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April 14, 2023

Peter Campbell
Project Manager
Alaska Department of Environmental Conservation—Contaminated Sites Program
43335 Kalifornsky Beach Rd., Ste 11, Soldotna, AK 99669
peter.campbell@alaska.gov

Re: **Hilcorp Trading Bay Piping Leak, Hazard ID: 27671**
Request for Work Plan

Mr. Campbell,

Hilcorp Alaska LLC (Hilcorp) respectfully submits this response to your letter requesting a work plan to investigate and identify possible areas with ongoing sources at Trading Bay Production Facility.

As detailed in the attached technical memorandum, we have thoroughly reviewed historical documentation at the Trading Bay, evaluated current practices, and assessed the present state of operational infrastructure.

The conclusion based on the results of this effort is that the current remediation practices are effectively managing the risk of residual contamination at the points of compliance. Data quality objectives for additional groundwater monitoring wells are not defined enough to provide useful information at this time; however, Hilcorp will commit to collecting samples of opportunity when performing facility projects in areas where there are current data gaps.

Due to the extensive site infrastructure, the majority of remediation activities will take place at the end of the life of the facility during the decommissioning process. Hilcorp is committed to maintaining a cooperative relationship with ADEC throughout this process and we look forward to discussing this matter with you after you reviewed the attached technical memorandum.

If you have any questions, or require any additional information, please contact me at (907) 777-8488 or ananderson@hilcorp.com.

Sincerely,

HILCORP ALASKA, LLC
Drew Anderson
Environmental Engineer – Alaska

cc: Sara Hadden, AAR

HILCORP TRADING BAY PRODUCTION FACILITY
ADEC FILE #: 2337.38.007, HAZARD ID: 1263

Date:	4/14/2023
Revision:	0
Project:	Trading Bay Production Facility
To:	Pete Campbell, ADEC
From:	Drew Anderson, Hilcorp
Attachments:	Attachment 1 – Figure Attachment 2 – Hydrographs Attachment 3 – LNAPL Thickness Graphs

This document is presented as a response to Alaska Department of Environmental Conservation (ADEC) letter dated 18 January 2023 regarding known contamination at the Trading Bay Production Facility (TBPF). This document was prepared by ARS Aleut Remediation, LLC (Aleut) on behalf of Hilcorp Alaska LLC (Hilcorp) as a means to continue the conversation regarding management of environmental liabilities at the TBPF.

1. ADEC CONCERNS

Several issues were identified in the ADEC letter, overall indicating a concern that a new or continuous source was contributing to free product observed in bluff top recovery wells and benzene concentrations observed in sampling points on the north beach. Specific concerns raised in the letter include:

1. No discernable source attenuation at the site,
2. Area of concern for continued source of product between wells M-8, M-102, RW-1, and GA-MW-2,
3. Follow up actions for the 2020 Trading Bay Line Release W-0534 (2337.38.054), and
4. Follow up actions for the 2021 Trading Bay Piping Leak (2337.38.052) aka Dig 15.

Section 3.0 addresses each of these points. Additional information may be available regarding the first two bullets after the submission of the 2022 Annual Monitoring Activities Report.

2. RESEARCH AND SITE BACKGROUND

To address the concerns raised by ADEC, Aleut conducted the following research:

- A review of historical documentation for the site, with emphasis on the data included in the 2021 Annual Report (Stantec 2022) as it provides the most current assessment of the site.
- Conversations with onsite operations personnel regarding the regular maintenance and inspection activities that are performed at the site. The maintenance records were also reviewed for a better understanding of the ongoing operations. The onsite operations personnel also discussed various capital improvements that have been made to the site since Hilcorp took over management in 2012.
- Conversations with Integrity and Inspections personnel to discuss methods and procedures for determining the locations of annual investigative excavations at the site, as well as to discuss the plans for integrity inspections at the TBPF during the 2023 season.
- A review of the work plans (as applicable) and reports associated with the two excavations mentioned in the ADEC letter (Trading Bay Line Release W-0534 and Trading Bay Piping Leak Dig 15).

The TBPF is located on the west side of Cook Inlet on private property currently owned by Hilcorp. It was previously owned and operated by Marathon Oil Company (MOC), Union Oil Company of California (UNOCAL), and Chevron. Hilcorp acquired the site from Chevron in 2012. TBPF is a remote onshore crude oil and natural gas processing facility that has been in operation since 1967. Crude oil, produced water, and natural gas are received from offshore platforms in the Cook Inlet and processed for further transport. Crude oil is transported to Nikiski via pipeline; natural gas is transported north to utility companies via pipeline; and produced water is treated onsite prior to permitted discharge to Cook Inlet or is pumped back to the platforms for reinjection.

The facility historically had bulk storage tanks; produced water and oil retention basins; heater-treater units; a liquid extraction plant; flare pits; gas, oil, and produced water transmission pipelines; and various operations support facilities. The retention basins and associated sand drain were unlined from 1967 to 1977, at which point the material was removed from the retention basins and lined retention basins were installed in the same footprint. The liners on these basins were replaced in 1988 and in 1990.

The previously unlined retention basins, as well as historic leaks and spills from the facility infrastructure have resulted in hydrocarbon contamination of the soil and groundwater under the TBPF. Various investigation, remediation, and mitigation activities have occurred at the site over the years, beginning in the late 1980's. A large remedial investigation was conducted in 1993

and 1994 and the TBPF was divided into 15 areas of investigation. Work during this investigation included soil gas surveys, surface and subsurface soil sampling, groundwater well installation and groundwater sampling, and water level surveys. Gasoline range organics (GRO); diesel range organics (DRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX) were identified as contaminants of concern in soil and BTEX were identified as contaminants of concern in groundwater. Two areas of free product accumulation on groundwater were identified during this effort, later described as the southern and northern source areas. The southern non-aqueous phase liquid (NAPL) source area appears to be associated with Tank Battery 1 and a series of heater-treater equipment located just north of Tank Battery 1. The northern NAPL source area appears to be associated with Tank Battery 2, a series of heater-treaters just east of Tank Battery 2, and potentially the produced water retention basins.

Crude oil NAPL constituents tend to dissolve into the groundwater flowing through the TBPF site, forming dissolved phase plumes downgradient of the northern and southern NAPL source areas. The dissolved phase plumes extend eastward from the source areas toward Cook Inlet. In 1996 and 1997, the dissolved phase benzene concentration in groundwater was measured in two source area monitoring wells, approximately 20 bluff top monitoring wells, 15 beach berm monitoring wells, and 12 beach seep locations.

Compliance Order By Consent (COBC) No. 91-23-053-02 with ADEC was signed by UNOCAL and MOC in July 1996 to address soil and groundwater impacts at TBPF. The COBC was modified in 1997 and currently specifies the following alternative cleanup levels (ACL) for dissolved benzene in groundwater and beach seeps at the TBPF:

- 0.8 milligrams per liter (mg/L) for benzene and 0.15 mg/L for naphthalene, at the beach seep compliance points;
- Drinking water standards provided in 18 Alaska Administrative Code (AAC) 80 for groundwater at the west, north, and south property boundaries to provide protection to offsite resources.

It also required the installation of an air sparging system to remediate dissolved phase benzene contaminants carried by groundwater to the beach of Cook Inlet directly east of the facility, and the management of a groundwater monitoring program. Site work completed in 1996 included additional site investigation work, the installation of the required air sparge system, and the initiation of a monitoring program as required by the COBC.

During site investigation activities conducted in 2016, crude oil was encountered in the northern portion of the beach northeast of the TBPF. Additional work was conducted in 2017 through 2019 to further characterize this beach prism and associated dissolved phase contamination. Data indicated that the NAPL plume is discontinuous, of limited extent, and trapped under the silt lens under hydrostatic pressure during the tidal cycle.

Additionally, a recovery well system was installed at the top of the bluff, above the beach, in 2018 to mitigate the potential migration of NAPL and impacted groundwater. A permeable reactive barrier was installed on the beach, downgradient of the beach prism, in 2019, to mitigate potential migration of contaminants into the Cook Inlet. A review of historical beach seep monitoring data shows that the majority of the beach seep sample results did not detect benzene, and none of the sample results exceeded the COBC cleanup level of 0.8 mg/L for benzene (Stantec 2022).

In compliance with the COBC, annual monitoring of the site has been conducted since 1996 to include groundwater monitoring, beach seep sampling, water level measurements, and NAPL thickness measurements. Although Hilcorp recognizes that there are ongoing environmental liabilities at this facility, Hilcorp and Chevron are managing the risk at the point of compliance (Cook Inlet) and Hilcorp is performing ongoing maintenance and upgrade activities at the facility to mitigate effects of current operations on the site's environmental issues.

3. RESPONSE TO ADEC CONCERNS

The following sections address each of the items mentioned in the ADEC letter as outlined in Section 1.0.

3.1 No Discernable Source Attenuation

The ADEC letter states "Forty years of historical assessment and monitoring work including the most recent site report show no discernable source attenuation of product on the groundwater near the bluff." The letter specifically called out product accumulation in wells M-111, RW-2, and M-102D as well as increasing benzene concentrations in the north beach wells. Hydrographs were generated for the benzene concentrations in groundwater samples collected from the north beach between 2018 and 2021. Hydrographs from two monitoring points (18MW-6 and 18MW-6A) located upgradient of the permeable reactive barrier with at least four sets of data are presented in Attachment 2. These locations are pertinent as they represent water migrating from the TBPF prior to interaction with the permeable reactive barrier, and are also located downgradient of the presumed NAPL plume present on the north beach. Hydrographs for these wells show steady or decreasing concentrations of benzene since they were installed in 2018. Hydrographs were generated for benzene concentrations at additional monitoring points within the north beach area and although some of them show a slight increase in concentrations in the recent past, many others show a decrease; though it is not yet possible to determine trends as more data points are necessary to statistically evaluate whether a trend exists using the Mann-Kendall analysis. It is recommended that north beach monitoring continue, and a trend analysis completed, when enough data sets have been collected to generate a meaningful conclusion.

