

DOCUMENTATION OF LONG-TERM STEWARDSHIP ASSESSMENT

RCRA Corrective Action

Long Term Stewardship (LTS) RCRIS code: CA88(P/N/F (evaluation #)

NOVA Chemicals

RCRA ID Active Portion: PAR000023986

RCRA ID Inactive Portion: PAD068730225

400 Frankfort Road

Monaca, PA 15061

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Long Term Stewardship Assessment Summary:

The Long-Term Stewardship Assessment of the Nova Chemical RCRA Corrective Facility located in Monaca, Potter Township, Beaver County, Pennsylvania (the Facility) consisted of a records review and field inspections of each of the three separately owned portions of the

Facility to ensure EPA's selected remedies are implemented and maintained and to ensure human health continues to be protected.

The records review was conducted by the United States Environmental Protection Agency's (USEPA) Land, Chemicals, and Redevelopment Division (LCRD) representative, Diane Schott, in coordination with the Pennsylvania Department of Environmental Protection (PADEP) representatives Sharon Svitek, Program Manager, Matthew Barch P.G., Licensed Professional Geologist, and Shawn Staley, Environmental Protection Specialist.

The records review consisted of developing three separate owner specific summaries of requirements due to each owner being subject to different obligations.

The field inspections of the three separately owned portions of the Facility were conducted by Matthew Barch and Shawn Staley of the PADEP on August 27 and 28, 2024.

For each of the three separately owned portions of the Facility, current human exposures reportedly are under control, applicable institutional controls are maintained, applicable engineered controls are competent, land use did not change, and financial assurance remained appropriate.

While environmental controls for the entire Facility reportedly remain responsibly in place, numerous recommendations can be found in the Conclusions and Recommendations section below.

Introduction:

Long-term stewardship (LTS) refers to the activities necessary to ensure that engineering controls (ECs) are maintained, institutional controls (ICs) continue to be enforced, and the remedy is protective based on current uses and exposures. The purpose of the EPA Region 3 LTS program is to periodically assess the efficacy of the implemented remedies and to update the community on the status of the RCRA Corrective Action facilities. The assessment consists of a record review and a field inspection, to ensure that the remedies are implemented and maintained in accordance with the final decision and that human health continues to be protected.

Facility Background:

The Facility is located on approximately 420-acres along the south bank of the Ohio River in Potter Township, Beaver County, Pennsylvania. The Facility was constructed in 1942 by Koppers United Company on behalf of the United States government for the purpose of manufacturing petrochemicals including organic chemicals used to make synthetic rubber. Production of polystyrene production began in 1946. By the 1950s, operations shifted to focus on polystyrene and expandable polystyrene production. By 1996, most of the petrochemical operations were shut down and production was limited to manufacture of polystyrene, expandable polystyrene products and a styrene and maleic anhydride copolymer, trade named "Dylark." In 2009, the "Dylark" process was shut down and dismantled. By 2018,

the Facility was used to manufacture expandable polystyrene and advanced foam resins for use in the automotive, packaging, and other industries. In 2019, the annual production capacity was reportedly approximately 300 million pounds of expandable polystyrene.

The Facility has had numerous owners. Currently the Facility is divided into three areas, each owned by different owners. The Active Portion is owned by BVPV Styrenics-Styropek (Styropek) and includes the Central Plant/Styrene II Area (CP/S Area) (71 acres), surface impoundments, a wastewater treatment plant, and the former Over-The-Hill Tank Farm (OTH) (12 acres). The Inactive Portion is owned and managed by the Lyondell Environmental Custodial Trust” (LECT) by and through its Environmental Custodial Trustee, LePetomane XXIII, Inc. (LePetomane) and includes the Raccoon Creek Area (RC Area) (18 acres) and the West Landfill/Dravo Quarry Area (14 acres). The Inactive Portion is owned by the Beaver County Corporation for Economic Development (BCCED) and includes the East Landfill Area (54 acres), and the former Phthalic Anhydride Plant Area (4 acres).

Environmental investigations were conducted by former owner ARCO Chemical Company (ARCO) beginning in the late 1980’s until at least 1996 and 1997, when ARCO sold or transferred the active portion of the Facility to NOVA Chemicals Corporation and transferred the inactive portion to Lyondell Chemical Company. Over the years, several site assessments, remedial investigations, risk assessments, and feasibility studies were conducted. Areas of greatest impact were found to include historic manufacturing areas, areas used for chemical storage, and areas used for waste treatment and disposal. The primary site wide contaminants were identified as benzene, toluene, ethylbenzene, xylenes, and styrene (BTEXS).

In July 1994, ARCO entered into a Consent Order and Agreement (CO&A) with PADEP to complete planning/mobilization; supplementary site sampling; hydrogeology studies; groundwater treatability tests; soil vapor extraction; and in-situ bioremediation at the Active Portion of the Facility and required continued groundwater monitoring in that Portion. In September 1997, ARCO entered the Facility into the Act 2 Program. In October 1997, ARCO entered into a second CO&A with PADEP to complete the investigation of the Inactive Portion and to complete remediation of the entire Facility under the Act 2 Program.

In 2001, PADEP provided the entire Facility relief of liability under Act 2. The Central Plant/Styrene II Area, Over-the-Hill Tank Farm Area, Raccoon Creek Area, West Landfill/Dravo Quarry Area, and East Landfill Area achieved SSSs under Act 2; the Phthalic Anhydride Area met the SHSs for soil (no relief of liability from groundwater was given for the Phthalic Anhydride Area).

EPA determined the environmental indicator for current human exposures under control (RCRIS Code 725) for the entire Facility was met on February 14, 2014, and the environmental indicator for migration of contaminated groundwater under control (RCRIS Code CA750) for the entire Facility was met on July 5, 2017.

An Environmental Covenant for the **Inactive Portion** was executed in November 2014.

On September 28, 2018, EPA issued a Final RCRA Corrective Action Remedy Decision for the **Inactive Portion** of the Facility that consists of the following elements:

1. Maintenance of the integrity of the covers over the former disposal areas within the East Landfill Area, Raccoon Creek Area, and West Landfill Area;
2. Monitored natural attenuation for groundwater beneath the Inactive Portion until MCLs are met or until EPA approves cessation of monitoring;
3. Compliance with an EPA approved Post-Remediation Care Plan that includes:
 - a. A PADEP-approved soils management and worker protection program for any intrusive operations conducted within the Inactive Portion, and
 - b. A groundwater monitoring program for the former disposal areas within the East Landfill Area, Raccoon Creek Area, and West Landfill Area at a frequency and duration to ensure remaining BTEXS contamination remains stable or decreasing in both location and concentration;
4. Vapor intrusion assessment and mitigation requirements for future occupied structures; and
5. The implementation of institutional controls, including land and groundwater use restrictions and
6. Reporting requirements, including an annual requirement to submit written certification of compliance with all terms of the Final remedy.

On January 29, 2019, EPA issued a Final RCRA Corrective Action Remedy Decision for the **Active Portion** of the Facility that consists of the following elements:

1. A Technical Impracticability (TI) Zone for groundwater;
2. Compliance with an EPA approved Post-Remediation Care Plan that includes:
 - a. A PADEP-approved soil management and worker protection program for any intrusive operation conducted within the TI Zone, and
 - b. A groundwater monitoring program of a frequency and duration to ensure remaining BTEXS contamination remains stable or decreasing in both location and concentration;
3. Vapor intrusion assessment and mitigation requirements for future occupied structures; and
4. The implementation of institutional controls, including land and groundwater use restrictions and
5. Reporting requirements, including an annual requirement to submit written certification of compliance with all terms of the Final remedy.

An environmental covenant for the **Active Portion** was executed in March 2020.

The most recent Post Remediation Care Plan for the **Active Portion** owned by Styropek is dated May 7, 2019; the most recent PRCP for the **Inactive Portion** owned by the LECT by and through LePetomane is dated April 2020; and the most recent PRCP for the **Inactive Portion** owned by the BCCED is dated July 2020.

