RECORD OF DECISION AMENDMENT

Imperial Oil Co., Inc./Champion Chemicals Superfund Site

Operable Unit 2

Marlboro Township, Monmouth County, New Jersey

U.S. Environmental Protection Agency
Region 2
September 2020

615707

DECLARATION STATEMENT
RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Imperial Oil Co., Inc./Champion Chemicals Superfund Site
Marlboro Township, Monmouth County, New Jersey
EPA ID #NJD 980654099
Operable Unit 2, Groundwater

STATEMENT OF BASIS AND PURPOSE

The United States Environmental Protection Agency (EPA) issued a Record of Decision (ROD) for Operable Unit 2 (OU2) of the Imperial Oil Co., Inc./Champion Chemicals Superfund Site (Site) on September 30, 1992, which addressed contaminated groundwater at the Site, located in the Morganville section of Marlboro Township, Monmouth County, New Jersey. This decision document presents the remedy amendment for the contaminated groundwater.

EPA selected the remedy amendment in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended, 42 U.S.C. §§9601-9675, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record file for this Site, an index of which can be found in Appendix IV.

The State of New Jersey concurs with this ROD Amendment. A copy of the concurrence letter can be found in Appendix V.

ASSESSMENT OF THE SITE

The response action selected in this ROD Amendment is necessary to protect the public health, welfare, or the environment from actual or threatened releases of hazardous substances from the Site into the environment.

DESCRIPTION OF THE SELECTED REMEDY AMENDMENT

The response action described in this document modifies the groundwater remedy selected in the 1992 ROD.

The major components of the remedy amendment include the following:

- Collection of groundwater samples from the monitoring network
- Evaluation of the samples for contaminants of concern (COCs) and Monitored Natural Attenuation (MNA) parameters

The groundwater contamination throughout the Site will be addressed through MNA using the existing monitoring well network. Monitoring will continue to be used to evaluate the concentrations of trichloroethylene (TCE), benzene, beryllium, arsenic, degradation products, and other MNA parameters upgradient, within and downgradient of the former groundwater contamination source area. If necessary, additional monitoring wells will be added to the network. This will ensure that groundwater is restored to its beneficial use as a potential source of drinking water in a reasonable timeframe. The estimated present net worth cost of the selected remedy amendment for the groundwater is $623,317.

In 1998, NJDEP established a Classification Exception Area/Well Restriction Area for the Site as institutional controls (ICs) that restrict the use of groundwater over an area that includes the area beneath and downgradient of the former Imperial Oil Co., Inc./Champion Chemicals property. ICs were not part of the 1992 OU2 ROD but are included in this ROD Amendment.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The remedy amendment is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, and is cost-effective. EPA has determined that the amended remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site.

Part 2: Statutory Preference for Treatment

The remedy amendment does not meet the statutory preference for the use of remedies that involve treatment as a principal element.

Part 3: Five-Year Review Requirements

Because this remedy amendment will not result in hazardous substances, pollutants, or contaminants remaining above levels that allow for unlimited use and unrestricted exposure, EPA anticipates that a statutory five-year review will not be required for groundwater. However, because it may take more than five years to attain the remedial action objectives and cleanup levels for the groundwater, policy reviews will be conducted until the remedial goals are met to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD Amendment. Additional information can be found in the Administrative Record file for this Site.

- Chemicals of concern and their respective concentrations may be found in the “Site Characteristics” section.

- Baseline risk represented by the chemicals of concern may be found in the “Summary of Risks” section.

- Cleanup levels established for chemicals of concern and the basis for these levels can be found in the “Remedial Action Objectives” section.

- Current and reasonably anticipated future land use assumptions and current and potential future uses of groundwater used in the baseline risk assessment and ROD can be found in the “Current and Potential Future Site and Resource Uses” section.

- Estimated capital, operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy amendment cost estimates are projected can be found in the “Description of Alternatives” section.

- Key factors that led to selecting the remedy amendment may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

Evangelista, Pat

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Pat Evangelista, Director
Superfund and Emergency Management Division
EPA Region 2

Date

RECORD OF DECISION AMENDMENT

DECISION SUMMARY

Imperial Oil Co., Inc./Champion Chemicals Superfund Site
Marlboro Township, Monmouth County
New Jersey

U.S. Environmental Protection Agency
Region 2
New York, New York
September 2020

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SITE NAME, LOCATION AND BRIEF DESCRIPTION

The Imperial Oil Co., Inc./Champion Chemicals Superfund Site (Site), United States Environmental Protection Agency (EPA) ID# NJD980654099, is located on Orchard Road, Block 122, Lot 29, in Morganville, NJ which is a lightly developed area of Marlboro Township, Monmouth County, New Jersey. The Site encompasses approximately 15-acres and the former industrial active portion of the property was about 4.2 acres (Figure 1).

SCOPE AND ROLE OF THE ACTION

As with many Superfund sites, the contamination at the Site is complex. In order to manage the cleanup of the Site more effectively, EPA has organized the work into three operable units (OUs) for long-term cleanup. In addition, EPA and the New Jersey Department of Environmental Protection (NJDEP) have conducted a number of removal actions at the Site.

On September 27, 1990 EPA issued the Record of Decision (ROD) for OU1. The OU1 ROD addressed soil and sediment in areas located adjacent to and downgradient of the former Imperial Oil property, and within Birch Swamp Brook and its floodplain, as well as contaminated soil located on six residential properties near the former facility. All OU1 cleanup activities were completed by 2018.

On September 30, 1992 EPA issued the OU2 ROD, which addresses the Site's contaminated groundwater, and which selected the construction of a groundwater extraction and treatment system as the remedy. All OU2 actions were deferred until completion of the OU3 remedy. In 1998, in order to prevent potential exposure to the impacted groundwater, the NJDEP established an institutional control in the form of a Classification Exemption Area/Well Restriction Area (CEA/WRA).

On September 30, 1999 EPA issued the OU3 ROD for removal of the Site's contaminated soil, which was the source of the groundwater contamination.

In addition, EPA and NJDEP have completed several removal actions to address conditions that presented a serious risk to public health and the environment. For example, in November 1991, EPA removed a waste filter clay mound contaminated with polychlorinated biphenyls (PCBs), arsenic, lead, and total petroleum hydrocarbons (TPHs) down to ground level. The excavated material (approximately 660 cubic yards) was disposed of at an approved Resource Conservation and Recovery Act (RCRA) landfill. Waste filter clay material remaining below grade was covered with a protective liner to limit the migration of this contaminated material. Also in 1991, EPA installed extraction wells to remove a floating layer of contamination that laid on the groundwater beneath the waste filter clay disposal area. In 1996, NJDEP assumed responsibility for the removal of the floating product. Between 1996 and 2009, approximately 25,000 gallons of floating product were recovered from the Site.

In April 1993, EPA began the removal of several buried drums, which contained waste oil and sludge. The purpose of the action was to minimize the possibility of further migration of contaminated materials already in the ground.

In April 2002, EPA removed a tar-like material and associated soil from an area of the Site that is accessible to the public. After excavation of these materials, the excavated area was filled with gravel over an impermeable liner to prevent migration of contamination.

The remedy amendment selected in this amendment to the OU2 ROD (ROD Amendment) is expected to be the final action for the Site.

SUMMARY OF SITE CHARACTERISTICS

The major groundwater system underlying the Site is the Englishtown aquifer. The Englishtown aquifer is comprised of two flow components; 1) a shallow flow component and 2) a deeper flow component that comprises the regional flow of the Englishtown aquifer.

Groundwater in the shallow part of the aquifer generally flows in a northerly direction, with local radial flow components to the east and west within the backfilled portions of the Site. Groundwater in the shallow portion of the aquifer discharges to the Fire Pond (a man-made pond on the eastern portion of the Site) and Birch Swamp Brook. Water in Birch Swamp Brook, which is intermittent, flows to Lake Lefferts and eventually to Raritan Bay (approximately two miles north of the Site).

Depth to water ranges from grade (within the fence line at the northwestern corner of the property) to fourteen feet below grade (at the southeastern portion of the property). The saturated thickness of the aquifer beneath the Site ranges from forty-nine to fifty-five feet. The aquifer is underlain by the Woodbury Clay Formation which acts as an aquitard.

The groundwater underlying the Site is classified as a Class IIA groundwater aquifer (potable water source) by the State of New Jersey.

SITE HISTORY

Industrial activities began at the former Imperial Oil facility around 1912. Initially, food products were manufactured at the facility. Beginning in approximately 1917, it became a chemical processing plant whose products may have included arsenic acid and calcium arsenate. The Site was later used to manufacture flavors and essences.

Champion Chemicals purchased the plant around 1950 and used it as an oil reclamation facility. The oil reclamation process used diatomaceous earth (filter clay) and caustic solution to remove heavy metals and PCBs from waste oil. The industrial waste products, including the contaminated waste filter clay and caustic solution, were disposed of on-site. This operation continued until approximately 1965. In 1968, Imperial Oil Company leased the facility from Champion Chemical and began oil blending operations. These operations included mixing and repackaging unused oil for delivery. Imperial Oil's mixing and blending operations continued until July 2007, when the company declared bankruptcy and abandoned the facility.

Improper handling, disposal and storage of hazardous materials at the facility resulted in the release of contaminants into the environment. The main contaminants included arsenic, lead,

total petroleum hydrocarbons (TPHs), and PCBs. Operations at the facility resulted in the contamination of soil on the operating facility property and several adjacent properties, sediment in the Birch Swamp Brook and groundwater.

The Site was proposed for inclusion on the EPA National Priorities List (NPL) of Superfund sites on December 1, 1982, and formally added to the NPL on September 1, 1983. This is an EPA fund-lead Site. Investigations and clean-up activities are conducted by EPA.

Summary of Remedial Investigations

A remedial investigation (RI) for the entire Site was conducted by the NJDEP in several phases. The first phase was conducted in 1987 and a second phase in 1989/1990. The Final Site-wide RI Report was issued in December 1996. This report described the nature and extent of contamination in soil, sediment, and groundwater.

The 1996 RI identified several sources of contamination to the groundwater including aboveground storage tanks, a waste filter clay pile from petroleum refining operations, a layer of oil floating on the water table, former Site buildings, a former settling lagoon for the oil reclamation process, contaminated soil fill areas, and sediments in a stormwater drainage system and Birch Swamp Brook.

Sampling conducted during the 1996 RI indicated that soils contained elevated levels of numerous contaminants including PCBs, arsenic, lead, beryllium, antimony, toluene, xylenes, ethylbenzene, pyrene, PHS, bis (2-ethylhexyl) phthalate, and butylbenzylphthalate. In addition, floating product, which contained elevated levels of PCBs, toluene, ethylbenzene, xylenes, naphthalene and fluorene, was a continuing source of groundwater contamination. Sampling also indicated that the Birch Swamp Brook sediment contained elevated levels of PCBs, arsenic and TPHs.

The full list of contaminants of concern (COCs) originally identified in the groundwater are listed in Table 2.

OU1 ROD

The first ROD for the Site was signed in September 1990 and selected a remedy for OU1, which addressed what is known as Off-Site Areas 1 and 2. The Remedial Action Objectives (RAOs), as listed in the OU1 ROD, are:

- Reduce exposure risks through incidental ingestion, inhalation and dermal contact with contaminated soil.

- Eliminate the potential migration of contaminants into the groundwater and surface water.

- Restoration of the affected wetlands.

- Complete remediation of Off-site Areas 1 & 2 in a short-term timeframe.

The major components of the ROD included:

- Installation of fencing to control access to the contaminated soil areas;
- The excavation and appropriate offsite disposal of contaminated soil from within the wetlands; and
- The restoration of affected wetlands.

OU1 Activities

In September 1991, EPA installed a fence to control access to the contaminated soil areas.

From October 1994 through February 1995, as part of OU1 remedial design activities, NJDEP performed extensive soil sampling, including at several residential properties bordering Birch Swamp Brook. These results indicated that a large area adjacent to Off-Site Areas 1 and 2 contain elevated levels of arsenic and lead.

In 1996 EPA concluded that arsenic in the soils on four residential properties located adjacent to the Imperial Oil facility were related to operations previously conducted at the Site. Other areas of arsenic contamination were attributed to the widespread application of arsenic-based pesticides on former orchard properties, as well as geological background and regional atmospheric distribution.

In September 1997, EPA issued an Explanation of Significant Differences (ESD) to modify the OU1 ROD to include the remediation of four residential properties located adjacent to the Imperial Oil facility. The ESD also provided for the implementation of engineering controls in the vicinity of the Fire Pond and forested wetland areas of the Site as a precautionary measure against potential recontamination of Off-site Areas 1 and 2, once remediated. In March 1998, EPA initiated the excavation and disposal of the arsenic-contaminated soil found on the four residential properties. EPA excavated and disposed of approximately 6,488 cubic yards of soil from the properties. This work was completed in August 1998.

OU2 ROD

In its 1992 ROD, EPA developed the following RAOs for groundwater to address the unacceptable human health risks and environmental concerns posed by Site-related contamination. The RAOs listed in the OU2 ROD are:

- Prevent further off-Site migration of contaminated groundwater; and
- Return the aquifer to its designated use as a source of drinking water by reducing contaminant concentrations in the ground water to drinking water quality.

The major components of the remedy selected in the OU2 ROD included the following:

- Installation of extraction wells to extract the contaminated groundwater;
- Treatment of extracted groundwater via precipitation of inorganic contaminants and carbon adsorption of organic contaminants;
- Discharge of the treated groundwater to Birch Swamp Brook;
- Continuation of the floating product removal action that was initially undertaken by EPA; and
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

OU2 Activities

Implementation of all the elements of the OU2 ROD was deferred while the contaminated soil, which was the source of the groundwater contamination, was removed as part of the OU3 remedy.

OU3 ROD

The OU3 ROD was issued on September 30, 1999. The OU3 RAOs are:

- Restoring the soil to levels which would allow for future residential/recreational use without restrictions;
- Preventing human exposure to the on-site contaminated soils and waste filter clay material;
- Preventing ecological exposure to contaminated surface soils; and
- Eliminating continuing sources of contamination from on-site areas to ground water, Birch Swamp Brook, the Fire Pond, and associated wetlands.

The major components of the remedy selected in the OU3 ROD include the following:

- Excavation of contaminated soils and disposal of these soils at appropriate off-site facilities;
- Transportation of those soils which pose the principal threat to Resource Conservation and Recovery Act/Toxic Substances Control Act (RCRA/TSCA) hazardous waste disposal facilities;

- Removal of floating product via vacuum truck and transportation of this material to a TSCA licensed incinerator;

- Dismantling of buildings and tank farms, as necessary to complete the soil excavation and floating product removal activities;

- Backfilling of all excavated areas with clean fill; and

- Restoration of wetlands impacted by the cleanup activities.

OU3 Activities

As part of the OU3 cleanup, EPA conducted soil remedial activities which included excavation of source material such as removal of buried drums with oily sludge and tar material, waste filter material, contaminated soil and oily material floating on the groundwater. Contaminated groundwater removed during these excavations was treated and discharged to the surface water.

In order to facilitate removal of the contaminated soil, EPA surrounded the soil with a barrier wall that extended from the ground surface to at least 2 feet into the confining layer which is between 49 and 64 feet below the ground surface. This wall significantly decreased the total volume of contaminated water that was removed and treated as the contaminated soil was removed.

During the OU3 remedial action, an additional 4,305 gallons of floating product that acted as a source to groundwater contamination were collected and shipped off-Site for proper disposal. In addition, an on-site water treatment plant (WTP) was constructed to treat potentially contaminated water generated from the construction activities. The WTP was operated and maintained on-site from June 2010 to November 2011. Approximately 30.4 million gallons of water were treated and discharged during the remedial activities. Through these actions, EPA has removed the potential source areas from the Site, addressed soil and sediment contamination, and eliminated their ongoing contributions to contaminated groundwater.

The OU3 remedial activities began in 2009 and were completed in November 2011

Monitoring Results Since Completion of OU3. After the OU3 activities were completed, EPA breached the barrier wall in eight places to restore the regional groundwater flow pattern and, in late 2011, began twice a year sampling of the entire groundwater sampling network which includes sampling points upgradient, within and downgradient of the former contaminated soil area and downgradient of the Site (Figure 2).

Post-OU3 remedial action groundwater monitoring at Site-wide monitoring wells (Figure 2) has demonstrated that concentrations of semi-volatile organic compound (SVOC) COCs identified in the OU2 ROD have decreased to below remedial goals (Table 2). Of the list of 10 Site VOC COCs, only two compounds (benzene and TCE) remain with exceedances of OU2 ROD remedial goals, and their concentrations have decreased steadily and are currently very close to

the remedial goals. The number of metal COCs exceeding remedial goals has decreased, and currently only two metals, arsenic and beryllium, continue to exceed the remedial goals. These results suggest that the source removal activities were effective in discontinuing contaminant contributions to groundwater.

EPA conducted a Focused RI (FRI) and Focused Feasibility Study (FFS) for OU2 to evaluate how the concentration of contaminants in the groundwater had changed since the OU3 remedy was completed in 2011. The FRI/FFS report, which was completed in May 2020, documents that as discussed above, of the fourteen COCs identified in the OU2 ROD, only four contaminants (TCE, benzene, beryllium and arsenic) remained above their respective remedial goals (Table 1). In additional, the levels of these four COCs were substantially lower than their levels before the OU3 remedy was completed. These significant reductions in groundwater contamination levels took place without active groundwater remediation. Table 1 shows the maximum concentration levels for the four remaining COCs in 1992, before the OU3 remediation, and their maximum levels in 2018.

Evidence for Natural Attenuation

Natural attenuation is defined as the reliance on natural physical, biological or chemical in-situ processes to reduce the mass, toxicity, mobility, volume, or concentration of chemicals in groundwater. These processes include biodegradation, dispersion, dilution, sorption, volatilization, stabilization, transformation and destruction. During a Monitored Natural Attenuation (MNA) remedy, these natural processes are monitored through regular sampling of degradation products, and other parameters such as pH, reduction-oxidation potential and dissolved oxygen, to show that attenuation is progressing.

Since the deliberate breaching of the OU3 barrier wall (Figure 2), sampling has shown that contamination levels in the groundwater are declining due to natural attenuation processes, including biodegradation, dechlorination, dilution and dispersion. The specific natural attenuation processes for the four remaining COCs are described below.

Arsenic:
Arsenic is a metal and does not decompose. When it is in a soluble form, arsenic is mobile and moves with the groundwater. When the arsenic is in an insoluble form, it precipitates out of solution and adheres to the materials in the aquifer.

The solubility of arsenic depends on the geochemical conditions in the area. Specifically, it depends on the pH of and the oxidation-reduction potential (measured as Eh in millivolts (mV)) of the local groundwater. At the lower values of Eh, arsenic exists in a soluble form (As^{+3}), which is dissolved in and moves with the groundwater. At higher Eh values (about 200 mV and above), arsenic exists in a relatively insoluble form (As^{+5}), comes out of solution and adheres to iron hydroxide in the soil.

The area hydraulically upgradient of the source area was not contaminated by industrial activities. In this area, the groundwater currently contains less than 6 ug/L arsenic, has pH values

between 4 and 6, and has Eh values greater than +200 mV. Under these conditions, arsenic exists primarily as the insoluble As^{+5}.

Since the source area barrier wall was breached, groundwater has been able to migrate from the upgradient area through the source area. During this same period, the average groundwater Eh increased from +183 mV to +250 mV, becoming more oxidizing. Simply put, breaching the retaining wall has reintroduced geochemical conditions conducive to converting the soluble form of arsenic into the insoluble form.

For example, the highest concentration for arsenic was 1,000 µg/L at well PZ-09 during the second sampling event on July 2012. The concentrations at PZ-09 have steadily decreased over time, falling an order of magnitude by May 2019 to 150 µg/L (the cleanup goal is 3 µg/L). Similarly, the well with the second highest arsenic concentration (PZ- 12) decreased from 130 µg/L in July 2012 to 1 µg/L in May 2019. (Figure 2 shows both wells are along the northern boundary inside the former source area).

However, as noted above, arsenic can exist as either As^{+3} to As^{+5} depending on the specific Eh value at each sampling location. The observed variation of Eh values results in a range of arsenic values found in the source area wells. Over time, as the more oxidized upgradient groundwater continues to enter the source area and spread out, locations with soluble As^{+3} will continue to oxidize to insoluble As^{+5}. The As^{+5} will continue to adsorb to iron oxyhydroxides in the soil and the levels of arsenic in the groundwater will continue to fall.