In addition to the hydrographs of benzene concentrations, linear graphs of measured NAPL thickness in wells M-111, RW-2 and M-102D were generated to illustrate NAPL thickness and variation over time (Attachment 3). Both M-111 and RW-2 show a linear trendline that is decreasing. Although the linear trendline for M-102D indicates a slightly increasing trend, all measurements collected since September 2020 have been below the overall average NAPL thickness for the well.

Lastly, the most recent annual monitoring report recommendations were reviewed to evaluate information relating to potential source attenuation. Conclusions provided in the approved 2021 Annual Monitoring Report (Stantec 2022) include:

"A reduction in benzene concentration in the beach benzene plume was observed in 2021 compared to previous years. It is suspected that this is a result of the aquifer drawdown and benzene removal associated with the bluff top recovery well system. Additionally, the PRB [permeable reactive barrier] appears to have contributed to the reduction of benzene concentrations observed in the plume downgradient of the barrier."

"The recovery well system has successfully prevented significant quantities of benzene from reaching the beach and operation should continue."

"Based upon observations to date the level of NAPL accumulations in the recovery wells have declined…"

As illustrated above, the annual monitoring conducted by Chevron indicates that attenuation is occurring at the site, though perhaps not as quickly as preferred. More importantly, the annual monitoring documents that mitigation measures put in place to protect human health and the environment are working at the points of compliance. The air sparge system and recovery wells installed at the bluff appear to have reduced the migration of dissolved benzene and NAPL from the TBPF site to the beach, and the permeable reactive barrier installed on the north beach is mitigating dissolved benzene and NAPL plumes present on the beach. These systems will continue to be monitored, maintained, and optimized for ongoing protection of human health and the environment at the points of compliance.

3.2 Area of Concern between M-8, M-102, RW-1, and GA-MW-2

The ADEC letter states "Our approximate area of concern is between M-8, M102-, RW-1, and GA-MW-2 for a source of product that is manifested on the bluff and the north beach." Although there have not been recent activities performed specifically to characterize the soil and groundwater contamination in this area, a number of activities have occurred in this part of the site which include annual monitoring activities and both intrusive response actions and maintenance and repair activities.

As part of annual monitoring conducted by Chevron, groundwater samples have been collected from recovery wells along the bluff since they were installed in 2018. Wells RW-1 through RW-7 are downgradient from the area of concern identified in the ADEC letter. Hydrographs were generated for benzene concentrations in these wells from samples collected since 2018. These hydrographs, presented in Attachment 2, illustrate decreasing or steady concentrations of benzene in these wells. All results, with the exception of RW-7 in April 2021, have been below the COBC ACL of 800 ug/L benzene since the January 2020 sampling event.

As discussed below, response activities have recently occurred in this area in response to a discovered line release (Trading Bay Line Release W-0534, ADEC file number 2337.38.054) and a piping leak (Trading Bay Piping Leak, ADEC file number 2337.38.052 aka Dig 15). See Sections 3.3 and 3.4 below for additional information regarding these activities.

Many upgrades to pipelines from FRP and carbon steel to high density polyethylene (HDPE) have occurred over the years. All of the below grade produced water process pipes around the skim tanks and WEMCO facilities (Tanks 11, 12, and 13) have been replaced with HDPE. Additionally, all of the below grade produced water distribution lines and some of the slop oil lines have been replaced with HDPE. The following lines have been replaced and brought above ground in the last 20 years:

- The 8” sales oil line is external yellow jacket wrapped, and above ground except at 3 road crossings. Previously all below ground.
- 12” Tank Battery 2 Emulsion line is yellow jacket wrapped and above ground except for 2 road crossings. Previously all below ground.
- Tanks 7 and 8: 12” fill lines brought above ground during 2021-2022.

Each year, integrity inspections take place and may include various underground process pipelines. If any maintenance or repairs are identified during these inspections, they are either addressed at that time, or scheduled for timely completion.

Regular maintenance and inspections are conducted by Hilcorp Operations personnel as routine activities at the TBPF in accordance with the appropriate regulations. These inspections include:

- Annual inspections of underground pipelines and vaults
- Monthly inspections of:
  - Tanks 10,000 gallons or greater in size
  - Aboveground piping and valves
  - Glycol boilers
  - Tanks or vessels 55-gallons or greater in size
- Regular inspections of:
  - Drums and totes,
  - Mobile/portable tanks and associated piping

- Daily inspections of the facility to identify any potential issues early.

Based on this information, as well as the known historic NAPL source under and around the retention basins, it appears to be more likely that the NAPL plume identified on the beach is a result of historic contamination from the retention basins than from the area of concern identified in the ADEC letter.

3.3 Trading Bay Line Release W-0534 (2337.38.054)

In December 2020, a slop oil leak was discovered near Tanks 11, 12, and 13 secondary containment area. Approximately 7,980 gallons of product was estimated to have leaked and it was reported to ADEC Spill Prevention and Response. Excavation activities were conducted between December 2020 and February 2021; product was observed beneath the liner and a waiver was granted to puncture the liner to extract the product and remove contaminated soil. A vacuum truck was used to remove puddles of product from above and underneath the liner, and soils were excavated either by hand or via vacuum truck from beneath the liner. Field screening was conducted using a photoionization detector (PID) to guide excavation activities. Analytical samples were also collected during excavation activities and analyzed for GRO, DRO, residual range organics (RRO), BTEX, Resource Conservation and Recovery Act (RCRA) metals, and polycyclic aromatic hydrocarbons (PAHs). A total of 34 analytical samples were collected from the floor of the excavation. Only total xylenes exceeded the ADEC Human Health cleanup levels. A total of five analytical samples were collected from the sidewalls of the excavation, where visible staining was present, and contamination was left in place. Various analytes including DRO, RRO, total xylenes, naphthalene, and 1-methynaphthalene were detected at levels above the ADEC Human Health cleanup levels.

Approximately 174 cy of soil was removed and disposed of offsite at the Prudhoe Bay Grind and Inject facility. Although contamination was still present at levels above applicable cleanup criteria, further excavation was not possible due to site infrastructure and the site was backfilled (Susitna 2021). The project was rolled over to the ADEC Contaminated Sites Program and given the ADEC File # 2337.38.054, Hazard ID: 27672.

Hydrographs were generated for benzene concentrations in recovery wells RW-6 and RW-7, located downgradient of this spill, and are presented in Attachment 2. The hydrograph for RW-6 shows a steady concentration of benzene well below the COBC ACL. Although there is a spike of benzene in RW-7 in April 2021, after the conclusion of response activities for this spill, concentrations dropped to well below the COBC ACL in the next two sampling events.

Additional work at this site at the current time is not prudent as it could compromise existing infrastructure. However, if additional maintenance activities occur in this area in the future that require excavation, samples of opportunity will be collected from the floor of the re-excavation

to provide additional information as requested in the ADEC letter. If future excavation in the area extends beyond the lateral limits of the previous excavation (outside of backfilled material), additional samples of opportunity will be collected to provide information regarding the lateral extent of contamination.

It is recommended that this site be managed as part of the active ADEC contaminated site Trading Bay Facility (Hazard ID: 1263), which currently includes long-term groundwater monitoring and impacted groundwater recovery downgradient of the Line Release W-0534 spill site.

3.4 Trading Bay Piping Leak (2337.38.052) aka Dig 15

During the 2021 integrity inspections, contamination was discovered at Dig 15 - a pipeline junction containing five pipelines and six flanges adjacent to the sand drain. The discovery was reported to ADEC Spill Prevention and Response, and approximately 60 cubic yards of material were excavated. The excavation was approximately 10 feet wide by 20 feet long by 11 feet deep, and the lateral extent of excavation was limited by a produced water retention pond on the east, a sand drain on the west, a sand drain building on the north, and an access road on the south. The depth of the excavation was limited by utilities as well as by the reach of the excavator. Field screening was conducted using a PID, and contamination was found to be concentrated at 9-11 feet below ground surface (bgs), where the excavation was terminated. There were also pockets of contamination identified at 5 and 7 feet bgs, and a hydrocarbon mass was identified at 5 feet bgs on the southern wall. It was assumed that contamination was likely from a slow, unpressurized leak that had been leaking for an unknown amount of time. It was estimated that approximately 55 gallons of crude oil spilled from produced water (60% crude oil and 40% water).

Analytical samples were collected from the excavation in September 2021 and analyzed for GRO, DRO, RRO, PAHs, and petroleum-related volatile organic compounds (VOCs). Based on previous field screening locations, one sample was collected from each excavation sidewall at a depth between 9 and 11 feet bgs, and two samples were collected from the floor of the excavation. There were exceedances of ADEC criteria in one of the excavation floor samples and its field duplicate (GRO, DRO, various PAHs, and various VOCs) as well as in the sample collected from the western wall (DRO, RRO, various PAHs, and various VOCs).

Excavated soils were stockpiled and screened using a PID in accordance with the approved work plan. Soils found to be contaminated were transferred to Hilcorp's permitted Grind and Inject facility at Prudhoe Bay. Soils confirmed to be clean with analytical sampling were used to backfill the excavation. (Jacobs 2021).