EPA approved cessation of groundwater monitoring requirements for the East Landfill area on July 6, 2020, for the Active Portion on February 5, 2021, and for the West Landfill/Dravo Quarry Area during a July 29, 2021, meeting. Well abandonment was conducted for the monitoring wells at the East Landfill Area in August 2020; at the Active Area, including four plant boundary

wells and five wells adjacent to the Ohio River, in March 2021; and at the West Landfill/Dravo Quarry Area in 2021.

More details regarding past investigations and remediations for each of the areas are described below:

The approximately 71-acre Central Plant/Styrene II Area (CP/S Area) is part of the active area owned by Styropek. It is the primary location where manufacturing activities are conducted. The area includes areas where active manufacturing activities are conducted, areas where historic manufacturing activities were conducted, storage tanks, and the on-site power plant. ARCO's 1990 Remedial Investigation/Feasibility Study Report (RI/FS) for this area found the primary contaminant in soil and groundwater was ethylbenzene. The greatest contaminant concentrations were found in a 4-foot-thick zone surrounding the water table, which is 72 feet below the ground surface. Light non aqueous phase liquid (LNAPL) was detected in some areas. ARCO's risk assessment in the 1990 RI/FS found the only potentially significant risk was due to contaminated groundwater discharge from the Facility to the Ohio River. In 1991, ARCO and PADEP discussed cleanup standards for groundwater. PADEP concurred with ARCO's analysis that groundwater remediation to background or drinking water levels was not practical. Analysis conducted by ARCO and approved by PADEP concluded the MCL for ethylbenzene could not be met at the CP/S area in fewer than 100 years. ARCO conducted remediation. ARCO operated a deep groundwater extraction well at the northern edge of the property close to the bank of the Ohio River (DW-1) until September 1993. At an area designated as the Ohio Sparge Curtain Area within the CP/S area, ARCO conducted groundwater pump and treat for many years and air sparging/bioventing for two years; and also treated soil within the area with soil vapor extraction. ARCO also conducted air sparging/bioventing at an additional four additional areas within the CP/S area for two years. Overall, ARCO reportedly treated groundwater for twelve years. ARCO's 1997 Risk Assessment for the CP/S area found surface soil met Act 2 non-residential Statewide Health Standards and modeled contributions of contaminated groundwater to the Ohio River would not exceed applicable water quality criteria. ARCO did not evaluate groundwater as a drinking water source due to no use.

The former Over the Hill Tank Farm Area (OTH Area) is part of the Active Area owned by Styropek and is located on approximately 12-acres along Raccoon Creek. The OTH Area is the location of eight former large aboveground storage tanks which were used to store light oil, fuel oil, benzene, ethylbenzene, and a benzene/toluene mixture from 1952 until 1988, when the last three remaining tanks were dismantled. ARCO's 1990 RI/FS for this area found benzene and ethylbenzene were the primary contaminants in soil and groundwater. Most of the contamination was found within an approximately 4-feet-thick smear zone surrounding the water table, which is about 40 feet bgs. LNAPL was present in suspected source areas. ARCO's risk assessment in the 1990 RI/FS for this area found a potential risk was posed to human health if Raccoon Creek surface water was used as a drinking water supply and a risk was posed to aquatic life exposed to Raccoon Creek surface water. ARCO's risk assessment concluded that groundwater contaminant concentrations (and soil contaminant

concentrations, due to their potential impact to groundwater) needed to be reduced to meet acceptable health-based criteria for reasonable exposure scenarios within a reasonable timeframe. ARCO conducted air sparging and bioremediation for a period of two years to remove BTEXS from the soils and groundwater near the water table at the former locations of Tanks 4 and 5.

In May 2001, “Final Reports” were submitted for each of the CP/S Area and the OTH Area documenting that the site-specific standards under Act 2 for hazardous constituents in soil and groundwater had been attained at each area. PADEP approved the Final Reports for each of the CP/S Area and the OTH area in August 2001. PADEP’s approvals recognized a complete groundwater to surface water pathway exists in each area.

An EPA review of groundwater data extending from 2001 to June 2016 from groundwater monitoring wells surrounding surface impoundments proximate to the OTH Area that are part of the waste water treatment plant and monitored under a National Permit Discharge Elimination System permit found concentrations of benzene and ethylbenzene (from pre-1988 releases) exceeded their respective MCLs in four of the wells and contaminant trends for benzene and ethylbenzene in each of the four wells were either decreasing or statistically insignificant. In September 2016, four wells along the bank of the Ohio River were sampled to determine if contaminants were being released from groundwater CP/S Area to the Ohio River. BTEXS were not detected in any of the four samples. EPA approved cessation of groundwater monitoring requirements for the Active Portion of the Facility on February 5, 2021. Four plant boundary groundwater monitoring wells and five groundwater monitoring wells adjacent to the Ohio River were documented to have been properly abandoned in March 2021.

The Raccoon Creek Area (RC Area) is a soil capped 18-acre landfill with full vegetative cover that is part of the inactive area owned by the LECT through LePetomane. It sits on the flood plain of the Ohio River and was used for disposal of various plant wastes from 1943 to 1975. Pits in the area were excavated and used for the burning of acid washings, which consisted of light oil treated with sulfuric acid, and distillation residues from the benzene production facilities. Fly ash from the coal-fired boilers was also placed in the former disposal pits. ARCO’s 1990 RI/FS for this area found detected contaminants included arsenic; benzene; bis (2-ethylhexylphthalate; butyl benzyl phthalate; chlorodibromomethane; dibenzofuran; ethylbenzene; lead; naphthalene; selenium; styrene; 1,1,2,2-tetrachloroethane; toluene; and 1,1,2-trichloroethane. BTEXS were the primary contaminants found in soil and groundwater contamination at the RC Area, with some semi-volatile contaminants and arsenic found in soil and sediment. ARCO’s 1998 risk assessment did not evaluate groundwater as a drinking water source due to no use and found all other risks acceptable. The comprehensive cleanup plan for this area is comprised of various elements among various documents and includes the following: PADEP’s 1997 CO&A included maintaining the existing vegetative cover over the RC Area to ensure at least 70% ground cover of permanent plant species and regular inspections of the area, including activities to address subsidence or erosion from former disposal pits that would continue for no longer than ten years in accordance with the PADEP-approved PRCP. The 1998 proposed Cleanup Plan for the RC Area recommended adding the following to the post remedial

care plan: 1) annual visual inspections of the former disposal areas for five years, 2) implementation of a soils management and worker protection program, 3) a notice of the environmental conditions of the area to be recorded on the deed for the property, and 4) no post-remediation sampling would be performed. PADEP approved the Facility's risk assessment and cleanup plan for the RC Area in October 1998. The Facility's 1999 Final Report for the area documented that site specific standards under Act 2 were attained, including for surface water, that a contribution was made to Penns Corner Conservancy Charitable Trust for wetland mitigation activities at the area, and elements of the Post Remedial Care Plan were expanded to include greater specificity in inspection requirements (banks of Raccoon Creek will also be inspected during quarterly stream sampling for erosion/subsidence, and native plant species with enhanced root structures should be planted along the stream bank where necessary based on quarterly observations or annual inspections) and that all but ten groundwater monitoring wells in the area had been closed. PADEP approved the Facility's Final Report for this area in March 1999 and further noted the RC Area may be subject to deed restrictions. Upon inception of the Trust, additional groundwater sampling was conducted quarterly from November 2015 to November 2016 at the request of the EPA and PADEP. The sampling results indicated that benzene concentrations in groundwater were stable but above the EPA maximum contaminant level (MCL). EPA found the contaminant trends in each well were either decreasing or statistically insignificant. In addition to the groundwater sampling, surface water and sediment samples were collected in Raccoon Creek in 2016. The surface and sediment sample results indicated that BTEXS compounds were not present at concentrations above the laboratory reporting limit. However the results found seven metals (arsenic, barium, cadmium, chromium, cobalt, iron, manganese, and nickel) in sediment exceeded conservative ecological screening values. The greatest exceedance in sediment was less than three times the screening value and closest to the former disposal areas. The concentration of four metals (arsenic, cadmium, cobalt, and vanadium) in the sediment exceeded a conservative screening against Act 2 residential SHS for soil, but no exceedance was greater than twice the human health criteria. From May 2020 to March 2021, quarterly groundwater sampling was conducted by the Trust in accordance with the PRCP submitted in April 2020. The results indicated that the groundwater in ten of the eleven monitoring wells exhibited decreasing concentrations. Per the recommendations of the Annual Report dated August 2021, which PADEP approved in an email dated August 4, 2021, the monitoring frequency was reduced from quarterly to annual sampling. In addition, the number of wells in the sampling program were reduced, as well as the list of parameters analyzed. Eleven groundwater monitoring wells remain in the RC Area and the existing monitoring program consists of seven wells (one upgradient well, two wells within the soil capped area, two side gradient wells, and two downgradient wells). The most recent sampling event was in October 2023 where up to 200,000 ug/l benzene was detected in the groundwater below the soil capped area.

