RECORD OF DECISION

CPS/Madison Superfund Site

Operable Unit 3

Old Bridge Township, Middlesex County, New Jersey

U.S. Environmental Protection Agency
Region 2
September 2023

692966

DECLARATION STATEMENT

RECORD OF DECISION

SITE NAME AND LOCATION

CPS/Madison Site (EPA ID#NJD002141190)
Old Bridge Township, Middlesex County, New Jersey.
Operable Unit 3 - Soil

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedy for Operable Unit (OU) 3 of the CPS/Madison Superfund Site (Site) located in Old Bridge Township, Middlesex County, New Jersey. OU3 addresses contaminated soil on the portion of the Site operated by Madison Industries, Inc. and Old Bridge Chemicals, Inc. (the Madison property).

The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document explains the factual and legal basis for selecting the OU3 remedy for the Site. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selected remedy is based.

The State of New Jersey Department of Environmental Protection (NJDEP) concurs with the selected remedy (see Appendix IV).

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY

The remedial action described in this document addresses soil contamination at the Madison property portion of the CPS/Madison Superfund Site, which is contaminated primarily with lead, cadmium, and zinc.

The major components of the OU3 remedy include the following:

- Excavation and off-site disposal of 1,320 cubic yards of contaminated soil from unpaved areas on the Madison property;

- Use of existing pavement on the Madison property as an engineering control, in the form of capping, over contaminated soils;
- Long-term monitoring of sediment and surface water; and
- Institutional controls, such as a deed notice, to prevent exposure to residual soils that exceed levels that allow for unrestricted use, and to limit disturbance of capped areas.

The total present worth cost for the selected remedy is $1,950,000.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The selected remedy 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, is cost effective and utilizes permanent solutions and treatment technologies to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

The selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy for the following reason(s): treatment is impracticable due to technical infeasibility and no source materials constituting principal threats will be addressed within the scope of this action. Remedies selected for the other operable units (OU1 and OU2) have met the statutory preference for treatment.

Part 3: Five-Year Review Requirements

Because this remedy, upon completion, will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

RECORD OF DECISION DATA CERTIFICATION CHECKLIST

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

- Contaminants of concern and their respective concentrations may be found in the "Site Characteristics" section.

- Baseline risk represented by the contaminants of concern may be found in the "Summary of Site Risks" section.

- Cleanup levels established for contaminants 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 used in the baseline risk assessment and decision document can be found in the "Current and Potential Future Site and Resource Uses" section.

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

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

Pat Evangelista

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Date: 2023.09.26 17:17:34 -04'00'

September 26, 2023

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

Date

RECORD OF DECISION

DECISION SUMMARY

CPS/Madison Superfund Site

Operable Unit 3

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APPENDICES

SITE NAME, LOCATION AND DESCRIPTION

The two facilities which comprise the Site are adjoining properties located adjacent to Water Works Road in Old Bridge Township, Middlesex County, New Jersey (Figure 1). The Site acts as a source area for groundwater contamination that flows southwest, into the Runyon Watershed.

CPS Chemical Corporation, Inc. (CPS) Property: The CPS property is approximately 30 acres, located at 570 Water Works Road. The former CPS facility is located within the western portion of the CPS property and is approximately 6 acres. From 1967, until operations ended in 2001, CPS, and then Ciba Specialty Chemicals, Inc. (Ciba), which acquired the operations in 1998, processed organic chemicals used in the production of water treatment agents, lubricants, oil field chemicals, and anti-corrosive agents, and engaged in solvent recovery. While the main office and a storage building remain on the property, the process equipment and storage tanks that were located at the south end of the property were demolished and removed from the Site in 2005. The CPS portion of the Site is now inactive.

Madison Industries, Inc. (Madison) Property: The Madison property is 15 acres, located at 554 Water Works Road. The Madison property is bordered to the east by the CPS property and to the west by the Perth Amboy wellfield. Madison has operated the facility (formerly known as "Food Additives") in the northern half of this property since 1967, producing inorganic chemicals used in fertilizer, pharmaceuticals, and food additives. On the southern portion of the property, Madison's sister company, Old Bridge Chemicals, Inc. (Old Bridge), operates a plant that produces mostly zinc salts and copper sulfate. Both companies continue to operate on the property.

Runyon Watershed: The Runyon Watershed is mostly undeveloped land which borders the Madison property to the southwest. The watershed contains the Perth Amboy wellfield which lies approximately 3,000 feet southwest (downgradient) of the CPS and Madison properties. The wellfield supplies over 5,000 gallons per minute (gpm) to the City of Perth Amboy. The extracted water is treated to remove solids and metals using an on-site clarification and filtration system. Site-related contaminants have entered the watershed via groundwater, and to a lesser extent, via surface water.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

In the early 1970s, releases of organic compounds and metals from the CPS and Madison properties resulted in the closing of 32 wells in the Perth Amboy wellfield. In 1979, a state court ordered the companies to perform a remedial investigation under the supervision of NJDEP. The investigation led to a 1981 court order for the companies to implement a remediation program to address groundwater contamination emanating from each of the properties, On September 1, 1983, the Site was placed on the National Priorities List (NPL) with New Jersey as the lead agency.

In 1991 and 1992, CPS and Madison installed an off-site groundwater collection system consisting of six recovery wells (three wells operated by each company) to protect the Perth Amboy wellfield. Between 1993 and 2000 the groundwater surrounding these recovery wells achieved the clean-up goals in place at that time; the recovery wells were shut down and replaced by wells on each of the company's properties which are collectively known as the Interim Remedial Measure (IRM) wells.

In 1998, NJDEP established a Classification Exception Area (CEA) and a Well Restriction Area (WRA) encompassing the area of the volatile organic groundwater plume, covering approximately 32 acres, to a depth of 80 feet. In 1999, NJDEP established CEAs and WRAs encompassing the areas of two metals plumes, which are approximately 20.7 acres, and 2.2 acres, to a depth of 80 feet.

In 1992, Madison filed for bankruptcy protection and in 2001, Ciba closed the CPS Chemical facility. In 2003, NJDEP requested that EPA take the lead role in overseeing the Superfund cleanup.

In 2005, EPA entered into an administrative order on consent (AOC) with Ciba which required Ciba to perform a remedial investigation and feasibility study (RI/FS) to determine the extent of contamination of all contaminants of concern in groundwater (i.e., CPS and Madison impacts to groundwater), referred to as OU1, and of CPS-related impacts to soil, referred to as OU2, determine if an action was needed to address the contamination, and identify potential alternatives to address the contamination. BASF Corporation (BASF) acquired Ciba in 2010, at which time BASF assumed the obligations of Ciba as its corporate successor, including responsibility for the RI/FS required in the 2005 AOC. BASF completed that RI/FS in August of 2018. EPA issued a Proposed Plan in April 2019, identifying the preferred alternative to address contamination. EPA released the ROD in September 2019, documenting the selection of remedies to address contamination in groundwater (both organic and metals contamination), (OU1) and soil on the CPS property (OU2).

In 2015, Madison entered into an AOC with EPA, which required Madison to perform an RI/FS to address contamination in soil (at the Madison property) and sediment in Prickett's Brook and Prickett's Pond on-site and downstream of the Madison property (OU3). This RI/FS was completed in May 2023.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

On June 1, 2023, EPA released the Proposed Plan for OU3 to the public for comment. Supporting documentation comprising the administrative record file was made available to the public at the information repository maintained at the EPA Region 2 Superfund Records Center, 290 Broadway, 18th Floor, New York, New York 10007, and EPA's website for the Site at https://www.epa.gov/superfund/cps-madison.

EPA published notice of the start of the public comment period, which ran from June 1 to July 3, 2023, and the availability of the above-referenced documents in the *Home News Tribune* on June 6, 2023. A news release announcing the Proposed Plan, which included the public meeting date, time, and location, was issued to various media outlets and posted on EPA's Region 2 website on June 1, 2023.

A public meeting was held on June 15, 2023, at the Old Bridge Senior Center, 1 Old Bridge Plaza, Old Bridge, New Jersey 08857 to discuss the alternatives presented in the RI/FS, review the proposed remedial activities at the Site, and to respond to any questions from residents and other attendees.

A copy of the public notice published in the *Home News Tribune,* along with responses to the comments received at the public meeting and in writing during the public comment period can be found in the attached Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF OPERABLE UNIT

Due to the complexity of working with two facilities and varying land uses, EPA is addressing the cleanup of the Site in three operable units. OU1 addresses groundwater contamination emanating from both properties that impacts the Perth Amboy wellfield. OU2 addresses contaminated soil on the CPS property that is a direct contact hazard and acts as a contaminant source to groundwater. OU3 addresses contaminated soil on the Madison property that is a direct contact hazard and acts as a contaminant source to groundwater.

This ROD addresses OU3, the final operable unit. EPA issued a ROD selecting remedies for OU1 and OU2 in September 2019.

SITE CHARACTERISTICS

The Site is relatively flat, ranging from 20 to 25 feet above mean sea level (AMSL). Most of the Site lies within a 100-year flood hazard area, except for a small area in the northeast corner of the CPS property that is 28 feet AMSL. The facilities are mostly surfaced with asphalt or concrete, except for the three-acre area of the former tank farm that was demolished by Ciba in 2005. The Magothy Formation, which underlies the Site, is used as a drinking water aquifer. Two of the geologic units of the Magothy lie directly under the Site, the Old Bridge sand, and the Perth Amboy fire clay. The Old Bridge sand is between 60 and 70 feet thick beneath the Site and readily conducts water. The fire clay is discontinuous under the Site but acts as a confining unit in some areas. Below the Magothy is the Raritan Formation which is also a drinking water aquifer. Groundwater under the Site generally flows southwest towards the Perth Amboy supply wells which are approximately half a mile downgradient.

Prickett's Brook, an intermittent stream on the Site, flows west along the southern border of the CPS property (Figure 1). The brook turns north along the border between the CPS and Madison properties until it turns west again and bisects the Madison property. From the Madison property, the brook enters the Runyon Watershed and travels southwest through Prickett's Pond and eventually reaches Tennent Pond. Prickett's Brook and the downgradient ponds are not used for recreational purposes.

EPA conducted an Environmental Justice Screen for the Site using EJScreen 2.11. The EJ index percentiles for nearly all of the environmental and socioeconomic indicators for the area immediately adjacent to the Site are either below or comparable to state and/or national averages; therefore, the results did not suggest that there would be communities with environmental justice concerns immediately adjacent to the Site.