The site was transferred from the ADEC Spill Prevention and Response Program to the ADEC Contaminated Sites Program, and Hilcorp received notice from ADEC on 1 December 2021 summarizing the history of this site and notifying Hilcorp of their liability for the site (ADEC 2021).

Further excavation at the site is not possible at this time due to existing infrastructure. It was recommended that this site be managed as part of the active ADEC contaminated site Trading Bay Facility (Hazard ID: 1263), which currently includes long-term groundwater monitoring and impacted groundwater recovery downgradient of the Dig 15 spill site.

On 11 April 2022, ADEC requested a work plan to "assess potential impacts to the water table and contribute to the understanding of the distribution of separate phase product on the groundwater." (ADEC 2022).

As mentioned in the previous activity report, further excavation is not currently possible in this area due to site infrastructure. However, this area will be re-excavated during the summer of 2023 as part of a pipeline replacement project. Samples of opportunity will be collected from the floor of the re-excavation to characterize the soil. Although limitations of onsite equipment may not allow, it will be attempted to collect these samples at a depth greater than those previously collected during the removal activity to determine if contamination has migrated past the floor of the previous excavation.

4. CONCLUSIONS

It is well documented and understood by Hilcorp that significant groundwater and soil contamination exists within the boundaries of the TBPF. Although there are still unknowns associated with the full characterization of TBPF contamination, both soil and groundwater, the risk to human health and the environment is being monitored and managed appropriately at the points of compliance (drinking water exposure, surface water exposure, Cook Inlet).

Various activities are conducted each year to monitor and mitigate risks posed by this existing contamination, while still maintaining and operating production facilities and all the associated infrastructure. Hilcorp will continue to conduct regular maintenance and inspections of the facility per their Operations and Maintenance protocols to ensure that ongoing operations are not contributing to the existing contamination at the site. In addition, Chevron will continue to conduct annual groundwater monitoring and mitigation activities as presented in annual reports.

Additionally, Hilcorp will continue to take advantage of opportunities to collect additional information regarding site contamination via samples of opportunity during intrusive maintenance and repair activities.

Additional investigation within the active area will not provide information that can be acted upon at the present time. This information can be collected at the facility end of life to provide timely information for remedial actions that may take place at that time. In lieu of additional investigation at this time, Hilcorp will continue to use their facility systems already in place to

ensure that active contribution to contamination is minimized and eliminated as much as practicable and that chemical concentrations are managed at the point of compliance.

5. REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2022. *Letter: Hilcorp Trading Bay Piping Leak, Request for Work Plan.* 11 April.

ADEC. 2021. *Letter: Hilcorp Trading Bay Piping Leak, State of Alaska Notification – Hazardous Substance Liability.* 1 December.

Jacobs Engineering (Jacobs). 2021. *TBPF Dig 15 Characterization Report.* November.

Stantec. 2022. *Trading Bay Production Facility – 2021 Annual Report.* June.

Susitna Environmental, LLC. (Susitna). 2021. *Trading Bay Production Facility Line Release W-0534, Cook Inlet, Trading Bay, Alaska.* November.

ATTACHMENT 1

FIGURE

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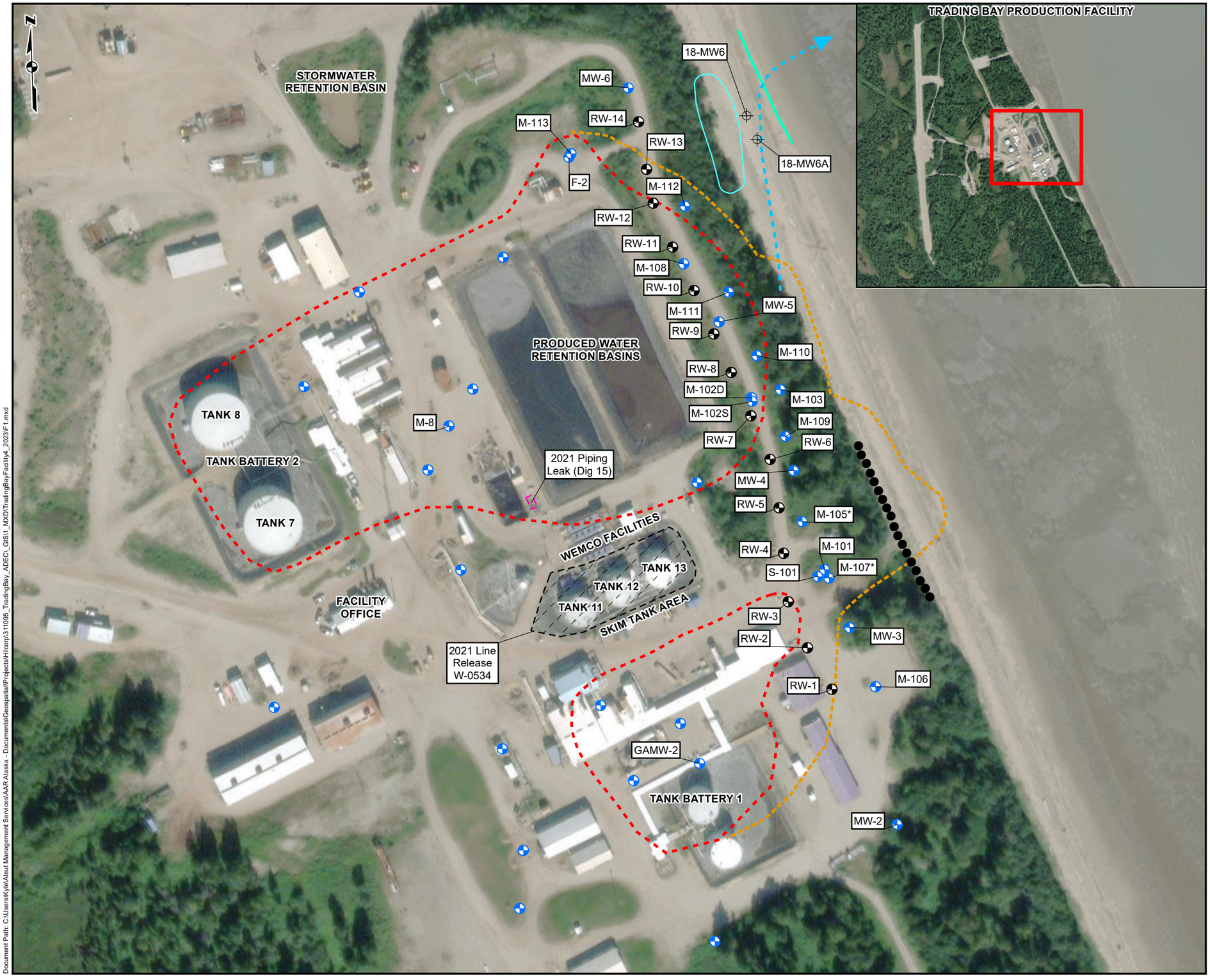
1 INCH



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HILCORP TRADING BAY PRODUCTION FACILITY
COOK INLET, ALASKA

SITE LAYOUT

Legend

Well

- Beach MW
- Bluff Top MW
- Recovery Well
- Air Sparging Well System
- Zone #3 Potential GW Flow Path (2019 Geophysical Survey)
- Permeable Reactive Barrier
- 2020 Line Release W-0534
- 2021 Piping Leak (Dig 15)

Estimated Contamination Extent

- NAPL Beach Plume
- Northern and Southern NAPL plumes
- Dissolved Benzene Plume

Abbreviations

ADEC	Alaska Department of Environmental Conservation
GW	groundwater
NAPL	Non-Aqueous Phase Liquid
MW	monitoring well

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap v. 10.7.

References

1. Imagery source: Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.
2. Bluff Top MW, Recovery Well, Sparge Well, and Permeable Reactive Barrier features were georeferenced from the Figure 2 Trading Bay Production Facility Site Map, Chevron Environmental Management Company. 2021. *2021 Annual Report, Trading Bay Production Facility, Cook Inlet, Alaska.*
3. NAPL Beach Plume and Beach MW features were georeferenced from the Figure 7 September 2021 Benzene Isoconcentration Map, Chevron Environmental Management Company. 2021. *2021 Annual Report, Trading Bay Production Facility, Cook Inlet, Alaska.*
4. 2020 Line Release W-0534 feature was georeferenced from the Figure1 2021 W-0534 Line Release Report Trading Bay Production Facility Vicinity and Overview. 2021. *Trading Bay Production Facility Line Release W-0534, Cook Inlet, Trading Bay, Alaska*. November.
5. 2021 Piping Leak (Dig 15) feature was georeferenced from the Figure A-3 Dig 15. 2021. *TBPF Dig 15 Characterization Report, Trading Bay Production Facility, Cook Inlet, Alaska*. November.
6. 1996/1997 Northern and Southern NAPL Plume and Dissolved Benzene Plume features were georeferenced from the Figure 3 Monitoring Well locations, NAPL Source Areas, and Cross-Section Locations, *Trading Bay Production Facility 2016 Site Investigation and Groundwater Monitoring Report*. 2017. Chevron Environmental Management Company, *Trading Bay, Cook Inlet, Alaska*.
7. Zone #3 Potential GW Flow Pathfeature was georeferenced from Appendix E Figure A-6 EM31 Results: Interpreted Anomalies. 2020. *Trading Bay Production Facility – 2019 Annual Report, Cook Inlet, Alaska*. April.

