/8/2022	12/7/2022	12/8/2022	12/7/2022
Parameters	Units						(Duplicate)				(Duplicate)			
Fumigant														
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals														
Aluminum	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	ug/L	9.2 J	13 J	7.6 J	21	15 U	15 U	6.4 J	9.1 J	10 J	11 J	15 U	12 J	15 U
Arsenic (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	ug/L	12000	14000	6800	21000	5300	5400	4500	6400	5100	5400	1900	18000	7300
Iron (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	ug/L	590	1100	620	780	990	1000	1000	450	1000	1000	350	470	1700
Manganese (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
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
Thallium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (dissolved)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1
Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:	GSH-MW01-20	GSH-MW02-20	GSH-MW03-20	GSH-MW04-20	GSH-MW05-20	GSH-MW05-20	GSH-MW06-20	GSH-MW07-20	GSH-MW08-20	GSH-MW08-20	GSH-MW09-20	GSH-MW10-20	GSH-MW11-20
Sample ID:	WG-120722-NN-04	WG-120722-AC-01	WG-120722-NN-07	WG-120722-AC-03	WG-120822-NN-10	WG-120822-NN-12	WG-120822-NN-14	WG-120822-DS-13	WG-120822-AC-09	WG-120822-AC-11	WG-120722-AC-05	WG-120822-AC-15	WG-120722-DS-06
Sample Date:	12/7/2022	12/7/2022	12/7/2022	12/7/2022	12/8/2022	12/8/2022 (Duplicate)	12/8/2022	12/8/2022	12/8/2022	12/8/2022 (Duplicate)	12/7/2022	12/8/2022	12/7/2022
Parameters	Units												
SVOAs cont'd													
2,4-Dinitrophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	ug/L	0.20 U	0.20 U	0.20 U	0.19 U	3.0	3.8	0.61	5.9	8.1	7.7	0.63	43
2-Methylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	130
2-Nitroaniline	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
3&4-Methylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Acetophenone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzaldehyde	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Butyl benzylphthalate (BBP)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Caprolactam	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	ug/L	0.20 U	0.20 U	0.20 U	0.19 U	0.20 U	0.40 U	0.19 U	2.0 U	1.6	1.5	0.19 U	230
Nitrobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 1

Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:	GSH-MW01-20	GSH-MW02-20	GSH-MW03-20	GSH-MW04-20	GSH-MW05-20	GSH-MW05-20	GSH-MW06-20	GSH-MW07-20	GSH-MW08-20	GSH-MW08-20	GSH-MW09-20	GSH-MW10-20	GSH-MW11-20
Sample ID:	WG-120722-NN-04	WG-120722-AC-01	WG-120722-NN-07	WG-120722-AC-03	WG-120822-NN-10	WG-120822-NN-12	WG-120822-NN-14	WG-120822-DS-13	WG-120822-AC-09	WG-120822-AC-11	WG-120722-AC-05	WG-120822-AC-15	WG-120722-DS-06
Sample Date:	12/7/2022	12/7/2022	12/7/2022	12/7/2022	12/8/2022	12/8/2022 (Duplicate)	12/8/2022	12/8/2022	12/8/2022	12/8/2022 (Duplicate)	12/7/2022	12/8/2022	12/7/2022
Parameters	Units												
SVOAs SIM													
1,4-Dioxane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
VOAs													
1,1,1-Trichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	ug/L	1.0 U	46	1.0 U	1.0 U	16	14	120	620	76	80	1.0 U	670
Bromodichloromethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Isopropyl benzene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (CFC-113)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