SUMMARY OF SITE INVESTIGATIONS

Performance Monitoring Program

Beginning in 1991, under the direction of NJDEP, CPS and Madison installed the IRM wells downgradient of the CPS property to intercept Site groundwater contamination entering the Runyon Watershed. A Performance Monitoring Program (PMP) was initiated to evaluate the effectiveness of the IRM pump and treatment systems. Pursuant to the PMP, BASF and Madison continue to monitor the IRM wells, which have been reconfigured several times to adjust to reduced contaminant levels in the plumes. The IRM system for the Madison property has been operating since 1997, with occasional configuration adjustments.

The Remedial Investigation

In October 1992, NJDEP executed separate Administrative Consent Orders (ACOs) with CPS and Madison, for each to perform an RI/FS to determine the nature and extent of potential source areas of contamination, including soils and sediment contamination at their respective facilities, and to identify potential treatment technologies. CPS conducted its RI/FS in three phases, documented in three reports submitted in 1993, 1994, and 1996. Madison completed its RI/FS in July 2001. NJDEP did not issue a record of decision and asked EPA to take over in 2003.

In 2003, EPA assumed responsibility from NJDEP as lead agency overseeing the Superfund cleanup. As with many Superfund sites, the work at the Site was conducted in phases, focusing first on the CPS property. In 2015, Madison entered into an AOC with EPA to perform the RI/FS for OU3, consisting of the contaminated soil at the Madison property. In 2018, Madison submitted an RI/FS Work Plan for OU3 to address data gaps in the 2001 RI prepared for NJDEP and provide more current data on the status of Site contamination. The main focus of the RI/FS was soil at the Madison property and sediment and surface water in Prickett's Pond and Prickett's Brook. The final Remedial Investigation Report was submitted by Madison in May 2023.

Summary of the Remedial Investigation

The full results of the OU3 RI can be found in the OU3 CPS/Madison Remedial Investigation Report (May 2023) which is in the administrative record.

RI sampling of soil, sediment, and surface water by Madison, under EPA oversight, began in 2018 and continued to 2019. Additional sampling was conducted in 2021 for the Focused Baseline Ecological Risk Assessment.

The results of sample analyses were screened to determine if the levels of contamination posed a potential harm to human health and/or the environment. This was done by comparing the measured values of contaminants to standards that are protective of human health or ecological receptors.

The soil sample analytical results were compared to NJDEP's Residential Soil Remediation Standards (NJRSRS) for the Ingestion-Dermal and Inhalation Exposure Pathways, the Non-residential Soil Remediation Standards (NJNRSRS) for the Ingestion-Dermal and Inhalation Exposure Pathways, and the Migration to Groundwater Soil Remediation Standards (MGWSRS). The default MGWSRS were developed to be protective of the majority of sites when no site-specific information is available. When site-specific information is available, site-specific MGWSRS can be developed. For OU3 soils, site-specific MGWSRS were developed by analyzing the site-specific leachability of the contaminants in accordance with the NJDEP Alternative Remediation Standards Technical Guidance for Soil and Soil Leachate for the Migration to Groundwater Exposure Pathway. The site-specific MGWSRS were compared to the default MGWSRS and the soil sample analytical results were compared to the least stringent of the two, per NJDEP guidance. The sediment sample analytical results were compared to the lowest effect levels for ecological receptors and surface water results were compared to NJDEP's Surface Water Quality Standards (SWQS) for Fresh Water. In addition, a human health risk assessment and an ecological risk assessment were conducted to determine if levels of contaminants exceeded EPA's acceptable risk range. Explanations of the results of the human health and ecological risk assessments are provided in separate sections later in this document. The results of the RI showed that metals including lead, cadmium, and zinc are the major contaminants of concern (COCs) in OU3 soils.

Madison On-site Soils

Inorganic Contamination (Metals) The RI Report identified several metals in soils that exceeded at least one of the NJDEP soil remediation standards (SRS) that the soil analytical results were compared to. The metals identified in the RI include arsenic, cadmium, copper, lead, mercury, silver, and zinc. Most exceedances were detected in or around the Northern Plant Area, with fewer exceedances being detected in the Southern Plant Area. Metals with concentrations exceeding at least one of the NJDEP SRS were found at depths up to 8 feet, with most exceedances occuring between 0 to 2 feet below ground surface (bgs). Lead, zinc, and cadmium were identified at concentrations above the NJNRSRS and/or MGWSRS most frequently, while copper was only detected above the NJRSRS. Silver occurrence in soil appears to be co-located with the distribution of cadmium, copper, lead, and zinc. Arsenic was detected in one location above the NJNRSRS. This location also had NJRSRS or MGWSRS exceedances of copper, lead, and zinc. Mercury was detected in one location above the MGWSRS. Arsenic and mercury were also detected at similar concentrations in off-site and background samples. Their distribution appears to be random and not indicative of a spill or release.

As previously discussed in the 2019 ROD for OU1 and OU2, metals originating from the Madison property have migrated to groundwater.

Volatile organic compounds (VOCs) A limited variety and number of organic compounds were identified in soil above the MGWSRS. Three VOCs were identified in a small number of shallow soil (1-4.5 ft.) samples at concentrations that slightly exceeded the MGWSRS. They are benzene, methylene chloride, and trichloroethylene (TCE). Benzene exceeded the MGWSRS in two samples in the Northern Plant Area, methylene chloride exceeded the MGWSRS in two samples in the Southern Plant Area, and TCE exceeded the MGWSRS in one sample in the Northern Plant Area. No VOCs were detected above the NJRSRS or NJNRSRS.

Semi-volatile organic compounds (SVOCs) Two SVOCs were identified in a small number of shallow soil (1-2 ft.) samples at concentrations exceeding the NJRSRS or the MGWSRS. Benzo(a)pyrene exceeded the NJRSRS in one sample in the Northern Plant Area and 2-Methylnaphthalene exceeded the MGWSRS in two samples in the Northern Plant Area. No other SVOCs were detected above the NJRSRS, NJNRSRS, or the MGWSRS.

Total polychlorinated biphenyls (PCBs) were detected above the NJRSRS in one sample in the Northern Plant Area as well as in one of the background locations.

Sediment

Cadmium, copper, lead, and zinc were the most common contaminants found at the highest concentrations above the Lowest Effects Levels (LELs) for the NJDEP Ecological Screening Criteria (ESC). Other constituents found above these criteria include arsenic, chromium, cobalt, mercury, nickel, cyanide, and eight organic compounds (including some VOCs/SVOCs, pesticides, and PCBs). These other constituents were found less frequently and based on their distribution, do not appear to be related to the Madison property.

Surface Water

Cadmium, copper, lead, and zinc were again the most common contaminants found at the highest concentrations above the SWQS for fresh water. Other constituents found above these criteria include arsenic, beryllium, chromium, cobalt, nickel, silver, vanadium, and ten organic compounds (including some VOCs/SVOCs and PCBs). These other constituents were found less frequently, and their distribution patterns do not suggest the Madison property is a source. The presence and distribution of the VOCs is consistent with discharge of VOC-impacted groundwater from the CPS property.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Use

The CPS and Madison properties that together comprise the Site include 45 acres of developed and undeveloped land, currently zoned for commercial/industrial use. The Site is bordered to the southwest by the Runyon Watershed. EPA does not anticipate that the land use will change in the foreseeable future.

Groundwater Use

The Magothy and Raritan Formations constitute the regional aquifer system supplying water resources to the surrounding area. The Perth Amboy municipal water supply wells are located approximately 3,000 feet downgradient from the CPS and Madison facilities.

SUMMARY OF SITE RISKS

As part of the RI/FS, 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 uses. The baseline risk assessment includes a human health risk assessment (HHRA), Screening Level Ecological Risk Assessment (SLERA), Baseline Ecological Risk Assessment (BERA), and a focused Ecological Risk Assessment (ERA). 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 summarizes the results of the baseline risk assessment for the Site.

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 contaminant 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 NCP as an excess lifetime cancer risk greater than $1 \times 10^{-6} - 1 \times 10^{-4}$ or a Hazard Index greater than 1; contaminants at these concentrations are considered 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, contaminants of potential concern (COPCs) in each medium at the Site 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 HHRA began with selecting COPCs in various media (i.e., surface soil, subsurface soil, surface water and sediment) that could potentially cause adverse effects in exposed populations. COPCs are selected by comparing the maximum detected concentrations of each chemical identified with state and federal risk-based screening values. The COPC screening was conducted separately for each medium of interest and exposure area in the HHRA. A comprehensive list of all COPCs can be found in the HHRA in the administrative record. Only site-related risk driving COCs, or those chemicals exceeding EPA's threshold criteria, are included in Table 4.

Exposure Assessment

Consistent with Superfund policy and guidance, the HHRA 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.

To aide in the assessment of risk, the Madison property was divided into the following exposure areas based on historical and current use of the Site, anticipated future use of the Site and current land features:

- Northern Plant (NP) Areas 1/9
- Southern Plant (SP) Areas 3/8
- Southern Plant (SP) Area 5
- Southern Plant (SP) Area 6/12
- Southern Plant (SP) Area 10
- Sitewide (combining all the exposure areas)
- Off-site Area 4
- Off-site Area 14
- Prickett's Brook (On-site and Off-site)
- Prickett's Pond
- Tennent Pond

The current and anticipated future use of the Madison property is industrial. As such, the following receptors and exposure pathways were evaluated for the on- and off- site soil areas and surface water and sediment features of Prickett's Brook, and for the off-site surface water and sediments features on Prickett's Pond and Tennent Pond:

- Current/future outdoor industrial worker: exposure to soil via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air. Incidental ingestion and dermal contact with sediment and surface water in the on-site portion of Prickett's Brook.

- Current/future construction/utility worker: exposure to surface and subsurface soil (0-15 ft below ground surface) via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air.

- Adult and Youth (6-18 years old) trespassers: exposure to surface soils via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air. Incidental ingestion and dermal contact with sediment and surface water while wading in the on-site portion of Prickett's Brook.

- Adult and Youth (6-18 years old) recreational visitors: incidental ingestion and dermal contact with sediments and surface water while wading or hiking in/near the off-site portion of Prickett's Brook, and to Prickett's Pond and Tennent Pond.