ALEUT

ALASKA STATE PLANE COORDINATE SYSTEM ZONE 5, U.S. SURVEY FEET
HORIZONAL DATUM: NAD83 (2011) | VERTICAL DATUM: NAVD88

150 75 0 150
SCALE IN FEET

PROJECT No.: 311095	DATE: 4/13/2023	FIGURE: 1
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ATTACHMENT 2

HYDROGRAPHS

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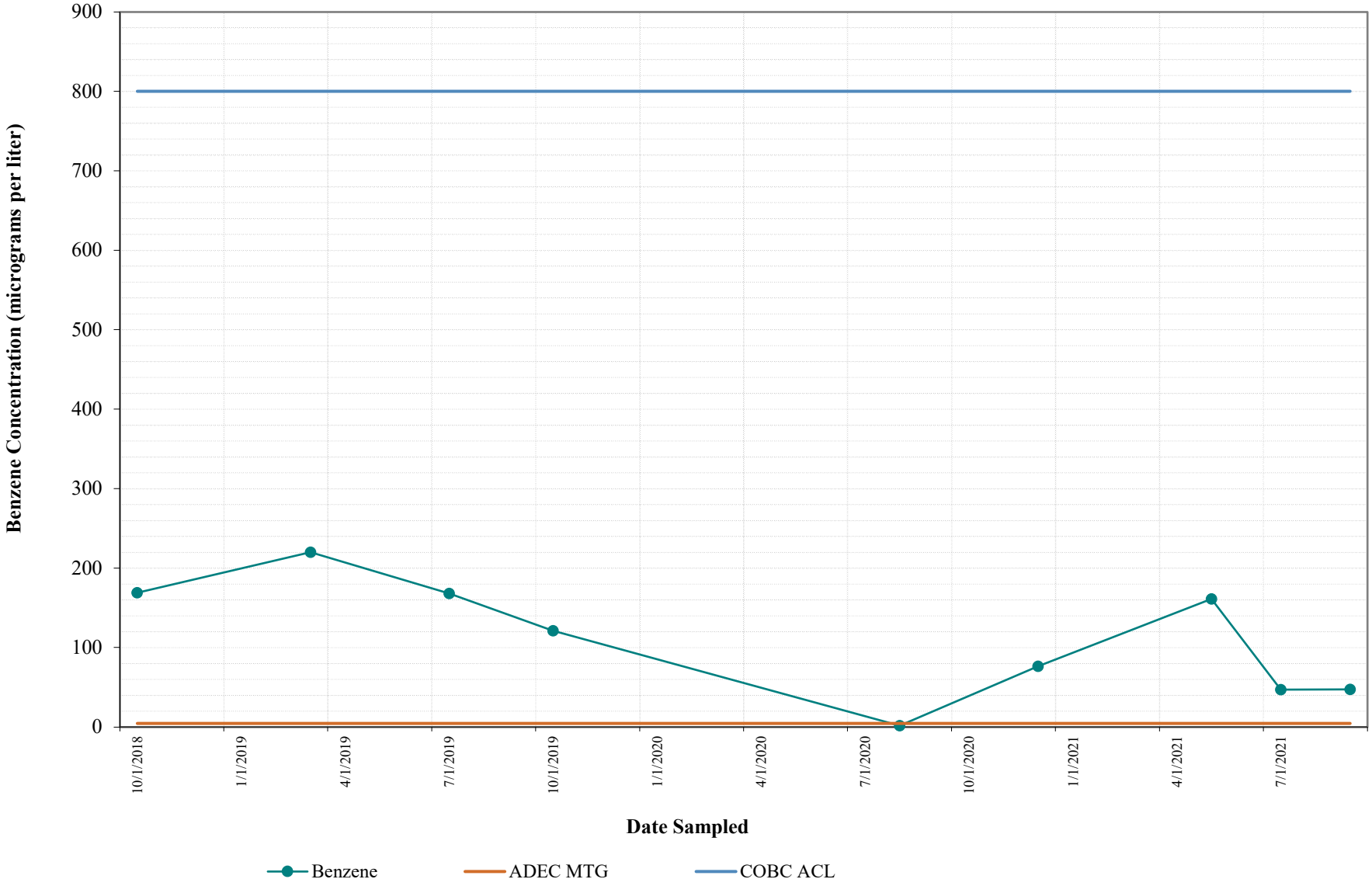
RW-1
Benzene Concentrations
Trading Bay Production Facitliy
Cook Inlet, Alaska



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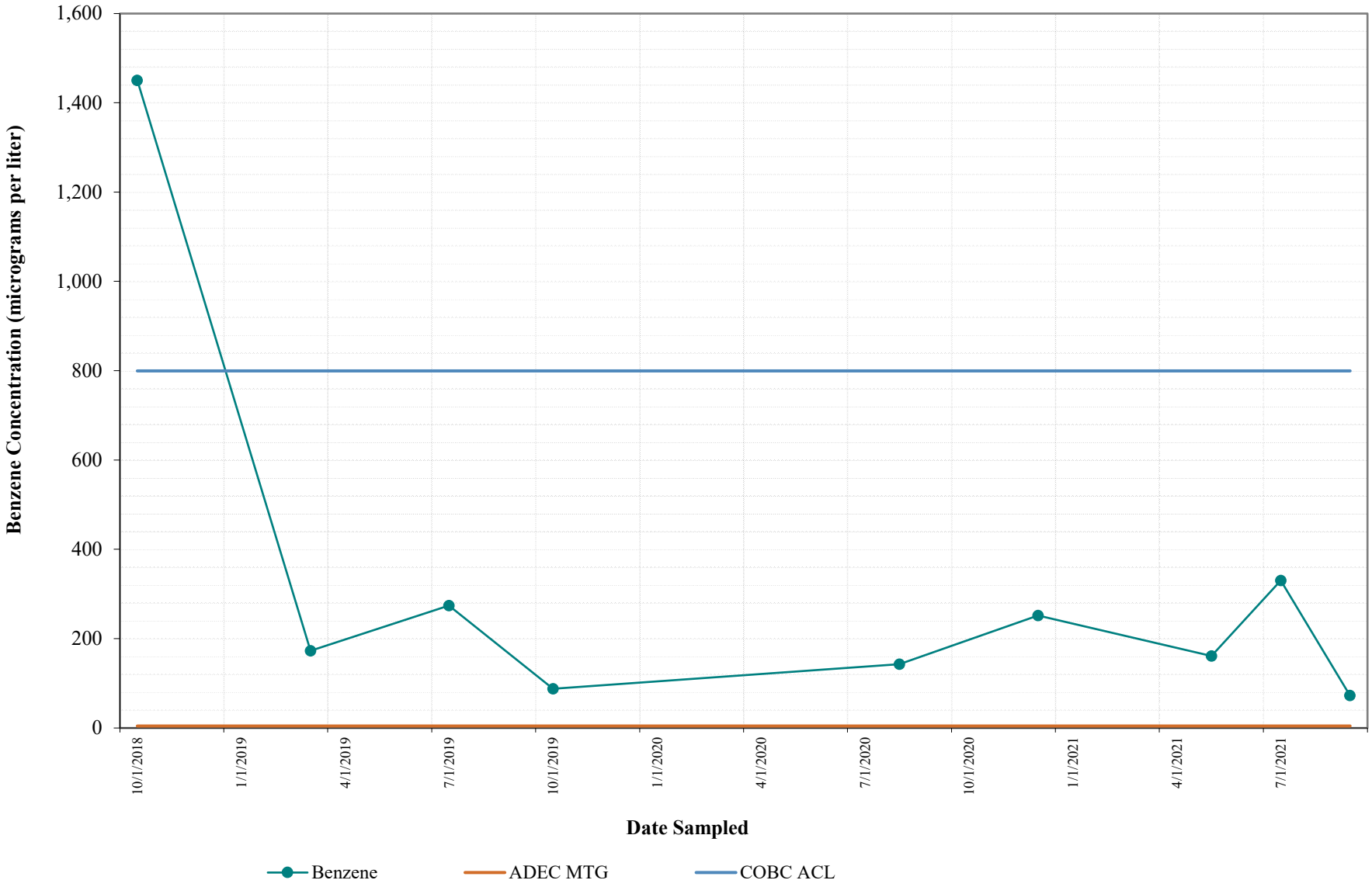
Trading Bay Production Facility
Cook Inlet, Alaska