Because wells just outside and downgradient of the source area barrier wall are receiving groundwater from the former source area, from May 2016 to May 2019 there was an increase in the average arsenic concentrations in downgradient wells. There has also been a corresponding drop in the average Eh of downgradient groundwater from +349 mV to +196 mV. Closer to the former source area, there is evidence of groundwater mixing. In 2019, the average concentration of arsenic in the groundwater leaving the northwest corner of the source area has dropped from 29 µg/L in 2016 to 5 µg/L. This is a good indication that the transition of As^{+3} to insoluble As^{+5} is underway. Over time, as the groundwater exiting the former source area continues to become more oxidized and moves off-site, As^{+3} will continue to convert to the less soluble As^{+5} and adsorb to the aquifer soils.

While sorption, specifically adsorption to iron hydroxides in aquifer soils, is the predominant MNA mechanism, dilution and dispersion also play a minor role in the reduction of arsenic concentrations.

Beryllium:
Beryllium is also a metal and does not decompose. Beryllium concentrations have been trending downward over the past five years from a high of 50 µg/L in April 2014 to at or below 10 µg/L in May 2019 (the remedial goal is 1.0 µg/L). Low levels of beryllium remain dissolved in groundwater when the pH is greater than 4.5. In May 2019, the average pH of upgradient groundwater entering the Site was 4.9. Under these conditions (pH greater than 4.5 entering the Site and low overall concentrations in the groundwater), dilution and dispersion by upgradient and downgradient groundwater are expected to be the primary mechanisms for attenuation.

Benzene:
Benzene concentrations have been trending downward over the past 7 years, from a concentration of 13.0 µg/L to at or below 5.1 µg/L (the remedial goal is 1.0 µg/L). In general, benzene decomposes relatively quickly through aerobic biodegradation. This was the likely mechanism when the benzene concentrations were higher and may still be occurring. However, at the current low benzene concentrations, dilution and dispersion are the primary attenuation mechanisms.

TCE:
TCE concentrations have been trending downward over the past four years from a high of 8.9 µg/L in May 2015 to at or below 3.1 µg/L in May 2019 (the remedial goal is 1.0 µg/L). In the past, when higher levels of TCE were present, this compound underwent reductive dechlorination. The primary breakdown product of TCE under reductive dechlorination is cis-1,2 dichloroethene (cis-1,2 DCE). Cis-1,2 DCE was not a Site contaminant, therefore its presence shows that reductive dechlorination occurred.

In May 2019, cis-1,2 DCE was detected in multiple Site wells with a maximum concentration of 24 µg/L, which is below the current New Jersey Groundwater Quality Standard (NJGWQS) and the federal Maximum Contaminant Level (MCL), both of which are 70 µg/L, which is the remedial goal for cis-1,2 DCE. The complete reductive dechlorination pathway may produce vinyl chloride, but this process does not appear to be occurring, as vinyl chloride was not detected above 1 µg/L in May 2019. Regardless, at the current low concentrations, dilution and dispersion are the primary attenuation mechanisms for TCE.

This shows that natural attenuation is occurring and the specific mechanisms have been identified. Logarithmic decay analyses of the groundwater data estimate that the four COCs will achieve the ROD cleanup goals within 15 years through MNA.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The FRI and FFS reports and the Proposed Plan for the remedy amendment were released to the public for comment on July 28, 2020. These documents were made available to the public in the Administrative Record file on the EPA Region 2 website at https://www.epa.gov/superfund/imperial-oil. The notice of availability for these documents was published in the Asbury Park Press on July 28, 2020. A public comment period was held from July 28, 2020 through August 28, 2020.

EPA also maintains a local repository at the Township Municipal Building, which is located at 1979 Township Drive, Marlboro Twp., NJ 07746. The phone number is: 732-536-0200.

In addition, on August 11, 2020, EPA conducted a virtual (on-line) public meeting to discuss the findings of the FRI/FFS and to present EPA's Proposed Plan to local officials and the community. At this meeting, EPA representatives explained the proposed ROD Amendment. There were a few questions or comments from the audience and additional comments were received during the public comment period.

EPA's response to comments received during the public comment period, as well as the transcript of the EPA's presentation at the public meeting, can be found in the Responsiveness Summary, in Appendix III.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Uses:

Although the Site is primarily surrounded by residential properties, it is zoned for industrial use and is expected to remain so into the future. The former industrial portion of the Site has been remediated and restored, as have the impacted residential properties.

The Site is bordered by undeveloped property to the north. To the west is the Henry Hudson Trail, a paved bike path administered by Monmouth County Parks, which occupies a former Central Railroad right-of-way. Further to the west is a right-of-way for Jersey Central Power and Light high-power electric transmission lines. To the east are light commercial properties. In 2018, the property to the south was developed into a commercial self-storage warehouse facility.

Ground and Surface Water Uses:

The groundwater aquifer underlying the Site is classified as a Class IIA groundwater aquifer (potable water source) by the State of New Jersey. In 1998, NJDEP established a Classification Exception Area/Well Restriction Area for the Site as Institutional Controls (ICs) that restrict the use of groundwater over an area that includes the area beneath and downgradient of the Site. Therefore, the water cannot currently be used as a source of drinking water.

Flow in the aquifer in the vicinity of the Site is to the north. There the surface water discharges to Birch Swamp Brook, which in turn flows into Lake Lefferts. Lake Lefferts is located approximately one mile north of the Site and currently used as a swimming and recreational area.

BASIS FOR REMEDY MODIFICATION

This is an amendment to the OU2 ROD that addressed groundwater contamination. The sources of groundwater contamination were removed as part of the remedial action selected in the OU3 ROD issued on September 30, 1999 (former Site industrial area contaminated soil). Data have been collected from monitoring wells twice a year since the removal of the contaminated soil was completed in late 2011. These data show that ten of the fourteen COCs identified in the 1992 ROD are now present at levels that are below their cleanup goals. There are four remaining COCs - TCE, benzene, beryllium and arsenic – at concentration levels that remain above their cleanup goals. In addition, the cleanup goal for arsenic has been modified since the original OU2 ROD was issued; the OU2 ROD identified the state MCL as the remedial goal for arsenic, whereas in this ROD Amendment EPA has selected the lower NJGWQS for arsenic, promulgated after the OU2 ROD, as the remedial goal for that contaminant (see Table 2). As explained above under "Evidence for Natural Attenuation," the 2020 FRI/FFS data trends show that, due to natural attenuation processes, levels of the four COCs have been declining since

2011. The levels are currently low and will continue to decline. Therefore, MNA is effective and the extraction and treatment system chosen in the 1992 OU2 ROD is no longer necessary.

SUMMARY OF SITE RISKS

As part of the original OU2 RI/FS issued in 1992, EPA conducted a baseline risk assessment to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land and groundwater uses. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD Amendment summarizes the results of the baseline risk assessment for the Site and the updated streamlined risk evaluation.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario:

- *Hazard Identification* – uses the analytical data collected to identify the contaminants of potential concern at the site for each medium, with consideration of a number of factors explained below;
- *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed;
- *Toxicity Assessment* - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations which exceed acceptable levels, defined by the National Contingency Plan (NCP) as an excess lifetime cancer risk greater than $1 \times 10^{-6} – 1 \times 10^{-4}$, an excess of lifetime cancer risk greater than 1×10^{-6} (i.e., point of departure) combined with site-specific circumstances, or a Hazard Index greater than 1; contaminants at these concentrations are considered chemicals of concern (COCs) and are typically those that will require remediation at the site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, the chemicals of potential concern (COPCs) in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence and bioaccumulation. The original risk assessment for OU2 and this updated risk evaluation both focused on groundwater at the Site that may pose significant risk to human health. Analytical information that was collected to determine the nature and extent of contamination revealed the presence of VOCs, metals, SVOCs, and PCBs in groundwater at concentrations of potential concern. Four of the original

COCs continue to exceed drinking water MCLs in the updated risk evaluation: arsenic, beryllium, benzene and TCE.

A comprehensive list of all the original OU2 COPCs can be found in the Human Health Risk Assessment (HHRA) in the Administrative Record. The updated list of the remaining COCs, that is, the chemicals that continue to require remediation at the Site, is in Human Health Table 1.

Exposure Assessment

Consistent with Superfund policy and guidance, the HHRA is a baseline human health risk assessment and therefore assumes no remediation or institutional controls to mitigate or remove hazardous substance releases. Cancer risks and noncancer hazard indices were calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and future conditions at the site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

The HHRA evaluated potential risks to populations associated with both current and potential future land uses. The land use in the OU2 study area is mixed use for industrial and residential purposes. It is anticipated that the future land use for this area will remain consistent with current use. Groundwater in the vicinity of the Site is not currently used as a drinking water source, nor was it at the time of the 1992 ROD. Domestic wells are used only for non-potable purposes, such as irrigation and washing cars. Risks associated with potential future groundwater exposure were quantified for residents. Based on the data collected to date, the conclusions of the baseline risk assessment contained in the 1992 OU2 ROD have not substantially changed.

Exposure pathways were identified for each potentially exposed population and each potential scenario for exposure to groundwater. Exposure pathways assessed in the HHRA and updated risk evaluation are presented in Human Health Table 2 and include exposure of future residents to groundwater via ingestion, dermal contact with groundwater, and inhalation of volatiles while showering. Future adult and child residents have been identified as potentially exposed populations. Typically, exposures are evaluated using a statistical estimate of the exposure point concentration, which is usually an upper-bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. A summary of the exposure point concentrations for the remaining COCs can be found in Human Health Table 1, while a comprehensive list of the exposure point concentrations for all COPCs can be found in the OU2 HHRA.

Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects were determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and noncancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards due to

exposure to site chemicals are considered separately. Consistent with current EPA policy, EPA assumed that the toxic effects of the site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the human health risk assessment and updated risk evaluation were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or any other source that is identified as an appropriate reference for toxicity values consistent with EPA's directive on toxicity values. This information for the remaining COCs is presented in Human Health Table 3 (noncancer toxicity data summary) and Human Health Table 4 (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the OU2 HHRA.

Risk Characterization

This step summarized and combined outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures were evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD

Where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)
RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (i.e., chronic, subchronic, or acute).

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur as a result of Site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those

chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the noncarcinogenic hazards associated with these chemicals for each exposure pathway is contained in Human Health Table 5.

Human Health Table 5 shows that the HI for noncancer effects from the remaining COCs is 17 for the adult resident and 18 for the child resident from potential future exposure to arsenic, beryllium, benzene, and TCE. The noncarcinogenic risks for both populations were attributable primarily to arsenic in groundwater.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer
LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)
SF = cancer slope factor, expressed as [1/(mg/kg-day)]

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the exposure assessment. Current Superfund guidance identifies the range for determining whether a remedial action is necessary as an individual lifetime excess cancer risk of 1×10^{-4} to 1×10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk), with 1×10^{-6} being the point of departure.

A summary of the estimated cancer risks for the remaining COCs is presented in Human Health Table 6. The results indicated that the cancer risks exceeded the acceptable risk range for future residential exposure to tap water primarily due to groundwater concentrations of arsenic.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis;
- environmental parameter measurement;
- fate and transport modeling;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled. For the updated streamlined risk evaluation, the maximum concentration of each COC was used as the exposure point concentration which likely overestimates actual remaining risks related to OU2.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the COCs at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near OU2 and is highly unlikely to underestimate actual risks related to OU2.

More specific information concerning uncertainty in the health risks is presented in the OU2 HHRA report.

Ecological Risk Assessment

Previous ecological investigations indicated that there was a potential for adverse ecological impacts in the waterbodies due to overland flow of contaminants in runoff settling in the sediments. Remedial actions were completed to address the contaminated sediments. Given that the previous investigations did not identify groundwater as a source of contamination associated with adverse ecological impacts to surface water and sediment, and that current groundwater concentrations have decreased since the initial ecological investigations were completed, any residual contamination related to groundwater discharge to the surface water is not expected to cause any impacts to ecological receptors.

Basis for Taking Action

Based on the results of the human health risk assessment for the1992 ROD, and supported by the updated streamlined risk evaluation, EPA has determined that the actual or threatened releases of hazardous substances at OU2 continue to present an unacceptable exposure risk to human health if not addressed by the response action selected in this ROD Amendment. Therefore, the response action selected in this OU2 ROD Amendment is necessary to protect the public health or welfare or the environment from actual or threatened releases of contaminants into the environment.

REMEDIAL ACTION OBJECTIVES

RAOs were developed for groundwater to address the human health risks and environmental concerns posed by Site-related contamination. The RAOs for this ROD Amendment are:

- Prevent or minimize unacceptable risk from exposure (via direct contact, ingestion or inhalation) to contaminated groundwater attributable to the Site.

- Prevent further off-Site migration of contaminated groundwater.

- Return the aquifer to its designated use as a source of drinking water by reducing the contaminant concentrations in the groundwater to drinking water quality.

To achieve these RAOs, remediation goals for groundwater at the Site were identified. The remedial goals are the NJGWQS. The NJGWQS for the remaining COCs were promulgated subsequent to the 1992 OU2 ROD and are lower and more protective than the remedial goals selected in the 1992 ROD, and they are equal to or are more protective than the current MCLs (Table 2).

DESCRIPTION OF ALTERNATIVES

CERCLA, 42 U.S.C. Sections 9601-9675, mandates that each remedial alternative be protective of human health and the environment, be cost effective, comply with other laws, and utilize permanent solutions and alternative treatment technologies and resource recovery technologies to the maximum extent practicable. CERCLA Section 121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. §9621(d)(4). In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility or volume of hazardous substances. Consistent with expectations set out in the Superfund regulations, none of the options considered rely exclusively on institutional controls to achieve protectiveness.

The time frames presented below for construction do not include the time for pre-design investigations, remedial design, or contract procurements. Each of the groundwater alternatives will take longer than five years to achieve remediation goals. Therefore, a review will be conducted every five years after the initiation of the remedial action, until remediation goals are achieved.

This ROD Amendment is only for the OU2 remedy for Site groundwater.

Original Remedy – Groundwater Extraction and Treatment

Capital Cost	$ 3,071,719
Annual O&M Cost	$ 9,606,416

Present Net Worth	$ 10,513,794
Construction Time Frame	18 months
Time to Meet RAOs	10 years

In the Original Remedy, an extraction and treatment system would be designed and constructed. An appropriate number of extraction wells would be installed within the area of contaminated groundwater and the water would be extracted. Then the contaminated groundwater would be treated to remove the contaminants within the groundwater as well as any contamination found floating on the groundwater. The spent carbon from the treatment system would be regenerated for reuse, if possible, and any sludge would be disposed of properly. The treated water would be returned to a local water body (Birch Swamp Brook).

As the system operated, it would be monitored and the data analyzed on a regular basis. As necessary, the number of wells and sampling parameters would be adjusted to optimize the system's performance toward restoring the aquifer to the drinking water standards and prevent migration of the plume.

Groundwater would be extracted and treated for approximately 10 years, when it is estimated the aquifer would be restored to the remedial goals.

Preferred Alternative – Monitored Natural Attenuation

Capital Cost	$0
Annual O&M	$ 65,000
Present Worth Cost	$ 623,317
Construction Time Frame	0 months
Time to meet RAOs	15 years

MNA refers to the reliance on natural attenuation processes to achieve Site-specific RAOs and remediation goals within a time frame that is reasonable, compared to that offered by other more active methods.

MNA processes present at the Site include biodegradation, dilution and dispersion. MNA would require long-term monitoring of the groundwater for TCE, benzene, beryllium and arsenic, as well as any of their degradation products, and other groundwater parameters which enhance attenuation and demonstrate that the contaminants continue to attenuate, until remedial goals are met.

The major components of the Preferred Alternative include:

- Collection of groundwater samples from the monitoring well network; and
- Evaluation of the samples for COCs and MNA parameters

This alternative is expected to use the existing Site-wide monitoring well network, which includes wells in locations that are considered to be representative of background regional conditions. However, the exact number of sampling locations and the sampling frequency will be determined during design of the remedy. For the purpose of the cost estimate, EPA assumed that the remedy will use the existing the well network.

The remedial goals are listed in Table 2. MNA will continue until the COCs are consistently below the remedial goals. At that time, EPA will consider closure of the monitoring program.

In 1998, NJDEP established a Classification Exception Area/Well Restriction Area for the Site; this IC restricts the use of groundwater over an area that includes the area beneath and downgradient of the Site. ICs were not a component of the 1992 OU2 ROD but are included in this alternative.

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA Section 121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial response measures pursuant to the NCP, 40 CFR §300.430(e)(9) and EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (OSWER Directive 9355.3-01). The detailed analysis consisted of an assessment of the individual response measure against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each response measure against the criteria.

Threshold Criteria - The first two criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy.

1. Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

The Original Remedy is considered protective of human health and the environment, because the Site contaminated groundwater would be extracted and the contaminants would be removed. However, at the current low contamination levels the extraction and treatment system would not operate efficiently. At low contamination levels the groundwater being extracted would contain large amounts of clean water, so due to dilution it would be difficult to determine if the remaining contaminants were being removed

The Preferred Alternative does not provide for active treatment of the on-site groundwater. However, data collected since the contaminated source material was removed in 2011 show that

the contamination in the on-site groundwater has declined and continues to be reduced through natural processes. In addition, monitoring for the four remaining COCs shows that natural attenuation is occurring and is responsible for the decreasing groundwater contamination levels throughout the area. Therefore, the Preferred Alternative is protective.

2. Compliance with applicable or relevant and appropriate requirements (ARARs)
Section 121 (d) of CERCLA and NCP § 300.430(f) (1) (ii) (B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA section 121(d) (4).

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Compliance with ARARs addresses whether a remedy will meet all the applicable or relevant and appropriate requirements of federal and state environmental statutes or provides a basis for invoking a waiver.

ARARs are divided into three broad categories. These categories are chemical-specific, location-specific and action-specific. The full list of ARARs for this remedy amendment can be found in Appendix II.

The NJGWQS are applicable, chemical-specific ARARs for both alternatives. Both alternatives would achieve the NJGWQS because the contaminants would be removed from the groundwater. In the Original Remedy, the contaminants would be physically removed. In the Preferred Alternative, the contaminants have been shown to be degrading due to natural processes. The Original Remedy is estimated to achieve the remedial goals within 10 years and the Preferred Alternative is estimated to achieve the remedial goals within 15 years.

Action-specific ARARs are determined by the specific technology of each Alternative. For the Original Remedy, disposal of the clean water from the extraction and treatment system would be performed in compliance with the Federal Clean Water Act and state requirements for re-injection, or surface discharge. Because the Preferred Alternative consists only of monitoring, no action-specific or location-specific ARARs were identified.

Primary Balancing Criteria - The next five criteria, criteria 3 through 7, are known as "primary balancing criteria". These criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions.

3. Long-term effectiveness and permanence

A similar degree of long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on-site following remediation and the adequacy and reliability of controls.

Reductions in contaminant concentrations are already being observed following the OU3 source removal remedy. Both alternatives would provide adequate control of risks to human health over the long-term because they will achieve the remedial goals. ICs are in place as a mechanism to prevent exposure until those goals are achieved.

Both Alternatives would be effective and permanent in the long-term because the contaminants of concern would be removed or destroyed. In the Original Remedy, the groundwater contamination would be removed through a combination of extraction and treatment, then natural attenuation. Since the levels of COCs are currently low, the additional benefit, from extraction and treatment would be minimal because an extraction and treatment system does not operate well when contamination levels are low.

In the Preferred Alternative, contaminant levels will continue to decrease due to natural processes that include adsorption, degradation, dilution and dispersion. The Preferred Alternative, therefore, is effective in the long-term and permanent.

The Original Remedy is expected to reach the remediation goals within 10 years and the Preferred Alternative is expected the reach the remediation goals within 15 years.

4. Reduction of toxicity, mobility, or volume

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

The Original Remedy uses treatment to remove the VOC COCs from the groundwater. While metal COCs would also be removed from the groundwater, the metal COCs would likely continue to be present at concentrations comparable to regional background levels. Although this alternative would reduce the toxicity, mobility or volume (TMV) of the COCs in groundwater through active extraction and treatment, these reductions are already occuring through natural processes following the OU3 source removal remedy. Treatment residuals (spent activated carbon and sludge from the metal treatment) would transfer contaminants offsite for treatment and disposal.

The Preferred Alternative does not use treatment. The TMV of the COCs would be reduced, although the rate of reduction is expected to be slower than the Original Remedy. ICs would

provide protection of public health while contaminant concentrations in groundwater decrease and groundwater would be monitored to evaluate progress towards achieving the remedial goals. Since this alternative does not use treatment, there would be no treatment residuals to manage.

5. Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved.

The Original Remedy may achieve cleanup levels more quickly than MNA due to its active removal of contaminated groundwater. The Preferred Alternative is nevertheless expected to achieve remedial goals within an acceptable time frame and incorporates groundwater analysis and monitoring to evaluate progress towards achieving remedial goals. ICs are in place to prevent exposure to contaminated groundwater until the remedial goals are achieved and are incorporated into the Preferred Alternative.

The Original Remedy would be less effective in the short-term because it would be necessary to perform a detailed engineering design and then construct the extraction and treatment system. There would be some disruptions to the community during construction and operation of the system such as noise, and possible road closures.

The Preferred Alternative is effective in the short-term because it would require no additional construction, since the remedy is expected to use the existing sampling well network. Additionally, this alternative is not expected to require a significant engineering design and continuing sampling will be implemented shortly after remedy selection.

6. Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Both alternatives are implementable. The Original Remedy would be more difficult to implement since it would require pre-design investigations, a detailed engineering design, construction of extraction wells, a treatment plant, and a discharge system, and then operation and maintenance of the system.

The well network for groundwater monitoring for the Preferred Alternative is currently in place and, therefore, is not likely to require any further effort to implement. If additional wells are needed in the future, they will be installed.

Under CERCLA Section 121(e)(1), no permits are required for on-site work, although both alternatives would comply with substantive requirements of otherwise required permits. Permits would be obtained as needed for off-site activities.

7. Cost

Includes estimated capital and O&M costs, and net present worth value of capital and O&M costs.

The present net worth costs for MNA (Preferred Alternative) and extraction and treatment (Original Remedy) were calculated based on each alternative's estimated timeframe to achieve the groundwater RAOs. The present net worth cost for the Preferred Alternative, MNA, calculated using a seven percent discount rate, is $623,317, which is substantially lower than the cost of the Original Remedy, which is $10,513,794.

Modifying Criteria - The final two evaluation criteria, criteria 8 and 9, are called "modifying criteria" because new information or comments from the state or the community on the Proposed Plan may modify the preferred response measure or cause another response measure to be considered.

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8. State acceptance

Indicates whether based on its review of the RI/FS reports and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected response measure.

The State of New Jersey concurs with the remedy amendment.

9. Community acceptance

Summarizes the public's general response to the response measures described in the Proposed Plan and the FRI/FFS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.

EPA received input from the community on the two alternatives proposed for the Site. A virtual public meeting took place on August 11, 2020. A transcript of the public meeting is included at Appendix III. Comments submitted during the public comment period and EPA's responses are included in the Responsiveness Summary in Appendix III. Overall, the community members and stakeholders were in favor of EPA's Preferred Alternative.

PRINCIPAL THREAT WASTES

Principal threat wastes are considered source materials, *i.e.,* materials that include or contain hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or as a source for direct exposure. This ROD Amendment addresses groundwater. Contaminated groundwater is generally not considered to be source material and is therefore not categorized as a "principal threat." In addition, contaminated soil, a source of groundwater contamination was removed from the Site during remedial activities under the 1999 OU3 ROD.

SELECTED REMEDY AMENDMENT

Based upon consideration of the results of Site investigations, the requirements of CERCLA, and the detailed analysis of the remedial alternatives and public comments, EPA has determined that the Preferred Alternative, MNA, is the appropriate remedy to address the contaminated groundwater. This remedy amendment best satisfies the requirements of CERCLA Section 121 and the NCP's nine evaluation criteria for remedial alternatives at 40 CFR § 300.430(e)(9). This remedy amendment changes the groundwater remedy selected in the 1992 ROD for the contaminated groundwater, from extraction and treatment to MNA. It includes the following components:

- Collection of groundwater samples from the monitoring well network; and
- Evaluation of the samples for COCs and MNA parameters

The groundwater contamination throughout the Site will be addressed through MNA using the existing monitoring well network. Monitoring will continue to be used to evaluate the concentrations of TCE, benzene, beryllium and arsenic, any degradation products and MNA parameters upgradient, within and downgradient of the former groundwater contamination source area. If necessary, additional monitoring wells will be added to the network. This will ensure that groundwater is restored to its beneficial use as a potential source of drinking water in a reasonable timeframe. The estimated present net worth cost of the selected remedy amendment for the groundwater is $623,317.

In 1998, NJDEP established a Classification Exception Area/Well Restriction Area for the Site. These ICs restrict the use of groundwater over an area that includes the area beneath and downgradient of the former Imperial Oil Co., Inc./Champion Chemicals property. ICs were not part of the 1992 OU2 ROD, but are incorporated in the remedy through this ROD Amendment.

Based on all available information, EPA and the State of New Jersey believe the selected remedy amendment provides the best balance of trade-offs among the response measures with respect to the nine evaluation criteria. EPA believes that the selected remedy amendment will be protective of human health and the environment, will comply with ARARs, will be cost effective, and will utilize permanent solutions to the maximum extent practicable.

Consistent with EPA Region 2's Clean and Green policy, EPA will evaluate the use of sustainable technologies and practices with respect to the selected remedial amendment.

Expected Outcomes of the Selected Remedy Amendment

Implementation of the selected remedy amendment will allow for the continued attenuation of contaminants in the groundwater and is expected to achieve the cleanup goals within fifteen years.

Summary of the Rationale for the Selected Remedy Amendment

EPA has determined that the selected remedy amendment is appropriate because the remedial action during OU3 has removed the sources of groundwater contamination and, based on data

collected from monitoring wells since late 2011, contamination in the affected areas has been shown to decrease due to natural attenuation to the point where the extraction and treatment system would not be effective.

STATUTORY DETERMINATIONS

As was previously noted, CERCLA § 121(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA § 121(d) further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA § 121(d)(4).

Protection of Human Health and the Environment

The selected remedy amendment will be protective of human health and the environment because MNA has decreased contaminant concentrations in the groundwater and will continue to do so. Implementation of the selected remedy amendment will not present unacceptable short-term risks or adverse cross-media impacts.

Compliance with ARARs

The groundwater at the Site is classified as Class IIA (potable water) and cleanup of the groundwater must meet the cleanup goals, which are the NJGWQS standards. EPA expects that the selected remedy amendment for the contaminated groundwater will comply with ARARs.

Cost Effectiveness

EPA has determined that the selected remedy amendment is cost-effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: “A remedy shall be cost-effective if its costs are proportional to its overall effectiveness.” (40 C.F.R. §300.430(f)(1)(ii)(D)). EPA evaluated the ”overall effectiveness” of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of the selected remedy amendment was determined to be proportional to costs and hence, the selected remedy amendment represents a reasonable value for the money to be spent. The selected remedy amendment is cost-effective, as EPA has determined that its overall protectiveness is proportional to its present-worth cost.

Utilization of Permanent Solutions and Alternative Treatment Technologies

EPA has determined that the selected remedy amendment utilizes permanent solutions and treatment technologies to the maximum extent that is practicable. The selected remedy amendment will permanently address groundwater contamination through MNA, the effectiveness of which has been documented.

Preference for Treatment as a Principal Element

The selected remedy amendment does not meet the statutory preference for the use of remedies that involve treatment as a principal element.

Five-Year Review Requirements

The selected remedy amendment will not result in contaminated groundwater remaining on-Site above levels that allow for unlimited use and unrestricted exposure, though it is likely that this selected remedy amendment may take more than five years to attain the cleanup goals. Therefore, a policy five-year review will be conducted within five years of construction completion of the selected remedy amendment to ensure that the remedy is, or will be, protective of human health and the environment, until cleanup goals are achieved.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the OU2 ROD Amendment was released for public comment on July 28, 2020. The comment period closed on August 28, 2020. Comments were submitted during the public comment period. Based on these comments, no changes to the remedy amendment, as presented in the Proposed Plan, are warranted. The comments are addressed in the Responsiveness Summary in Appendix III.

APPENDIX I

FIGURES

Figure 1
Site Location Map
Imperial Oil Company/Champion Chemical Superfund Site
Marlboro, New Jersey

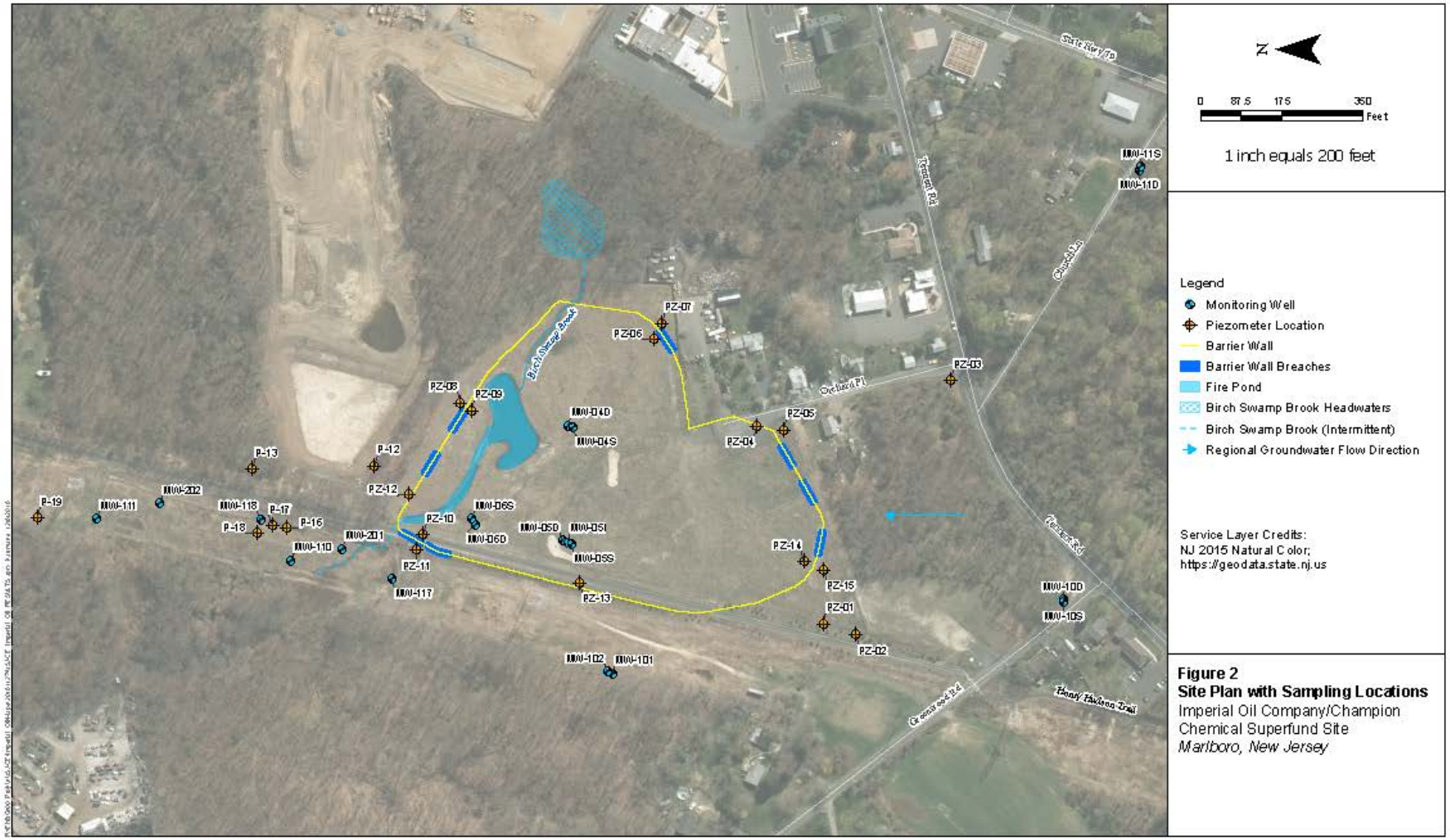

Figure 2
Site Plan with Sampling Locations
Imperial Oil Company/Champion Chemical Superfund Site
Marlboro, New Jersey

APPENDIX II

TABLES

TABLE 1
Risks/Hazards for COCs Above Remedial Goals

	NJ MCL - µg/L	1992 ROD Max Concentration (µg/L)	2018 Maximum Concentration (µg/L)	2018 Residential Cancer Risk/Noncancer Hazard*
Benzene	1	55	2.7	6E-06/0.08
Trichloroethene	1	160	2.1	4E-06/0.7
Arsenic	5	69,500	160	3E-03/27
Beryllium	4	14	15	-/0.6

*Noncancer hazards are calculated for a child resident

TABLE 2: Remediation Goals

Contaminant of Concern (1)	Federal MCL	NJ MCL	New Jersey Class IIA Ground Water Quality Standards (2)
Metals			
Antimony	6	6	6
Arsenic	**10**	**5**	**3**
Beryllium	**4**	**4**	**1**
Chromium	100	100	70
Lead	15	15	5
Silver	--	100	40
Vanadium	--	--	--
Zinc	--	5000	2000
VOCs			
Benzene	**5**	**1**	**1**
cis-1,2-Dichloroethene	70	70	70
trans-1,2-Dichloroethene	100	100	100
Ethylbenzene	700	700	700
Tetrachloroethene	5	1	1
Trichloroethene	**5**	**1**	**1**
Toluene	1000	1000	600
m, p-Xylene	--	--	--
o-Xylene	--	--	--
SVOCs			
Acenaphthene	--	--	400
Bis(2-ethylhexyl)phthalate	6	6	3
2,4-Dimethylphenol	--	--	100
Di-n-butylphthalate	--	--	700
Fluoranthene	--	--	300
Fluorene	--	--	300
Naphthalene	--	--	300
2-Methylphenol	--	--	50
4-Methylphenol	--	--	50
2-Methylnaphthalene	--	--	30
Phenanthrene	--	--	100
Pyrene	--	--	200
1,2,4-Trichlorobenzene	--	--	9
Pesticides/PCBs			
Arochlors	0.5	0.5	0.5

Footnotes:

All concentrations are reported in µg/L.

-- Indicates there is no regulatory level for the compound.

(1) The COCs that are still above applicable groundwater Remedial Goals are in bold

(2) The Remedial Goals are the NJGWQS. The NJGWQS are equal to or more stringent than the federal and state MCLs.

Human Health TABLE 1
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Concern	New Jersey Max Contaminant Level (µg/L)	Max Concentration Detected (2018)	Concentration Units	Exposure Point Concentration (EPC)	EPC Units	Statistical Measure
Groundwater	Benzene	1	2.7	µg/L	2.7	µg/L	Maximum
	Trichloroethylene	1	2.1	µg/L	2.1	µg/L	Maximum
	Arsenic	5	160	µg/L	160	µg/L	Maximum
	Beryllium	4	15	µg/L	15	µg/L	Maximum

Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

This table presents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for the COCs in groundwater that exceeded New Jersey maximum contaminant levels for drinking water. The table includes the maximum concentration detected for each COC in 2018, the EPC used in the screening-level risk assessment, and how it was derived.

Human Health TABLE 2. Selection of Exposure Scenarios

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis
Current/Future	Groundwater	Tap Water	Tap Water/Shower Head	Resident	Adult and Child (birth to <6 years)	Ing/Der/Inh	Qualitative

Ing – Ingestion

Der – Dermal

Inh – Inhalation

Summary of Selection of Exposure Pathways

This table describes the exposure pathways that were evaluated for the risk assessment. Exposure media, exposure points, and characteristics of receptor populations are included. A qualitative risk screening was performed using the maximum concentration of all COCs exceeding MCLs.

Human Health TABLE 3

Noncancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Absorp. Efficiency (Dermal)	Adjusted RfD (Dermal)	Adj. Dermal RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD: Target Organ	Dates of RfD:
Benzene	Chronic	4.0E-03	mg/kg-day	1	4.0E-03	mg/kg-day	Immune System	300	IRIS	4/17/2003
Trichloroethylene	Chronic	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Developmental, Immune System	10 to 1,000	IRIS	9/28/2011
Arsenic	Chronic	3.0E-04	mg/kg-day	1	3.0E-04	mg/kg-day	Heart, Skin	3	IRIS	9/1/1991
Beryllium	Chronic	2.0E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	Gastrointestinal System	300	IRIS	4/3/1998

Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhalation RfC	Inhalation RfC Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfC: Target Organ	Dates:
Benzene	Chronic	3.0E-02	mg/m^3	Immune System	300	IRIS	4/17/2003
Trichloroethylene	Chronic	2.0E-03	mg/m^3	Developmental, Immune System	10 to 100	IRIS	9/28/2011
Arsenic	Chronic	1.5E-05	mg/m^3	Developmental	30	CalEPA	7/2014
Beryllium	Chronic	2.5E-05	mg/m^3	Immune System, Respiratory System	10	IRIS	4/3/1998

Key

NA: No information available
IRIS: Integrated Risk Information System
CalEPA: California Environmental Protection Agency

Summary of Toxicity Assessment

This table provides noncarcinogenic risk information which is relevant to the contaminants of concern. When available, the chronic toxicity data have been used to develop oral reference doses (RfDs) and inhalation reference concentrations (RfCs).

Human Health TABLE 4

Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Oral Cancer Slope Factor	Units	Adjusted Cancer Slope Factor (for Dermal)	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
Benzene	5.5E-02	$(mg/kg\text{-}day)^{-1}$	5.5E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	1/9/2000
Trichloroethylene	4.6E-02	$(mg/kg\text{-}day)^{-1}$	4.6E-02	$(mg/kg\text{-}day)^{-1}$	Carcinogenic to humans	IRIS	9/28/2011
Arsenic	1.5E+00	$(mg/kg\text{-}day)^{-1}$	1.5E+00	$(mg/kg\text{-}day)^{-1}$	A	IRIS	6/1/1995
Beryllium	NA	NA	NA	NA	NA	NA	NA

Pathway: Inhalation

Chemical of Concern	Unit Risk	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
Benzene	7.8E-06	$(ug/m^3)^{-1}$	A	IRIS	1/9/2000
Trichloroethylene	4.1E-06	$(ug/m^3)^{-1}$	Carcinogenic to humans	IRIS	9/28/2011
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	A	IRIS	6/1/1995
Beryllium	2.4E-03	$(ug/m^3)^{-1}$	Known/likely human carcinogen	IRIS	4/3/1998

Key:

A: Human Carcinogen

NA: No information available
IRIS: Integrated Risk Information System

Summary of Toxicity Assessment

This table provides carcinogenic risk information which is relevant to the contaminants of concern. Toxicity data are provided for both the oral and inhalation routes of exposure.

Human Health TABLE 5

Risk Characterization Summary - Noncarcinogens

Scenario Timeframe: Current/Future
Receptor Population: Site Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Noncarcinogenic Risk			
					Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water/shower head	Benzene	Immune System	0.02	0.003	0.04	0.07
			Trichloroethylene	Developmental, Immune System	0.1	0.02	0.5	0.7
			Arsenic	Heart, Skin	16	0.09	-	16
			Beryllium	Gastrointestinal System	0.2	0.2	-	0.4
							Hazard Index Total=	**17**

Scenario Timeframe: Current/Future
Receptor Population: Site Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Noncarcinogenic Risk			
					Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water/shower head	Benzene	Immune System	0.03	0.004	0.04	0.08
			Trichloroethylene	Developmental, Immune System	0.2	0.03	0.5	0.7
			Arsenic	Heart, Skin	27	0.1	-	27
			Beryllium	Gastrointestinal System	0.4	0.2	-	0.6
							Hazard Index Total	**28**

Summary of Risk Characterization - Noncarcinogens

The table presents hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for exposure to groundwater containing the maximum detections of COCs. The Risk Assessment Guidance for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse noncancer effects.

Human Health TABLE 6

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: Site Resident
Receptor Age: Lifetime (Adult/child)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water/shower head	Benzene	2E-06	3E-07	4E-06	6E-06
			Trichloroethylene	2E-06	3E-07	2E-06	4E-06
			Arsenic	3E-03	2E-05	-	3E-03
			Beryllium	-	-	-	-
						Total Risk =	**3E-03**

Summary of Risk Characterization – Carcinogens

The table presents site-related cancer risks for groundwater exposure. As stated in the National Contingency Plan, the point of departure is 10^{-6} and the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}. The cancer risk from arsenic in groundwater exceeds the acceptable risk range, indicating an unacceptable risk from exposure to groundwater.