A summary of all the exposure pathways considered in the HHRA can be found in Table 3. 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. Consistent with EPA guidance, the exposure point concentration for lead was calculated as the arithmetic mean of all samples collected from the appropriate media. A summary of the exposure point concentrations for lead identified in soil can be found in Table 4, while a comprehensive list of the exposure point concentrations for all COPCs can be found in the 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 noncarcinogenic hazards due to exposure to site chemicals are considered separately. Consistent with current EPA policy, it was 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 were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or another source that is identified as an appropriate reference for toxicity values consistent with EPA's directive on toxicity

values. This information is presented in Table 5 series (non-carcinogenic toxicity data) and Table 6 series (cancer toxicity data) of the HHRA. The comprehensive HHRA is available in the administrative record for the Site.

Risk Characterization

This step summarized and combined outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. For chemicals other than lead, 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 HQs for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as 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 noncarcinogenic 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.

As summarized in Table 5, noncancer risk estimates for all receptors evaluated at the Madison Site fell below EPA's threshold value of 1. Receptor specific noncancer HIs ranged from 0.0035 to 0.79.

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 assessment. Again, as stated in the NCP, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

As shown in Table 5, total cancer risk estimates for all receptors evaluated in the HHRA fell within or below EPA's threshold of 10^{-6} to 10^{-4}. Receptor specific cancer risk estimates for the Site ranged from 1.9×10^{-5} to 8.4×10^{-8}.

Lead evaluation

Lead was identified as a COPC in soil based upon a comparison of the maximum detected concentration to the current commercial/industrial soil screening level of 800 mg/kg.

Because there are no published quantitative toxicity values for lead it is not possible to evaluate risks from lead exposure using the same methodology as for the other COPCs. However, since the toxicokinetics (the absorption, distribution, metabolism, an excretion of toxins in the body) of lead are well understood, lead is regulated based on blood lead concentrations. In lieu of evaluating risk using typical intake calculations and toxicity criteria, EPA developed models (the IEUBK model for the child receptor and ALM model for the adult receptors) to predict blood lead concentration and the probability of a child's or developing fetus' blood lead concentration exceeding a target blood lead level based on a given multimedia exposure scenario. For the Madison HHRA, blood lead concentrations and the resultant probabilities of a fetus' blood lead concentrations exceeding 5µg/dL were estimated using the Adult Lead Methodology (ALM) model for adolescent and adult receptors.

Consistent with EPA guidance, EPCs for lead were based on the arithmetic mean of all the samples within the exposure area from the appropriate depth interval. Results of the ALM model were compared to the regional risk reduction goal for lead which is to limit the probability of a child or developing fetus' blood lead level from exceeding 5 micrograms per deciliter (µg/dL) to 5% or less.

The ALM results revealed blood lead above the risk reduction goal for the outdoor industrial worker and construction/utility workers present on Northern Plant (NP) Areas 1/9 and for the sitewide outdoor industrial worker. Blood lead risk exceedances ranged from 16.4% for the sitewide outdoor industrial worker to 42.5% for the NP Areas 1/9 outdoor industrial worker.

In summary, the results of the HHRA indicated there were no unacceptable cancer risks or noncancer hazard from exposure to non-lead constituents. However, exposure to lead surpassed EPA's risk reduction goal (to limit the probability of a developing fetus' blood lead level from exceeding 5 µg/dL to 5% or less) for a sitewide outdoor industrial worker and an outdoor industrial worker and construction/utility worker on the Northern Plant Areas 1/9.

Uncertainties

The procedures and inputs used to assess human health 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
- 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.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern 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 the Site and is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the HHRA report.

Ecological Risk Assessment

Ecological risk was evaluated in three steps, where representative ecological receptors were identified, and measurement and assessment endpoints were developed to identify potential risk from contaminants of potential ecological concern (COPECs) to those receptors. As described above, there were three evaluations conducted to evaluate the potential ecological risk associated with the Site: a SLERA, BERA and focused ERA. These documents can be found in the administrative record.

The SLERA evaluated all detected compounds in soil, sediment, and surface water. The conclusions were that metals, specifically cadmium, copper, lead, nickel, vanadium, and zinc, in sediment and surface water have a potential for adverse effects in vertebrate invertivores. The recommendation from the SLERA was to proceed with further site-specific evaluations to assess the potential for adverse effects in invertivores.

The BERA was conducted focusing on the site-related metals (cadmium, copper, lead and zinc) in soil, sediment, and surface water. The conclusions were that elevated risks were identified in aquatic receptors for the evaluated metals in surface water and sediment; however, toxicity tests and invertebrate surveys did not show any toxicity or impact to community structure suggesting that the metals are not bioavailable.

The focused ERA was then conducted to investigate site-specific bioavailability and toxicity of metals in the sediment. The focused evaluation included measuring sediment bioaccumulation of metals in invertebrates, sediment toxicity in invertebrates, sediment chemical residue analysis and updated food web models. The result of this evaluation indicates sporadic sediment toxicity to invertebrates that is not directly correlated to sediment concentrations of Madison property-related metals. The toxicity may be related to groundwater discharge associated with OU1 and OU2 or may be associated with upstream impacts. It is expected that as remedial actions are implemented for the other operable units, if the toxicity is associated with groundwater discharge, it will decrease over time. A long-term monitoring program to measure toxicity associated with groundwater discharge, as well as to include additional baseline sediment sampling, was included as a common element in all remedial alternatives evaluated for OU3.

Basis for Taking Action

Based on the results of the HHRA and ecological risk assessments, the response action selected in this Record of Decision is necessary to protect the public health or welfare of 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), to-be-considered (TBC) advisories, criteria and guidance, and site-specific risk-based levels. The primary objective of any remedial strategy is overall protectiveness.

The following RAOs were developed to address the human health and ecological risks discussed above for OU3 contaminated media:

- Prevent migration of on-going sources of Madison property-related soil contaminants to groundwater that pose a potential risk to human health and the environment.
- Prevent ingestion, dermal, and inhalation exposure to Madison property-related soil contaminants that pose unacceptable human health risk to the current and future industrial worker and construction/utility worker.
- Prevent the potential erosion and migration of soil containing Madison-property related contaminants to surface water and sediment.

Achieving the RAOs relies on the remedial alternatives' ability to meet final remediation goals/cleanup levels derived from preliminary remediation goals (PRGs), which are based on such factors as ARARs, risk, and background levels of contaminants in the environment that occur naturally or are from other industrial sources. In the Proposed Plan, EPA selected the more stringent of the NJNRSRS for the Ingestion-Dermal Exposure Pathway and the NJDEP MGWSRS as the PRGs for COCs in the OU3 unsaturated soils. Lead was identified as a COC for OU3 soils because lead drives the human health risk identified in the HHRA. Cadmium and zinc were identified as COCs for OU3 soils because both cadmium and zinc exceed the MGW PRGs in OU3 soils. PRGs become final remediation goals (RGs) when EPA selects a remedy after taking into consideration all public comments. A complete list of ARARs can be found in Appendix II-A (Table 1) and EPA's final RGs for OU3 can be found in Appendix II-A (Table 2).

DESCRIPTION OF ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. Section 121(d) further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. §9621(d)(4). Detailed descriptions of the remedial alternatives for addressing the soil contamination associated with OU3 can be found in the FS Report, dated May 2023.

Potential technologies applicable to soil remediation were identified and screened by effectiveness, implementability, and cost criteria, with emphasis on effectiveness. Those technologies that passed the initial screening were then assembled into remedial alternatives.

The construction timeframes for each alternative reflects only the estimated time required to construct the remedy; they do not include the time to negotiate with the responsible party, design the remedy, or procure necessary contracts. Five-year reviews will be conducted as a component of the alternatives that would leave contamination in place above levels that allow for unlimited use and unrestricted exposure.

Common Elements

All the alternatives, except for the no action alternative (Alternative 1), include common components.

Alternatives 2 and 3 include using existing paved areas and structures on the Madison property as a cap to protect against direct contact hazards to human health and to address the migration to groundwater pathway in these areas. The existing paved areas will be assessed to determine if they meet NJDEP capping requirements and, if they do not, they will be upgraded to meet them. Implementation will also include ongoing inspections, maintenance, and reporting to ensure the continued effectiveness of a cap on these areas.

Alternatives 2 and 3 also include long-term sediment and surface water monitoring to assess the effectiveness of remedial actions, once implemented, for OU1, OU2, and soil within OU3. A workplan for this monitoring will be developed during the Remedial Design (RD) phase.

Alternatives 2 and 3 also include institutional controls (in the form of a deed notice) to restrict the Madison property to non-residential uses. A deed notice would also define the restricted areas on the Madison property and provide a description of engineering controls in the restricted areas and specify actions to be taken if a restricted area is to be disturbed. In addition, a deed notice would require annual inspections to determine that the engineering controls remain protective of human health and the environment and biennial certifications to document continued protectiveness of the remedial action.

Finally, because Alternatives 2 and 3 would leave contamination in place above levels that would allow for unlimited use and unrestricted exposure, a review of conditions at the Site will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

Soil Alternatives:

Alternative 1 – No Action

Capital Cost: *$0*
Annual O&M Cost: *$0*
Present Worth Cost: *$0*
Construction Timeframe: *0 years*

The NCP requires that a "No Action" alternative be evaluated to establish a baseline for comparison with other remedial alternatives. Under this alternative, there would be no remedial actions actively conducted at OU3 to control or remove soil contaminants. This alternative also does not include monitoring or institutional controls.

Alternative 2 – Excavation in Unpaved Areas and Off-Site Disposal

Capital Cost: *$1,330,000*
Annual O&M Cost: *$620,000*
Present Worth Cost: *$1,950,000*
Construction Time Frame: *18 months*
Est. Time to Reach RAOs: *5 years*

In addition to the common elements listed above, this alternative employs excavation and off-site disposal of contaminated soils. Soils in unpaved and undeveloped areas where site COCs exceed RGs would be excavated and staged on-site prior to characterization sampling and off-site disposal at a permitted disposal facility. Excavated areas would be backfilled with certified clean fill. In areas where the Site is paved, the existing pavement would act as a cap over contaminated soils, as detailed earlier in the Common Elements section. This alternative would provide removal of contaminated soil that presents a direct contact hazard and eliminate the potential migration to groundwater pathway.

Approximately 1,320 cubic yards (cy) of soil would be excavated under this alternative. The 1,320 cy would contain approximately 16,000 square feet (sf) of soil, between 2-5 feet in depth, from 11 areas impacted by site COCs. The 11 areas are primarily located along the perimeter of the Madison property where soil is not currently covered by pavement (Figure 2).