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

Table 1
Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:		GSH-MW12-20	GSH-MW14-22	GSH-MW15-22	GSH-MW16-22	GSH-MW17-22
Sample ID:		WG-120822-NN-08	WG-120922-AC-18	WG-120922-AC-16	WG-120922-DS-17	WG-120922-DS-19
Sample Date:		12/8/2022	12/9/2022	12/9/2022	12/9/2022	12/9/2022
Parameters	Units					
Fumigant						
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	ug/L	-	-	-	-	-
Metals						
Aluminum	ug/L	-	-	-	-	-
Aluminum (dissolved)	ug/L	-	-	-	-	-
Antimony	ug/L	-	-	-	-	-
Antimony (dissolved)	ug/L	-	-	-	-	-
Arsenic	ug/L	15 U	9.4 J	15 U	13 J	15 U
Arsenic (dissolved)	ug/L	-	-	-	-	-
Barium	ug/L	-	-	-	-	-
Barium (dissolved)	ug/L	-	-	-	-	-
Beryllium	ug/L	-	-	-	-	-
Beryllium (dissolved)	ug/L	-	-	-	-	-
Cadmium	ug/L	-	-	-	-	-
Cadmium (dissolved)	ug/L	-	-	-	-	-
Calcium	ug/L	-	-	-	-	-
Calcium (dissolved)	ug/L	-	-	-	-	-
Chromium	ug/L	-	-	-	-	-
Chromium (dissolved)	ug/L	-	-	-	-	-
Cobalt	ug/L	-	-	-	-	-
Cobalt (dissolved)	ug/L	-	-	-	-	-
Copper	ug/L	-	-	-	-	-
Copper (dissolved)	ug/L	-	-	-	-	-
Iron	ug/L	1100	14000	8500	35000	2100
Iron (dissolved)	ug/L	-	-	-	-	-
Lead	ug/L	-	-	-	-	-
Lead (dissolved)	ug/L	-	-	-	-	-
Magnesium	ug/L	-	-	-	-	-
Magnesium (dissolved)	ug/L	-	-	-	-	-
Manganese	ug/L	140	650	1300	1800	850
Manganese (dissolved)	ug/L	-	-	-	-	-
Mercury	ug/L	-	-	-	-	-
Mercury (dissolved)	ug/L	-	-	-	-	-
Nickel	ug/L	-	-	-	-	-
Nickel (dissolved)	ug/L	-	-	-	-	-
Potassium	ug/L	-	-	-	-	-
Potassium (dissolved)	ug/L	-	-	-	-	-
Selenium	ug/L	-	-	-	-	-
Selenium (dissolved)	ug/L	-	-	-	-	-
Silver	ug/L	-	-	-	-	-
Silver (dissolved)	ug/L	-	-	-	-	-
Sodium	ug/L	-	-	-	-	-
Sodium (dissolved)	ug/L	-	-	-	-	-
Thallium	ug/L	20 U	20 U	20 U	20 U	20 U
Thallium (dissolved)	ug/L	-	-	-	-	-
Vanadium	ug/L	-	-	-	-	-
Vanadium (dissolved)	ug/L	-	-	-	-	-
Zinc	ug/L	-	-	-	-	-
Zinc (dissolved)	ug/L	-	-	-	-	-
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	-	-	-	-	-
2,4,5-Trichlorophenol	ug/L	-	-	-	-	-
2,4,6-Trichlorophenol	ug/L	-	-	-	-	-
2,4-Dichlorophenol	ug/L	-	-	-	-	-
2,4-Dimethylphenol	ug/L	-	-	-	-	-