The West Landfill/Drave Quarry Area is part of the inactive area owned by the LECT through LePetomane. The West Landfill is soil capped with full vegetative cover and the Dravo Quarry Area is a semi-active aggregate quarry. The full area consists of approximately 14 acres and includes the West Landfill that was active from 1943 to 1972, open space and roads in the western section of the Facility, a wooded area and pond southwest of the main plant area, and an semi-active quarry. The West Landfill was the primary disposal area for plant process wastes, including acid washings and light oil residues from the benzene Facility, residue from the styrene

facilities, waste polystyrene and expandable polystyrene beads, cleaning solutions containing less than 1% toluene, and spent catalysts. ARCO's 1989 Site Assessment found contaminants in soil and groundwater including BTEXS, polyaromatic hydrocarbons (PAHs), arsenic (within background), lead and mercury. ARCO found the contamination was in an area that appeared to be a filled river channel and which appeared to limit contaminant migration to the underlying soils. Contaminant concentrations in the Ohio River after mixing were modeled. The Facility's 1998 Risk Assessment did not evaluate groundwater as a drinking water source due to no use and found all other risks acceptable. The Facility's 1998 proposed Cleanup Plan included the following elements of post-remedial care: 1) annual visual inspections of the West Landfill for five years, 2) implementation of a soils management and worker protection program, 3) a notice of the environmental conditions of the area to be recorded on the deed for the WL/DQ Area, and 4) no post-remediation sampling would be performed. In September 1998, PADEP approved ARCO's risk assessment and cleanup plan for the WL/DQ Area. The Facility's 1999 Final Report for the WL/DQ Area documented that site specific standards for soils and groundwater were attained and noted the area may be subject to deed restrictions. ARCO had regraded the area and upgraded the cover on the West Landfill with vegetated cover. PADEP approved the Final Report in November 1999. From May 2020 to March 2021, quarterly groundwater sampling was conducted by the LECT through LePetomane in accordance with the 2020 PRCP. Over the four quarterly sampling events, the concentrations of BTEXS were less than their respective reporting limits. EPA approved cessation of groundwater sampling for the West Landfill/Dravo Quarry Area during a July 29, 2021, meeting. Groundwater monitoring wells in the West Landfill/Dravo Quarry Area were documented to have been properly abandoned in 2021.

The 54-acre East Landfill (EL) Area is a soil capped landfill with a full vegetative cover that is part of the inactive area owned by BCCED. It is located east of Raccoon Creek. It was used until 1986 for the occasional disposal of waste polystyrene and expandable polystyrene beads, cleaning solutions containing less than 1% toluene, and calcium phosphate sludge generated during polystyrene production. The area includes the following eight solid waste management units: five unlined dewatering units each approximately 0.5 acres, and 12 to 15 feet deep, which were used to dewater phosphate sludge from the wastewater treatment plant, prior to the wastes being covered in-place or disposed in the phosphate sludge landfill; an unlined landfill of approximately 2.5 acres with a maximum depth of 37 feet that received phosphate sludge from the five dewatering units; an unlined latex surface landfill, approximately 1.5 acres in size and 14 feet deep, that received liquid latex sludge from the wastewater treatment plant for dewatering and in-place disposal; and an unlined sanitary landfill of approximately seven acres that contains two layers primarily of cardboard, wood pallets, and paper, in addition to polystyrene beads, polystyrene board, demolition debris, plastic bags, scrap metal, assorted rubbish, and a small amount of food wastes. ARCO's 1988 Closure Assessment Report documented closure activities (that included placement of a soil cover over the eight solid waste disposal units from 1982 to 1983 and from 1986 to 1987) and recommended improvements to some of the covers and drainage. ARCO's 1992 preliminary site assessment found the primary contaminants were benzene, toluene, ethylbenzene, and styrene and were most prevalent within the footprints of the sanitary and phosphate sludge landfills. The Facility's 1998 risk assessment omitted evaluating groundwater as a drinking water source based on no use and found all other risks acceptable. The Facility's 1998 Final report

documented that applicable site-specific standards for groundwater and soil had been attained at the EL Area and recommended the following: 1) annual visual inspections of the East Landfill for five years starting with the September 1998 inspection; 2) implementation of a soils management and worker protection program; and 3) a notice of the environmental conditions of the EL Area be recorded on the deed for the Facility property. In 2014, samples were collected from available groundwater monitoring wells remaining at the EL Area. The results found the total concentration of chromium exceeded its MCL- but not the dissolved concentration of chromium, and no other MCL exceedances. EPA approved cessation of groundwater monitoring requirements for the areas owned by BCCED on July 6, 2020 and groundwater monitoring wells in the East Landfill Area were documented to have been properly abandoned in August 2020.

The former Phthalic Anhydride Plant Area is an approximately four-acre area by the East Landfill and is part of the inactive area owned by BCCED. The plant was constructed in 1945. Naphthalene and phthalic anhydride from naphthalene were produced at the plant until 1962. Mercury was used as the original heat transfer medium but was later replaced with a mixture of diphenyl and diphenyl oxide. Contamination is attributed to the disposal of mercury waste and historic spills and releases related to the production of phthalic anyhydride and naphthalene. All aboveground plant structures and equipment in the area were removed from 1967 to 1975. The office building and warehouse were removed in 1980 and 1987, respectively. ARCO's 1989 Preliminary Assessment found contamination consisted of semivolatile organic constituents and metals, including mercury. ARCO's 1989 risk assessment found an unacceptable non-cancer risk for groundwater and that mercury drove an unacceptable non-cancer risk to on-site workers. The Facility's 1997 Final Report found only mercury exceeded its state health standards in soil. In November 1997, soils containing mercury above state health standards were removed. Confirmatory sampling showed sampled soils remaining in the area did not exceed state health standards. PADEP approved the Final Report for this area in June 1998, granting relief of liability for soils at the former Phthalic Anhydride Plant Area.

Current Site Status:

Active Portion of the Facility:

The **Active Portion** of the Facility has tentative plans to shut down in December 2024.

The area within the technical impracticality zone specified in the 2019 Remedy Decision for the Active Portion of the Facility is unused.

Groundwater on site is unused for potable services.

While the RCRA Corrective Action Remedy Decision for the Active Portion of the Facility does not address if vapor mitigation is needed for currently occupied structures, during PADEP's August 27th, 2024, inspection, a representative of the Facility stated currently occupied structures are operated with vapor intrusion controls.

No groundwater monitoring requirements continue under the RCRA Corrective Action Remedy Decision. However, groundwater monitoring, and NPDES discharge monitoring are occurring.

Inactive Portion of the Facility:

The Inactive Portion of the Facility remains unused with no planned use.

Groundwater is unused for potable services.

Groundwater monitoring requirements continue only for the Raccoon Creek Area, where the most recent annual sampling event was conducted in October 2023. The results were submitted in a January 2024 Lyondell Annual Report documenting groundwater monitoring results for the Raccoon Creek Area. The results show up to 200,000 ug/l benzene was detected in groundwater below the soil capped area.