TABLE

Applicable or Relevant and Appropriate Requirements

Imperial Oil / Champion Chemicals Superfund Site, Marlboro Township, New Jersey

Act/Authority	Citation	Brief Description	Applicability	Comment
Chemical-Specific				
FEDERAL				
Safe Drinking Water Act	42 United States Code (U.S.C.) § 300f 40 CFR 141.62 , 143	Establishes health based National Primary Drinking Water Standards – Maximum Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs) for public drinking water systems. Also establishes drinking water quality goals set at levels at which no adverse health effects are anticipated, with an adequate margin of safety. The National Contingency Plan (NCP) specifically states that MCLs will be used as ARARs for useable aquifers rather than the more stringent MCLGs.	The MCLs are relevant and appropriate.	The Englishtown aquifer is currently a drinking water source, however, the MCLs are applied at the tap. For in-situ groundwater, MCLs are relevant and appropriate. The federal MCLs were considered in developing the remedial goals for contaminants concern, except for where a New Jersey MCL is more stringent than the federal MCL.
STATE				
New Jersey Drinking Water Standards	New Jersey Administrative Code (NJAC) 7:10, Subchapter 5	The New Jersey Department of Environmental Protection (NJDEP) has established primary and secondary drinking water standards as MCLs.	Primary standards are relevant and appropriate. Secondary standards are To Be Considered. Secondary standards apply to contaminants in drinking water that may adversely affect the taste, odor, or appearance of such water or which may otherwise adversely affect the public welfare	The Englishtown aquifer is currently a drinking water source, however, the MCLs are applied at the tap. For in situ groundwater, state MCLs are relevant and appropriate. New Jersey MCLs were considered in developing the remedial goals when they are more stringent than federal MCLs.
New Jersey Surface Water Quality Standards	NJAC 7:9 B	Defines quality of surface water classifications and establishes designated uses and water quality criteria for each classification.	Applicable	Water quality criteria are applicable when assessing the impact of the site on surface water quality through groundwater/surface water interface.
New Jersey Groundwater Quality Standards	NJAC 7:9 C	Defines groundwater classifications and establishes groundwater quality standards for various compounds.	Applicable	Groundwater at the Site is classified as Class IIA groundwater, suitable for drinking water. The Class IIA groundwater quality standards are applicable and are identified as remedial goals for contaminants of concern .

APPENDIX III

RESPONSIVENESS SUMMARY

APPENDIX III

RESPONSIVENESS SUMMARY

Imperial Oil Co., Inc./Champion Chemicals Superfund Site

OU2 ROD Amendment

Marlboro Township, New Jersey

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns regarding the Proposed Plan for Operable Unit 2 of the Imperial Oil Co., Inc./Champion Chemicals Superfund Site (Site) and the U.S. Environmental Protection Agency's (EPA's) responses to those comments.

All comments summarized in this document have been considered in EPA's final decision for the selection of the cleanup response for the Site. This Responsiveness Summary is divided into the following sections:

BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS: This section provides the history of the community involvement and interests regarding the Site.

SUMMARY OF SIGNIFICANT QUESTIONS, COMMENTS, CONCERNS, AND EPA's RESPONSES: This section contains summaries of oral and written comments received by EPA at the public meeting and during the public comment period, and EPA's responses to these comments.

The last section of this Responsiveness Summary includes attachments, which document public participation in the remedy selection process for this Site. They are as follows:

Attachment A contains the Proposed Plan that was distributed to the public for review and comment;

Attachment B contains the public notice that appeared in the Asbury Park Press; and

Attachment C contains the transcript of the public meeting.

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The subject of this Record of Decision (ROD) Amendment is the Second Operable Unit (OU2) of the Site, which is in Marlboro Township New Jersey. Public interest in this Site has been low in recent years. On July 28, 2020, EPA released the Proposed Plan for the OU2 ROD Amendment for public comment. The Proposed Plan and supporting analysis and information

were made available to the public on the EPA Region 2 website at https://www.epa.gov/superfund/imperial-oil.

The notice of availability for these documents was published in the Asbury Park Press on July 28, 2020. A public comment period was held from July 28, 2020 through August 28, 2020.

On August 11, 2020, EPA held a virtual public meeting to discuss the Proposed Plan to amend the groundwater remedy for OU2. The purpose of this meeting was to inform local officials and interested citizens about the Superfund process, to explain the proposed groundwater remedy amendment, and respond to questions and take comments from area residents and other attendees. At the meeting, EPA reviewed the history of the Site, the results of the remediation activities at the Site since the OU2 and OU3 RODs were issued, and the basis for proposing to modify the groundwater remedy. The transcript of this public meeting is included in this Responsiveness Summary as Attachment C.

The meeting was attended by members of the community. There were few comments or questions from the public at the meeting.

II. SUMMARY OF SIGNIFICANT QUESTIONS, COMMENTS, CONCERNS, AND EPA's RESPONSES

Questions, comments or concerns were expressed by the public at the public meeting. There was one comment submitted during the public comment period, after the public meeting.

A. Comment received after the public meeting:

Comment: One commenter asked if EPA tracks cancers in communities.

Response: The Superfund law does not authorize EPA to track cancer cases or rates in Superfund communities, and EPA therefore does not do so. EPA advised the commenter to contact a health professional and/or the New Jersey Department of Health for information about the potential health impacts of past exposure to contaminated groundwater.

B. Comments received during the public meeting:

Summaries of the comments and questions found in the August 11, 2020 public meeting transcript and EPA's responses can be found below, including updates to the responses given at the public meeting, where appropriate. The transcript is at Attachment C of this Responsiveness Summary.

1) Comment: A commenter asked whether the testing of well water was conducted during two different seasons each a year. Concerns were expressed about averaging samples in terms of contamination concentrations.

   Response: Since 2011, sampling of the wells was conducted twice a year in the spring and fall. During each sampling event, EPA ensures that there is enough water to obtain a good representation of the contamination that might be in the well.

2) Comment; A commenter asked whether the data from the groundwater testing represents an overall decrease in contaminants at the Imperial Oil Site.

   Response: Yes, decreases in the levels of contamination for all contaminants were detected. The full data set can be found in the Focused Remedial Investigation (FRI) report that is part of the Administrative Record.

3) Comment: A commenter inquired about the location and accessibility of the investigation report for the Imperial Oil Site.

   Response: This document and others regarding the Imperial Oil Site are available online. The Proposed Plan contains a link to the FRI report and other pertinent documents.

4) Comment: A commenter asked for the date of the FRI report.

   Response: The FRI Report was finalized in June of 2020.

5) Comment: A commenter inquired about the future for the Site and if it includes development or future monitoring.

   Response: Sampling will continue from the existing well network until the contamination levels are consistently below the remedial goals. Using the current trends, the estimate for this to occur is around 15 years.

6) Comment: A commenter asked how EPA plans to inform the Mayor's Office or any other concerned member of the public if the measured contamination levels in the groundwater arbitrarily increase.

   Response: As was discussed with arsenic, the numbers in groundwater do fluctuate. However, this change is not significant enough to cause concern. EPA does not expect concentrations to significantly increase. However, if that does occur, EPA will reassess the situation including investigating any other potential sources or activity occuring upgradient that were not previously identified and that could be contributing to the increase. Mayor Hornik, his father before him who also served as Mayor, and Jonathan Katz, the Business Administrator, have all been thoroughly involved at this Site for many years. If contaminant levels do spike, EPA will inform the Mayor's Office and appropriate Township officials.

7) Comment: A commenter inquired how much testing would be conducted if measured contaminants increase arbitrarily.

   Response: The amount of testing that would be conducted depends on the situation. If the numbers are significantly higher, meaning higher than the natural variation EPA has

observed, then EPA might test again in a month. Now that the remedy amendment is being selected, a new remedial design will be prepared that will outline the actions to be taken if certain concentrations are exceeded, as well as when the contaminants have met their remedial goals. EPA also notes that even after goals are met, sampling will usually continue for an additional 3-5 years to ensure the long-term effectiveness of the remedy.

8) Comment: A commenter asked if there will be another public meeting to convey the details of the design of the amendment.

9) Response: Under normal circumstances, there would not be another public meeting for this design. However, EPA can arrange a discussion with the public about the design if the community desires it. The concern is valid, and EPA is willing to share the information regarding the design and to keep in touch, including in a less formal meeting, if need be. It is important for the Township to be well informed about the remedy, and it if chooses to do so, it could share information provided by EPA on the Township's web page, where it would be available to residents, including in other communities.

10) Comment: A commenter identified herself as a specialist from CME Associates, the Marlboro Township's engineers, present on behalf of Mayor Hornik. This individual had been recording notes and wanted to notify the other members of the public.

Response: EPA thanks the commenter for identifying herself and her relationship with the Township. EPA notes that the Business Administrator and the Mayor have been very interested and involved with the Site. Therefore, the presence of the Township's engineers is helpful, and EPA would be grateful for the commenter relaying information about the Site to Township officials.

11) Comment: A commenter expressed their trouble with attaining the link live on the Eventbrite site. In this instance, they just dialed into the meeting instead.

Response: That's good to know. We want to make sure that it works the best that it possibly can. Thank you for letting us know. EPA does appreciate that.

ATTACHMENT A

PROPOSED PLAN

Superfund Proposed Plan for Remedy Modification

U.S. Environmental Protection Agency, Region 2
Imperial Oil Superfund Site
Marlboro Township, New Jersey
September 2019

EPA ANNOUNCES PROPOSED PLAN FOR REMEDY MODIFICATION

This Proposed Plan identifies the U.S. Environmental Protection Agency's (EPA's) proposed amendment to the remedy selected in the September 1992 Record of Decision (ROD) for Operable Unit (OU) 2 at the Imperial Oil/Champion Chemical Superfund site (Site). The Site's OU1 (stream, wetlands and flood plains) and OU3 (soil) remedies are not being changed by this proposed plan.

The remedy selected in the OU2 ROD called for extraction of contaminated groundwater, treatment via precipitation and carbon adsorption, discharge of the treated groundwater to Birch Swamp Brook, floating product removal and environmental monitoring. The OU2 treatment system has not been constructed as it was deferred until the source material was removed as part of the OU3 remedy.

The remedy selected in the OU3 ROD, which was issued in 1999, addressed contaminated soils. Between 2009 and 2011, EPA conducted the remedial action for OU3 which also included removal of dissolved contaminant sources to the groundwater and removal of the floating product layer on top of the groundwater, in addition to treatment of millions of gallons of contaminated groundwater in the excavation area. Since completion of the OU3 source removal remedy in 2011, EPA has been performing semiannual groundwater sampling at the Site to evaluate the effects of the source removal remedial action on groundwater contamination. The sampling data show that contamination levels in the groundwater are declining due to natural processes.

In accordance with Section 117(a) of the

MARK YOUR CALENDARS

PUBLIC COMMENT PERIOD
July 28, 2020 to August 28, 2020
EPA will accept written comments on the Proposed Plan during the public comment period.

August 11, 2020 at 6:00 P.M.: *Virtual public meeting. One may find meeting-participation details using the following link:*
https://www.epa.gov/superfund/imperial-oil

Alternately, one may participate by telephone using the following conference line number:
(315) 565-0493, code number 262234153#

Please register in advance of the virtual meeting by accessing: https://www.eventbrite.com/e/imperial-oil-virtual-public-meeting-tickets-114604428932

or emailing Pat Seppi, Community Involvement Coordinator, at:
seppi.pat@epa.gov
or calling her at (646) 369-0068.

Anyone interested in receiving materials for the public meeting in hard copy should either email or call Ms. Seppi with such a request by August 5, 2020.
The Administrative Record (supporting documentation) for the site is available at: https://www.epa.gov/superfund/imperial-oil
Send comments on the Proposed Plan to:

Renee Gelblat Remedial Project Manger
U.S. EPA, Region 2
290 Broadway, 19th Floor
New York, NY 10007-1866
Telephone: 212-637- 4414
Email: Gelblat.Renee@epa.gov

EPA's website for the Imperial Oil Site is:
https://www.epa.gov/superfund/imperial-oil

615707

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9617(a), and Section 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), if after the selection of a remedy in a ROD, a basic feature of the remedy is fundamentally altered, the Environmental Protection Agency (EPA) must propose an amendment to the ROD. EPA's proposed changes to the ROD must be made available for public comment.

This Proposed Plan was developed by EPA in consultation with the New Jersey Department of Environmental Protection (NJDEP). The alternatives summarized herein and remedy-related field investigations that were conducted at the Site are described in the *Final Focused Remedial Investigation Report and Focused Feasibility Study for the Imperial Oil Superfund Site, May 2020 (FRI/FFS),* which is contained in the administrative record file for this Site. This Proposed Plan is being provided as a supplement to the above-noted document to inform the public of EPA's and NJDEP's preferred remedy modification and to solicit public comments pertaining to the remedial alternatives evaluated, as well as the preferred modified remedy. EPA and NJDEP encourage the public to review these documents to gain more comprehensive understanding of the Site and Superfund activities that have been conducted at the Site.

EPA proposes to change the groundwater remedy from extraction and treatment to monitored natural attenuation (MNA) for OU2. Changes to the preferred modified remedy, or a change from the preferred modified remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments.

SITE DESCRIPTION

The Site is in the Morganville section of Marlboro Township, Monmouth County, New Jersey. The Site location is shown on Figure 1. The former Imperial Oil/Champion Chemicals property has been identified as Block 122, Lot 29, which encompasses approximately 15 acres. The formerly active portion of the property occupied approximately 4.2 acres. The Site is bordered by undeveloped property to the north and to the west by the former Central Railroad right-of-way (ROW) of New Jersey's Freehold and Atlantic Highlands Branch Main Line. The railroad ROW was developed as the Henry Hudson Trail, a paved bike path administered by Monmouth County Parks. Further to the west is a ROW for high-power electric transmission lines operated by Jersey Central Power and Light. Residential and light commercial properties lie to the east and the formerly undeveloped property to the south was developed in 2018 to a commercial self-storage warehouse facility. The Site is zoned for neighborhood commercial use and is expected to remain so into the future. The Site is inactive and covered by vegetation.

SITE HISTORY

Industrial activities began at the facility in approximately 1912. Initially, ketchup and tomato paste were manufactured at the facility until approximately 1917, at which time it was converted to a chemical processing plant. The chemical plant products may have included arsenic acid and calcium arsenate; the plant was later used to manufacture flavors and essences. In approximately 1950, Champion Chemical purchased the plant and used it as an oil reclamation facility. The oil reclamation process used diatomaceous earth, also known as filter clay, and caustic solution to remove heavy metals and polychlorinated biphenyls (PCBs) from waste oil. The waste products of the oil reclamation process, including the contaminated waste filter clay and caustic solution, were disposed of on Site. This operation continued until approximately 1965. Imperial Oil Company leased the facility from Champion Chemical in 1968, and began conducting oil-blending operations, including mixing and repackaging unused oil for delivery. Imperial Oil's mixing and blending operations continued until July 2007, when the company declared bankruptcy and abandoned the facility.

Improper handling, disposal and storage of hazardous materials at the facility released several contaminants into the environment, including, but not limited to, arsenic, lead, total petroleum hydrocarbons (TPHs), and PCBs. Operations at the facility resulted in the contamination of on-Site soils and groundwater, off-Site soils in two off-Site areas (Off-Site Areas 1 and 2) and on six residential properties, sediment in the Birch Swamp Brook, and soils adjacent to the Birch Swamp Brook. The Site was proposed for inclusion on EPA's

National Priorities List (NPL) of Superfund sites on December 1, 1982, and formally added to the NPL on September 1, 1983.

SITE GEOLOGY/HYDROGEOLOGY

The Site is in the Matawan Watershed of the Atlantic Coastal Plain Province, which characteristically has a gently sloping topography. Site elevations range from approximately 120 feet above mean sea level (amsl) at the southwestern corner of the Site to approximately 100 feet amsl at the northern fence boundary.

Surface water drainage is generally to the north and east toward the topographic low area at the northwestern corner of the Site (within the fence line). During periods of heavy rainfall, water accumulates in a catchment area in the northern section of the Site. This water and runoff were previously contained by an earthen berm that extended along the northeastern fence line of the former processing facility. To the northeast of the berm was a manmade pond, known as the Fire Pond. Following Site remediation activities and regrading, the water retention area and soil berm were removed but the Fire Pond remains and discharges surface water northwest to Birch Swamp Brook.

Birch Swamp Brook, an intermittent stream, flows through a culvert under the rail line bike path and to a wetland area northwest of the Site. Lake Lefferts is located approximately 1.25 miles north (and downstream) of the Site and drains into the Raritan Bay, which is located approximately 2 miles north of the Site.

The groundwater aquifer underlying the Site is classified as Class IIA (potable water source) by the State of New Jersey. However, due to the contamination from the Site, in 1998, the State of New Jersey established a Classification Exception Area (CEA) and Well Restriction Area (WRA) as an Institutional Control (IC). This IC restricts use of groundwater over an area that includes the area beneath and downgradient of the Site.

Groundwater flow in the water table aquifer near the Site is to the north.

A physical below-grade feature at the Site is the vertical barrier wall constructed to support the OU3 source removal remedial action. Installed around the perimeter of the planned source removal area, the barrier wall extends from the surface of the ground to at least 2 feet into the confining layer identified between 49 and 64 feet below ground surface (bgs) at the Site. The barrier wall was constructed as a slurry wall to stabilize the excavation walls, counteract earth pressure, and carry weight from loads above (such as excavation equipment); it also significantly decreased the total volume of contaminated water that needed to be pumped and treated during the source removal action. At the end of the source removal, eight breaches were created in the barrier wall to restore the groundwater flow through the Site and prevent mounding upgradient and within the wall.

SUMMARY OF SITE INVESTIGATIONS

A remedial investigation (RI) of the Site was conducted by the NJDEP in several phases. The first phase was conducted in 1987 and a second phase in 1989/1990. The purpose of the RI was to determine the nature and extent of contamination resulting from historic Site activities; identify potential contamination migration routes; identify potential receptors of Site contaminants; and characterize potential human health and ecological risks. The Final Site-wide RI Report was issued in December 1996. This report describes the nature and extent of contamination in on-Site soils, off-Site soils, sediments, and groundwater.

Sampling conducted during the RI indicated that on-Site soils contained elevated levels of numerous contaminants including; PCBs, arsenic, lead, beryllium, antimony, toluene, xylenes, ethylbenzene, pyrene, TPHs, bis (2-ethylhexyl) phthalate, and butylbenzylphthalate. In addition, floating product beneath the Site, which contained elevated levels of PCBs, toluene, ethylbenzene, xylenes, naphthalene and fluorene, was a continuing source of soil and groundwater contamination. Sampling also indicated that the Birch Swamp Brook sediment contained elevated levels of PCBs, arsenic and TPHs.

Current and potential future exposure to PCBs, arsenic and lead in on-Site soil was determined to present a significant human health risk due to exceedance of EPA's risk management criteria. In addition, an ecological risk assessment was performed at the Site to study ecological risks associated with Site-related contaminants present in the following four areas: 1) wooded areas southeast of the Fire Pond and northeast

of the facility; 2) the Fire Pond and a 0.5 acre wetland area downstream of the railroad culvert; 3) a shrub habitat in the vicinity of the power transmission lines which traverses Off-Site areas 1&2; and 4) a large wooded area to the west and north of the Off-Site areas 1&2.

The contaminants of concern selected for the ecological risk assessment were PCBs, antimony, arsenic, beryllium, lead, and bis-2 (ethylhexyl) phthalate. The ecological risk assessment concluded that exposure to the Site soil and surface water by the various plant, mammal, bird, and reptile species in the vicinity of the Site, if not addressed by the remedy, would present a current or potential future threat to the environment. Furthermore, the presence of Site-related contamination in the Birch Swamp Brook was determined to present a significant risk to both human and ecological receptors.

Groundwater

The potential sources of contamination to the groundwater underlying the Site included aboveground storage tanks within four on-Site fuel tank farms, a waste filter clay pile from petroleum refining operations, a layer of oil floating on the water table, former Site buildings and infrastructure, a former settling lagoon and catchment area for the oil reclamation process, contaminated soil fill areas, and sediments in a stormwater drainage system and Birch Swamp Brook.

The 1992 OU2 ROD identified the following contaminants of concern (COCs) for the groundwater:

- *Volatile Organic Compounds (VOCs)*: benzene, 1,2-dichloroethene (1,2-DCE), ethylbenzene, toluene, tetrachloroethane (PCE), trichloroethene (TCE), and xylenes

- *Semivolatile organic compounds (SVOCs)*: Acenaphthene, bis(2-ethylhexyl) phthalate, 2,4-dimethylphenol, di-n-butyl phthalate, fluoranthene, fluorene, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, naphthalene, phenanthrene, pyrene, and 1,2,4-trichlorobenzene

- *Metals*: antimony, arsenic, beryllium, chromium, lead, silver, vanadium, and zinc

- *Pesticides/PCBs*: Aroclors

Two groundwater flow systems were identified at the Site: (1) a local perched groundwater system occurring within the fill material; and (2) the regional water table system of the Englishtown aquifer. Depth to water ranges from grade (within the fence line at the northwestern corner of the property) to 14 feet bgs (at the southeastern portion of the property). Groundwater in the shallow part of the Englishtown aquifer generally flows in a northerly direction, with local components to the east and west as influenced by topographic and geologic conditions. Locally, groundwater in the shallow portion of the aquifer discharges to the Fire Pond and then to Birch Swamp Brook.