Alternative 3 – Capping of Unpaved Areas

Capital Cost: *$830,000*
Annual O&M Cost: *$620,000*
Present Worth Cost: *$1,450,000*

Construction Time Frame: *18 months*
Est. Time to Reach RAOs: *5 years*

In addition to the common elements listed above, this alternative involves placing a cap of impermeable material (such as asphalt or concrete) over impacted soils in unpaved and undeveloped areas where site COCs exceed RGs (Figure 2). In areas where the Site is paved, the existing pavement would act as a cap over contaminated soils, as detailed earlier in the Common Elements section. Capping would address human health concerns and control potential impacts to groundwater; therefore, this alternative would address both the direct contact hazard posed by the contaminated soil and the potential migration to groundwater pathway. The placement of additional impermeable material on the property may also require improved stormwater management controls due to a reduction in water storage capacity for the property.

Evaluation of Alternatives

In evaluating the remedial alternatives, each alternative is assessed against nine evaluation criteria set forth in the NCP namely, overall protection of human health and the environment; compliance with ARARs; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance.

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€(9) and 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.

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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.

Alternative 1, No Action, would not be protective of human health or the environment because no action would be taken to address soil contamination. For this reason, Alternative 1 was eliminated from further consideration under the remaining eight criteria.

Alternative 2 would be protective of human health and the environment by removing soil in unpaved areas to meet RGs. In paved areas where impacted soils exceed RGs, the existing pavement would serve as a cap to mitigate the direct contact and migration to groundwater pathways. A deed notice would be required for areas that have soil contamination remaining above the NJRSRS for the ingestion-dermal exposure pathway, to restrict the use of the property to non-residential use, define the restricted areas, and describe engineering controls.

Alternative 3 would also be protective of human health and the environment. Alternative 3 would require capping to be placed over unpaved areas with exceedances of the RGs to address the ingestion-dermal and migration to groundwater pathways. Similar to Alternative 2, existing paved areas would serve as a cap and a deed notice would be required to restrict the property to non-residential uses, define the restricted areas, and describe engineering controls.

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).

The chemical-specific ARARs and related RGs for cadmium, lead, and zinc would be met under Alternative 2 as exceedances of the NJNRSRS for the ingestion-dermal pathway would either (1) be removed via excavation or (2) remain in place, but migration and exposure would be controlled via the existing cap(s) and structures. In the case of Alternative 3, the chemical-specific ARARs would be met by capping unpaved areas where there are exceedances of the RGs, as well as by the existing cap(s) and structures.

Location-specific ARARs would be met by Alternatives 2 and 3 during the construction phase by following substantive requirements for construction and development in flood hazard areas.

Action-specific ARARs would be met by Alternative 2 during the construction phase by proper design and implementation of the action including disposal of excavated soil at the appropriate disposal facility. Action-specific ARARs would be met by Alternative 3 during the construction phase by following NJDEP’s substantive technical requirements for site remediation.

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.

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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.

Alternative 2 provides the greatest degree of long-term effectiveness and permanence because it removes the soils impacted by COCs in the unpaved areas and has greater climate resilience than Alternative 3.

To a lesser degree than Alternative 2, the capping of unpaved impacted areas included under Alternative 3 would reduce potential mobility and exposure concerns posed by the COCs by mitigating the potential migration to groundwater and direct contact pathways. Additionally, the addition of impermeable caps required under Alternative 3 would increase the amount of stormwater runoff and could make the Madison property more susceptible to flooding. Therefore, in considering climate resiliency, Alternative 3 may provide a lesser degree of long-term effectiveness and permanence compared to Alternative 2.

For both alternatives, the caps would require maintenance for the foreseeable future.

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

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.

Neither of the soil alternatives include treatment, so there would be no reduction of toxicity, mobility, or volume through treatment under any alternative.

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.

Alternative 2 would pose some short-term risks during implementation. Risks to site workers, the community and the environment include potential short-term exposure to contaminants during excavation of soil. Potential risks would be addressed via implementation of a health and safety plan, air monitoring, and the use of dust control technologies, as needed, during earth disturbances. An exclusion zone would be established during excavation activities to restrict Madison facility workers from entering the excavation area. Remediation workers and anyone entering the exclusion zone would be required to wear personal protective equipment to prevent exposure to COCs.

Alternative 3 presents fewer short-term risks during implementation. Capping is unlikely to require the disturbance of impacted soils beyond grading that may be required to prepare the subbase prior to cap installation. Any potential risks arising from the disturbance of impacted soil would be addressed using the same measures identified for Alternative 2.

The construction timeframe for both Alternative 2 and Alternative 3 would be approximately 18 months.

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.

Alternatives 2 and 3 have common implementability issues related to the removal of soil (Alternative 2) and installation of caps (Alternative 3). The technologies needed for both alternatives are proven and conventional. Contractors needed to perform the work for both alternatives are readily available. Coordination with other agencies including NJDEP will be required. Pursuant to the permit exemption at Section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1), no permits would be required for on-site work although substantive requirements of otherwise-required permits would be met. Both Alternative 2 and Alternative 3 will also require filing a deed notice, followed by periodic inspections, and submission of biennial certifications to NJDEP.

7. Cost

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

The total estimated present worth costs, calculated using a 7% discount rate, are: $1,950,000 for Alternative 2; and $1,450,000 for Alternative 3.

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 FS Report and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected remedial measure.

The State of New Jersey concurs with EPA’s selected remedy for OU3.

9. Community Acceptance

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

EPA solicited input from the community on the remedial alternatives that were proposed for OU3. Oral comments were recorded from attendees of the public meeting. EPA received written and oral comments from residents of Old Bridge and Perth Amboy. Comments received during the public comment period and EPA responses are in the attached Responsiveness Summary, Appendix V.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (40 C.F.R. § 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 the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. Although cadmium, lead, and zinc in soil may act as sources to groundwater or surface water, these sources are not highly mobile and are not considered principal threat wastes at this OU.

SELECTED REMEDY

Based upon consideration of the results of the site investigation, the requirements of CERCLA, and the detailed analysis of the remedial alternatives and public comments, EPA has determined that Alternative 2, Excavation in Unpaved Areas and Off-Site Disposal, is the appropriate remedy for the Site. This remedy best satisfies the requirements of CERCLA Section 121 and the NCP's nine evaluation criteria for remedial alternatives, 40 C.F.R. § 300.430(e)(9).

Summary of the Rationale for the Selected Remedy

The preferred remedy was selected over other alternatives because it is expected to achieve the greatest degree of long-term effectiveness and permanence by removing impacted soils in the unpaved areas. The preferred alternative will be protective of human health and the environment, comply with all ARARs, and be easily implementable with minimal short-term risk. The preferred remedy reduces the risk from OU3 contaminants within approximately 18 months, at a cost comparable to other alternatives and should be reliable over the long-term.

Based on information currently available, EPA believes the selected remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. The selected remedy satisfies the following statutory requirements of CERCLA Section 121: (1) be protective of human health and the environment; (2) comply with ARARs; (3) be cost-effective; and (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Long-term monitoring would be performed to assure the protectiveness of the remedy.

Description of the Selected Remedy

The major components of the OU3 remedy include the following:

- Excavation and off-site disposal of 1,320 cy of contaminated soil from unpaved areas on the Madison property;
- Use of existing pavement on the Madison property as an engineering control, in the form of capping, over contaminated soils;
- Long-term monitoring of sediment and surface water; and
- Institutional controls, such as a deed notice, to prevent exposure to residual soils that exceed levels that allow for unrestricted use, and to limit disturbance of capped areas.

Approximately 1,320 cy of soil containing concentrations of lead, cadmium, and zinc greater than the RGs will be excavated from unpaved areas within the Madison property under this remedy. The 1,320 cy will contain approximately 16,000 sf of soil, between 2-5 feet in depth, from 11 areas impacted by site COCs. The 11 areas are primarily located along the perimeter of the Madison property where soil is not currently covered by pavement (Figure 2).

In areas within the Madison property where existing pavement is already in place over contaminated soils, the pavement will be assessed to determine if it meets NJDEP capping requirements and upgraded to meet those requirements if necessary. This component of the remedy will also include ongoing inspections, maintenance, and biennial certifications to document the continued effectiveness of a cap over these areas.

Long-term monitoring of sediment and surface water will be conducted to assess the effectives of remedial actions, once implemented, for OU1, OU2, and soil within OU3. A workplan further detailing the long-term monitoring will be developed during the RD phase.

Institutional controls, in the form of a deed notice, will be established for the Madison property to restrict the property to non-residential uses. The deed notice will provide information regarding the Site, presence and location of contaminants, and compliance inspections and monitoring requirements.

The environmental benefits of the selected remedy may be enhanced by employing design technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy.

Summary of Estimated Remedy Costs

The total estimated present-worth cost for the selected remedy is $1,950,000. This is an engineering cost estimate that is expected to be within the range of plus 50 percent to minus 30 percent of the actual project cost. Further detail on the cost is presented in Appendix II C, Table 6 and Table 7.

Expected Outcomes of the Selected Remedy

The four components of the selected remedy effectively address contamination in soil at the Madison property. The results of the risk assessment indicate unacceptable risk from exposure to soil containing lead. The response actions selected in this ROD will address contaminated soils on the Madison property that present this unacceptable risk and may also act as a source to groundwater, and thereby, will eliminate the exposure pathway associated with unacceptable risk and eliminate the soil-to-groundwater pathway, while allowing the commercial/industrial use of the Madison property.

STATUTORY DETERMINATIONS

As was previously noted, CERCLA Section 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 reduce the volume, toxicity or mobility of the hazardous substances, pollutants, or contaminants permanently and significantly at a site. CERCLA Section 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 Section 121(d)(4).

Protection of Human Health and the Environment

The selected remedy will be protective of human health and the environment by removing contaminated soil that poses a direct contact or ecological threat. The combination of soil removal and capping will prevent human receptor exposure to contaminants and prevent contaminant migration from soil to surface water or groundwater. Where the soil is capped, institutional controls such as a deed notice, will be put in place to ensure the capping remains effective at protecting human health and the environment. Implementation of the selected remedy will not present unacceptable short-term risks or adverse cross-media impacts.

Compliance with ARARs

EPA expects that the selected remedy will comply with federal and New Jersey ARARs. A complete list of ARARs can be found in Appendix II-A (Table 1).

The chemical-specific ARARs for lead, cadmium, and zinc in the soil include the NJNRSRS for the ingestion-dermal exposure pathway. Although not an ARAR, the NJDEP MGWSRS are considered a TBC advisory and are being used as an RG for unsaturated soils.