NPDES discharge monitoring is occurring.

Long-term Stewardship Field Inspections:

Field inspections were conducted by representatives of PADEP to discuss and assess the status of the implemented remedies at the Facility.

Representatives of PADEP conducted a field inspection of the active portion of the Facility on Tuesday August 27, 2024. PADEP was represented by Matthew Barch and Shawn Staley. The site owner (Styropek) was represented by Gina Logue, Health, Safety, and Environmental Manager, and Nicole Rice, Engineer Langan Engineers. Based on the inspection, the representatives of PADEP recommended the following:

1. Replace missing NPDES Outfall sign which has detached.
2. Replace temporary fencing as soon as the existing vegetative surfaces in the newly installed stormwater control ponds have stabilized.
3. Confirm that all No Trespassing signs are in place.
4. Confirm that any newly installed gates are fitted with appropriate locks.
5. Place appropriate secondary containment pallets beneath chemical totes.
6. Continue to maintain E&S controls around the perimeter of the Facility; and maintain the passability of the roads.
7. EPA should verify the current date of the PRCP.
8. Update/Upgrade the signage for monitoring wells and NPDES points. Some of the signs are showing signs of wear.

Representatives of PADEP conducted a field inspection of the inactive portion owned by LePetomane on August 28, 2024. PADEP was represented by Matthew Barch and Shawn Staley. LePetomane was represented by Jack Miller, P.E., Senior Engineer, Tetra Tech, Inc. (Tetra), and Jake Booth, Environmental Scientist, Tetra. Based on the inspection, the representatives of PADEP recommended the following:

1. Repair culvert pipe (#5) that has separated.
2. Replace missing signage which has detached.
3. Confirm that all No Trespassing signs are in place.
4. Confirm that any newly installed gates are fitted with appropriate locks.
5. Place appropriate secondary containment pallets beneath chemical totes at treatment plant.
6. Continue to maintain E&S controls around the perimeter of the Facility; and maintain the passability of the roads (repair to the slide on travel road).
7. Repair slide and stabilize soils.
8. Continue investigations of Raccoon Creek groundwater exceedances.

Representatives of PADEP conducted a field inspection of the inactive portion owned by BCCED on August 28, 2024. PADEP was represented by Matthew Barch P.G. and Shawn Staley. BCCED was represented by Robert Eaton, Principal Civil & Environmental Consultants, Inc. (CEC), and Kenneth Robertson, Environmental Scientist, CEC.

During the inspection, the representatives of PADEP found current inspections were not including the Phthalic Anhydride Area as required by the 2014 Environmental Covenant. Thus, CEC was requested to begin to include inspections of the Phthalic Anhydride Area.

Based on the inspection, the representatives of PADEP also recommended the following:

1. Future Inspections should include the Phthalic Anhydride Area
2. Replace missing signage which has detached.
3. Confirm that all No Trespassing signs are in place.
4. Place appropriate secondary containment pallets beneath chemical totes at treatment plant.
5. Continue to maintain E&S controls around the perimeter of the Facility.

Implementation Mechanism(s):

The Implementation Mechanism is the method for implementing institutional controls and engineered controls and other continuing obligations memorialized in the Statements of Basis and Final Decisions.

The implementing mechanisms for this Facility are environmental covenants developed separately for each of the Active and Inactive portions Facility.

Assessments of the implementation mechanisms are provided in Attachment 2.

The Environmental Covenant (EC) for the **Active Portion** of the Facility is dated March 10, 2020, which is after the RCRA Corrective Action Remedy Decision was issued in 2019. The EC for the **Active Portion** includes the following Activity and Use Limitations:

1. Comply with the terms of Post Remediation Care Plan as described in the EPA remedy decision.

2. Restricts land use to industrial or commercial purposes. Prohibits use for residential housing, schools, nursing homes, hospitals, day-care centers or lodging of any kind.
3. Prohibits new wells, for potable or other use, except remediation, monitoring, or investigation wells.
4. Any future building on the Property-that will be inhabited must be constructed with a vapor barrier or other vapor intrusion mitigation/remediation system unless adequate testing prior to construction indicates that vapor intrusion to indoor air does not exceed applicable DEP criteria in place at that time.
5. Any use of the property that would adversely affect the protectiveness of the final remedy is generally prohibited.
6. All excavated materials removed from the Property shall be managed, transported, and disposed of in compliance with all applicable federal, state, and local laws, regulations, and ordinances, including, without limitation, those pertaining to environmental protection and occupational safety.

The EC for the **Inactive Portion** of the Facility is dated November 13, 2014, which is before RCRA Corrective Action Remedy Decision was issued in 2018. The EC for the Inactive Portion includes the following Activity and Use Limitations:

1. Prohibits residential, agricultural, grazing and forestry land use;
2. Prohibits any use that is inconsistent with or that will negatively impact any investigative or remedial measures undertaken at the property;
3. Prohibits the use or consumption of groundwater or Raccoon Creek surface water (within Facility boundary);
4. Annually inspect the entire property and maintain and repair to proper functioning (w prior written notification to the Department and EPA or at the direction of the Department or the EPA) all engineered structures including the following:
 - a) Fences and gates
 - b) Soil cover/capped areas at locations delineated and specified in the environmental covenant for the East Landfill, Raccoon Creek Landfill, and West Landfill; and
 - c) Engineered stormwater management devices including drainage channels, swales, culverts, manholes, catch basins and discharge structures/outfalls and associated piping, including those at locations delineated and specified in the environmental covenant;

5. Prohibits excavation or disturbance of the soil in any Capped Area at the locations of soil cover/capped areas specified in the environmental covenant without prior written notice to and prior written approval by PADEP or EPA.
6. Prohibits soil excavation and/or construction of any building or any other structure at the Phthalic Anhydride Plant Area without prior written notice and prior written approval by PADEP or EPA. Any such activities require submittal to DEP of an Activity Plan that includes a soil management plan and a health and safety plan. The Activity Plan shall be designed to comply with all applicable federal, state, and local laws, regulations, and ordinances.
7. Any building or structure that is constructed in the future at the Property that will be inhabited shall be evaluated for the potential for vapor intrusion into such a building or structure prior to the building or structure being constructed; and additional remedial measures, as necessary, shall be performed to mitigate unacceptable risks associated with vapor intrusion into the building or structure based on then current conditions at the Property.

Engineered controls include the vegetative soil caps over the disposal areas at the East Landfill, the Raccoon Creek Landfill, and the West Landfill, stormwater management features, and fences and gates.

Post Remediation Care Plans

The RCRA Corrective Action Remedy Decisions for both the active and inactive portions of the Facility require elements of the remedy to be implemented through an EPA-approved Post Remediation Care Plan (PRCP).

For the **Active Portion** of the Facility, compliance with the PRCP is a requirement of both the 2019 RCRA Corrective Action Remedy Decision and the 2014 Environmental Covenant. The PRCP is to include a PADEP-approved soil management and worker protection program, and a groundwater monitoring plan. The PRCP for the Active Portion of the Facility most recently was updated on May 7, 2019, which is after the RCRA Corrective Action Remedy Decision was issued in January 2019, and before the Environmental Covenant was executed in March 2020, and before Styropek acquired the Active Portion of the Facility on October 30, 2020. The PRCP for the Active Portion includes a site drawing of the intended technical impracticability zone, a soils management plan, a groundwater management plan, and a health and safety plan for intrusive activities from soil disturbance and a groundwater monitoring program. Recommended improvements to the PRCP are described in the Conclusions and Recommendation Section.