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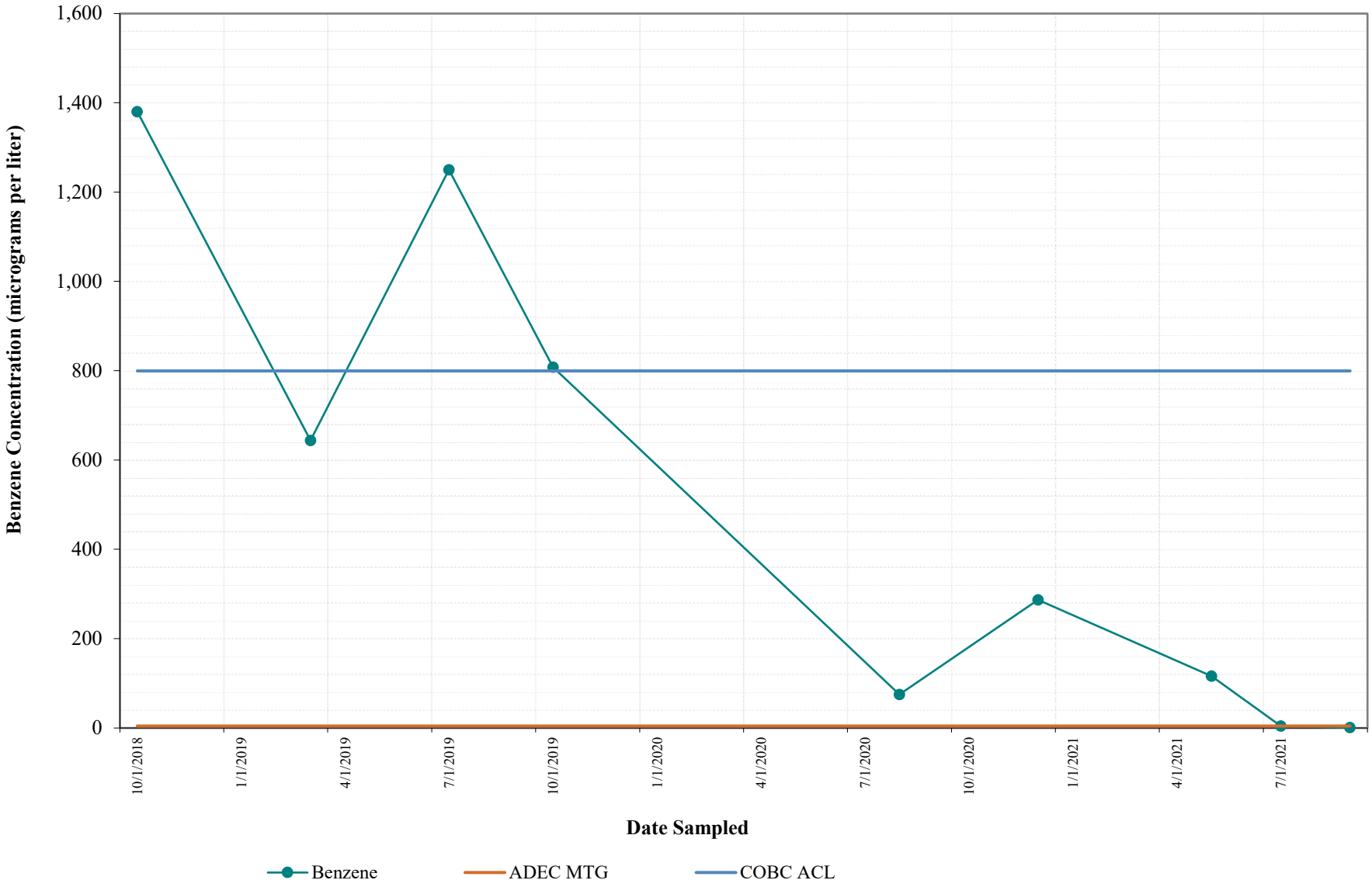
Cook Inlet, Alaska



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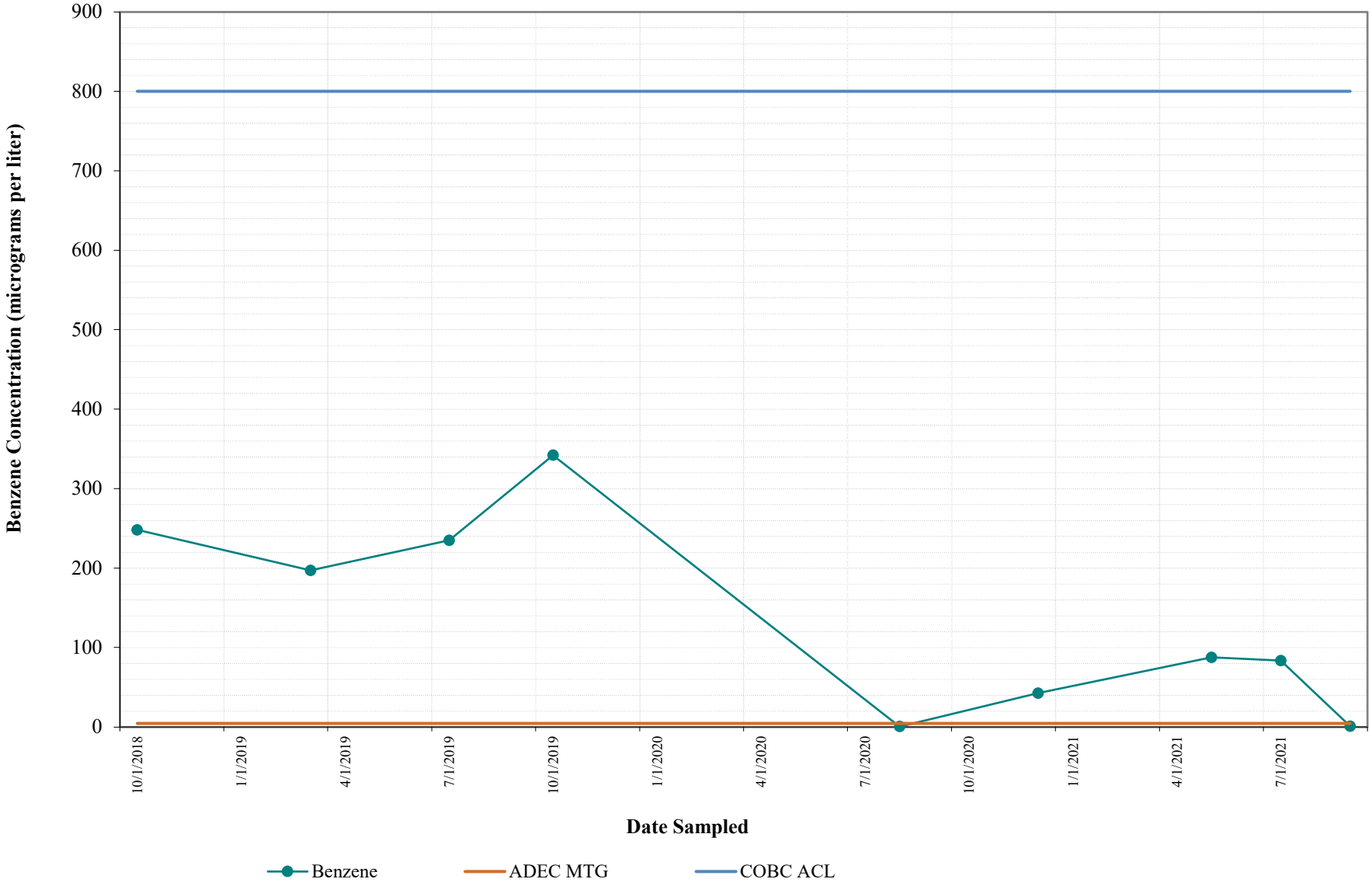
Trading Bay Production Facility
Cook Inlet, Alaska