Table 1
Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:	GSH-MW12-20	GSH-MW14-22	GSH-MW15-22	GSH-MW16-22	GSH-MW17-22
Sample ID:	WG-120822-NN-08	WG-120922-AC-18	WG-120922-AC-16	WG-120922-DS-17	WG-120922-DS-19
Sample Date:	12/8/2022	12/9/2022	12/9/2022	12/9/2022	12/9/2022
Parameters					
SVOAs cont'd					
2,4-Dinitrophenol	ug/L	-	-	-	-
2,4-Dinitrotoluene	ug/L	-	-	-	-
2,6-Dinitrotoluene	ug/L	-	-	-	-
2-Chloronaphthalene	ug/L	-	-	-	-
2-Chlorophenol	ug/L	-	-	-	-
2-Methylnaphthalene	ug/L	0.21 U	23	1.2	0.19 U
2-Methylphenol	ug/L	-	-	-	-
2-Nitroaniline	ug/L	-	-	-	-
2-Nitrophenol	ug/L	-	-	-	-
3&4-Methylphenol	ug/L	-	-	-	-
3,3'-Dichlorobenzidine	ug/L	-	-	-	-
3-Nitroaniline	ug/L	-	-	-	-
4,6-Dinitro-2-methylphenol	ug/L	-	-	-	-
4-Bromophenyl phenyl ether	ug/L	-	-	-	-
4-Chloro-3-methylphenol	ug/L	-	-	-	-
4-Chloroaniline	ug/L	-	-	-	-
4-Chlorophenyl phenyl ether	ug/L	-	-	-	-
4-Methylphenol	ug/L	-	-	-	-
4-Nitroaniline	ug/L	-	-	-	-
4-Nitrophenol	ug/L	-	-	-	-
Acenaphthene	ug/L	-	-	-	-
Acenaphthylene	ug/L	-	-	-	-
Acetophenone	ug/L	-	-	-	-
Anthracene	ug/L	-	-	-	-
Atrazine	ug/L	-	-	-	-
Benzaldehyde	ug/L	-	-	-	-
Benzo(a)anthracene	ug/L	-	-	-	-
Benzo(a)pyrene	ug/L	-	-	-	-
Benzo(b)fluoranthene	ug/L	-	-	-	-
Benzo(g,h,i)perylene	ug/L	-	-	-	-
Benzo(k)fluoranthene	ug/L	-	-	-	-
Benzyl alcohol	ug/L	-	-	-	-
Biphenyl (1,1-Biphenyl)	ug/L	-	-	-	-
bis(2-Chloroethoxy)methane	ug/L	-	-	-	-
bis(2-Chloroethyl)ether	ug/L	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	-	-	-	-
Butyl benzylphthalate (BBP)	ug/L	-	-	-	-
Caprolactam	ug/L	-	-	-	-
Carbazole	ug/L	-	-	-	-
Chrysene	ug/L	-	-	-	-
Dibenz(a,h)anthracene	ug/L	-	-	-	-
Dibenzofuran	ug/L	-	-	-	-
Diethyl phthalate	ug/L	-	-	-	-
Dimethyl phthalate	ug/L	-	-	-	-
Di-n-butylphthalate (DBP)	ug/L	-	-	-	-
Di-n-octyl phthalate (DnOP)	ug/L	-	-	-	-
Fluoranthene	ug/L	-	-	-	-
Fluorene	ug/L	-	-	-	-
Hexachlorobenzene	ug/L	-	-	-	-
Hexachlorobutadiene	ug/L	-	-	-	-
Hexachlorocyclopentadiene	ug/L	-	-	-	-
Hexachloroethane	ug/L	-	-	-	-
Indeno(1,2,3-cd)pyrene	ug/L	-	-	-	-
Isophorone	ug/L	-	-	-	-
Naphthalene	ug/L	0.21 U	30	0.19 U	1.3
Nitrobenzene	ug/L	-	-	-	-
N-Nitrosodi-n-propylamine	ug/L	-	-	-	-
N-Nitrosodiphenylamine	ug/L	-	-	-	-
Pentachlorophenol	ug/L	-	-	-	-
Phenanthrene	ug/L	-	-	-	-
Phenol	ug/L	-	-	-	-
Pyrene	ug/L	-	-	-	-