Location-specific ARARs that may be applicable to soils in OU3 include the New Jersey Flood Hazard Area Control Act Regulations.

Action-specific ARARs for soil excavation and off-site disposal include the Federal Resource Conservation and Recovery Act, Federal Hazardous Materials Transportation Law, New Jersey Hazardous Waste and Solid Waste Regulations, and the New Jersey Soil Erosion and Sediment Control Act.

Cost Effectiveness

EPA has determined that the selected remedy 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." (NCP §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 was determined to be proportional to costs and hence, the

selected remedy represents a reasonable value for the money to be spent. The selected remedy is cost-effective as it has been determined to provide the greatest overall protectiveness for its present worth costs.

Utilization of Permanent Solutions and Alternative Treatment Technologies

EPA has determined that the selected remedy utilizes permanent solutions and treatment technologies to the maximum extent that is practicable. Contaminated soil in the unpaved areas of OU3 will be removed and those areas will be backfilled with clean soil. In the paved areas of OU3, where soil contaminants are present, capping will be used.

The selected remedy will provide adequate long-term control of risks to human health and the environment through eliminating and/or preventing exposure to the contaminated soils. The selected remedy is protective against short-term risks.

Preference for Treatment as a Principal Element

Treatment is not an element of the selected remedy because contaminated soil is being addressed through a combination of removal and capping. Treatment was initially considered in the Development and Screening of Remedial Alternatives Technical Memorandum (January 2022); however, treatment was not retained for further evaluation in the FS due to significant implementation challenges presented by the presence of buildings and active facility operations. Additionally, no source materials constituting principal threats will be addressed within the scope of this action. Remedies selected for past operable units (OU1 and OU2) have met the statutory preference for treatment.

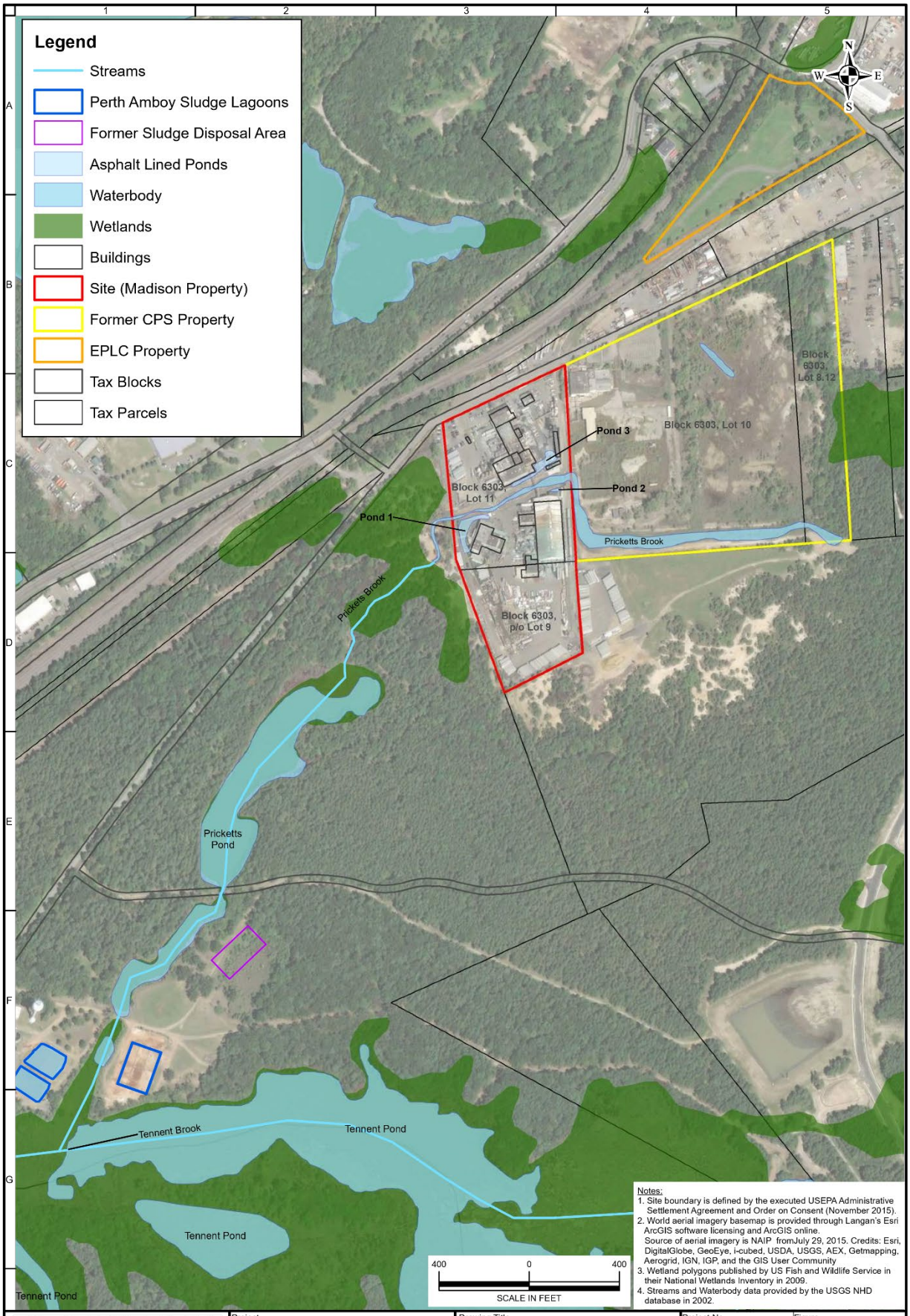
Five-Year Review Requirements

The selected remedy for OU3 involves capping, consisting of retaining existing paving, and upgrading it as necessary, on the areas of the Madison property that are already paved. Therefore, contamination will be left in place at levels above those that allow for unlimited use and unrestricted exposure. A statutory five-year review will be conducted within five years of initiation of the remedial action for the Site to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Site was released for public comment on June 1, 2023. The comment period closed on July 3, 2023. The Proposed Plan identified Alternative 2 as the preferred alternative to address soil contamination and monitoring of sediment and surface water. Upon review of all comments submitted, EPA determined that no significant changes to the selected remedy, as it was presented in the Proposed Plan, were warranted.

APPENDIX I: Figures



Notes:
1. Site boundary is defined by the executed USEPA Administrative Settlement Agreement and Order on Consent (November 2015).
2. World aerial imagery basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Source of aerial imagery is NAIP fromJuly 29, 2015. Credits: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
3. Wetland polygons published by US Fish and Wildlife Service in their National Wetlands Inventory in 2009.
4. Streams and Waterbody data provided by the USGS NHD database in 2002.

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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

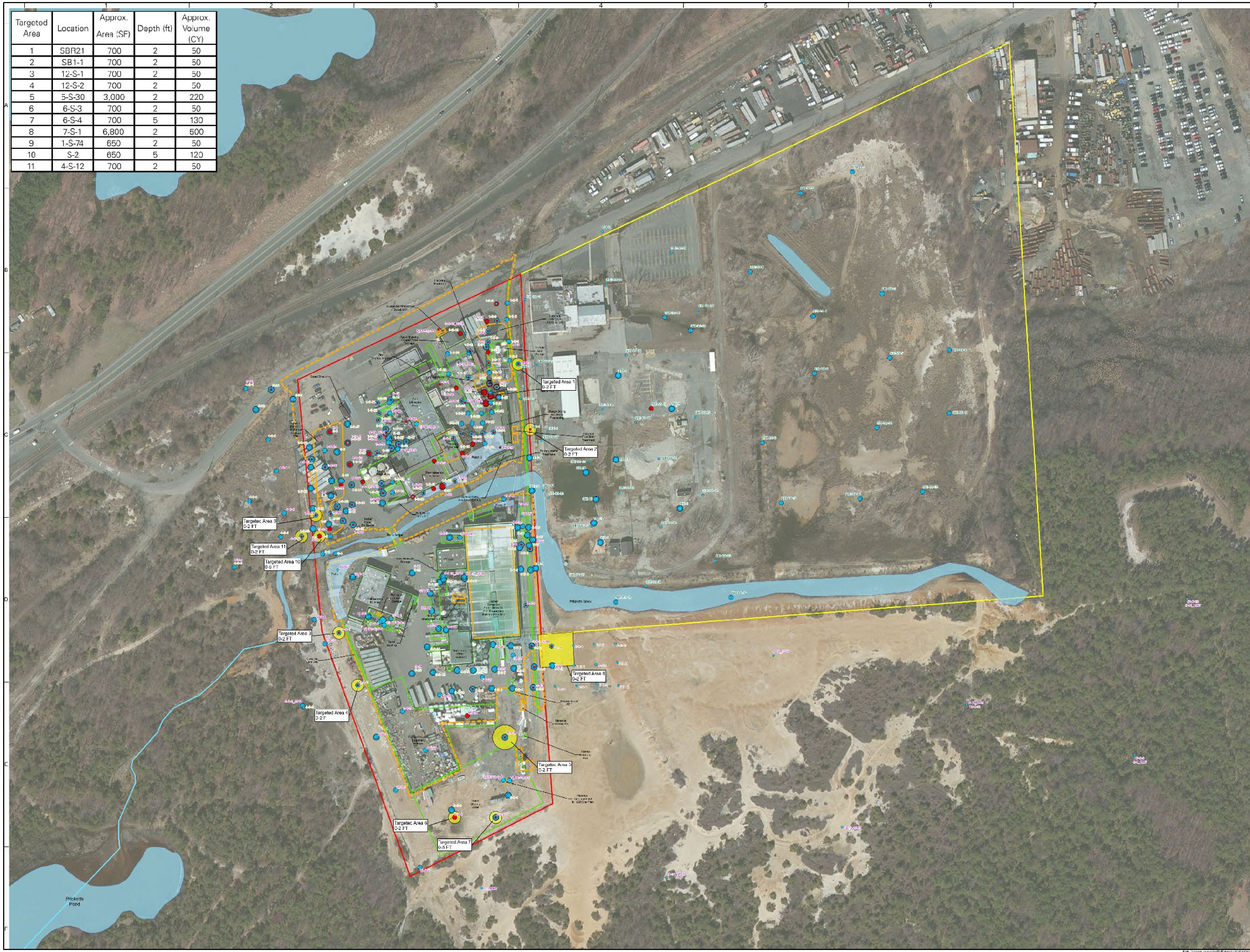
Project
CPS/MADISON SUPERFUND SITE
OLD BRIDGE TOWNSHIP
MIDDLESEX COUNTY NEW JERSEY