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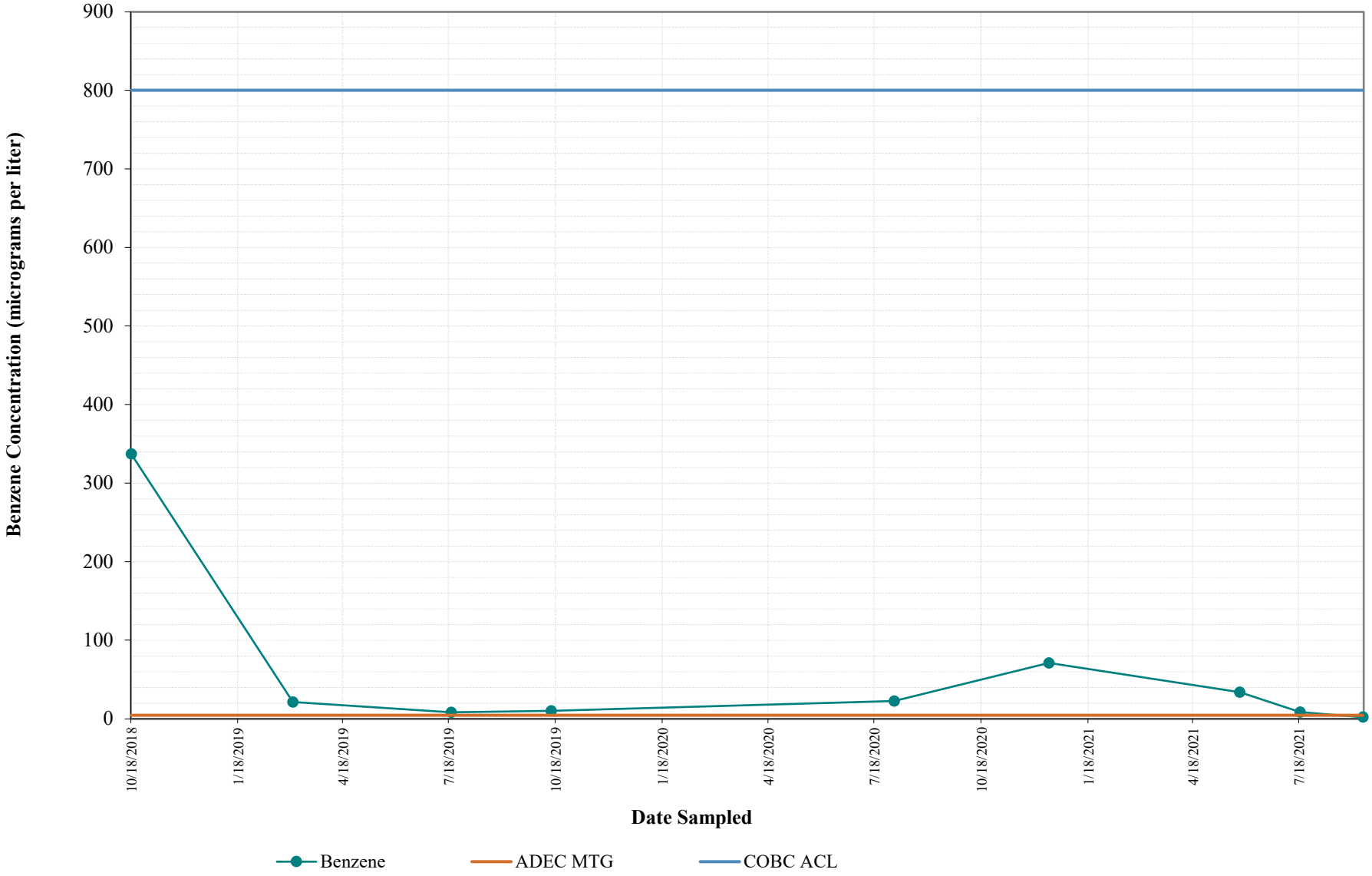
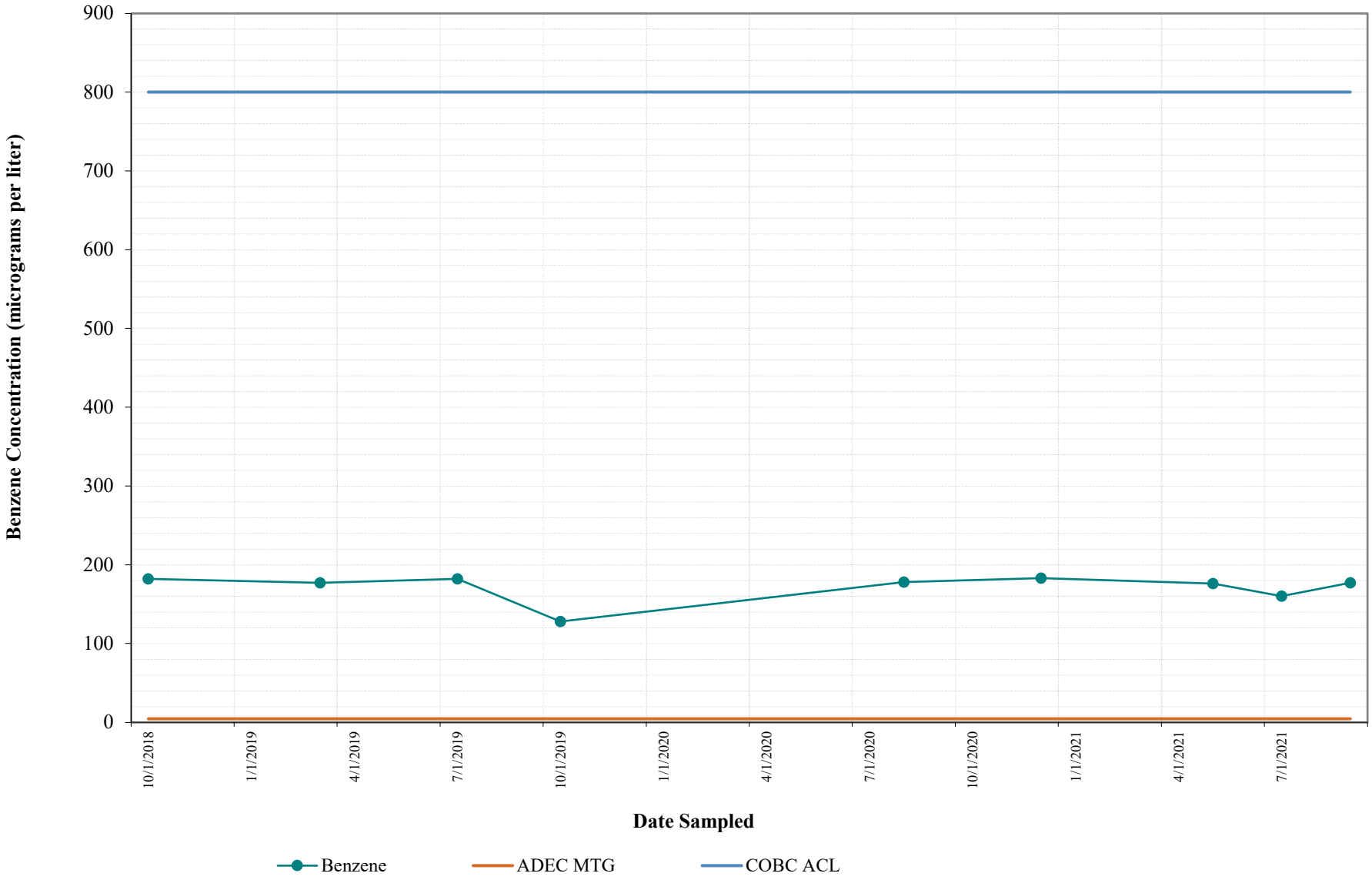
Benzene Concentrations
Trading Bay Production Facility
Cook Inlet, Alaska