For the **Inactive Portion of the Facility**, compliance with the PRCP is a requirement of the 2018 RCRA Corrective Action Remedy Decision and is not an element of the 2014 Environmental Covenant. The 2018 RCRA Corrective Action Remedy Decision requires the PRCP to include a PADEP-approved soil management and worker protection program, an inspection and maintenance program that the integrity of the covers over the former disposal areas are maintained, and a groundwater monitoring program,

The PRCP for the **Inactive Portion owned by LECT through LePetomane** most recently was updated in April 2020 which is after the RCRA Corrective Action Remedy was issued in 2018 and the Environmental Covenant was executed in 2014. This PRCP includes a Groundwater Monitoring Sampling and Analysis Plan; a Soil Management Plan; an Annual Inspection and Monitoring Plan; and a Health and Safety Plan. While the PRCP for the Inactive Portion of the Facility owned by LECT through LePetomane includes the elements required by the 2018 RCRA Corrective Action Remedy Decision, recommended improvements are described in the Conclusions and Recommendations Section.

The PRCP for the **Inactive Portion owned by the BCCED** most recently was updated in July 2020 which is after the RCRA Corrective Action Remedy Decision was issued in 2018 and after the Environmental Covenant was executed in 2014. This PRCP addresses only requirements for the East Landfill area and includes a health and safety plan/worker protection plan, a soil management plan, an inspection and maintenance plan for the final cover over the East Landfill, inspection of engineered stormwater management devices, and groundwater monitoring. While the PRCP for the Inactive Portion of the Facility owned by the BCCED includes the elements required by the 2018 RCRA Corrective Action Remedy Decision, recommended improvements are described in the Conclusion and Recommendation Section.

Financial Assurance:

No Financial Assurance is required by the Final Decisions. This is still appropriate.

The inactive portion of the Facility owned by the LECT through LePetomane is subject to a 2009 bankruptcy settlement agreement for which remediation expenses are allocated and billed. The allocations and billings are reported to PADEP and EPA. PADEP has sought allocation improvements based on review. The most recent submittal is from LePetomane on behalf of the LECT and is dated August 2, 2024. The submittal shows costs incurred by the LECT for the period of January 1, 2024, to March 31, 2024. The total bill is \$34,984.53, of which \$18,377.85 is allocated to administrative account and \$16,606.68 is allocated to the environmental account, rendering a balance of \$2,549,329.06.

Reporting Requirements/Compliance:

The RCRA Corrective Action Remedy decisions for both the active and inactive portions of the Facility include the following reporting requirements.

On an annual basis and when requested by PADEP or EPA, submit a written certification of compliance with all terms of the final remedy.

Within one month after any of the following events, require the then current owner to submit written documentation to PADEP and EPA describing any:

- observed noncompliance with groundwater use restrictions,
- transfer of ownership,
- change in land use,

- application for building permits, and
- proposed site work that could affect the effectiveness of the final remedy.

The EC for the **Active Portion** of the Facility was executed in 2020 after the RCRA Corrective Action Remedy Decision was issued in 2019 and includes the above requirements.

The EC for the **Inactive Portion** of the Facility was executed in 2014 before the RCRA Corrective Action Remedy Decision was issued in 2018, and is worded differently and requires the following:

Then-current owner is to submit to PADEP at the end of every January written documentation stating the results of its inspection including if the activity and use limitations are being abided by.

In addition, within 21 days after

- a) written request by PADEP or EPA,
- b) transfer of title of the Property or any part of the Property affected by this Environmental Covenant,
- c) noncompliance with the Activity and Use Limitations, or
- d) an application for a permit or other approval for any building or site work that could affect contamination on any part of the Property,

then-current owner is to submit a report to PADEP and EPA stating if there is compliance with the Activity and Use Limitations.

If there is noncompliance, the report will state the actions that will be taken to assure compliance.

Although the 2014 Environmental Covenant for the **Inactive Portion** of the Facility requires reporting compliance with the activity and use limitations, the following requirements of the 2018 RCRA Corrective Action Remedy Decision are not included in the 2014 EC:

1. On an annual basis and when requested by PADEP or EPA, submit a written certification of compliance with all terms of the final remedy.
2. Reporting a change in land use within one month after the event; and
3. Explicitly reporting proposed site work that could affect the effectiveness of the final remedy within one month after the event, although it could be interpreted to be implied.

In addition to the above reporting requirements, the ECs for both the active and inactive portions of the Facility include the following additional reporting requirements to EPA:

The then-current owner is to provide written notice to EPA of:

1. the pendency of any proceeding that could lead to a foreclosure as referred to in 27 Pa. C.S. § 6509(a)(4) within seven calendar days of the owner's receiving notice of the pendency of such proceeding;

2. any judicial action referred to in 27 Pa. C.S. § 6509(a)(5) within seven calendar days of the owner's receiving notice of such judicial action;
3. any judicial action referred to in 27 Pa. C.S. § 6509(b) within seven calendar days of the owner's receiving notice of such judicial action; and
4. termination or amendment of this Environmental Covenant pursuant to 27 Pa. C.S. § 6510 within seven calendar days of the owner's becoming aware of such termination or amendment.

A review of compliance is described below:

For the **Active Portion** of the Facility, during the August 27, 2024, inspection by representatives of PADEP, a representative of PADEP reviewed with a representative of Styropek all the reporting requirements and the representative of Styropek stated annual reports are being submitted to EPA. However EPA is unable to locate any annual report submittal from Styropek.

For the **Inactive Portion** of the Facility owned by LECT through LePetomane, during the August 28, 2024 inspection by representatives of PADEP, a representative of PADEP reviewed with a representative of LECT all the reporting requirements. A review of EPA records finds a November 22, 2023, Inspection Letter documents the results of an inspection of whether the activity and use limitations that are in the 2014 Environmental Covenant are in place for the West Landfill and the Raccoon Creek Area. The following reporting elements are missing:

1. Documentation of an inspection of the entire area owned by the LECT through LePetomane as required by the 2014 Environmental Covenant, including if the Dravo Quarry Area was inspected.
2. Documentation that the activity and use limitations are in place for the entire area owned by LECT through LePetomane; and
3. Certification of compliance with all the terms of the 2018 RCRA Corrective Action Final Remedy Decision.

For the portion of the Facility owned by the BCCED, during the August 2024 inspection by representatives of PADEP, a representative of PADEP reviewed with a representative of BCCED all the reporting requirements. A review of EPA records finds the most recent annual report was submitted September 11, 2024. The September 2024 submittal documents the results of an annual inspection of the East Landfill Area. The following reporting elements are missing:

1. Documentation of an inspection of the entire Facility as required by the Environmental Covenant (is missing inspection of the Phthalic Anhydride Area);
2. Documentation that the activity and use limitations in the EC are being abided by as required in the 2014 Environmental Covenant;
3. Certification of compliance with all the terms of the Final Remedy selected by EPA as memorialized in the 2018 RCRA Corrective Action Remedy Decision.

Mapping:

The Facility has been geospatially mapped and is available on the Facility's EPA Factsheet. (See Attachment 1).

The geospatial map could be improved by more clearly depicting the extent of the former tanks that comprised the former “Over the Hill Tank Farm” and indicating the areas owned by BCCED verses the LECT through LePetomane.

Conclusions and Recommendations:

For each of the three separately owned portions of the Facility, current human exposures reportedly are under control, applicable institutional controls are maintained, applicable engineered controls are competent, land use did not change, and financial assurance remained appropriate.

While environmental controls for the entire Facility reportedly remain responsibly in place, numerous recommendations are described below:

Priority:

Active Portion:

The active portion of the Facility may close shortly- possibly in December 2024. Routine active communication should be maintained with Styropek to learn its operating status and plans. This should include reaching out to Styropek in December 2024.

That vapor intrusion controls are in place for occupied structures within 100 feet of vapor contaminants at the Active Portion of the Facility should be confirmed. EPA’s remedy for the Active Portion requires vapor intrusion controls only for future inhabited buildings and not currently inhabited structures and does not explain why. During the August 27, 2024, inspection, representatives for Styropek stated vapor intrusion controls at occupied structures are in place.

An evaluation also is needed to determine if the RCRA Corrective Action Remedy Decision for the Active Portion of the Facility requires revision to protect from current vapor intrusion.