Drawing Title
SITE AREA

Project No.	100484401
Date	5/30/2017
Scale	1"=400'
Drawn By	JR
Last Revised	7/26/2022

Figure 1

Targeted Area	Location	Approx. Area (SF)	Depth (ft)	Approx. Volume (CY)
1	SBR21	700	2	50
2	SB1-1	700	2	50
3	12-S-1	700	2	50
4	12-S-2	700	2	50
5	5-S-30	3,000	2	220
6	6-S-3	700	2	50
7	6-S-4	700	5	130
8	7-S-1	6,800	2	500
9	1-S-74	650	2	50
10	S-2	650	5	120
11	4-S-12	700	2	50



LANGAN

Project

CPS/MADISON SUPERFUND SITE

OLD BRIDGE TOWNSHIP

MIDDLESEX COUNTY NEW JERSEY

Drawing Title

MADISON PRIMARY RISK DRIVING COPCS SOIL ANALYTICAL RESULTS COMPARED TO PRGS AND TARGETED REMEDIATION AREAS

Project No.	Figure
100484401	2
Date: 1/10/2023	
Scale: 1"=100'	
Drawn By: PDT	
Submission Date	

APPENDIX II-A: ARARs and TBC Tables

Table 1 – ARARs and TBCs

Madison Superfund Site

Old Bridge Township, New Jersey

September 2023

ARAR	Statute/Regulation	Criteria	Citation	Description	Comments
Chemical	New Jersey Statutes and Rules	NJDEP Non-Residential Soil Remediation Standards (NRSRS) for Ingestion-Dermal Pathway	N.J.A.C. 7:26D; last amended May 17, 2021.	Non-residential standards for soil. See Tables 2B and 2C.	Relevant and appropriate for OU3 soil.
		NJDEP Residential Soil Remediation Standards (RSRS) for Ingestion-Dermal Pathway	N.J.A.C. 7:26D; last amended May 17, 2021.	Residential standards for soil. See Tables 2B and 2C.	Relevant and appropriate for OU3 soil for delineating restriction areas in deed notice.
		NJDEP Migration to Groundwater Site Remediation Standards	N.J.A.C. 7:26D; last amended May 17, 2021.	Standards for soil for pathway to groundwater. See Tables 2B and 2C.	TBC. Evaluated as basis for OU3 soil RGs.
Chemical	NJDEP Site Remediation Program	Alternative Remediation Standards Technical Guidance for Soil and Soil Leachate for the Migration to Groundwater Exposure Pathway	Guidance Version 1.0, May 2021.	Provides guidance on the development of Alternative Remediation Standards for the migration to groundwater exposure pathway.	TBC for OU3 soil.
Location	New Jersey Statutes and Rules	Flood Hazard Area Control Act Regulations	N.J.A.C. 7:13-10, 11; last amended July 15, 2019.	Delineates flood hazard areas and regulates use. Protects floodplains through requirements for construction and development activities	Substantive requirements may be applicable to OU3 soil.
Action	42 U.S.C. § 6921 et seq.	Resource Conservation and Recovery Act (RCRA)	40 CFR 257	Establishes criteria for use in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment.	Applicable to OU3 soil.
			40 CFR 260	Establishes procedures and criteria for modification or revocation of any provision in 40 CFR 260-265.	Applicable to OU3 soil.
			40 CFR 261	Identifies solid wastes which are subject to regulation as hazardous wastes.	Applicable to OU3 soil.
			40 CFR 262	Provides general requirements for generators of hazardous waste including registration, manifesting, packaging, recordkeeping, and accumulation.	Applicable to OU3 soil.
			40 CFR 263	Establishes standards which apply to persons transporting manifested hazardous waste within the United States.	Applicable to OU3 soil.
			40 CFR 264 and 265	Regulate storage of hazardous waste.	Applicable to OU3 soil.
			40 CFR 268	Contains land disposal restrictions.	Applicable to OU3 soil.
Action	49 U.S.C. § 5101 et seq.	Federal Hazardous Materials Transportation Law	49 CFR 107 and 171-177	Regulates the transportation of hazardous materials, and includes the procedures for the packaging, labeling, manifesting, and transporting of hazardous waste to a licensed off-site disposal facility.	Applicable to OU3 soil.
Action	New Jersey Statutes and Rules	Hazardous Waste Regulations	N.J.A.C. 7:26G; last amended April 8, 2021.	Procedure for identifying and listing hazardous wastes. Applies to any person who generates, transports, stores, treats or disposes of a hazardous waste. Establishes standards for disposal of hazardous wastes generated during remediation and the requirements for waste transporters, manifesting, and recordkeeping.	Applicable to OU3 soil.

Action	New Jersey Statutes and Rules	Solid Waste Management Act (NJSWMA) and Rules	N.J.S.A. §13:1E-1, et seq. N.J.A.C 7:26	Establishes standards and procedures pertaining to, among other things, the management, treatment and disposal of solid wastes.	Applicable to OU3 soil.
Action	New Jersey Statutes and Rules	Soil Erosion and Sediment Control Act Standards for Soil Erosion and Sediment Control	N.J.A.C. 2:90	The New Jersey Department of Agriculture, Freehold Soil Conservation District governs all soil disturbances greater than 5,000 square feet.	Applicable to OU3 soil.
Action	New Jersey Statutes and Rules	NJDEP Technical Requirements for Site Remediation	N.J.A.C. 7:26E-5; last amended August 6, 2018.	Technical requirements to remediate a contaminated site and ensure that the remediation is protective of public health and safety and of the environment.	Substantive requirements may be relevant and appropriate to OU3 soil.
Action	NJDEP Site Remediation Program	Technical Guidance on Capping of Sites Undergoing Remediation	Guidance Version 1.0, July 14, 2014.	Provides guidance on technical and regulatory consideration in selecting a type of cap, and cap design.	TBC for OU3 soil.
Action	NJDEP Site Remediation Program	NJDEP Guidance Document Capping of Inorganic and Semivolatile Contaminants for the Impact to Ground Water Pathway	Guidance Version 1.0, March 2014.	Identifies situations in which capping is an allowable remedial option for the migration to water pathway.	TBC for OU3 soil.

Table 2: Remediation Goals for OU3 Soils

Contaminant of Concern	NJDEP NRSRS Saturated Soil RG	MGW Unsaturated Soil RG	Unit
Cadmium	1,100	11.9	mg/kg
Lead	800	90	mg/kg
Zinc	390,000	3,120	mg/kg

Notes:

NJDEP NRSRS – New Jersey Department of Environmental Protection Non-Residential Soil Remediation Standards for the Ingestion-Dermal Exposure Pathway, last revised May 17, 2021.

MGWSRS – Migration to Groundwater Soil Remediation Standard. The MGW cleanup goals consist of either the NJDEP Default MGWSRS value or the site-specific MGWSRS value, depending on which is less stringent.

RG – Remediation Goal

RGs for unsaturated soil were selected for each contaminant as the lower of: (1) the MGWSRS and (2) the NJDEP NRSRS.

RGs for saturated soil are the NJDEP NRSRS.

APPENDIX II-B: Risk Tables

Table 3
Selection of Exposure Pathways

Scenario Timeframe	Source Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil	Surface Soil 0 to 2 feet	All Soil Exposure Areas	Outdoor Industrial Worker	Adult	Incidental Ingestion	Quantitative	Potentially complete exposure pathway that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
						Inhalation of Volatile Emissions	Quantitative	
						Inhalation of Particulates	Quantitative	
				Indoor Industrial Worker	Adult	Incidental Ingestion	Qualitative	Potentially complete exposure pathway that will not be quantified because a more highly exposed receptor (outdoor worker) is included.
						Dermal Contact	Qualitative	
						Inhalation of Volatile Emissions	Qualitative	
						Inhalation of Particulates	Qualitative	
						Inhalation of Volatile Emissions (Indoor Air)	Qualitative	Potentially complete exposure pathway that will not be quantified due to uncertainties with modeling and low levels of volatiles in site soils.
				Construction/Utility Worker	Adult	Incidental Ingestion	Quantitative	Potentially complete exposure pathway that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
						Inhalation of Volatile Emissions	Quantitative	
						Inhalation of Particulates	Quantitative	
				Trespasser	Adult and Youth (6 to 18)	Incidental Ingestion	Quantitative	Potentially complete exposure pathway that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
						Inhalation of Volatile Emissions	Quantitative	
						Inhalation of Particulates	Quantitative	
		Subsurface Soil > 2 feet	All Soil Exposure Areas	Outdoor Industrial Worker	Adult	Incidental Ingestion	None	Pathway incomplete. Worker assumed to be limited to surface activities only.
						Dermal Contact	None	
						Inhalation of Volatile Emissions	None	
						Inhalation of Particulates	None	
				Indoor Industrial Worker	Adult	Incidental Ingestion	None	Pathway incomplete. Worker assumed to be limited to surface activities only.
						Dermal Contact	None	
						Inhalation of Volatile Emissions	None	
						Inhalation of Particulates	None	
						Inhalation of Volatile Emissions (Indoor Air)	Qualitative	Potentially complete exposure pathway that will not be quantified due to uncertainties with modeling and low levels of volatiles in site soils.
				Construction/Utility Worker	Adult	Incidental Ingestion	Quantitative	Potentially complete exposure pathway that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
						Inhalation of Volatile Emissions	Quantitative	
						Inhalation of Particulates	Quantitative	
				Trespasser	Adult and Youth (6 to 18)	Incidental Ingestion	None	Pathway incomplete. Trespasser assumed to be limited to surface activities only.
						Dermal Contact	None	
						Inhalation of Volatile Emissions	None	
						Inhalation of Particulates	None	
Current/Future	Surface Water	Surface Water	Prickett's Brook - Onsite	Outdoor Industrial Worker	Adult	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
				Trespasser	Adult and Youth (6 to 18)	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
			Prickett's Brook - Offsite /	Recreational Visitor	Adult and Youth (6 to 18)	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
	Sediment	Sediment	Prickett's Brook - Onsite	Outdoor Industrial Worker	Adult	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
				Trespasser	Adult and Youth (6 to 18)	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	
			Prickett's Brook - Offsite /	Recreational Visitor	Adult and Youth (6 to 18)	Incidental Ingestion	Quantitative	Potentially complete exposure pathways that will be evaluated in the risk assessment.
						Dermal Contact	Quantitative	

Summary of Selection of Exposure Pathways

This table describes the exposure pathways associated with the varying media (soil, sediment and surface water) that were evaluated in the human health risk assessment along with the rationale for the inclusion of each pathway. Exposure media, exposure points, and characteristics of receptor populations are also included.