RW-6
Benzene Concentrations
Trading Bay Production Facility
Cook Inlet, Alaska



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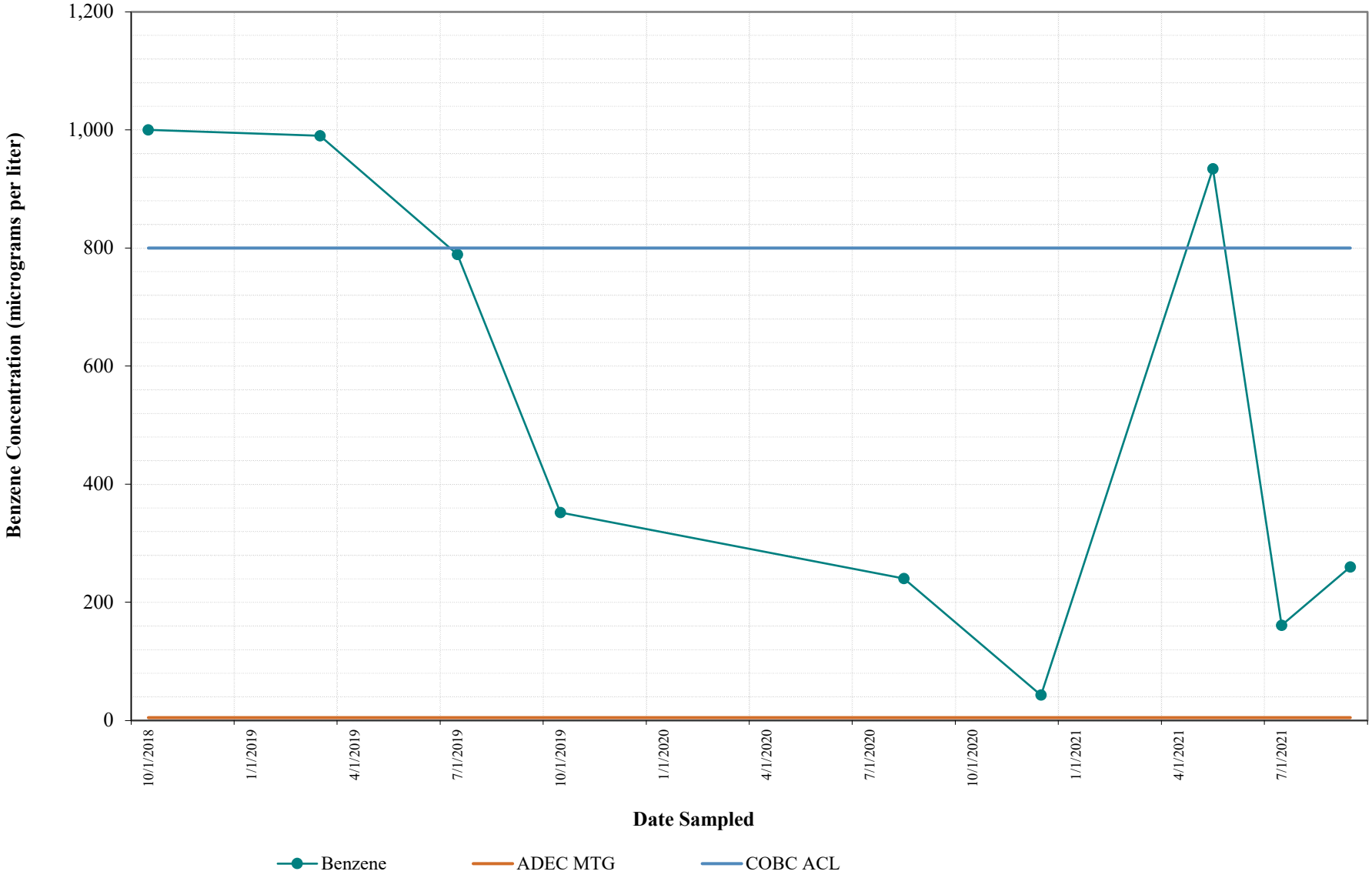
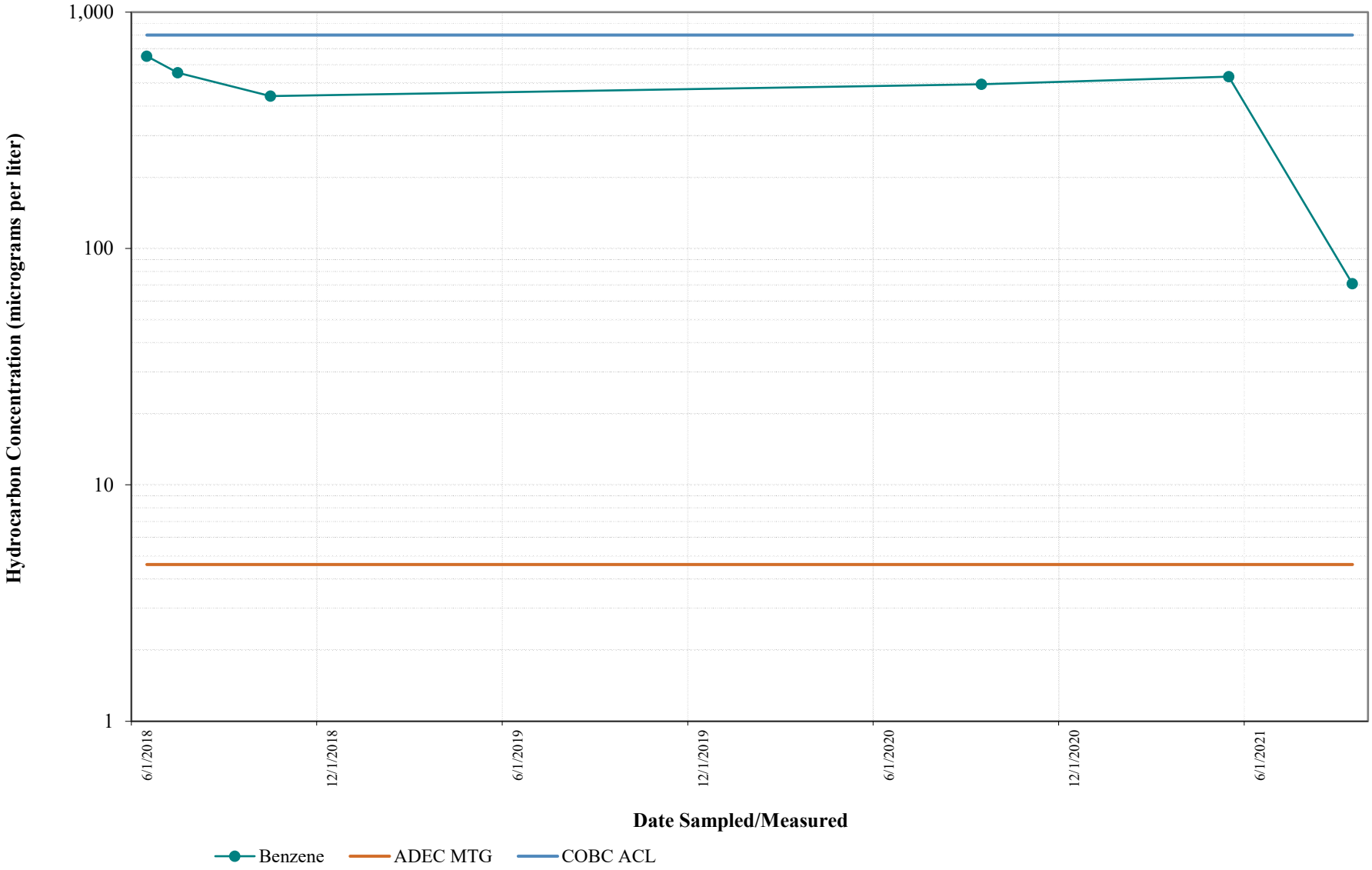
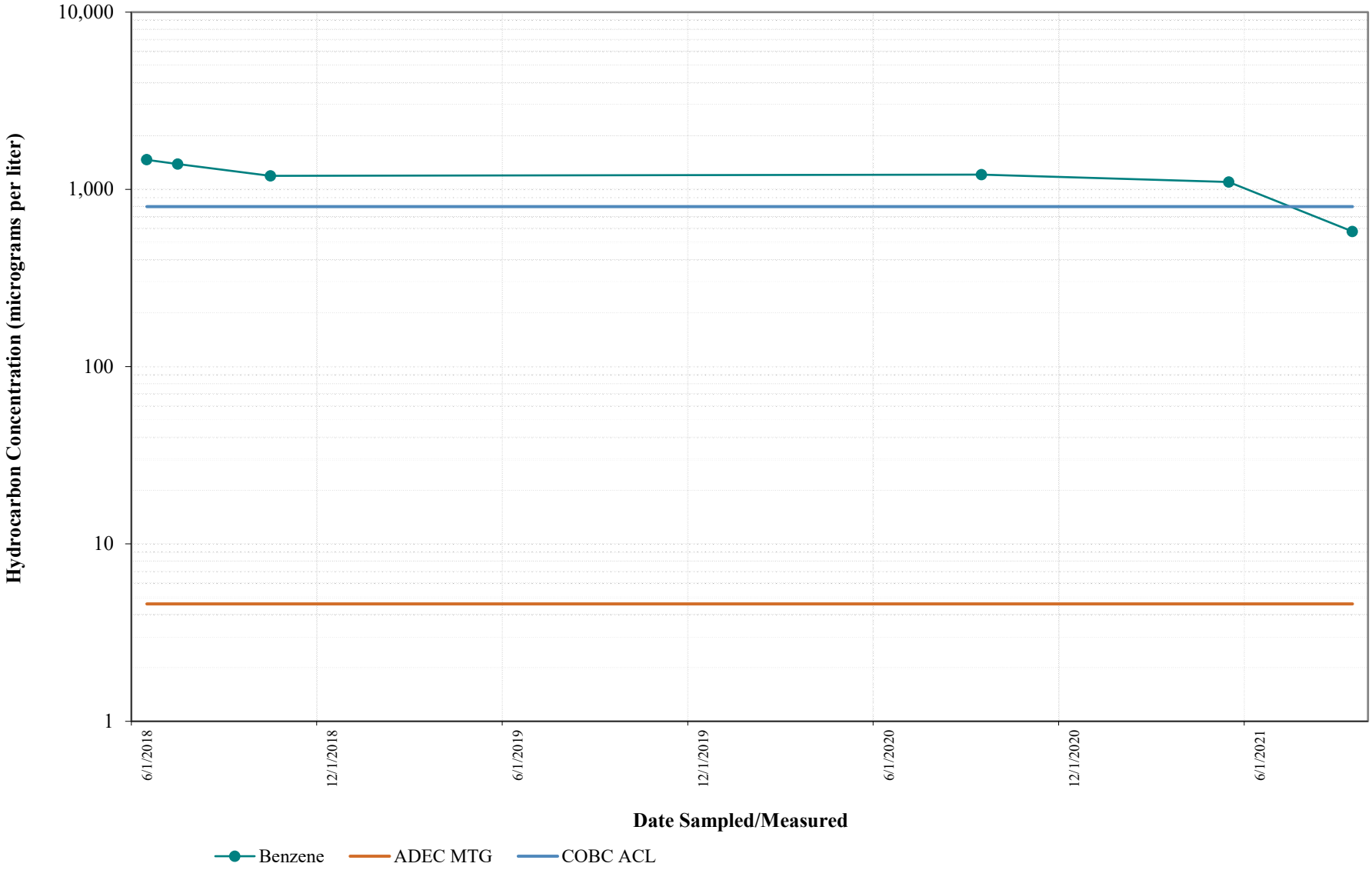
Benzene Concentrations
Trading Bay Production Facility
Cook Inlet, Alaska



18-MW-6
Benzene Concentrations
Trading Bay Production Facility
Cook Inlet, Alaska



18-MW-6A
Benzene Concentrations
Trading Bay Production Facility
Cook Inlet, Alaska