Short Term Needs

1. Replace missing NPDES Outfall sign which has detached.
2. Replace temporary fencing as soon as the existing vegetative surfaces in the newly installed stormwater control ponds have stabilized.
3. Confirm that all No Trespassing signs are in place.
4. Confirm that any newly installed gates are fitted with appropriate locks.
5. Place appropriate secondary containment pallets beneath chemical totes.
6. Continue to maintain E&S controls around the perimeter of the Facility; and maintain the passability of the roads.
7. Update/Upgrade the signage for monitoring wells and NPDES points. Some of the signs are showing signs of wear.
8. Styropek should submit annual reports certifying compliance with all terms of the Final Remedy selected by EPA, extending since January 2021 to current, and future annual reports to: R3_RCRAPOSTREM@epa.gov
9. The following improvements to the PRCP are recommended:

- a. Update to reflect the practices of the current owner, including Health and Safety etc.
- b. Verify the portions requiring PADEP approval, including the PADEP-approved soils management program and worker protection program, are approved by PADEP.
- c. Add the RCRA Corrective Action Remedy Decision and Environmental Covenant as attachments.
- d. Add a summary of all RCRA Corrective Action Remedy Decision and Environmental Covenant Requirements.
- e. To include upfront reminders of the following:
 - 1) To annually submit a written certification of compliance with all terms of the Final Remedy selected by EPA, as memorialized in the 2018 RCRA Corrective Action Remedy Decision for the Inactive Portion of the Facility.
 - 2) The summary of all Remedy Decision and EC requirements and it is recommended the Facility annually review these requirements.

Inactive Portion owned by LECT through LePetomane- includes the West Landfill/Dravo Quarry Area and the Raccoon Creek Landfill Area

Short Term Needs

1. Repair culvert pipe (#5) that has separated.
2. Replace missing signage which has detached.
3. Confirm that all No Trespassing signs are in place.
4. Confirm that any newly installed gates are fitted with appropriate locks.
5. Place appropriate secondary containment pallets beneath chemical totes at treatment plant.
6. Continue to maintain E&S controls around the perimeter of the Facility; and maintain the passability of the roads (repair to the slide on travel road).
7. Repair slide and stabilize soils.
8. Continue investigations of Raccoon Creek groundwater exceedances.
9. The following improvements to the PRCP are recommended:
 - a) Verify the portions requiring PADEP approval, including the PADEP-approved soils management program and worker protection program, are approved by PADEP.
 - b) Add the Environmental Covenant and RCRA Corrective Action Remedy Decision as attachments.
 - c) Fully state in Table 1 the Activity and Use Limitations in the EC, rather than including by reference.
 - d) To include upfront reminders of the following:
 - 1) To annually inspect the entire property as required by the 2014 Environmental Covenant and not just the covered disposal areas;
 - 2) To annually submit written documentation stating whether or not the activity and use limitations listed in Paragraph 5 of the EC (Activity and Use Limitations) are being abided by, as required by the 2014 Environmental Covenant; and
 - 3) To annually submit a written certification of compliance with all terms of the Final Remedy selected by EPA, as memorialized in the 2018 RCRA Corrective Action Remedy Decision for the Inactive Portion of the Facility. (This is in Table 1 of the PRCP but could be improved by calling it out in the beginning.)
 - 4) That a summary of all Remedy Decision and EC requirements are in Table 1 and that it is recommended the Facility annually review these requirements.

Inactive Portion owned by BCCED that includes the East Landfill Area and the former Phthalic Anhydride Plant Area:

Short Term Needs

1. Future Inspections should include the Phthalic Anhydride Area
2. Replace missing signage which has detached.
3. Confirm that all No Trespassing signs are in place.
4. Place appropriate secondary containment pallets beneath chemical totes at treatment plant.
5. Continue to maintain E&S controls around the perimeter of the Facility;
6. The following improvements to the PRCP are recommended:
 - a. Verify the portions requiring PADEP approval, including the PADEP-approved soils management program and worker protection program, are approved by PADEP.
 - b. Add the Environmental Covenant and RCRA Corrective Action Remedy Decision as attachments.
 - c. Add a summary of all RCRA Corrective Action Remedy and Environmental Covenant requirements
 - d. To include upfront reminders of the following:
 - 1) To annually inspect the entire property as required by the 2014 Environmental Covenant including the former Phthalic Anhydride Plant area.
 - 2) To annually submit written documentation stating whether or not the activity and use limitations listed in Paragraph 5 of the EC (Activity and Use Limitations) are being abided by, as required by the 2014 Environmental Covenant; and
 - 3) To annually submit a written certification of compliance with all terms of the Final Remedy selected by EPA, as memorialized in the 2018 RCRA Corrective Action Remedy Decision for the Inactive Portion of the Facility.
 - 4) The summary of all RCRA Corrective Action Remedy Decision and Environmental Covenant requirements and it is recommended the Facility annually review these requirements.

Future Exposures:

Based on the review, the following is recommended:

1. After PADEP completes its follow-up inspections in the Fall 2024, follow up communications should be conducted as needed with each of the three owners to address remaining short-term concerns identified above.
2. For the Active Portion, if the Facility closes or changes use, an evaluation should be conducted to verify current human exposures remain under control and if the RCRA Corrective Action Remedy remains protective for human health and the environment. Concern includes but is not limited the extent all releases have been identified and characterized including releases from all solid waste management units, including wastewater treatment units that include impoundments managing waste.

3. The potential for groundwater contaminant impact to ecological receptors via impact to pore water in Raccoon Creek and the Ohio River should be investigated. Such may be accomplished via visual inspection during winter seasons, and the use of field meters and geophysical means use to identify groundwater discharge locations.
4. Documents which are submitted for review under the bankruptcy that describe planned use of funds and completed use of funds for environmental activities require routine Agency review to verify appropriate use of the funding.
5. An evaluation should be conducted to determine if land conveyed to BV Partners in September 1985 is part of the Facility for the purpose of RCRA Corrective Action and requires evaluation for corrective action¹. Such sale is documented in the 2009 bankruptcy as land omitted from the bankruptcy.
6. Reports and notifications submitted in accordance with the two environmental covenants and three post remedial care plans require routine agency review, as well as routine monitoring to verify required annual submittals are occurring. For example the recently submitted 2024 Annual Report for the East Landfill requires review; and monitoring is needed to recognize no submittals have been received from the Active Facility.
7. The geospatial map could be improved by more clearly depicting the extent of the former tanks that comprised the former “Over the Hill Tank Farm” and indicating the areas owned by BCCED verses the LECT through LePetomane. Additionally, the location of the groundwater monitoring wells and related impoundment that were used to assess the status of release in groundwater at the former Over the Hill Tank farm in the RCRA Corrective Action Remedy Decision are not depicted in the Remedy Decision or any related documented and should be identified.
8. Records should document that the Active Portion of the Facility is using RCRA ID# PAR000023986 and the Inactive Portion of the Facility is using the original RCRA ID# PAD068730225
9. The 2014 Environmental Covenant for the Inactive Portion of the Facility, while it requires compliance with the activity and use limitations within, should be updated for consistency with the 2018 RCRA Corrective Action Remedy Decision, to require the following:
 - a. On an annual basis and when requested by PADEP or EPA, submit a written certification of compliance with all terms of the final remedy.
 - b. Reporting a change in land use within one month after the event; and
 - c. Explicitly reporting proposed site work that could affect the effectiveness of the final remedy within one month after the event, although it could be interpreted to be implied.