Table 4
Risk Characterization Summary - Lead
Medium-Specific Exposure Point Concentration and Resultant Risk Estimates

Scenario Timeframe: Current/Future
Receptor Population: Outdoor Industrial Worker
Receptor Age: Adult
Exposure Medium: Surface Soil (0 - 2 ft bgs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration[1] (EPC)	EPC Units	Lead Risk[2]
				Min	Max					
Soil	Surface Soil	Sitewide	Lead	1.1	33,700	mg/kg	77/79	855	mg/kg	16.4%

Scenario Timeframe: Current/Future
Receptor Population: Outdoor Industrial Worker
Receptor Age: Adult
Exposure Medium: Surface Soil (0 - 2 ft bgs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration[1] (EPC)	EPC Units	Lead Risk[2]
				Min	Max					
Soil	Surface Soil	Northern Plant (NP) Areas 1/9	Lead	1.1	33,700	mg/kg	43/44	1,477	mg/kg	42.5%

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult
Exposure Medium: Surface and Subsurface Soil (0 - 15 ft bgs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration[1] (EPC)	EPC Units	Lead Risk[2]
				Min	Max					
Soil	Surface and Subsurface Soil	Northern Plant (NP) Areas 1/9	Lead	1.1	33,700	mg/kg	88/92	777	mg/kg	38.1%

Footnotes:
(1) The EPC for lead was calculated as the arithmetic mean of all samples collected from a given soil depth interval.
(2) Lead risks are expressed as the probability of having a blood lead level greater than 5 micrograms per deciliter (µg/dL); EPA's risk reduction goal for the Site is to limit the probability of fetal blood lead concentration exceeding 5µg/dL to 5% or less.

Definitions:
ft bgs = Feet below ground surface
mg/kg= milligram per kilogram

Table 5
Summary of Cancer Risk and Noncancer Hazard Estimates

Exposure Area	Outdoor Industrial Worker		Construction/Utility worker	
	Noncancer Hazard Index	Cancer Risk	Noncancer Hazard Index	Cancer Risk
Northern Plant (NP) Areas 1/9	0.16	2.3E-06	0.79	2.6E-07
Southern Plant (SP) Areas 3/8	0.014	2.2E-06	0.046	1.6E-07
Southern Plan (SP) Area 5	0.049	1.7E-06	0.34	1.2E-07
Southern Plan (SP) Area 6/12	0.12	1.6E-06	0.54	8.4E-08
Southern Plan (SP) Area 10	0.14	2.0E-06	0.78	1.2E-07
Sitewide	0.18	2.0E-06		
Offsite Area 4	0.043	5.1E-06	0.54	1.8E-06
Offsite Area 14	0.14	7.4E-06	0.34	5.9E-07
Prickett's Brook- Onsite	0.034	6.1E-06		
Exposure Area	Adult Trespasser		Youth Trespasser (6-18 years)	
	Noncancer Hazard Index	Cancer Risk	Noncancer Hazard Index	Cancer Risk
Northern Plant (NP) Areas 1/9	0.026	4.3E-07	0.039	3.4E-07
Southern Plant (SP) Areas 3/8	0.0025	4.2E-07	0.0035	2.7E-07
Southern Plan (SP) Area 5	0.0082	3.3E-07	0.012	2.1E-07
Southern Plan (SP) Area 6/12	0.019	3.0E-07	0.029	1.9E-07
Southern Plan (SP) Area 10	0.022	3.8E-07	0.033	2.4E-07
Sitewide	0.03	3.7E-07	0.044	2.9E-07
Offsite Area 4	0.0075	9.6E-07	0.011	7.8E-07
Offsite Area 14	0.024	1.4E-06	0.034	9.1E-07
Prickett's Brook- Onsite	0.041	8.7E-06	0.048	1.2E-05
Exposure Area	Adult Recreational Visitor		Youth Recreational Visitor (6-18 years)	
	Noncancer Hazard Index	Cancer Risk	Noncancer Hazard Index	Cancer Risk
Prickett's Brook-Offsite	0.32	1.7E-05	0.4	1.9E-05
Prickett's Pond	0.077	7.0E-07	0.093	6.4E-07
Tennent Pond	0.066	7.8E-07	0.083	4.8E-07

Footnotes:

Shaded cell= not applicable/evaluated

APPENDIX II-C: Cost Estimate

Table 6: Conceptual Cost Estimate for Institutional Controls, Monitoring, and Maintenance

Component 2: Legal and Administrative Controls - Deed Notice

CONCEPTUAL COST ESTIMATE SUMMARY

Prepared by Langan

Site: CPS/Madison Superfund Site

Date: January 2023

Description: Physical, legal, or administrative controls that restrict potential exposures to site-related COPCs. Deed notices are legal documents and addenda filed by the property owners with the local and state authorities documenting areas of known remnant contamination and limiting Site activity or future land use of the property within the defined limits of the notice. The purpose of the presumed deed notice under this alternative would be to limit property use to non-residential only within the Madison property, and thereby limit the potential for human contact with COPCs in soil. This alternative is easy to implement within the Madison Property, but would require owner approval to implement for off-site properties (i.e., the Runyon Watershed property). This remedy may restrict the future land development/use at the Site and can be implemented in combination with other GRAs such as existing or supplemental engineering control mechanisms. The remedy would require issuance of a Soil Remedial Action Permit or equivalency that would specify on-going monitoring and maintenance requirements, and which would require periodic (biennial) reporting. Separate permits or equivalent would be needed for each affected property owner.

DISCLAIMER

1 This estimate is an approximate cost of construction and reflects available cost information for construction located in New Jersey. No present worth analysis was completed in establishing overall project costs. Subtotals are rounded to the nearest 1,000 and final totals are rounded to the nearest 10,000.
2 This estimate is based on Langan's prior experience, RS Means 2021, and quotes obtained from vendors and subcontractors (e.g., remediation contractor, landfill facility, driller, and laboratory). This estimate does not guarantee that proposals, bids or actual costs will be the same as or within any specific percentage of this estimate of probable construction cost.
3 The estimate does not include fees or maintenance costs for engineering controls.

Assumptions and Notes:

1 Deed notices are legal documents and addenda filed by the property owners with the local and state authorities documenting areas of known remnant contamination and limiting site activity or future land use of the property within the defined limits of the notice. It is assumed a deed notice will be filed as part of the legal and administrative controls.
2 A biennial report will be submitted to the NJDEP every 2 years for 30 years following remediation. The certification will involve a site visit and brief letter report.
3 A field inspection along with photograph documentation of the condition of the engineering controls will occur every quarter for 30 years following remediation.
4 Concrete cap repairs are assumed on years 5, 10, 15, 20, 25, and 30 with approximately $34,000 in contractor costs each repair.
5 The net present value discount rate is 7%.
6 Sediment sampling at 12 locations will occur on years 5, 10, 15, 20, 25, and 30, and a report will be submitted to the NJDEP and EPA document findings.
7 Surface water sampling will occur on years 2, 4, 6, 8, 10, 15, 20, and 30, and a report will be submitted to the NJDEP and EPA to document findings.
8 All costs, including management, labor, field supplies, contractors and/or laboratory fees are included in long term costs.
9 Project management is assumed to be 10% of total professional costs.

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Task 1: Pre-Design Investigation					
1.1 Sampling Design and Health & Safety Plan	1	LS	$7,500	$8,000	
1.2 Coordination with Madison Client	1	LS	$5,000	$5,000	
1.3 Mobilization/Demobilization	1	LS	$2,500	$3,000	
1.4 Delineation of Unpaved Residential Exceedances (Northern Plant)	1	LS	$10,000	$10,000	Assumes 12 boring locations and collecting and analyzing up to 13 soil samples.
1.5 Delineation of Unpaved Residential Exceedances (Southern Plant)	1	LS	$9,000	$9,000	Assumes 6 boring locations and collecting and analyzing up to 7 soil samples.
1.6 Cap Inspection and Effectiveness Evaluation	1	LS	$15,000	$15,000	
1.7 Data Reduction	1	LS	$59,000	$59,000	Creation of tables, figures, and internal discussion.
1.8 Project Management	1	LS	$11,000	$11,000	
SUBTOTAL				**$120,000**	
Task 2: Deed notice					
2.1 Legal fees	1	LS	$25,000	$25,000	
2.2 Survey	1	LS	$25,000	$25,000	
2.3 Project Management	1	LS	$5,000	$5,000	
SUBTOTAL				**$50,000**	
Task 3: Annual Performance Inspection					
Annual Cost					
3.1 Field coordination, inspection, and documentation	1	per year	$2,150	$3,000	Assumes quarterly inspections every year for 30 years. Assumes one half-day for field staff to visually inspect and photo-document the condition of site. Includes brief summary for LSRP file.
3.2 Biennial certification	0.5	per year	$3,915	$2,000	Langan Engineering experience.
SUB TOTAL				**$5,000**	
Task 4: Long Term Maintenance and Inspections					
Five Year Cost					
4.1 Concrete Cap Maintenance/Repair	1	per event	$33,200	$34,000	Assume concrete repairs are needed every 5 years with approximately $34,000 in contractor costs starting at year 1
SUB TOTAL				**$34,000**	
Task 5: Sediment and Surface Water Monitoring					
5.1 Design and Specs	1	LS	$36,500	$37,000	
5.2 Surveying	1	LS	$14,500	$15,000	
5.3 Long Term Maintenance and Monitoring					
Sediment Sampling and Reporting	0.2	per year	$18,926	$4,000	Sediment sampling to occur on years 5, 10, 15, 20, 25, and 30.
Surface Water Sampling and Reporting	0.6	per year	$16,920	$11,000	Surface water and groundwater sampling to occur semi-annual for years 1 and 2, annual for 3 – 10, and then 12, 14, 16, 18, 20, 25, and 30
5.4 Long Term Reporting	0.5	each report	$3,400	$2,000	Assumes a brief memorandum will be submitted to EPA/NJDEP to document concentration trends over time. Reports will be submitted biennially.
				$69,000	
Capital Cost (Task 1, 2, 5.1 and 5.2)					
Subtotal				**$222,000**	
Contingency	**25**	**%**		**$55,500**	
FINAL TOTAL - Design and Capital Cost				**$280,000**	
Long-Term Cost (Task 3, 4, 5.3, and 5.4)					
FINAL TOTAL - Long-Term Cost (Present Worth/NPV)				**$620,000**	*Net Present Value (NPV) estimate for 30 years of annual performance monitoring*
					Assumes current discount rate of 7%
FINAL TOTAL - OVERALL (Present Worth/NPV)				**$900,000**	

LS - Lump sum

Table 7: Conceptual Cost Estimate for Excavation (Unpaved Areas)

Component 3: Existing Cap Plus Excavation and Off-Site Disposal (Unpaved Areas)

CONCEPTUAL COST ESTIMATE SUMMARY

Prepared by Langan

Site: CPS/Madison Superfund Site

Date: January 2023

Description: Capping refers to the placement of materials, usually at the ground surface, to create a physical barrier to prevent potential receptors from coming into contact with affected soil. In this option, the existing concrete cap at the site will help to prevent soil erosion (by wind and water, and disturbance by humans (i.e., in high traffic areas) and also helps to prevent infiltration of surface water (thereby reducing leaching of soil contaminants and mitigating the soil-to-groundwater pathway). The purpose of maintaining the existing cap under this alternative would be to limit soil contact on the Madison property, and thereby limit the potential for human contact with COPCs in soil. This remedial alternative requires long-term monitoring and maintenance and issuance of a Soil Remedial Action Permit or equivalency that would specify on-going monitoring and maintenance requirements, and which would require periodic (biennial) reporting (see institutional control task). Additionally, several areas which do not include an existing cap will be excavated to remove concentrations of COPCs that exceed PRGs.