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ATTACHMENT 3

LNAPL TREND LINES

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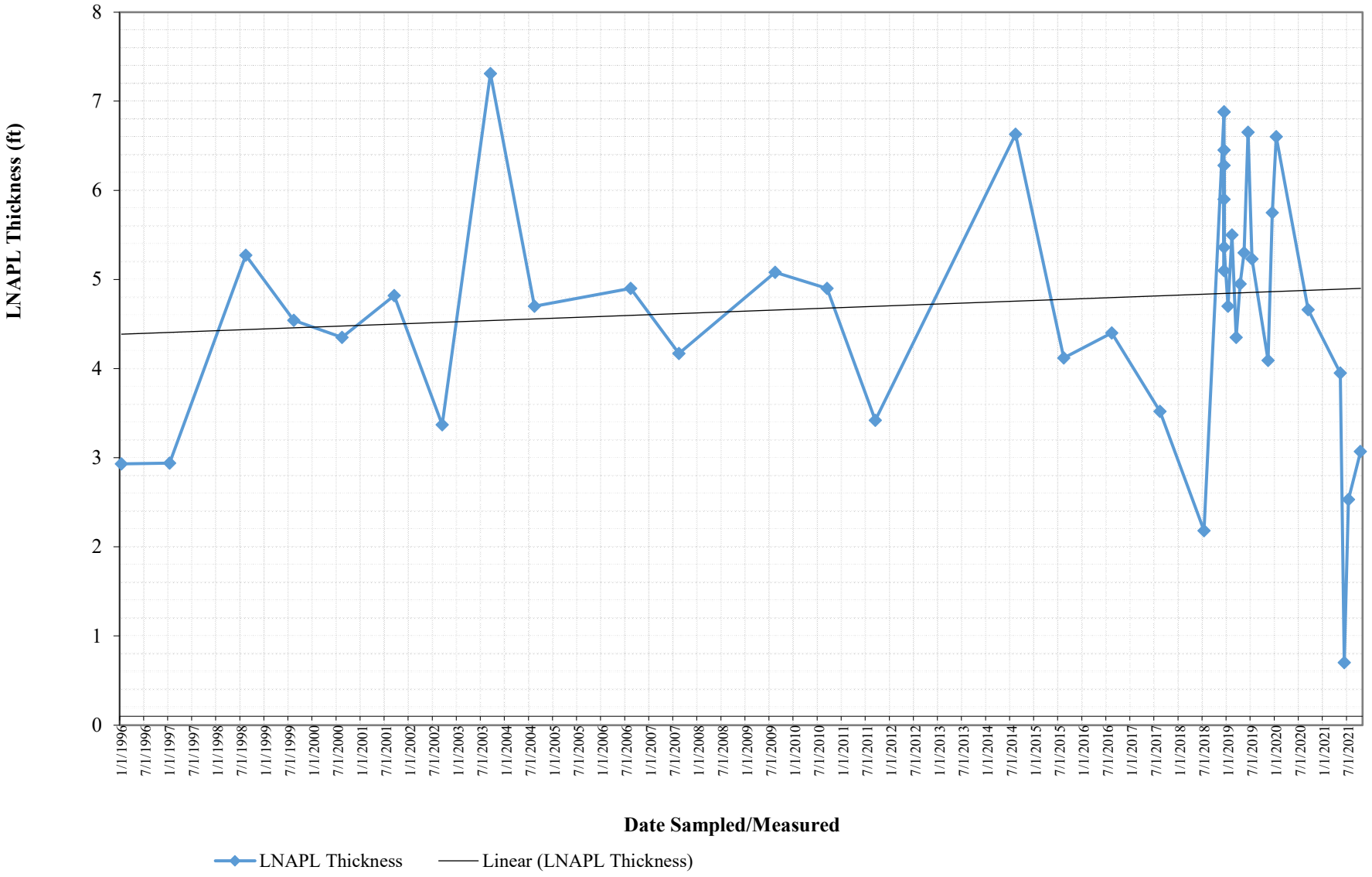
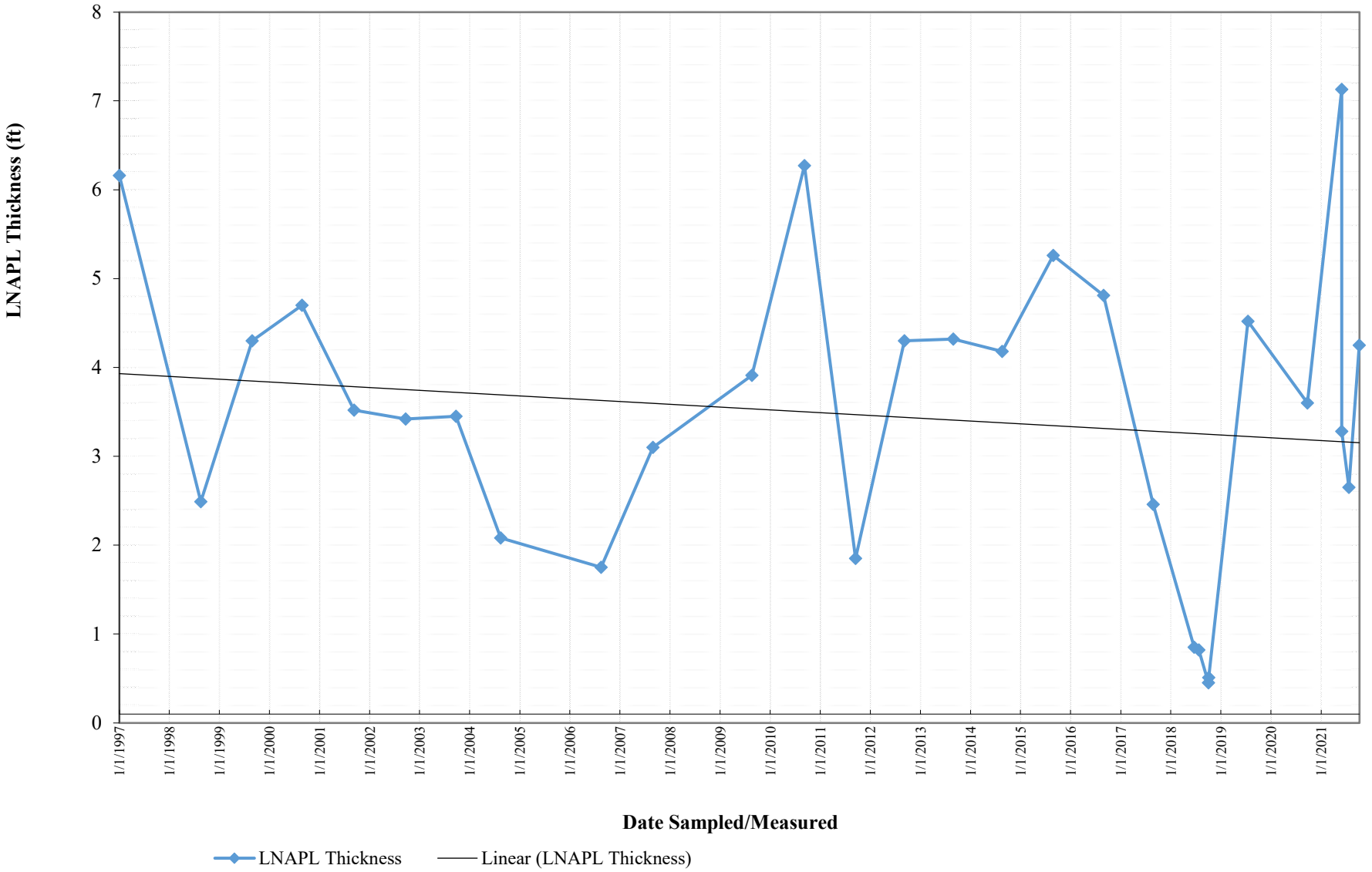
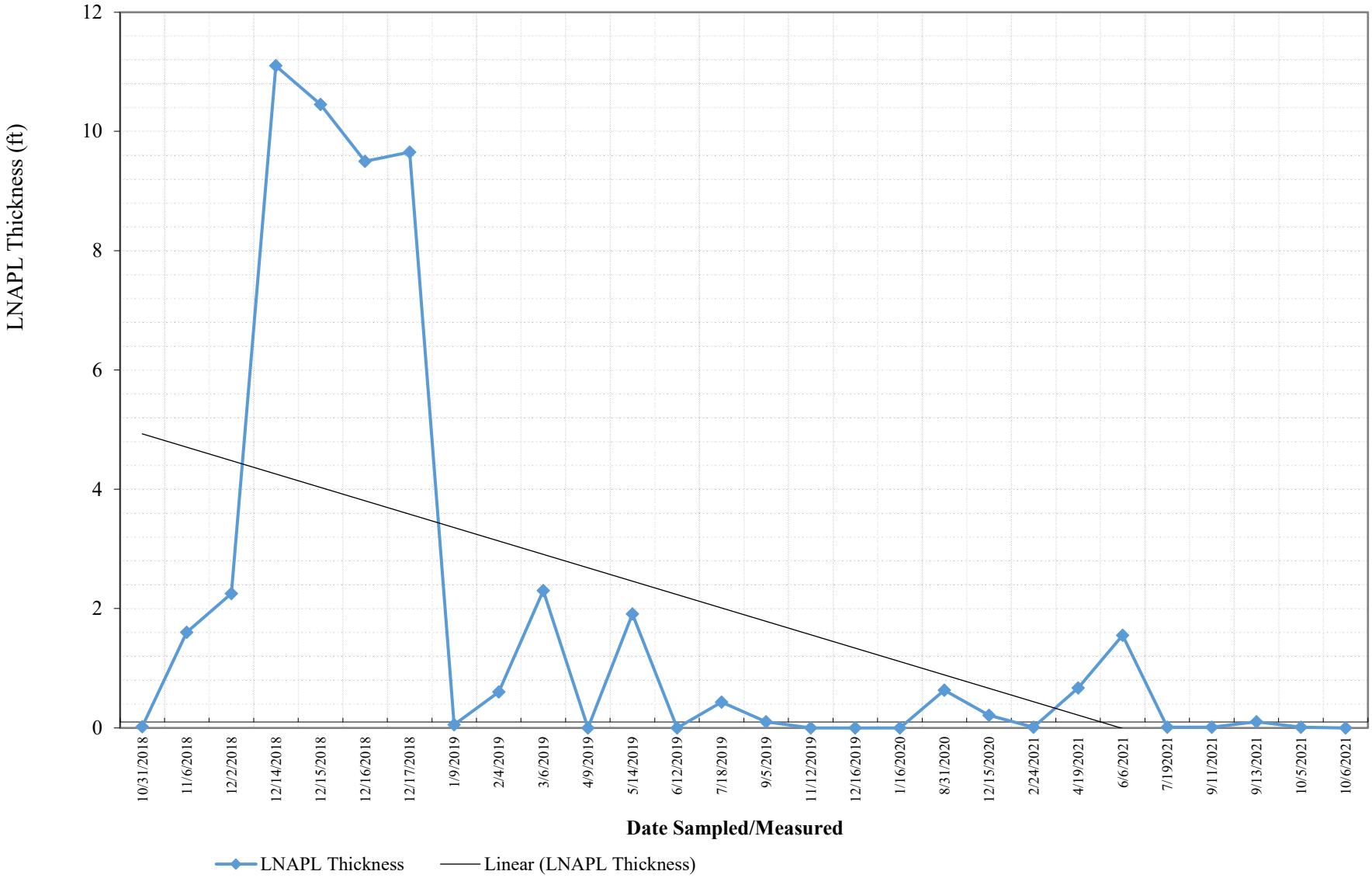
M-102D
LNAPL Thickness
Trading Bay Production Facility
Cook Inlet, Alaska



M-111
LNAPL Thickness
Trading Bay Production Facitliy
Cook Inlet, Alaska



RW-2
LANPL Thickness
Trading Bay Production Facility
Cook Inlet, Alaska



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