Table 1
Former Cities Refinery
East Chicago, Indiana
Analytical Results Summary

Sample Location:	GSH-MW12-20				
Sample ID:	WG-120822-NN-08				
Sample Date:	12/8/2022				
	GSH-MW14-22				
	WG-120922-AC-18				
	12/9/2022				
	GSH-MW15-22				
	WG-120922-AC-16				
	12/9/2022				
	GSH-MW16-22				
	WG-120922-DS-17				
	12/9/2022				
	GSH-MW17-22				
	WG-120922-DS-19				
	12/9/2022				
Parameters	Units				
SVOAs SIM					
1,4-Dioxane	ug/L	-	-	-	-
VOAs					
1,1,1-Trichloroethane	ug/L	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/L	-	-	-	-
1,1,2-Trichloroethane	ug/L	-	-	-	-
1,1-Dichloroethane	ug/L	-	-	-	-
1,1-Dichloroethene	ug/L	-	-	-	-
1,2,4-Trichlorobenzene	ug/L	-	-	-	-
1,2-Dichlorobenzene	ug/L	-	-	-	-
1,2-Dichloroethane	ug/L	-	-	-	-
1,2-Dichloropropane	ug/L	-	-	-	-
1,3-Dichlorobenzene	ug/L	-	-	-	-
1,4-Dichlorobenzene	ug/L	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	-	-	-	-
2-Hexanone	ug/L	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	-	-	-
Acetone	ug/L	-	-	-	-
Benzene	ug/L	1.0 U	120	83	1.0 U
Bromodichloromethane	ug/L	-	-	-	-
Bromoform	ug/L	-	-	-	-
Bromomethane (Methyl bromide)	ug/L	-	-	-	-
Carbon disulfide	ug/L	-	-	-	-
Carbon tetrachloride	ug/L	-	-	-	-
Chlorobenzene	ug/L	-	-	-	-
Chloroethane	ug/L	-	-	-	-
Chloroform (Trichloromethane)	ug/L	-	-	-	-
Chloromethane (Methyl chloride)	ug/L	-	-	-	-
cis-1,2-Dichloroethene	ug/L	-	-	-	-
cis-1,3-Dichloropropene	ug/L	-	-	-	-
Cyclohexane	ug/L	-	-	-	-
Dibromochloromethane	ug/L	-	-	-	-
Dichlorodifluoromethane (CFC-12)	ug/L	-	-	-	-
Ethylbenzene	ug/L	-	-	-	-
Isopropyl benzene	ug/L	-	-	-	-
Methyl acetate	ug/L	-	-	-	-
Methyl cyclohexane	ug/L	-	-	-	-
Methyl tert butyl ether (MTBE)	ug/L	-	-	-	-
Methylene chloride	ug/L	-	-	-	-
Styrene	ug/L	-	-	-	-
Tetrachloroethene	ug/L	-	-	-	-
Toluene	ug/L	-	-	-	-
trans-1,2-Dichloroethene	ug/L	-	-	-	-
trans-1,3-Dichloropropene	ug/L	-	-	-	-
Trichloroethene	ug/L	-	-	-	-
Trichlorofluoromethane (CFC-11)	ug/L	-	-	-	-
Trifluorotrichloroethane (CFC-113)	ug/L	-	-	-	-
Vinyl chloride	ug/L	-	-	-	-
Xylenes (total)	ug/L	-	-	-	-
Footnotes:					
U	Not detected at the associated reporting limit.				
J	Estimated concentration.				
UJ	Not detected; associated reporting limit is estimated.				
R	Rejected.				



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	Q4	2025 Q1	Q2		
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	Mon 1/2/23	Mon 1/2/23																
26	EPA Review and Approval of RFI Work Plan(s), as needed	1 day	Mon 1/2/23	Mon 1/2/23																
27	RFI Field Activities, as needed	1 day	Mon 1/2/23	Mon 1/2/23																
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>Mon 1/2/23</u>	<u>Mon 1/2/23</u>																
30	Interim Corrective Measures Work Plan(s), as needed	1 day	Mon 1/2/23	Mon 1/2/23																
31	Interim Corrective Measures Implementation, as needed (90 days following submittal of Interim Corrective Measures Work Plan and Schedule)	1 day	Mon 1/2/23	Mon 1/2/23																
32	Interim Corrective Measures Report (Either prior to or as part of the Environmental Indicators Report)	1 day	Mon 1/2/23	Mon 1/2/23																
33	<u>Final Corrective Measures</u>	793 days	<u>Mon 5/16/22</u>	<u>Wed 5/28/25</u>																
34	Public Meeting, including 30-Day Comment Period (Exact Date TBD)	30 days	Mon 5/16/22	Fri 6/24/22																
35	Installation of Off-Site Monitoring Wells (Estimated Schedule)	2 days	Mon 2/6/23	Tue 2/7/23																
36	Environmental Indicators Report(s) - 60 Days following validation of two rounds of data from off-Site Wells	1 day	Wed 6/28/23	Wed 6/28/23																
37	Corrective Measures Proposal - Within 90 Days following 2 quarters of Data from Off-Site Monitoring Wells	1 day	Wed 10/18/23	Wed 10/18/23																
38	EPA review and comments, supplemental information / investigation request (if needed)	3 mons	Thu 10/19/23	Wed 1/10/24																
39	Public review and comment	2 mons	Thu 1/11/24	Wed 3/6/24																
40	EPA Final Decision	2 mons	Thu 3/7/24	Wed 5/1/24																
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	Thu 5/2/24	Wed 4/2/25																
42	Final Remedy Construction Completion Report (Including an Operation and Maintenance Plan)	2 mons	Thu 4/3/25	Wed 5/28/25																
Project: Former Cities Refinery, East Chicago, IN Date: Thu 1/12/2310:03 AM		Expected Timeframe		Expected Date		Summary														
		Contingent Timeframe		Fixed Date		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																				
Privledged and Confidential - Prepared at the Request of Counsel																				