Groundwater conditions at the Site are slightly acidic (pH<5) and moderately aerobic with regionally elevated iron and manganese concentrations in the Englishtown aquifer.

Groundwater sampling outlined the extent of dissolved phase groundwater contamination for VOCs and SVOCs extending from the center of the property to the northern end of the property. The extent of inorganic constituents extended from the southern end of the property, through the center of the Site and extended off-property to the north.

A component of local perched groundwater also infiltrated through the contaminated soils and source materials before recharging the shallow component of the regional Englishtown aquifer. Regional groundwater flow enters the property from the south and migrates the length of the property in a northerly flow direction as demonstrated by the elongated north-south extent of groundwater contamination continuing off the former Imperial Oil property. This flow direction and migration is most prominently seen with the more recalcitrant inorganic compounds.

Before the OU3 source remediation, the source areas were a direct risk to public health and the environment and affected adjacent and surrounding media by directly impacting the soils, eroding into the sediment through surface water runoff, and infiltrating into groundwater through precipitation and groundwater recharge to the aquifers.

EPA has completed several removal and remedial actions at the Site to address conditions that presented a serious risk to public health and the environment. The actions included excavation of source materials from the Site, including buried drums with oily sludge and tar materials, waste filter clay mounds, substantial contaminated soil excavation with groundwater treatment, installation of extraction wells for removal of floating oily product on the water table, and remediation of sediments in the Fire Pond and associated streams/tributaries with restoration of wetlands.

During the OU3 remedial action, an additional 4,305 gallons of floating product that acted as a source to groundwater contamination were collected and shipped off-Site for proper disposal. In addition, an on-Site water treatment plant (WTP) was constructed to treat potentially contaminated water generated from the construction activities. The WTP was operated and maintained on-Site from June 2010 to November 2011. Approximately 30.4 million gallons of water were treated and discharged during the remedial activities. Through these actions, EPA has removed the potential source areas from the Site, addressed soil and sediment contamination, and eliminated their ongoing contributions to contaminated groundwater.

Post OU3 remedial action groundwater monitoring at on-Site and off-Site monitoring wells (Figure 2) has demonstrated that concentrations of SVOC COCs have decreased to below Preliminary Remediation Goals (PRGs) shortly after monitoring began. From the list of 10 potential Site VOC COCs, only two compounds (benzene and TCE) remain with exceedances of ROD remedial goals and over the past three years, concentrations have decreased steadily and are very close to the remedial goals. The number of metals COCs exceeding remedial goals have decreased, and in the last years only two metals, arsenic and beryllium, continue to exceed the remedial goals. These results suggest that the source removal activities were effective in discontinuing contaminant contributions to groundwater and groundwater contamination appears to show a decreasing trend through natural processes following the source removal actions.

Evidence for Natural Attenuation

During OU3 remedial action, a barrier wall was constructed around the source area. This was installed to limit the groundwater migration through that area and make it easier to remove the contaminated soil. After the contaminated soil was excavated, the wall was breached in 8 locations (see Figure 2) and the regional groundwater flow pattern, from south to north, was restored.

Since that time, sampling shows that contamination levels in the groundwater are declining due to natural processes. The natural attenuation processes for the four COCs remaining above PRGs are described below.

Arsenic:
Arsenic is metal and does not decompose. When it is in a soluble form, arsenic is mobile and moves with the groundwater. When the arsenic is in an insoluble form, it precipitates out of solution and adheres to the materials in the aquifer.

The highest concentration for arsenic was 1,000 µg/L at well PZ-09 during the second sampling event on July 2012. The concentrations at PZ-09 have steadily decreased over time, falling an order of magnitude by May 2019 to 150 µg/L (PRG is 3 µg/L). Similarly, the well with the second highest arsenic concentration (PZ-12) decreased from 130 µg/L in July 2012 to 1 µg/L in May 2019. (Figure 2 shows both wells are along the northern boundary of the former source area).

The solubility of arsenic depends on the geochemical conditions in the area. Specifically, it depends on the pH of and the oxidation-reduction potential (measured as Eh in millivolts (mV)) of the local groundwater. At the lower values of Eh, arsenic exists as in a soluble form (As^{+3}), which is dissolved in and moves with the groundwater. At higher Eh values (about 200 mV and above), arsenic exists in a relatively insoluble form (As^{+5}), comes out of solution and adheres to iron hydroxide in the soil.

The area hydraulically upgradient of the source area was not contaminated by industrial activities. In this area, the groundwater currently contains less than 6 ug/L arsenic, has pH values between 4 and 6, and has Eh values greater than +200 mV. Under these conditions, arsenic exists primarily as the insoluble As^{+5}.

Since the source area barrier wall was breached, groundwater has been able to migrate from the upgradient area through source area. During this same

period, the average groundwater Eh increased from +183 mV to +250 mV, becoming more oxidizing. Simply put, breaching the retaining wall has reintroduced geochemical conditions conducive to converting the soluble form of arsenic into the insoluble form.

However, arsenic can exist as either As^{+3} to As^{+5} depending on the specific Eh value at each sampling location. The observed variation of Eh values results in a range of arsenic values found in the source area wells. Over time, as the more oxidized upgradient groundwater continues to enter the source area and spread out, locations with soluble As^{+3} will continue to oxidize to insoluble As^{+5}. The As^{+5} will continue adhering to iron oxyhydroxides in the soil and the levels of arsenic in the groundwater will continue to fall.

Because wells just outside and downgradient of the source area barrier wall are receiving groundwater from the former source area, there was an increase in the average arsenic concentrations from May 2016 to May 2019 in downgradient wells. There has also been a corresponding drop in the average Eh of downgradient groundwater from +349 mV to +196 mV.

Closer to the former source area, there is evidence of groundwater mixing. In 2019, the average concentration of arsenic in the groundwater leaving the northwest corner of the source area has dropped from 29 µg/L in 2016 to 5 µg/L. This is a good indication that the transition of As^{+3} to insoluble As^{+5} is underway. Over time, as the groundwater exiting the former source area continues to become more oxidized and moves offsite, As^{+3} will continue to convert to the less soluble As^{+5} and adhere to the aquifer soils

The natural attenuation mechanisms of dilution and dispersion are playing a minor role in the reduction of arsenic concentrations, therefore, the predominant MNA mechanism is sorption. Sorption, specifically adsorption to iron hydroxides in aquifer soils, is triggered by a change in groundwater geochemistry as more oxidizing groundwater migrates through the site and decreases the solubility of arsenic.

Beryllium:
Beryllium is also a metal and does not decompose. Beryllium concentrations have been trending downward over the past five years from a high of 50 µg/L in April 2014. In May 2019, beryllium levels were at or below 10 µg/L (PRG is 1 µg/L).

Low levels of beryllium remain dissolved in groundwater when the pH is greater than 4.5. In May 2019, the average pH of upgradient groundwater entering the Site was 4.9. Under these conditions (pH greater than 4.5 entering the Site and low overall concentrations in the groundwater), dilution and dispersion by upgradient and downgradient groundwater is expected to be the primary mechanism for attenuation.

Benzene:
Benzene concentrations have been trending downward over the past 7 years, from a concentration of 13 µg/L to at or below 5.1 µg/L (PRG is 1µg/L). In general, benzene decomposes relatively quickly by undergoing aerobic biodegradation. This was the likely mechanism when the benzene concentrations were higher and may still be occurring. However, at the current low benzene concentrations, dilution and dispersion are the primary attenuation mechanisms.

TCE:
TCE concentrations have been trending downward over the past four years from a high of 8.9 µg/L in May 2015. TCE concentrations in May 2019 were at or below 3.1 µg/L (PRG is 1µg/L). In the past, when higher levels of TCE were present, this compound underwent reductive dechlorination. The primary breakdown product of TCE under reductive dechlorination is cis-1,2 dichloroethene (cis-1,2 DCE). Cis-1,2 DCE was not a Site contaminant and its presence shows that reductive dechlorination occurred. In May 2019, cis-1,2 DCE was detected in multiple Site wells with a maximum concentration of 24 µg/L, which is below the current federal Maximum Contaminant Level (MCL) of 70 µg/L. The complete reductive dechlorination pathway may produce vinyl chloride, but this process does not appear to be occurring, as vinyl chloride was not detected above 1 µg/L in May 2019. Regardless, at the current low concentrations, dilution and dispersion are the primary attenuation mechanisms for TCE.

Time to Reach Cleanup Goals
Logarithmic decay analyses of the groundwater data estimate that the four COCs will achieve the ROD cleanup goals within 15 years through MNA.

Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to ground water, surface water or air, or acts as a source for direct exposure. Contaminated ground water generally is not considered to be a source material; however, Non-Aqueous Phase Liquids (NAPLs) in ground water may be viewed as source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. Groundwater contamination, which is the subject of this Proposed Plan, is not considered a principal threat waste.

SUMMARY OF SITE RISKS

As part of the RI/FS process, baseline risk assessments are conducted to estimate current and future risks posed to human and ecological receptors from exposure to hazardous substances at a site in the absence of any actions (engineering or institutional) to control or mitigate exposures to these hazardous substances. A four-step human health risk assessment process was used for assessing Site-related cancer risks and noncancer health hazards. The four-steps are: Hazard Identification of Chemicals of Potential Concern (COPCs); Exposure Assessment; Toxicity Assessment; and Risk Characterization (see box titled "What is Risk and How is it Calculated" for more details on the Superfund risk assessment process).

Consistent with the NCP, the results of the baseline risk assessment are used to determine whether remedial action is necessary at a site in addition to helping identify the exposure pathways that drive the need for a remedial action.

Human Health Risk Assessment

The baseline risk assessment in the OU2 ROD identified cancer risk and/or noncancer hazards that were above the acceptable cancer risk range of 10^{-6} to 10^{-4} and the noncancer hazard index (HI) of 1 (see the box titled What is Risk and How is it Calculated?). The baseline risk assessment evaluated the health effects which would result from exposure to groundwater contamination through ingestion of drinking water. Groundwater in the vicinity of the Site is not currently used as a drinking water source, nor was it at the time of the ROD. Domestic wells are used only for non-potable purposes, such as irrigation and washing cars. Risks associated with potential future groundwater exposure were quantified for residents. Based on the data collected to date, the conclusions of the baseline risk assessment from the OU2 ROD are still valid.

The baseline risk assessment evaluated all Site-related contaminants; however, the estimated total risks were primarily due to PCBs and beryllium. Arsenic was not included in risk calculations since the elevated groundwater concentrations at the time were too high to allow the cancer risk to be accurately calculated using EPA's risk equations."

Cancer risks for future residents were determined to be approximately 2×10^{-3} for ingestion of Site groundwater and 4×10^{-2} for off-Site groundwater, which exceeded the NCP's acceptable range of 10^{-4} to 10^{-6} for excess lifetime cancer risk. The noncancer hazard indices (HIs) were 19 for Site groundwater and 18 for off-Site groundwater, which exceeded EPA's goal of protection of 1 for noncancer health hazards.

As part of the remedy modification process, EPA has conducted a qualitative analysis of the data to determine the risks associated with the groundwater contamination remaining after additional source material was removed from the Site. From the 2011-2018 monitoring well data, only two metals (arsenic and beryllium), in addition to the VOCs benzene and trichloroethene, continue to exceed drinking water standards. Apart from beryllium, concentrations of all remaining COCs above standards have significantly decreased from the initial investigation. While the maximum concentration of arsenic has decreased over the monitoring period, arsenic concentrations in on-Site groundwater are consistently an order of magnitude above the MCL. Table 1 lists the maximum COC concentrations in on-Site and off-Site monitoring wells from the time of the 1992 ROD and most recently from 2018, the calculated cancer risk/noncancer hazard for each value from EPA's Regional Screening Level Calculator, and the associated cleanup levels. Other

WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the contaminants of concern (COCs) at the site in various media (*i.e.*, soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other noncancer health hazards, such as changes in the normal functions of organs within the body (*e.g.,* changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and noncancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one in ten thousand excess cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one in ten thousand to a one in a million excess cancer risk.

For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at the site.

COCs from the ROD were either non-detect or below MCLs in this sampling event. Arsenic remains the predominant COC with a calculated cancer risk of 3 x 10^{-3} and a noncancer hazard index of 27 for a future resident. Remaining Site-related groundwater contamination therefore continues to present an unacceptable risk to human health.

The potential impact to ecological receptors from groundwater was evaluated. Since the groundwater does not discharge to a surface waterbody, there are no completed ecological pathways and no exposure to ecological receptors. Therefore, there is no unacceptable risk associated with groundwater exposure for ecological receptors.

Summary of Human Health Risk Assessment

The results of the investigations and the human health risk assessments indicate that the OU2 contaminated groundwater continues to present an unacceptable exposure risk. It is EPA's current judgment that the Preferred Alternative summarized in this Proposed Plan is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards such as Applicable or Relevant and Appropriate Requirements (ARARs) for drinking water.

The following RAOs are established for the Site groundwater:

- Prevent or minimize unacceptable risk from exposure (via direct contact, ingestion, or inhalation) to contaminated groundwater attributable to the Site.
- Prevent further off-Site migration of contaminated groundwater
- Return the aquifer to its designated use as a source of drinking water by reducing contaminant concentrations in the groundwater to drinking water quality.

The preliminary remediation goals (PRGs) are the New Jersey Groundwater Quality Standards (NJGWQS), which are more stringent than the remedial goals selected in the 1992 ROD and equally or more protective than the current MCLs (Table 2).

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA Section 121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost-effective, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. §9621(d)(4).

The 1992 ROD evaluated five remedial alternatives to address the Site-wide groundwater contamination. These included no action, containment and three alternatives involving groundwater extraction and treatment. At that time, contaminant sources to the groundwater were still present, and therefore supporting data to demonstrate that MNA may be occurring at the Site were not available. As a result, groundwater extraction and treatment was selected in the ROD as the most appropriate alternative. Since the time of the ROD, source removal has taken place, MNA has been evaluated further and now sufficient data exist to demonstrate that MNA is occurring.

Detailed descriptions of the remedial alternatives for addressing the contamination associated with the Site can be found in the 2020 FRI/FFS report.

Because the Original Remedy and the Preferred Alternative may result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that under both alternatives the Site be reviewed at least once every five years until the remedial goals are met.

Groundwater Alternatives:

Original Remedy: Groundwater Extraction and Treatment

Capital Cost:	$ 3,071,719
Annual O&M Cost:	$ 9,606,416
Present Worth Cost:	$10,513,794
Construction Time Frame:	18 months
Time to Meet RAOs	10 years

This alternative incorporated the following elements:

- Extraction of contaminated groundwater;
- Treatment of the extracted groundwater via precipitation of inorganic contaminants and carbon adsorption of organic contaminants;
- Discharge of the treated groundwater to Birch Swamp Brook;
- Continuation of the floating product removal action currently being undertaken by EPA; and
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

The selection of this alternative at the time of the 1992 ROD was based upon the comparative analysis of five groundwater alternatives and was considered to provide the best balance of tradeoffs with respect to the NCP's nine evaluation criteria for remedy selection. This alternative employed an effective, readily implementable technology for treatment of inorganic and organic compounds with the only residuals from the treatment being spent carbon and sludge from the precipitation process. The spent carbon would be regenerated for reuse, if possible, and the sludge generated from the treatment facility would be disposed of in accordance with appropriate federal and state requirements. The FS concluded that the alternative could be implemented to meet federal and state ARARs.

One goal of the groundwater remedy was to restore the contaminated aquifer to the 1992 federal- and state-MCLs. Another objective of the groundwater remedy was to restore the groundwater to its beneficial use, which is a drinking water aquifer, and to prevent the further migration of the contaminant plume. In the 1992 OU2 ROD, EPA and the State of New Jersey concluded that the selected groundwater remedy would achieve these goals.

The selected remedy included groundwater extraction for an estimated period of 10 years, during which time the system's performance was to be carefully monitored on a regular basis and adjusted as warranted based on the collected performance data.

To ensure that remedial goals were maintained, the aquifer was to continue to be monitored at those wells where pumping had ceased following discontinuation of groundwater extraction. These wells would be sampled on a regular basis (e.g., quarterly) for several years until COCs were below the ROD remedial goals.

All the elements of the Original Remedy were deferred while the contaminated soil was removed as part of the OU3 remedy**.**

Note: to update this remedy to current standards, the PRGs will be the values in Table 2 and ICs will be implemented as needed.

Preferred Alternative: Monitored Natural Attenuation

Capital Cost:	$0
Annual O&M:	$974,385
Present Worth Cost:	$623,317
Construction Timeframe:	0 months
Time to meet RAOs:	15 years

Following the 1992 OU2 ROD and the implementation of the OU3 source removal remedy, EPA has collected 17 rounds of groundwater samples to observe the impacts of the source removal action on groundwater contamination conditions. Based on these results, engineering judgement, and experience at this and other sites with similar conditions, EPA proposes to implement MNA to observe further progress in reductions in COC concentrations and to continue to compare the respective concentrations to the PRGs, which are more protective than the remedial levels established in the ROD and/or background regional concentrations.

The Preferred Alternative incorporates the following elements:

- Collection of groundwater samples from the monitoring well network
- Evaluation of the samples for COCs and MNA parameters

The number of locations sampled and the frequency at which they are sampled will be determined during design of the remedy. At this time, the Preferred Alternative will not require construction as it will use the existing well network.

The remedial goals are the PRGs as listed in Table 2. Monitoring would continue until COCs are below the PRGs, which is estimated to occur within 15 years for all COCs. A that time EPA would consider closure of

THE NINE SUPERFUND EVALUATION CRITERIA

1. Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

3. Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

4. Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

5. Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

6. Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

7. Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

8. State/Support Agency Acceptance considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

9. **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

the monitoring program or another option as necessary. Until then, monitoring would encompass on-Site and off-Site wells as well as points that are considered representative of background regional conditions.

In 1998, NJDEP established a CEA/WRA for the Site that restricts the use of groundwater over an area that includes the area beneath and downgradient of the Site. This was not a component of the original OU2 remedy. It will be included in both alternatives.

EVALUATION OF ALTERNATIVES

The NCP lists nine criteria for evaluation and comparison of remedial alternatives. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, and how each of the alternatives compares to the other options under consideration. Seven of the nine evaluation criteria are discussed below. The final two criteria, "State Acceptance" and "Community Acceptance" are discussed at the end of the document. A more detailed analysis of each of the alternatives is presented in the 2020 FRI/FFS report for OU2.

Evaluation of Groundwater Alternatives

1. Overall Protection of Human Health and the Environment

Both alternatives would be protective of human health and the environment by preventing exposure to contaminants, preventing off-Site migration of contaminants and maintaining the institutional controls (CEA/WRA) that are already in place.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Actions taken at any Superfund site must meet all applicable or relevant and appropriate requirements, or ARARs, under federal and state laws or provide grounds for invoking a waiver of those requirements.

The Original Remedy is expected to comply with action- and location-specific ARARs. There are no action- or location-specific ARARs for the Preferred Alternative. The Original Remedy, over time, is expected to meet the chemical-specific ARARs, which are the PRGs for COCs, as detailed in Table 2. The Preferred Alternative is also expected to meet the chemical-specific ARARs, and the remedy's progress toward achieving those goals would be monitored.

For both alternatives, concentrations of the metal COCs may decrease to regional background levels.

3. Long-Term Effectiveness and Permanence

Reductions in contaminant concentrations are already being observed following the OU3 source removal remedy. Both alternatives would provide adequate control of risks to human health over the long-term because they will achieve the PRGs and incorporate ICs as a mechanism to prevent exposure until those goals are achieved.

The Original Remedy may achieve cleanup levels more quickly than MNA due to its active removal of contaminated groundwater. The Preferred Alternative is nevertheless expected to achieve remedial goals within an acceptable time frame and incorporates groundwater analysis and monitoring to evaluate progress towards achieving remedial goals. The Preferred Alternative also includes ICs to prevent exposure to contaminated groundwater until the remedial goals are achieved.