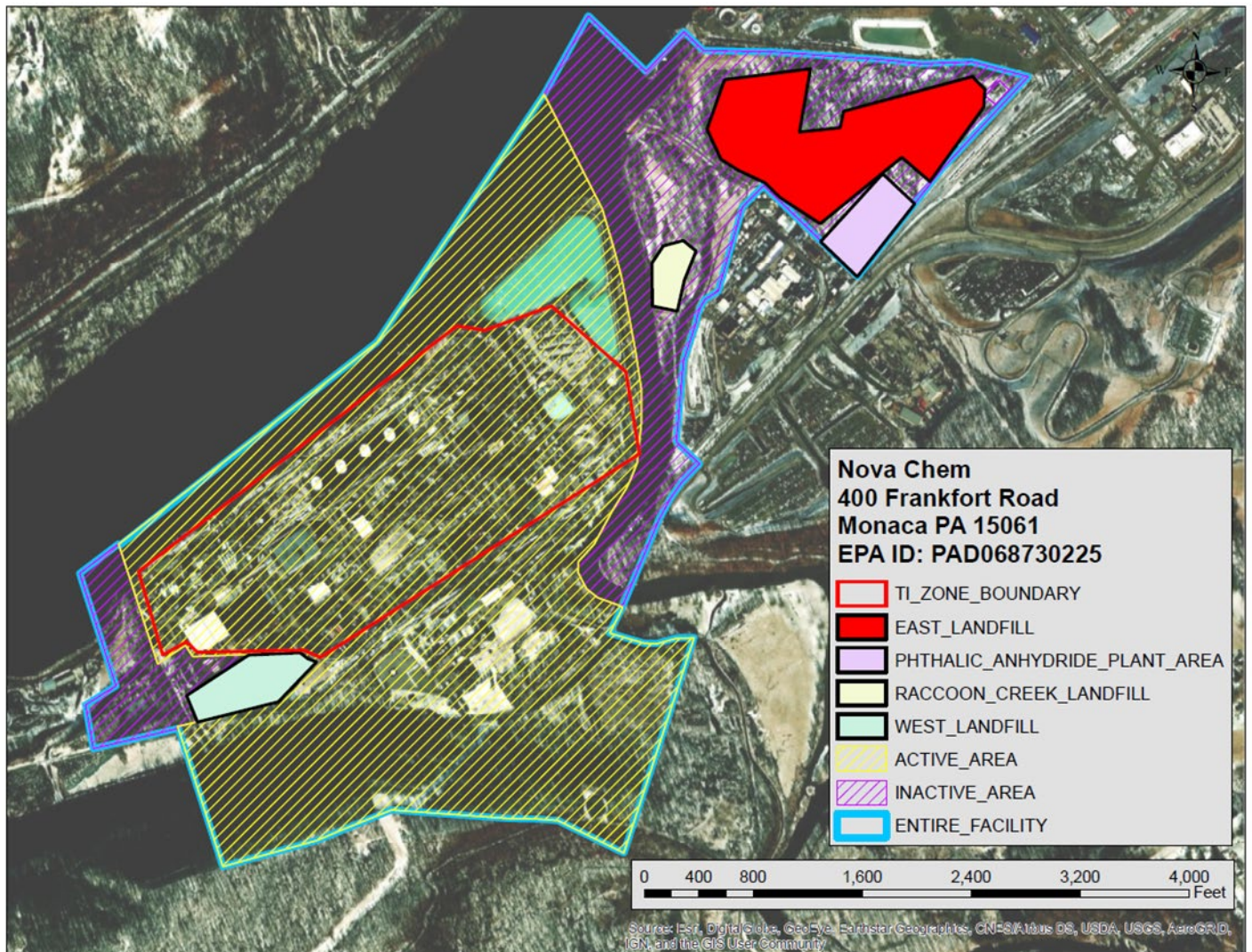
¹ By deed dated September 17, 1985 and recorded on September 30, 1985 in the Beaver County Recorder of Deeds office in Deed book 1251, page 744. (Reference: Legal Description of Beaver Valley Pa Transferred Real Property, associated with the Lyondell Environmental Custodial Trust)

Documents Reviewed:

1. Statement of Basis for the Active Portion of the former Arco Chemical Company, Monaca, Pennsylvania dated December 3, 2018
2. Final Decision and Response to Comment for the Active Portion of the former Arco Chemical Company, Monaca, Pennsylvania dated January 29, 2019
3. Statement of Basis for the Inactive Portion of the former Arco Chemical Company, Monaca, Pennsylvania dated August 23, 2018
4. Final Decision and Response to Comment for the Inactive Portion of the former Arco Chemical Company, Monaca, Pennsylvania dated September 28, 2018
5. Environmental Covenant for the Active Portion of the Facility (Nova Chemicals Corporation) recorded on May 5, 2020
6. Post-Remediation Care Plan for Nova Chemicals Corporation Beaver Valley Site, Potter Township, Beaver County Pennsylvania, prepared for Nova Chemicals Corporation, prepared by KU Resources, Inc., dated May 2019
7. Environmental Covenant for the Inactive Portion of the Facility (Lyondell Environmental Custodial Trust, by and through Le Petomane XXIII, Inc., not individually
8. but solely as Custodial Trust Trustee) Filed on December 4, 2014.
9. Post-Remediation Care Plan Revision for the East Landfill Area prepared for BCCED, prepared by Civil & Environmental Consultants, Inc., dated June 2019 as revised July 2020,
10. Post-Remediation Care Plan Lyondell Environmental Custodial Trust Beaver Valley Site Raccoon Creek Area and West Landfill/Dravo Quarry Area prepared for Lyondell Environmental Custodial Trust, prepared by Tetra Tech, Inc. dated April 2020
11. 2023 Annual Inspection Letter, Former Lyondell Beaver Valley Site, Lyondell Custodial Trust, Potter Township, Pennsylvania, prepared by Tetra Tech on behalf of the LECT, dated November 22, 2023.
12. Annual Report 2023 RCRA Final Remedy Beaver Valley Site Raccoon Creek Area and West Landfill/Dravo Quarry Area, Potter Township, Pennsylvania, prepared for the LECT presented by Tetra Tech. dated January 2024.
13. 2023 Annual Report Le Petomane East Landfill Area prepared for the BCCED prepared by Civil & Environmental Consultants, Inc., dated July 2023.
14. 2024 Annual Report Le Petomane East Landfill Area prepared for the BCCED prepared by Civil & Environmental Consultants, Inc., dated September 2024.

15. Memorandum From PADEP to EPA Regarding Long Term Stewardship Inspection for the NOVACHEM Facility, BVPV Styrenics-Styropek dated August 30, 2024, and accompanying EPA LTS Checklist Template
16. Memorandum From PADEP to EPA Regarding Long Term Stewardship Inspection for the NOVACHEM Facility, LePetomane XXIII, West Landfill, Dravo Quarry, and Raccoon Creek Area dated August 30, 2024 and accompanying EPA LTS Checklist Template
17. Memorandum From PADEP to EPA Regarding Long Term Stewardship Inspection for the NOVACHEM Facility, Beaver County Corporation for Economic Development (BCCED) East Landfill and Phthalic Anyhydride Area, dated August 30, 2024 and accompanying EPA LTS Checklist Template
18. Compensation and Expense Report L24-001 for the Beaver Valley Site from the Office of the Lyondell Environmental Custodial Trust, Le Petomane **XXIII**, Inc., Not Individually, But Solely as LYONDELL Environmental Custodial Trust Trustee to PADEP (Matthew Barch)

Attachment 1. EPA Geospatial



Attachment 2: Remedial EC/IC Summary Table.