The Original Remedy is expected to meet the remedial goals within 10 years. The Preferred Alternative is expected to meet the remedial goals within 15 years.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

The Original Remedy uses treatment to remove the VOC COCs from the groundwater. While metal COCs would also be removed from the groundwater, the metal COCs would likely continue to be present at concentrations comparable to regional background levels. Although this alternative would reduce the toxicity, mobility or volume (TMV) of the COCs in groundwater through active extraction and treatment, these reductions are already occuring through natural processes following the OU3 source removal remedy. Treatment residuals (spent activated carbon and sludge from the metal treatment) would transfer contaminants off-Site for treatment and disposal.

The Preferred Alternative does not use treatment. The TMV of the COCs would be reduced, although the rate of reduction is expected to be slower than the Original Remedy. ICs would provide protection of public health

while contaminant concentrations in groundwater decrease and groundwater would be monitored to evaluate progress towards achieving the remedial goals. Since this alternative does not use treatment, there would be no treatment residuals to manage.

5. Short-Term Effectiveness

The Original Remedy required construction of a groundwater treatment system. Although controls can be established to protect and minimize impacts to the community, there may be disruptions to the community during construction and operation of the system.

The Preferred Alternative would not involve any adverse short-term impact to the local community or the environment because the monitoring well system already exists. Additionally, this alternative does not require any design time and could be implemented immediately.

6. Implementability

Both alternatives can be implemented. The Original Remedy is harder to implement because it would need be operated and maintained.

The Preferred Alternative is expected to use the existing monitoring well network. Therefore, there will be no construction, operation or maintenance required.

7. Cost

The present worth cost for the Preferred Alternative is $623,317 which is significantly lower than the $10,513,794 cost of the Original Remedy.

PREFERRED ALTERNATIVE

Based on the evaluation of alternatives, EPA is proposing the Preferred Alternative, Monitored Natural Attenuation for amending the OU2 ROD for the Imperial Oil Site This alternative consists of the following:

- Collection of groundwater samples from the monitoring well network
- Evaluation of the samples for COCs and MNA parameters

Because the Preferred Alternative may result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years until the remedial goals are attained

Basis for the Preferred Alternative

After the OU3 source removal remedial action was completed in 2011, EPA began semi-annual groundwater sampling at the Site to evaluate the impacts of the source removal on groundwater contamination. The results of these 17 rounds of groundwater sampling show that the OU3 remedy removed the sources of groundwater contamination and has resulted in reductions in COC concentrations in groundwater to the point where many identified COCs are no longer detected at concentrations above the established remedial goals.

An immediate decrease in COC concentrations was observed following the OU3 remedial action and fluctuations in concentrations were measured. Since May 2016 the concentrations have shown a greater degree of stability with an apparent downward trend. Specifically, during the last four years of semiannual sampling, two VOC COCs (benzene and TCE) have been detected at concentrations slightly above the remedial goals. Two metals (arsenic and beryllium) also continue to be detected above the remedial goals.

Logarithmic decay analyses of the groundwater data over the last three years was used to estimate that all the remaining COCs may achieve their PRGs within 15 years without active remediation.

These data support the conclusion that the groundwater extraction and treatment remedial alternative selected in the 1992 OU2 ROD (i.e., the Original Remedy) is no longer necessary. MNA is appropriate to reduce the COC concentrations in groundwater.

Both Alternatives are expected to be protective of public health and the environment and comply with ARARs.

The Original Remedy uses active measures to achieve the remedial goals, whereas the Preferred Alternative does not include active remediation. The Original Remedy relies on treatment to achieve the objectives with associated wastes requiring management, while the Preferred Alternative relies on natural processes which have been shown by the most recent

groundwater results to be effective in reducing contaminant concentrations.

The Original Remedy has significantly higher costs associated with construction and operation of a remedial system. Both alternatives would monitor groundwater to evaluate progress towards the remedial goals and use ICs to prevent exposures to contaminated groundwater until they are achieved.

Because of the active treatment of contaminated groundwater, the Original Remedy is expected to take 10 years to achieve the RAOs, while the Preferred Alternative will take 15 years to meet the RAOs. Both alternatives are implementable, but the Original Remedy would be more difficult to implement and cause more disruption to the community during the extraction/treatment system construction and operation. The Original Remedy entails higher present worth costs associated with construction, O&M, and monitoring of the extraction and treatment system. The Preferred Alternative has significantly lower present worth costs that only includes monitoring as there is no system that requires construction. It is estimated to take 15 years to achieve the RAOs.

Based on current data, EPA has determined that the Preferred Alternative, MNA, meets the threshold criteria and provides the best balance of tradeoffs among the alternatives with respect to the balancing and modifying criteria. EPA expects the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121 (1) be protective of human health and the environment; (2) would comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The Preferred Alternative does not include active treatment as a principal element, however, as discussed above, treatment would only moderately shorten the timeframe to achieve remediation goals, while increasing costs and include adverse short-term impacts on the community.

The present worth cost for the Preferred Alternative is $623,317.

Consistent with EPA Region 2's Clean and Green policy, EPA will evaluate the use of sustainable technologies and practices with respect to implementation of a selected remedy.

State Acceptance

The state of New Jersey concurs with the Preferred alternative for Site-wide groundwater (OU2).

Community Acceptance

Community acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the Record of Decision Amendment. Based on public comment, the Preferred Alternative could be modified from the version presented in this proposed plan. The Record of Decision Amendment is the document that formalizes the selection of a remedy for a site.

COMMUNITY PARTICIPATION

EPA provided information regarding the cleanup of the Site through meetings, the Administrative Record file for the Site and announcements published in the local newspaper. EPA encourages the public to gain a more comprehensive understanding of the Site and the RI activities that have been conducted there.

The dates for the public comment period, the date and time of the public meeting, and information on how to access the Administrative Record file are provided on the front page of this Proposed Plan.

For further information on EPA's Preferred Alternative for the Site contact:

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On the Web at:
https://www.epa.gov/superfund/imperial-oil

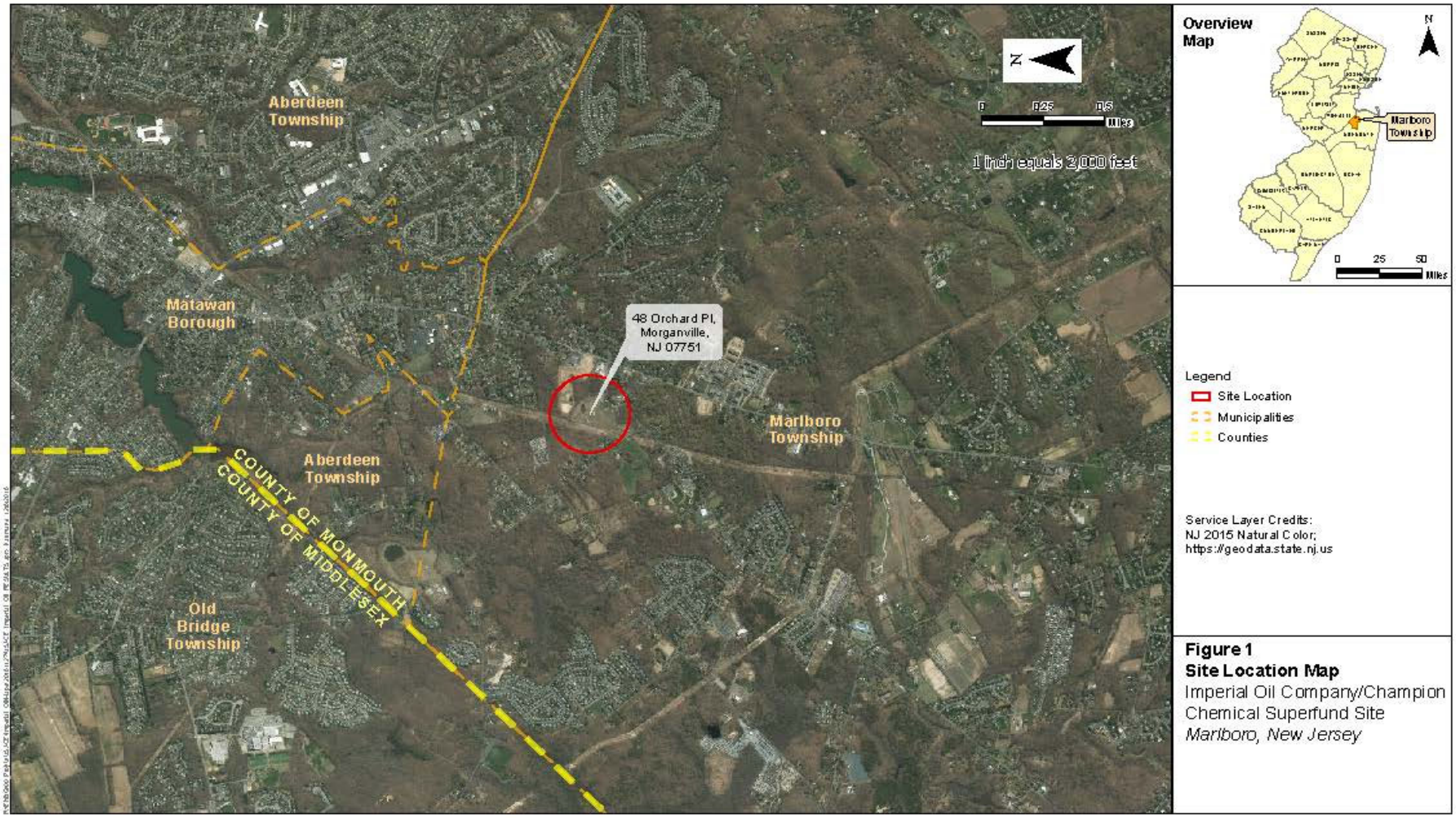

Figure 1
Site Location Map
Imperial Oil Company/Champion Chemical Superfund Site
Marlboro, New Jersey

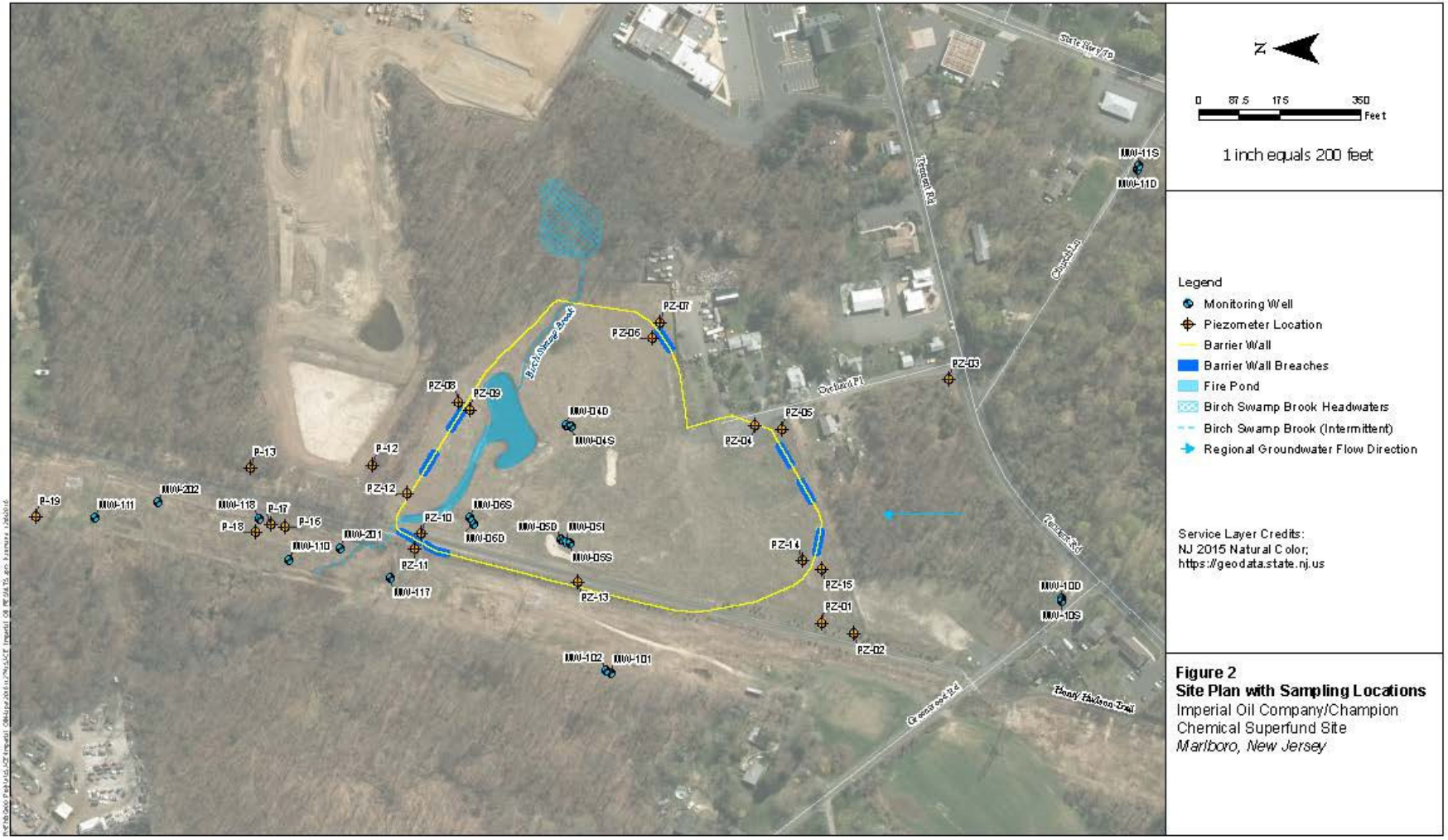

Figure 2
Site Plan with Sampling Locations
Imperial Oil Company/Champion Chemical Superfund Site
Marlboro, New Jersey

TABLE 1
Risks/Hazards for COCs Above MCLs

	NJ MCL - µg/L	1992 ROD Max Concentration (µg/L)	2018 Maximum Concentration (µg/L)	2018 Residential Cancer Risk/Noncancer Hazard*
Benzene	1	55	2.7	6E-06/0.08
Trichloroethene	1	160	2.1	4E-06/0.7
Arsenic	5	69,500	160	3E-03/27
Beryllium	4	14	15	-/0.6

*Noncancer hazards are calculated for a child resident

TABLE 2: Preliminary Remediation Goals

Contaminant of Concern (1)	Federal MCL	NJ MCL	New Jersey Class IIA Ground Water Quality Standards (2)
Metals			
Antimony	6	6	6
Arsenic	**10**	**5**	**3**
Beryllium	**4**	**4**	**1**
Chromium	100	100	70
Lead	15	15	5
Silver	--	100	40
Vanadium	--	--	--
Zinc	--	5000	2000
VOCs			
Benzene	**5**	**1**	**1**
cis-1,2-Dichloroethene	70	70	70
trans-1,2-Dichloroethene	100	100	100
Ethylbenzene	700	700	700
Tetrachloroethene	5	1	1
Trichloroethene (TCE)	**5**	**1**	**1**
Toluene	1000	1000	600
m, p-Xylene	--	--	--
o-Xylene	--	--	--
SVOCs			
Acenaphthene	--	--	400
Bis(2-ethylhexyl)phthalate	6	6	3
2,4-Dimethylphenol	--	--	100
Di-n-butylphthalate	--	--	700
Fluoranthene	--	--	300
Fluorene	--	--	300
Naphthalene	--	--	300
2-Methylphenol	--	--	50
4-Methylphenol	--	--	50
2-Methylnaphthalene	--	--	30
Phenanthrene	--	--	100
Pyrene	--	--	200
1,2,4-Trichlorobenzene	--	--	9
Pesticides/PCBs			
Aroclors	0.5	0.5	0.5

Footnotes:

All concentrations are reported in µg/L.

-- Indicates there is no regulatory level for the compound.

(1) The COCs that are still above applicable groundwater PRGs are in bold

(2) The PRGs are the NJGWQS. The NJGWQS are equal to or more stringent than the federal and state MCLs.

ATTACHMENT B

PUBLIC NOTICE

THE ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE PROPOSED REMEDY CHANGE FOR THE IMPERIAL OIL SUPERFUND SITE MARLBORO TWP., MONMOUTH COUNTY NJ

The U.S. Environmental Protection Agency (EPA) has issued a Proposed Plan identifying its preferred alternative to change a portion of the remedy for one of the Operable Units at the Imperial Oil Superfund Site located in Marlboro Twp., NJ

The preferred alternative consists of changing the remedy for the groundwater Operable Unit selected in the 1992 EPA Record of Decision from an extraction and treatment remedy to a monitored natural attenuation (MNA) remedy. MNA allows existing natural processes to mitigate contamination. These processes will be closely monitored by EPA until cleanup levels are met.

EPA has opened a 30-day public comment period which starts July 28, 2020 and ends on August 28, 2020. As part of the public comment period, EPA will hold a **virtual public meeting on the Proposed Plan on August 11, 2020 at 6 p.m. For more information about the meeting, visit our website at https://www.epa.gov/superfund/imperial-oil. To participate by telephone, please call into the conference line: (315)565-0493, code number 304001388#.**

Please register in advance of the virtual meeting at:
https://imperialoil-superfund.eventbrite.com or by emailing Pat Seppi, Community Involvement Coordinator, at seppi.pat@epa.gov or calling her at (646)369-0068. The registration address is also on our webpage.

The Administrative Record, including the Proposed Plan and other site-related documents, is available for public review at: https://www.epa.gov/superfund/imperial-oil. Anyone interested in receiving a hard copy of the Proposed Plan or other site-related materials should either email or contact Ms. Seppi with such a request by Tuesday, August 5, 2020.

Verbal comments on the Proposed Plan may be provided during the virtual public meeting. Written comments on the Proposed Plan should be emailed no later than August 28, 2020 to EPA Project Manager Renee Gelblat at Gelblat.renee@epa.gov.

ATTACHMENT C

TRANSCRIPT OF PUBLIC MEETING

IMPERIAL OIL SUPERFUND SITE

PUBLIC MEETING FOR PROPOSED AMENDMENT TO THE GROUNDWATER REMEDY

DATE: August 11, 2020
TIME: 6:10 p.m.
LOCATION: Virtual meeting

A P P E A R A N C E S:

PAT SEPPI
Community Involvement Coordinator

SHEREEN KANDIL
Community Affairs Team Lead, Public Affairs Office

RENEE GELBLAT
Remedial Project Manager

JON GORIN
Chief, Southern NJ Remedial Section

FARNAZ SAGHAFI
Chief, Northern NJ Remedial Section

RACHEL GRIFFITHS
Hydrogeologist

ABBEY STATES
Human Health Risk Assessor

AMELIA WAGNER
Site Attorney

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INTRODUCTION:

MS. SEPPI: So, everyone, let's get started. And again, I apologize for the delay. I mean, you know, I guess a couple technical difficulties here, but welcome to our virtual public meeting.

So if you're looking for the Imperial Oil Meeting, you're certainly in the right place. And I'd say -- I was planning to say -- we had planned to start promptly 6 o'clock, but that didn't work out, so we are starting now.

Hello, again. My name is Pat Seppi. I'm the community involvement coordinator for EPA for the Imperial Oil Site, and it's time to get this meeting started. We appreciate you being prompt.

So this I -- obviously, you can tell that this virtual meeting experience is fairly new to EPA, and we really are working to do our best for you. And so we would ask for your patience -- which you've already given us -- and thanks again for that. And we appreciate your attending.

So the next slide, please.

Next slide.

MS. KANDIL: This is the second slide.

MS. SEPPI: No. I still see the Imperial Oil slide.

MS. KANDIL: Imperial Oil slide 1, slide 2.

MS. SEPPI: That's it, that's it. Thank you.

So before I proceed with the introductions and the agenda, I'd like to ask Shereen Kandil of the Public Affairs Office to give you some information about Skype and the controls that are available.

And these will come in handy, you'll see at the end of the presentation when it's time for your comments.

Shereen.

MS. KANDIL: Thank you. And I just would ask if you're not speaking to please mute yourselves or -- I hear myself.

So anyway, so the Skype controls -- in case you need to hang up you just press the red button that looks like a telephone. If you want to when we get to the

question and comment portion of the meeting, there's the microphone where when we unlock all phone lines you'll be able to click on, so that you can ask your question or make a comment.

And then for those of you who want to ask or make a comment via the chatbox, all the way to the left of your Skype screen there's a little like thought bubble that you can click on and it will open the chatbox and you can type in your question or comment there.

But we do ask that you put your first and last name, your affiliation and your question and comment first. So for instance, I would put Shereen Kandil, resident of Staten Island, and I would type in where is the Imperial Oil Site located.

So this I ask of everyone, anyone who is asking a question via phone, you just say your name out loud. We have a court reporter who is transcribing the meeting and needs to have everybody's information.

We will repeat these instructions before the question and answer portion

again.

We're also going to be doing it or will be -- we'll try to be a little bit more strategic when we're asking you all to ask your questions and comments, so we'll go through categories and then alphabetically and then we'll have you ask your question and comment at that time.

Again, we'll go over it before the session begins.

Thank you.

MS. SEPPI: Thanks Shereen. And Shareen is right, we will go over this again with the same screen, you know, towards the end of the presentation when it gets time for the questions and comments.

So could we have the next slide, please?

This is the agenda slide, slide 3.

MS. KANDIL: Right. Do you see it?

MS. SEPPI: Yes, now I see it.

Okay. So this is the agenda slide. Now, this will come up occasionally as we move forward.

So the next slide, please.

All right. So this is Who's Who at EPA. These are the two main speakers tonight.

One of them is me, and I've already introduced myself, Pat Seppi, the community involvement coordinator, and Renee Gelblat, who is the EPA remedial project manager.

And next slide, please.

So here's the rest of our team. We have a very good group of knowledgeable support people tonight who will also be available if any of the questions come up that, you know, that they have their expertise in.

I'd like to let you know their names. We have Jon Gorin, who is the chief of the Southern New Jersey Remediation Section; we have Rachel Griffiths, who is the hydrogeologist; Abbey States, who is our human health risk assessor; we have Amelia Wagner, who's the EPA site attorney; and we have Farnaz Saghafi, who's the chief of the Northern New Jersey Remedial Section.

So now before I turn the beam over to Jon, I just wanted to remind you of why we're here tonight.

As you know, the public comment period started on July 28th. It will end on August 28th. I hope you had a chance to read the proposed plan because that really does help going through the presentation tonight.

So the reason we're here tonight is to take your comments. We want to make sure that they become part of the public record.

So to that end, we do have a stenographer here tonight who will be recording the whole meeting from start to finish. And she's out there somewhere in virtual land, I have no idea, but she is recording the entire meeting.

And I know Jon and Renee will probably repeat some of this information, but we want to make sure you're aware of the document that's called a Responsiveness Summary, and that will be a compilation of all the questions and comments we get tonight with answers.

Now that Responsiveness Summary will become part of our final document, which is called the Record of Decision.

Another important thing to remember is the remedy that we're talking about tonight is EPA's preferred remedy -- remedy. It's not the final remedy. That's why your input is really important.

We want to make sure your concern is considered before we make a final decision. And as I said, I'm sure Jon and Renee will speak about this further.

So next slide, please.

Okay. Here's the agenda again, and it looks like at this time we're ready for Jon Gorin who's going to give some information about the Superfund Process.

John.

SUPERFUND PROCESS:

MR. GORIN: Yeah, thank you. You can go to the next slide, please, Renee.

So again, thanks, Pat.

So I'm just going to go through a little before Renee gives the most of the talking, I'm going to go a little bit about

the Superfund Process just so you understand why we're here tonight and how this fits into the overall Superfund Process.

What happens is generally a site is found, EPA is alerted to it. We go out there, we assess the site, and if it meets certain criteria we place it on a National Priorities List, or the NPO list, and that's when it becomes a superfund site.

At that point it's distributed out to the Superfund Division, given to a section and the section sheet will assign a remedial project manager, RPM, to manage the site. In this case, the RPM for this site is now Renee Gelblat.

First, the next step is to do a remedial investigation. That's where you look at the various contaminants of the site, see the extent of the contamination, the concentrations of the contamination. And also an important part of that is to do a risk assessment.

We look at the contamination and make a determination whether it's a risk to the human health or the environment.

If we determine it is a risk, the next step is to do a feasibility study. During a feasibility study we look at several alternatives to see which is the best way to remediate a site.

What we do is compare those alternatives through nine specific criteria. When the feasibility study is done, we take a look at it, we determine which one we feel best meets those nine criteria and we propose that to the public.

And the way we do that is we issue a proposed plan, which I hope most of you read for this site.

We also open up a public comment period, which we're in the midst of right now, and we hold a public meeting, which is what we're doing right now.

The reason we do that is to gather comments from the public. After we get the comments at the end of the public comment period, we address each of those comments, as Pat mentioned, in a Responsiveness Summary.

We also consider that to see

whether the alternative we proposed is in fact the best alternative.

Often we'll get information that might lead us somewhere else. At that point we make a decision on what alternative we're going to use. We make that decision in our Record of Decision, or ROD.

And, again, that can either be the one we're proposing or the one -- or a different one that we select based on our comments.

After we have our decision, we design the remedy to meet the alternative we selected as well as remedial goals, which is selected in the Record of Decision, and we implement that remedy.

Once those cleanup goals set in the ROD are met, we delete it from the site and it's no longer a superfund site.

This whole process, you know, takes years, often decades or many decades, as many of you know.

But something else sometimes happens. Sometimes after we make our decision, after we do step five and we issue

a ROD, things change.

Sometimes it can be we find a contaminant at the site while we're making -- when we're doing a design on the project, the remedy that we didn't know was there and the remedy that was selected isn't going to treat it.

Sometimes we make a determination that the contamination -- the cleanup goals for the contamination that we set 10 or 15-years prior are no longer considered acceptable and the remedy we selected will get us down to that acceptable level.

Or sometimes -- in a happier event -- other remedial work done at the site or just natural processes in the ground or in the groundwater actual reduce that contamination where the remedy we selected is no longer effective or practical for this case. And that's the case here.

We had a remedy selected for groundwater, pump-and-treat remedy, which is costly and it can be intrusive and it uses a lot of power, but it's a very effective remedy when the concentrations are high.

But now, due to cleanup efforts we've made, concentrations are far lower, and we feel like it's no more practical -- it's not -- it's no longer a practical remedy for this site. We'd like to pose an alternative.

At this point I'd let the project manager explain that. Renee.

TECHNICAL PRESENTATION:

MS. GELBLAT: Good evening, everyone. This is Renee Gelblat. I'm the remedial project manager, so I'm just going to reiterate some things Jon said to why are we here.

We're proposing a change in the current Operable Unit 2 -- OU, as we abbreviate it -- which is for the groundwater contamination.

And as you may remember, groundwater is water that flows underneath the surface of the earth.

If you can see it -- if it's a river or lake or an ocean or even a puddle -- then we call it surface water.

So we're here to explain the

proposed change, answer your questions and ask for your comments.

So here's the site map. This red circle shows the actual site. It's in the Morganville section of Marlboro Township in Monmouth County. It's approximately 15 acres in total, but the active portion was only 4.2 acres, and the surrounding area includes residences and commercial properties.

So what happened at this site? The area actually has been industrial from 1912 all the way to 2007. The activities that produced the contamination were chemical processing, oil reclamation and mixing of oils.

The waste was disposed on on-site and resulted in on-site and off-site soil contamination and on-site groundwater contamination.

So this is a really brief history of the site. EPA and the New Jersey Department of Environmental Protection did a lot of activities at the site in terms of removing materials and trying to figure out what was there, but we're just going to talk

about the EPA portion.

So the site was listed on the National Priorities List in September 1st, 1983, and EPA decided to do the cleanup in three parts.

The first operable unit was the off-site oil removal. That Record of Decision was written in 1990, and the work was completed in 2013. Some of you may know because some of you the soil and -- on your properties was removed.

The second operable unit is the groundwater. That ROD was written in 1992, and almost immediately we decided to defer the work so that we can clean up some of the soil that was contributing to the groundwater.

The hope was that by removing the sources to the groundwater, the levels of contaminations in the groundwater would fall and it would be easier to do that removal.

So OU3, which is the on-site soil removal, that ROD was written in 1999. And that work was completed in 2011.

So what was the original

groundwater remedy? In 1992 we wrote the Record of Decision for the contaminated groundwater.

At that point the main component to the remedy was the extraction and treatment system to the contaminated groundwater, removal of remaining floating product on the groundwater and monitoring to ensure the effectiveness of the remedy.

So as I said before, the start of this remedy was deferred so that soil contamination could be removed.

So what happened with OU3? That was the on-site soil removal, so we issued that ROD in 1999.

We built a wall around the area of contaminated soil all the way down to an underlying clay layer to make it easier to remove all the contamination, and EPA excavated contaminated soil and floating product between 2009 and 2011.

And here is some photos showing the excavation activities. They used a really big armed front-end loader to dig out the contamination. We took it to an area to

dewater, and then we sent the material off-site to a safe place to be recycled and put it in the landfill so that it wouldn't hurt anybody.

So what happened after we completed the OU3 remedy? In 2011 EPA deliberately breached barrier wall surrounding the on-site contaminations so that the regional groundwater flow pattern could be re-established.

We also began sampling well network, these wells were throughout the site, including upgradient clean water within the area and downgradient.

So what have we found out since then, since 2011? Before there were 14 contaminants above their cleanup goals, now there are on only four of those original 14 remaining. Those are trichloroethylene, or TCE, benzene, beryllium and arsenic.

Contamination levels are lower than before the source area was removed and they continue to drop; therefore, removing the contamination sources was very effective.

So why exactly are those levels falling? As we said before, the source was removed. Breaching the barrier wall allowed the clean water, upgradient, to move in and interact with the groundwater inside the barrier, and that resulted in a process called natural attenuation, or the lowering of contamination levels due to natural processes as the clean water interacted with what was left of the contaminated water.

And here's our well network. This yellow line shows where the barrier was. These blue -- short blue lines are the breaches.

The groundwater flows this way from south to north. Here's our clean wells. Here are our wells inside the barrier, and the water comes in through these breaches, interacts with the water here and flows out on this side. And we're monitoring the well there also.

So what specifically is happening? For TCE here's what's going on: In 2015 we saw levels of 8.9 micrograms per liter, but by 2019 it was at or below 3.1.

And a remedial cleanup goal, the number we're aiming for, is 1 microgram per liter.

So when the concentrations were higher, TCE decomposed through a chemical process called reductive dechlorination. However, now that the levels are very low, dispersion and dilution through contact with the regional groundwater is causing the levels to continue to fall.

Something similar is happening to benzene. In 2012 we saw numbers at 13 micrograms per liter, by 2019 it was 1.5. And again, we're aiming for 1 microgram per liter.

When these concentrations were higher, benzene decomposed through a process called aerobic biodegradation. And again, at these low levels dispersion and dilution through contact with clean water is causing the levels to continue to fall.

Now, let's look at the two metals for beryllium and arsenic.

Beryllium in 2014 the level was 50 microgram per liter, by 2019 it was down to 10, and we're aiming also for 1 microgram

per liter.

There's less beryllium in groundwater when the pH is greater than 4.5, when things are moving toward a more basic groundwater levels. And the upgradient groundwater numbers, the pH is 4.9, so it's the clean water mixes with the water inside what was the barrier, pH levels are going higher and the beryllium is coming at a solution. Also, there's some dilution and dispersion going on.

And here's a graph showing what's going on. On the vertical axis it's from 0 to 3 micrograms per liter, and this is timed from December 2012 to the present. And this is within the barrier, so you can see the numbers go up and down as the groundwater comes through, but now they're down very low.

Okay. Name the specifics of arsenic. Arsenic is a little more complicated.

In 2012 within the former barrier we saw up to 1000 micrograms per liter, but by 2019 it was down to 150, and for arsenic

we're aiming for 5. So the numbers are getting lower, but they're still pretty high. What's happening for arsenic is, as I said, it's a bit more complicated.

There's two forms of arsenic, arsenic plus 3, which likes to be in the groundwater, and arsenic plus 5, which likes to stick to the soil.

The upgradient clean water has chemical properties that convert arsenic plus 3 to arsenic plus 5, which is why the upgradient groundwater doesn't have a lot of arsenic.

So as the clean water mixes with the contaminated water the arsenic plus 3 converts to arsenic plus 5 and sticks to the iron in the soil resulting in lower groundwater levels.

Here's our well network again, as you remember. A sample of clean wells inside the barrier and outside the barrier.

So this is what's happening inside the barrier. This is what's happening with arsenic. I think we can -- this is 0 to 1000 in terms of the concentration from 2012

up to 2031.

And this is what we've been seeing. We've been seeing the numbers come steadily down over time. And this line that keeps going out and out is our prediction of when we will meet our goal for arsenic.

So here's what's happening downgradient outside the barrier for beryllium and arsenic.

Here our level is from 0 to 12 this time. Here's our arsenic. As you can see, it goes up and down depending on how well it's mixing with the clean water. And here's the level we're trying for. This is 5.

So you can see, it's been a little bit up and down, but lately it's been down and coming close to the number 5 level that we're hoping for.

And this is hard to see, but the beryllium and it's cleanup number are on the same level which shows that the beryllium outside barrier has met the cleanup goal.

So we did a risk assessment because a risk assessment asks the question

given the numbers we see, is this a risk to anybody. So now that these numbers have come down so much we're asking the question again.

So we look at the potential risk from groundwater for current and future residents one more time in case these people were exposed to the groundwater.

We came up with a new set of conclusions. Instead of the 14, there's now the four. The levels of groundwater contamination remained above cleanup goal for all four because they're not at their goals in every well. And if a contaminated groundwater were used in the future, it would still pose an unacceptable risk to human health. Therefore, we need to have a remedy.

So why amend the remedy? The source area groundwater contaminants are pretty much gone, natural attenuations have been shown to be working on less for contaminants.

It turns out that the extraction-and-treatment system that was

originally proposed doesn't work very well at these low levels.

Also the extraction-and-treatment system is intrusive to the property owners and a nearby residence because it's -- we have to build it, and it's very hard to build one of these systems.

So we have the same remedial action objectives which is to prevent or minimize unacceptable risk from exposure to the contaminated groundwater, to prevent further off-site migration of the contaminated groundwater and ultimately to restore the groundwater to the drinking water standards.

So we looked at two remedies. As Jon pointed out, when we do an amendment we only look at two remedies. One was the original remedy, extraction and treatment, and alternative two, which is our preferred alternative, is to change the remedy to monitored natural attenuation.

So MNA, as it's called, is a remedy where EPA takes samples, analyzes them for contaminants and conditions aiding

the natural attenuation processes. And this monitoring and sampling and analyzing continues until the cleanup is complete, and that's important to know. This is not a walk-away solution. We will be there until the cleanup is complete.

So as Jon pointed out, there are nine criteria that we compare and contrast these two proposal alternatives.

The first one of the threshold criteria, these are the two that it has to meet. So does it overall protect of human health and the environment and is it compliant with all state and federal regulations. And then we get the balancing criteria where we compare and contrast.

So the long-term effect of this, is it a permanent remedy, and both of them would be. Does it reduce the toxicity mobility of volume of the contaminant? Yes. This is true for both of them.

Short-term effect of this, we've already established that building the extraction-and-treatment system will have a short-term effect on the community whereas

the MNA alternative will not because will be using existing well network.

How easy is it to implement? Well, again, building that extraction and treatment system is hard to do and using an existing well network is very easy.

How about the cost? The cost of the extraction-and-treatment system is going to be over $10 million, and the cost of using the existing well network is a little over 600,000.

And then we get to the modifying criteria. Does the supporting agency have any concerns? In this case that is New Jersey Department of Environmental Protection.

And then the last one on our list is the community concerns which is what we're here today to discuss.

So here's our proposed amendment. So EPA is proposing to change the remedy for the groundwater from extraction and treatment to monitoring natural attenuation.

And, again, the main components are sampling all the wells in the network,

testing the samples for contaminants and for conditions affecting natural attenuation and continuing this until the cleanup goals are met for all contaminants.

What happens next? Next we're going to collect and respond to all your comments. Any comments we get, as Jon mentioned, will be in the Responsiveness Summary, which is a section of the Record of Decision.

We will issue the Record of Decision amendment because we're changing existing remedy.

We will modify as necessary any existing legal agreements and continue to operate all components of the remedy until the remediation goals are met.

So if you have any questions or comments, please send them to me during the public comment period which ends on August 28th, and I'll give the meeting back to Pat Seppi now.

Pat, are you there?

MS. KANDIL: Well, I'll jump in. This is Shereen Kandil until Pat can unmute

her line.

MS. SEPPI: My line is unmuted. I --

MS. KANDIL: Okay.

MS. GELBLAT: Can you hear me in now, Pat?

MS. KANDIL: We hear you, yes.

MS. SEPPI: Okay. Okay. So this is now the most important part, as far as we're concerned, of the meeting which is your questions and your comments.

And just a couple things I want to remind you of. Please keep your lines muted, and then we are going to talk a little bit about how you can enter, you know, put in your questions or your comments, whether it's through the chatbox or the phone lines.

If you need to unmute your line, don't forget you need to press star six, and then Shereen will talk a little bit more next about how to unmute your computer.

What we're going to do, and this worked pretty well in the past, is kind of go in -- categorically go through questions.

I mean, we'll call on certain groups like elected officials, residents and in alphabetical order.

And this is probably the most important thing: Before your question or comment, we really need for you to state your name and your affiliation followed by your question. Mainly that's for the, you know, the purpose so that our stenographer will be able to make sure that you're part of the record.

So let me move on to -- Shereen, can you please -- whoops, that went back too far -- okay.

So do you want to maybe explain again a little bit? I know you did this at the beginning, but you might want to just, you know, let people know again how they can ask questions whether it's via Skype or the phone line.

MS. KANDIL: Sure. Thank you, Pat.

This is Shereen Kandil with EPA. As mention earlier today and as Pat mentioned just a few seconds ago, we'll be taking comments and questions two different

ways through the chatbox and through our audio lines.

If you decide to leave a question or comment in the chatbox, there's a little icon at the bottom of your screen, it looks like a thought bubble. If you click on it, the chatbox opens and you can put your comment or question there.

As Pat mentioned, you should please put your first and last name, your affiliation -- meaning, are you a resident, are you an elected official or business owner -- and then your comment or question.

So I would put Shereen Kandil, resident of Staten Island, and then I would state my question like where is Imperial Oil located.

If you're asking questions or making comments through the audio line, we're unlocking the phone lines, so they're unlocked. So unmute your line, press the star then six keys on your phone, and then the same thing, we ask you to please state your first and last name, your affiliation and your question and comment.

We will be doing it categorically, so please -- for the audio lines -- so please wait to hear your category. So even if you don't fit in to elected official or resident, you can ask your question when Pat asks for anyone from the general public to ask their comment or state their question. And then we'll be doing it alphabetically.

So I think those are all for the instructions. I'm looking at the chatbox now and there are no questions or comments in the chatbox, Pat.

MS. SEPPI: Okay. All right. So let's just jump to the phone lines. Are there any question? It's kind of soon. Maybe people haven't had a chance to put in their question, you know, via chat ox.

Anything yet on the phone lines?

QUESTIONS AND COMMENTS:

MS. FRIEDMAN: Hi. Tina Freedman, can you hear me?

MS. SEPPI: Tina, hi. It's Pat Seppi. How are you?

MS. FREEDMAN: Good. How are you?

MS. SEPPI: Good. It's been many years. I'm so happy to see that you're rejoining us tonight. So, no, don't -- please go ahead with your question.

MS. FREEDMAN: Okay, no problem. So Tina Freedman. I'm a resident of -- (audio unclear). My home is not too far from Imperial Oil, and obviously it's had a lot of involvement in the past.

So my question is with the wells that were tested, were they tested throughout the year or only during one season?

MS. GELBLAT: This is Renee Gleblat. All the wells were tested twice a year since 2011.

MS. FREEMAN: So during dry seasons and wet seasons? That was my main concern, that there was an average in terms of contamination.

MS. GELBLAT: Farnaz, maybe you know what time of year they were sampled?

MS. SAGHAFI: Sorry, I was trying to unmute myself.

Hi. My name is Farnaz Saghafi.

I'm the former project manager for the Imperial Oil Site, and these wells have been, as Renee mentioned, they've been sampled twice a year in the spring and in the fall. And we make sure that there is enough water to sample them to get a good basically presentation of the contamination that might be in the well. So -- and we have had, as she said, since 2011 this has been going on twice a year.

So we have quite a number of samples that are representative of the conditions at the site.

MS. FREEDMAN: And you said that the numbers are decreasing (audio making noise) --

MS. SAGHAFI: Yes, they are.

MS. FREEDMAN: All right. (Audio not clear.)

MS. SEPPI: I know, I heard that like an echo or something, right? Yeah.

So Farnaz, I mean, are those results, are they readily available in the administrative record or is there some place that Tina could go to look for them if she

would want to?