Facility Name	Nova Chemical			
Address	400 Frankfort Rd, Monaca PA 15061			
EPA IDs#	PAD068730225 and for Active PAR000023986			
Are there restrictions or controls that address:	Yes	No	Area(s)	Description of restrictions, controls, and mechanisms
Groundwater Use	X		Facility	Use or consumption prohibited via Proprietary IC (covenant)
Residential Use	X		Facility	Prohibited via Proprietary IC (covenant)
Excavation	X		Within TI Zone at Active Portion	Compliance with PRCP via Proprietary IC (covenant) (SB/FDRTC requires a PADEP-approved soil management and worker protection program for any intrusive procedures conducted within the groundwater Technical Impracticity (TI) Zone, to be outlined in a PRCP to be approved by EPA)
			Capped Areas; former Phthalic Anyhydride Plant	Prohibited via Proprietary IC (covenant)
Vapor Intrusion	X		Active Portion	VI mitigation/remediation system required for future inhabited buildings via Proprietary IC (covenant)
			Inactive Portion	VI must be evaluated prior to construction of inhabited buildings via Proprietary IC (covenant)
Capped Area(s)	X		West Landfill, East Landfill, Raccoon Creek Disposal Areas	Inspections/O&M required by covenant
Other Engineering Controls	X		Inactive Portion	Inspections/O&M of engineered structures (fences/gates, stormwater management devices) required by covenant
Other Restrictions	X		Raccoon Creek through Facility	Consumption of Raccoon Creek surface water prohibited within the property boundary via Proprietary IC (covenant)

Attachment 3: Remedial Review Questionnaires

LTS Checklist for Active Portion owned by Styropek:

- Are current human exposures under control? **YES**
- Compliance with applicable Institutional Controls **YES**
- If applicable Engineered Controls are competent **YES**
- If land use, toxicity values & contaminant concentrations have not changed in such a way as to compromise protectiveness. **No Changes**
- If financial assurance remains appropriate. **YES**

<u>IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have the ICs specified in the remedy been fully implemented? Implementation mechanism in place?	X		
• Do the ICs provide control for the entire extent of contamination (entire site or a specific portion)?	X		
• Are the ICs eliminating or reducing exposure of all potential receptors to known contamination?			Reducing exposure to receptors MNA working slowly
• Are the ICs effective and reliable for the activities (current and future) at the property to which the controls are applied?	X		MNA will still take a significant time to remedy
• Have the risk of potential pathway exposures addressed under Corrective Action changed based on updated screening levels and new technologies?	X		
• Are modifications to the IC implementation mechanism needed? (i.e. UECA Covenant, Permit or Order)		X	
• Are there plans to develop or sell the property?			Styropek has tentatively stated it will cease operations DEC 2024. More to follow
• Have all reporting requirements been met?	X		

<u>Groundwater Remedy Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is groundwater onsite used for potable purposes?		X	
• Is the Facility connected to a public water supply?			Potable water is unknown, Facility has its own wastewater treatment and outfall

• Are the current groundwater flow rate and direction similar as mentioned in the previous studies?	X		No changes to groundwater model
• Groundwater contaminants stable or decreasing in concentration?			stable
• Are groundwater monitoring wells still in place (# wells)?	X		Will need to confirm number of wells
• Any evidence or reason to re-evaluate the number and location of monitoring points and/or monitoring frequency?		Not at this time	In the event of a sale or a closure the TI should be lifted and full site evaluation undertaken
• For wells where groundwater monitoring is no longer required, have the wells be decommissioned?	X		Wells in the “over the hill” section have been abandoned

<u>Surface and Subsurface Soil IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is the Facility being used for residential purposes?		X	
• Have there been recent construction or earth-moving activities or future plans for such?	X		Updated stormwater control basins installed.

<u>Engineered Cap or Cover Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have vegetative landfill caps (name) been properly maintained?			No landfill present-chemical release history
• Have any repairs been necessary? (i.e. regrading, filling, root removal)		X	Facility will need to continue to keep up with maintenance
• Is the leachate collection system operating and effectively preventing groundwater contamination?			No leachate- current monitoring systems are functional

<u>Miscellaneous EC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
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• Is the security fence intact?		X	Small section of temporary fence in place by repairs to stormwater outfalls. Will replace when completed
• Is the appropriate signage posted?		X	Some signs need to be replaced. Facility is aware.

LTS Checklist for Inactive Portion owned by LECT through LePetomane

- Are current human exposures under control? **YES**
- Compliance with applicable Institutional Controls **YES**
- If applicable Engineered Controls are competent **YES**
- If land use, toxicity values & contaminant concentrations have not changed in such a way as to compromise protectiveness. **No Changes**
- If financial assurance remains appropriate. **YES**

<u>IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have the ICs specified in the remedy been fully implemented? Implementation mechanism in place?	X		
• Do the ICs provide control for the entire extent of contamination (entire site or a specific portion)?	X		
• Are the ICs eliminating or reducing exposure of all potential receptors to known contamination?	X		Reducing exposure to receptors MNA working slowly
• Are the ICs effective and reliable for the activities (current and future) at the property to which the controls are applied?	X		MNA will still take a significant time to remedy
• Have the risk of potential pathway exposures addressed under Corrective Action changed based on updated screening levels and new technologies?	X		
• Are modifications to the IC implementation mechanism needed? (i.e. UECA Covenant, Permit or Order)		X	
• Are there plans to develop or sell the property?		X	
• Have all reporting requirements been met?	X		

<u>Groundwater Remedy Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
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• Is groundwater onsite used for potable purposes?		X	
• Is the Facility connected to a public water supply?		X	Potable water is unknown, Facility has its own water plant and wastewater treatment and outfall
• Are the current groundwater flow rate and direction similar as mentioned in the previous studies?	X		No changes to groundwater model
• Groundwater contaminants stable or decreasing in concentration?		X	Possible fluctuations- additional testing to follow
• Are groundwater monitoring wells still in place (# wells)?	X		
• Any evidence or reason to re-evaluate the number and location of monitoring points and/or monitoring frequency?			Not at this time
• For wells where groundwater monitoring is no longer required, have the wells be decommissioned?	X		West Landfill wells abandoned

<u>Surface and Subsurface Soil IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is the Facility being used for residential purposes?		X	
• Have there been recent construction or earth-moving activities or future plans for such?		X	

<u>Engineered Cap or Cover Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have vegetative landfill caps (name) been properly maintained?	X		
• Have any repairs been necessary? (i.e. regrading, filling, root removal)		X	Facility will need to continue to keep up with maintenance
• Is the leachate collection system operating and effectively preventing groundwater contamination?			No leachate- current monitoring systems are functional

<u>Miscellaneous EC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is the security fence intact?	X		
• Is the appropriate signage posted?		X	Some signs need to be replaced. Facility is aware.

LTS Checklist for Inactive Portion owned by the BCCED:

- Are current human exposures under control? **YES**
- Compliance with applicable Institutional Controls **YES**
- If applicable Engineered Controls are competent **YES**
- If land use, toxicity values & contaminant concentrations have not changed in such a way as to compromise protectiveness. **No Changes**
- If financial assurance remains appropriate. **YES**

<u>IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have the ICs specified in the remedy been fully implemented? Implementation mechanism in place?	X		
• Do the ICs provide control for the entire extent of contamination (entire site or a specific portion)?	X		
• Are the ICs eliminating or reducing exposure of all potential receptors to known contamination?	X		
• Are the ICs effective and reliable for the activities (current and future) at the property to which the controls are applied?	X		
• Have the risk of potential pathway exposures addressed under Corrective Action changed based on updated screening levels and new technologies?	X		
• Are modifications to the IC implementation mechanism needed? (i.e. UECA Covenant, Permit or Order)		X	
• Are there plans to develop or sell the property?		X	
• Have all reporting requirements been met?	X		

<u>Groundwater Remedy Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is groundwater onsite used for potable purposes?		X	
• Is the Facility connected to a public water supply?		X	
• Are the current groundwater flow rate and direction similar as mentioned in the previous studies?	X		No changes to groundwater model
• Groundwater contaminants stable or decreasing in concentration?		X	No monitoring
• Are groundwater monitoring wells still in place (# wells)?		X	
• Any evidence or reason to re-evaluate the number and location of monitoring points and/or monitoring frequency?		X	
• For wells where groundwater monitoring is no longer required, have the wells be decommissioned?	X		

<u>Surface and Subsurface Soil IC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is the Facility being used for residential purposes?		X	
• Have there been recent construction or earth-moving activities or future plans for such?		X	

<u>Engineered Cap or Cover Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have vegetative landfill caps (name) been properly maintained?	X		
• Have any repairs been necessary? (i.e. regrading, filling, root removal)		X	Facility will need to continue to keep up with maintenance
• Is the leachate collection system operating and effectively preventing groundwater contamination?			No leachate- current monitoring systems are functional

<u>Miscellaneous EC Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Is the security fence intact?	X		Brand new fence
• Is the appropriate signage posted?		X	Some signs need to be replaced. Facility is aware.