MS. SAGHAFI: They're in the administrative record in the remedial investigation. The remedial investigation has every bit of information we collected for the site to make this decision.

MS. FREEDMAN: Okay. And that's something that I could -- usually, I mean, in the past we can get it at the library, right? It was deposited there or directly from you, is that something that can be requested?

MS. GELBLAT: It's all available online. If you have a copy of the proposed plan, it gives you a link directly to the site.

MS. FREEDMAN: Okay. Thank you.

MS. SEPPI: A lot of the sites where there were repositories, they're closed. So, you know, people were relying a lot more now on, you know, our web page to get those documents, hopefully. And we're still sending those documents to the repository, but not necessarily in hard copy. We're sending discs.

But again, it's, you know, a difficult time, so probably the best way for you to find that in the meantime is to go to the Imperial Oil Site and look for additional documents.

MS. GELBLAT: Yes. Specifically what you want is the Remedial Investigation Report.

MS. SEPPI: Right.

MS. FREEDMAN: And that -- to what, 2019?

MS. GELBLAT: No. It's 2020.

MS. FREEDMAN: 2020, okay.

MS. GELBLAT: The filed one, I think, is May or June of 2020. It will be up there. There's only one for the OU2 ROD amendment.

MS. SEPPI: If there's a problem you have my e-mail, just send it to me and I'll walk you threw it.

MS. FREEDMAN: Thank you. Thank you so much.

I have one other question, and that's just, I wasn't clear on the kind of long-term goal. Do you just keep testing

until it's null or do you, you know, what happens to this site?

I mean, there's already a development on the site, so we're not talking about soil really. It's just talking about groundwater.

So is that something that -- how do you go about monitoring that in the future?

MS. GELBLAT: Well, we're going to continue sampling from the same well network, and we'll just keep going until those numbers keep going all the way down and stay there.

The estimate right now from the trends we see is that it will take about 15 years.

MS. FREEDMAN: Okay. And that's, again, going to be twice a year? And if you get ahead on something and the numbers go up arbitrarily, do you -- how do you communicate that with, I guess, the mayor's office or anybody who is concerned at this point?

MS. GELBLAT: Well, I mean, as you

saw for things like arsenic, the numbers do go up and down, but they're not -- not a whole lot. I mean, we're not -- since we removed all the sources, we're not expecting to see that 1000 microgram per liters anymore.

But if we did consistently see a very high number, we would go back and see if there's another source that we didn't find or something happened upgradient that's now affecting.

MS. FREEDMAN: Okay. And that -- just to understand, that would be like maybe after two cycles of testing?

MS. GELBLAT: Depends on what we see. I mean, that can -- definitely if it's two, but more likely, you know, if it's super high we might test again in a month. It kind of depends on how much higher it is and is it really higher than anything we've seen before because there is some natural variation.

MS. FREEDMAN: Right. Okay. So those are my two questions.

MS. GELBLAT: Thank you --

MS. SEPPI: You know what, this is Pat too. I wanted to mention, as you know, Mayor Hornik has been involved and his father before him, you know, for many years at this site, so we certainly keep him involved, and the business administrator is Jonathan Katz, also.

So, you know, we do keep in contact with them, they keep documents there in their office, so, you know, we'll make sure that everything we have is sent to them so they're up to date also, if you just want to go there and take a look at that.

MS. FREEDMAN: Okay, great. Yeah, I know they've been really terrific. I just, you know, I heard about the meeting and wanted to ask about those two things.

MR. GORIN: Yeah. I --

MS. SEPPI: Thank you so much.

MR. GORIN: This is Jon Gorin. I just wanted to clarify one thing. What Renee saw them out, is likely true, but until we select this remedy we don't have a design. So in that design will say, you know, what we do if certain concentration are exceeded

and it will also say when we're done.

And generally what it is is we determine we're done when we meet those goals and then continue to sample on few years passed that. It's often three to five years.

But, again, that will be part of the design if we select this remedy.

MS. FREEDMAN: Okay.

MS. SAGHAFI: And, Tina, this is Farnaz. I just wanted to mention another thing that during our soil-removal action, we encountered -- (audio unclear) -- basically the floating product on top of the ground which we all removed, and because we had to excavate the soil in dry conditions, we were actively treating groundwater during that same action.

So it was like a mini-groundwater treatment at the same time the soil remedy was being done. And, in fact, we ended up treating over 3 million gallons of water, so that's why we saw a significant drop in the contaminant concentration after that remedy was over.

And what we're seeing now is really residual compared to conditions that we had before the 2009 remedy. And that information is also available in the documents that Renee mentioned, so you can get a good sense of, you know, the decrease in the contaminant concentrations over time, and we do have biochemistry data that indicates that we expect this to continue to go down in the next 10 to 15 years and reach the levels that we are hoping for.

And as Renee said, we will continue to monitor twice a year and make sure that we're not exceeding our levels.

MS. FREEDMAN: Okay. Pat, after this public comment, do you have -- when you have your design plan, do you have another public meeting to talk about what that ultimately change will be?

MS. SEPPI: You know, no. We normally don't have another meeting. You know, we have a public meeting when there's a proposed plan, but if you're interested in that we can certainly set something up, you know, to talk about it at that time. I mean,

if you think that there's an interest, let's stay in touch and we'll set something up.

Just, you know, I understand that you think that that design would be good information to share, and we would be happy to do that. It might not be, you know, a formal public meeting, but we can certainly do something that we could get you involved with the people at EPA regarding the design.

Just stay in touch with me, Tina, and we'll do that.

MS. FREEDMAN: Yeah. You know, I know Mayor Hornik's, you know, read on this and --

MS. SEPPI: Yeah.

MS. FREEDMAN: -- I'll ask him if this is something that interests him as well and kind of go from there.

MS. SEPPI: No, that's fine. I think that's fine. And I think that the more Marlboro knows the better it is, and they can share it on their web page and with the other residents. So yeah, let's do that. I'm very happy to facilitate that for you.

MS. FREEDMAN: Oh, great. Thank

you so much.

MS. SEPPI: Okay.

Shereen, are there any chat questions or any other phone questions or comments?

MS. KANDIL: None from the chat. I can see someone trying to type, but I'm not sure if they had their question answered.

But you're more than welcome to unmute your lines by pressing star six and asking it verbally.

MS. ROOKE: Can anybody hear me?

MS. KANDIL: Yeah, we hear you.

MS. ROOKE: Hi. This is Alison Rooke. I just wanted to let any of the residents know who are listening who I am. I'm a specialist from CME Associates, the Marlboro Township's engineers, and that I'm here on behalf of Mayor Hornik. Just in case anybody wanted to know, so that's it.

I was the one trying to type a thing in the chat before, but I figured I'd just put it on the line instead.

MS. SEPPI: That's fine, Alison. Thank you. I'm glad that you identified

yourself and that you're with, you know, the township because I know that the business administrator as well as the mayor had been very interested and involved.

So the fact that you're on the line I think is really helpful, and if you can relay this information to them, we would be very grateful.

MS. ROOKE: I'm absolutely doing that, no problem.

MS. SEPPI: Great. Thank you. Do you have any questions other than that or, you know, is everything okay so far?

MS. ROOKE: I am doing good. I've got all my notes going on. I think everything has been super insightful so far. I was enjoying the presentation.

MS. SEPPI: You know, this is good. I mean, this is a very positive approach, and it's, you know, where I think we're really happy that we can just go to the MNA and not have to worry about putting in a water-treatment plan.

So that's -- to us that's a very positive experience, so, you know, we're

happy to share that with you.

Okay. Shereen.

MS. KANDIL: No other comments and questions or questions from the chatbox, so if we want to just continue opening up the phone lines to see if anybody else has any questions.

I would also ask Renee, can you please click forward so that we could have the link up to the website?

MS. GELBLAT: Keep going?

MS. KANDIL: Yes, please. One more.

MS. GELBLAT: That one?

MS. KANDIL: There you go.

MS. SEPPI: There it is. Okay.

MS. FREEDMAN: This is Tina Freedman again. I just wanted to tell you that I had a problem getting the link live on the Eventbrite site. It did not bring me there, so I just dialed in. But I know where to find you, but I just wanted to let you know that I did have some difficulty.

MS. SEPPI: No, that's good to know. We appreciate that because, I mean,

other people did not have a problem and maybe some people did, so we will certainly look into that because, you know, this is the future for us, you know, having people register through Eventbrite. So we want to make sure that it works and the best that it possibly can.

So thank you for that. I do appreciate that. Yeah.

And now that the -- the slide that's up there now, I'm hoping we're all seeing the same one, is the link to our web page.

And, again, if anybody is interested in any of the documents, that's where you need to go. I mean, that does really have everything there.

So let me just move on to the next slide.

Well, I think we should go back. I mean, if there's certainly any more comments, we don't -- we don't want to rush, we want to take the time.

So, Shereen, anything else that you see out there?

MS. KANDIL: No. Seems like we're good to go.

CLOSING COMMENTS:

MS. SEPPI: We're good to go. All right. Well, maybe we'll give it like a few seconds and, you know, see if anybody has any questions or comments.

But in the meantime, I can say that we truly do appreciate your comments. We appreciate the fact that you joined us tonight. Don't forget that the comment period closes on the 28th. If you leave here, we'll be here.

If you leave wherever you are tonight and you think of something else, you know, we would suggest that you e-mail Renee.

I mean, our offices are slightly open but, you know, not totally, so in order for us to get you a timely response, you know, we would really appreciate if you could e-mail Renee, and we could always go back to your slide, Renee, if anybody needs that information.

And it's funny. I just on a

personal note, I'd just say that this is difficult to do a virtual meeting. I mean, I kind of always like the fact that, you know, we were there in person and we saw you and you saw us and there was body language and we saw your eyes and you saw ours, but, you know, this is a new reality for us. So we're learning to do our best, and we're trying to make the best of it.

So, again, thank you again, and if there aren't any more questions, good night. Have a good evening. Thank you.

MS. FREEDMAN: Thank you, Pat. Bye everybody.

MR. GORIN: Okay. Thank you, everybody.

(Whereupon, at 6:57 P.M., the meeting was concluded.)

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C E R T I F I C A T E

I, LEAH SIEMIATYCKI, a Notary Public and Professional Court Reporter do hereby certify that prior to the commencement of the examination the witness was duly sworn.

I DO FURTHER CERTIFY that the foregoing is a true and accurate transcript of the testimony as taken stenographically by and before me at the time, place and on the date hereinbefore set forth.

I DO FURTHER CERTIFY that I am neither a relative nor employee, nor attorney or counsel to any of the involved; that I am neither related to nor employed by such attorney or counsel, and that I am not financially interested in the outcome of the action.

IN WITNESS WHEREOF, I have hereunto set my hand this 19th day of August 2020.

LEAH SIEMIATYCKI
ID: 50072814

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APPENDIX IV

ADMINISTRATIVE RECORD INDEX

COMPREHENSIVE ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/27/2020

REGION ID: 02

Site Name: IMPERIAL OIL CO., INC./CHAMPION CHEMICALS
CERCLIS ID: NJD980654099
OUID: 02
SSID: 0286
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
318726	07/27/2020	COMPREHENSIVE ADMINISTRATIVE RECORD INDEX FOR OU2 FOR THE IMPERIAL OIL COMPANY INCORPORATED /CHAMPION CHEMICALS SITE	3	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
101270	Undated	IMPERIAL OIL COMPANY INCORPORATED/CHAMPION CHEMICALS SITE, ADMINISTRATIVE RECORD INDEX OF DOCUMENTS	2	List/Index		(US ENVIRONMENTAL PROTECTION AGENCY)
67520	09/01/1983	REMEDIAL ACTION MASTER PLAN, PREPARED BY FRED C. HART ASSOCIATES, 9/83	102	Work Plan	(US ENVIRONMENTAL PROTECTION AGENCY)	(FRED C. HART ASSOCIATES INCORPORATED)
67498	01/01/1987	HEALTH AND SAFETY PLAN, IMPERIAL OIL CO. INC./CHAMPION CHEMICALS SITE, MONMOUTH COUNTY, NEW JERSEY, 1/87	139	Work Plan	(NJ DEPT OF ENVIRONMENTAL PROTECTION)	(EC JORDAN COMPANY)
67499	01/23/1987	QUALITY ASSURANCE PROJECT MANAGEMENT PLAN, IMPERIAL OIL CO. INC./CHAMPION CHEMICALS SITE	88	Work Plan	(NJ DEPT OF ENVIRONMENTAL PROTECTION)	ADAMS,WILLIAM,R (E.C. JORDAN COMPANY)|WALKER,STANLEY,E (E.C. JORDAN COMPANY)
67497	07/01/1989	FIELD SAMPLING PLAN, IMPERIAL OIL CO. INC./CHAMPION CHEMICALS SITE, MONMOUTH COUNTY, NEW JERSEY...REVISED 7/89 (PHASE II RI)	45	Work Plan	(NJ DEPT OF ENVIRONMENTAL PROTECTION)	(EC JORDAN COMPANY)
67524	06/01/1990	DRAFT REPORT - REMEDIAL INVESTIGATION OF IMPERIAL OIL CO., INC./CHAMPION CHEMICALS SITE, 6/90	585	Report	(NJ DEPT OF ENVIRONMENTAL PROTECTION)	(EC JORDAN COMPANY)

615707

COMPREHENSIVE ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/27/2020

REGION ID: 02

Site Name: IMPERIAL OIL CO., INC./CHAMPION CHEMICALS
CERCLIS ID: NJD980654099
OUID: 02
SSID: 0286
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
67511	07/30/1990	HEALTH ASSESSMENT FOR IMPERIAL OIL CO. INC./CHAMPION CHEMICALS SITE, 7/90	14	Report		(AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY)
67526	04/01/1992	FREE PHASE FLOATING PRODUCT RECOVERY SYSTEM, IMPERIAL OIL CO., INC./CHAMPION CHEMICALS SITE, 4/92	402	Work Plan		DIGUARDIA,LOUIS (US ENVIRONMENTAL PROTECTION AGENCY)|LIN,BRUCE (ROY F. WESTON, INCORPORATED)
114197	07/01/1992	GROUNDWATER CONTROL FEASIBILITY STUDY, IMPERIAL OIL CO., INC./CHAMPION CHEMICALS SITE	416	Report	(NJ DEPT OF ENVIRONMENTAL PROTECTION)	(EC JORDAN COMPANY)
67530	07/30/1992	LETTER TO CHAMPION CHEMICAL COMPANY FROM EPA, RE: GENERAL NOTICE LETTER, 7/30/92	2	Letter	(CHAMPION CHEMICAL)|LESNEWICH,ALAN,G (COLLIER JACOB & SWEET)	CALLAHAN,KATHLEEN (US ENVIRONMENTAL PROTECTION AGENCY)
67531	07/30/1992	LETTER TO MR. SCOTT STEVANS, PRESIDENT, IMPERIAL OIL COMPANY, FROM EPA, RE: GENERAL NOTICE LETTER, 7/30/92	2	Letter	STEVENS,SCOTT,H (IMPERIAL OIL CO)	CALLAHAN,KATHLEEN (US ENVIRONMENTAL PROTECTION AGENCY)
67532	07/31/1992	PUBLIC MEETING AND COMMENT PERIOD, PREPARED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY AND PUBLISHED IN THE ASBURY PARK PRESS ON JULY 31, 1992	1	Publication		(NJ DEPT OF ENVIRONMENTAL PROTECTION)|(US ENVIRONMENTAL PROTECTION AGENCY)
67525	08/01/1992	SUPERFUND PROPOSED PLAN - IMPERIAL OIL COMPANY, INC./CHAMPION CHEMICALS SITE, 8/92	15	Work Plan		(US ENVIRONMENTAL PROTECTION AGENCY)

COMPREHENSIVE ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/27/2020

REGION ID: 02

Site Name: IMPERIAL OIL CO., INC./CHAMPION CHEMICALS
CERCLIS ID: NJD980654099
OUID: 02
SSID: 0286
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
67527	08/14/1992	LETTER TO ELBEE OIL COMPANY, INC. FROM EPA, RE: THE RELEASE OF PROPOSED PLAN AND THE DATE OF THE PUBLIC MEETING, 8/14/92	2	Letter	BRODIE,DONALD,H (ELBEE OIL CO)	BORSELLINO,RONALD (US ENVIRONMENTAL PROTECTION AGENCY)
67528	08/14/1992	LETTER TO LOEFFEL'S WASTE OIL COMPANY FROM EPA, RE: THE RELEASE OF PROPOSED PLAN AND THE DATE OF THE PUBLIC MEETING, 8/14/92	2	Letter	(LOEFFELS WASTE OIL SERVICE)	BORSELLINO,RONALD (US ENVIRONMENTAL PROTECTION AGENCY)
67529	08/14/1992	LETTER TO LO BELLO OIL SERVICE FROM EPA, RE: THE RELEASE OF PROPOSED PLAN AND THE DATE OF THE PUBLIC MEETING, 8/14/92	2	Letter	(LO BELLO OIL SERVICE)	BORSELLINO,RONALD (US ENVIRONMENTAL PROTECTION AGENCY)
100000	09/30/1992	DECLARATION FOR THE RECORD OF DECISION FOR OU2 FOR THE IMPERIAL OIL COMPANY INCORPORATED / CHAMPION CHEMICALS SITE	127	Report		(US ENVIRONMENTAL PROTECTION AGENCY)
591128	06/17/2020	REVISED FINAL FOCUSED REMEDIAL INVESTIGATION REPORT AND FOCUSED FEASIBILITY STUDY FOR THE IMPERIAL OIL COMPANY INCORPORATED/CHAMPION CHEMICALS SITE	477	Report		(JACOBS ENGINEERING GROUP INCORPORATED)
598781	07/22/2020	PROPOSED PLAN FOR OU2 FOR THE IMPERIAL OIL COMPANY INCORPORATED/CHAMPION CHEMICAL SITE	17	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX V

STATE LETTER OF CONCURRENCE

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Site Remediation and Waste Management Program
401 E. State Street
PO Box 420, Mail Code 401-06
Trenton, New Jersey 08625
Tel: (609) 292-1250
Fax: (609) 777-1914

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

September 29, 2020

Mr. Pat Evangelista, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, NY 10007-1866

Re: Imperial Oil Co., Inc./Champion Chemical Superfund Site
Record of Decision Amendment Operable Unit 2
EPA ID# NJD 980654099/DEP PI#G000004865

Dear Mr. Evangelista:

The New Jersey Department of Environmental Protection (DEP) has completed its review of the "Record of Decision Amendment, Imperial Oil Co., Inc./Champion Chemical Superfund Site, Operable Unit 2, Marlboro Township, Monmouth County, New Jersey" prepared by the U.S. Environmental Protection Agency (EPA) Region II in September 2020. The DEP concurs with the selected remedy amendment to addresses site-related groundwater contamination.

The major components of the OU2 selected remedy amendment, which has a total cost of $623,317. include:

- Collection of groundwater samples from the monitoring network
- Evaluation of the samples for contaminants of concern (COCs) and Monitored Natural Attenuation (MNA) parameters

This response action modifies the groundwater remedy selected in the 1992 ROD. Implementation of all the elements of the OU2 ROD were deferred while the contaminated soil, which was the source of the groundwater contamination, was removed as part of the OU3 remedy.

The groundwater contamination throughout the Site will be addressed through MNA using the existing monitoring well network. Monitoring will continue to be used to evaluate the concentrations of TCE, benzene, beryllium, arsenic, any degradation products and MNA

parameters upgradient, within and downgradient of the former groundwater contamination source area. If necessary, additional monitoring wells will be added to the network.

In 1998, DEP established a Classification Exception Area/Well Restriction Area for the Site as an institutional control that restricts the use of groundwater over an area that includes the area beneath and downgradient of the former Imperial Oil Co., Inc./Champion Chemical property. Institutional controls were not part of the 1992 OU2 ROD, but are included in this ROD Amendment.

DEP appreciates the opportunity to participate in the decision-making process to select an appropriate remedy for this site. Further, DEP looks forward to future cooperation with EPA during remedial actions for OU2 to ensure that groundwater is restored to its beneficial use as a potential source of drinking water in a reasonable timeframe.

If you have any questions, please call me at (609) 292-1250.

Sincerely,

Mark J. Pedersen
Assistant Commissioner
Site Remediation & Waste Management Program

C: Kenneth J. Kloo, Director, Division of Remediation Management, DEP
Frederick A. Mumford, Section Chief, Publicly Funded Response Element, DEP
Kim O'Connell, Chief, New Jersey Remediation Branch, EPA Region II
Joe Gowers, Remedial Project Manager, NJRB, EPA Region II