DISCLAIMER

1 This estimate is an approximate cost of construction and reflects available cost information for construction located in New Jersey. No present worth analysis was completed in establishing overall project costs. Subtotals are rounded to the nearest 1,000 and final totals are rounded to the nearest 10,000.
2 This estimate is based on Langan's prior experience, RS Means 2021, and quotes obtained from vendors and subcontractors (e.g., remediation contractor, landfill facility, driller, and laboratory). This estimate does not guarantee that proposals, bids or actual costs will be the same as or within any specific percentage of this estimate of probable construction cost.

Assumptions and Notes:

1 A Pre-Design Investigation (PDI) is needed for verifying delineation of various areas of concern. Reporting is assumed to document the results of the PDI.
2 Impacted soil that is covered with an existing cap will be left in place. 11 areas of concern on the periphery of the site that do not have an existing cap will be excavated.
3 Costs, including management, labor, field supplies, contractors and/or laboratory fees are included in long term costs
4 Project management is assumed to be 10% of total professional costs.
5 Estimate for Support of Excavation is not included in this cost estimate and it is not anticipated to be needed for excavation activities.

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Task 1: Pre-Design Investigation and Cap Evaluation					
1.1 Sampling Design and Health & Safety Plan	1	LS	$7,500	$8,000	
1.2 Coordination with Madison Client	1	LS	$5,000	$5,000	
1.3 Mobilization/Demobilization	1	LS	$5,000	$5,000	
1.4 11 unpaved areas Pre-Excavation investigation	1	LS	$163,000	$163,000	Assumes 165 boring locations and collecting and analyzing up to 330 soil samples.
1.5 Excavation Extents Survey	1	LS	$10,000	$10,000	
1.6 Data Reduction	1	LS	$30,000	$30,000	Creation of tables, figures, and internal discussion.
1.7 Project Management	1	LS	$23,000	$23,000	
SUBTOTAL				**$244,000**	
Task 2: Capping and Targeted Excavation for Unpaved Areas - Design, Bidding, Contracting					
2.1 Full-scale Design and Work Plan	1	LS	$20,000	$20,000	Excavation work plan of Unpaved Areas
2.2 Bid Package	1	LS	$15,000	$15,000	
2.3 Bid and Contract Selection	1	LS	$10,000	$10,000	
2.4 Health & Safety Plan	1	LS	$2,500	$3,000	
2.5 Office Engineering/Coordination					
2.5.1 Subcontracts	1	LS	$2,000	$2,000	
2.5.2 Coordination	1	LS	$2,000	$2,000	
2.5.3 Scheduling	1	LS	$2,000	$2,000	
2.5.4 RFI (Request for Information)	1	LS	$2,000	$2,000	
2.6 Project Management	1	LS	$4,000	$4,000	
SUBTOTAL				**$60,000**	
Task 3: Permitting (Presented as Permit Equivalents)					
3.1 Flood Hazard Area Permit	1	LS	$10,000	$10,000	Permit Equivalents under CERLCA assumed
3.2 Soil Erosion and Sediment Control Certification	1	LS	$5,000	$5,000	Permit Equivalents under CERLCA assumed
3.3 Storm Water Permitting	1	event	$15,000	$15,000	Permit Equivalents under CERLCA assumed
3.4 Soil Movement Permit	1	LS	$10,000	$10,000	Permit Equivalents under CERLCA assumed
3.5 Soil Remedial Action Permit	1	LS	$5,000	$5,000	Permit Equivalents under CERLCA assumed
SUB TOTAL				**$45,000**	
Task 4: Excavation					
4.1 Mobilization/Demobilization and site setup	1	LS	$10,000	$10,000	Assumes 5 day Mob/Demob
4.2 Excavation/Stockpiling of Material (non-Haz)	1400	CY	$35.00	$49,000	Assumes excavation of top two feet of material for Targeted Areas 1-6, 8, 9, 11 and five feet for Targeted Areas 7 and 10. Assumes direct load to trucks as much as possible.
4.3 Storm water Control	4000	SY	$3.13	$13,000	Assumes silt fence to be installed downgradient of disturbed areas
4.4 Backfilling	1400	CY	$35.00	$49,000	Assumes 1:1 replacement with backfill material
4.5 Backfilling (Material Cost)	1400	CY	$21.00	$30,000	
4.6 Office Engineering/Coordination	1	LS	$5,000	$5,000	
4.7 Engineering Oversight	10.8	DAY	$2,500	$27,000	Assumes 500 CY of material moved a day
4.8 Project Management	1	LS	$18,000	$18,000	
SUB TOTAL				**$191,000**	
Task 5: Waste Disposal					
5.1 Waste Class Characterization	10	Sample	$500	$5,000	Assumes 1 sample every 200 cubic yards
5.2 Non Haz Soil Disposal	1,575	ton	$28.80	$43,000	Assumes excavation of top two feet of material for Targeted Areas 1-6, 8, 9, 11 and five feet for Targeted Areas 7 and 10. Assumes direct load to trucks as much as possible.
5.3 Hazardous Soil Transport and Disposal	525	ton	$280.00	$147,000	Assumes 1350-1400 total cubic yards of material are disposed off-site and 25% is hazardous.
5.3 Office Engineering/Coordination	1	LS	$1,000	$1,000	
5.4 Engineering Oversight	20	Day	$2,500	$50,000	
5.5 Project Management	1	LS	$13,000	$13,000	
SUB TOTAL				**$259,000**	
Task 6: Remedial Action Report					
6.1 Report creation	1	LS	$30,000	$30,000	
6.2 Management	1	LS	$5,000	$5,000	
SUB TOTAL				**$35,000**	
Design and Capital Cost (Task 1-6)					
Subtotal				**$834,000**	
Contingency	**25**	**%**		**$208,500**	
FINAL TOTAL - Design and Capital Cost				**$1,050,000**	
FINAL TOTAL - OVERALL				**$1,050,000**	

LS - Lump sum
SF - square feet
CY - cubic yard

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

05/30/2023

REGION ID: 02

Site Name: CPS/MADISON INDUSTRIES
CERCLIS ID: NJD002141190
OUID: 03
SSID: 0283
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
630538	05/30/2023	ADMINISTRATIVE RECORD INDEX FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	2	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
376340	11/02/2015	ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL INVESTIGATION / FEASIBILITY STUDY FOR THE CPS/MADISON INDUSTRIES SITE	49	Agreement		BZURA,BRUCE (MADISON INDUSTRIES)|MUGDAN,WALTER (US ENVIRONMENTAL PROTECTION AGENCY)
630504	11/02/2015	ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL INVESTIGATION / FEASIBILITY STUDY - APPENDIX A STATEMENT OF WORK FOR THE CPS/MADISON INDUSTRIES SITE	32	Legal Instrument		BZURA,BRUCE (MADISON INDUSTRIES)|MUGDAN,WALTER (US ENVIRONMENTAL PROTECTION AGENCY)
630889	03/23/2020	SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	408	Report		(ENVIRONMENTAL RISK SOLUTIONS LLC)
630887	11/17/2020	BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	1142	Report		(ENVIRONMENTAL RISK SOLUTIONS LLC)
677056	04/27/2023	NJDEP'S APPROVAL OF THE PROPOSED PLAN FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	1	Letter	WOODALL,BRENNAN (US ENVIRONMENTAL PROTECTION AGENCY)	JOSHI,AJ (NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION)
677041	05/03/2023	US EPA'S CONDITIONAL APPROVAL OF THE REMEDIAL INVESTIGATION REPORT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	1	Letter	(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)	WOODALL,BRENNAN (US ENVIRONMENTAL PROTECTION AGENCY)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

05/30/2023 **REGION ID: 02**

Site Name: CPS/MADISON INDUSTRIES
CERCLIS ID: NJD002141190
OUID: 03
SSID: 0283
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
677043	05/03/2023	US EPA'S CONDITIONAL APPROVAL OF THE FEASIBILITY STUDY REPORT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	1	Letter	(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)	WOODALL,BRENNAN (US ENVIRONMENTAL PROTECTION AGENCY)
677038	05/12/2023	REMEDIAL INVESTIGATION REPORT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	3281	Report		(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)
677039	05/12/2023	REMEDIAL INVESTIGATION REPORT - FIGURES FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	59	Report		(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)
677040	05/12/2023	REMEDIAL INVESTIGATION REPORT - APPENDIX T BASELINE ECOLOGICAL RISK ASSESSMENT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	6623	Report		(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)
677042	05/12/2023	FEASIBILITY STUDY REPORT FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	291	Report		(LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES)
652515	05/30/2023	PROPOSED PLAN FOR OU3 FOR THE CPS/MADISON INDUSTRIES SITE	18	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX IV

STATE LETTER OF CONCURRENCE

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONTAMINATED SITE REMEDIATION & REDEVELOPMENT
401 East State Street
P.O. Box 420, Mail Code 401-06
Trenton, New Jersey 08625-0420
Tel. (609) 292-1250 • Fax (609) 777-1914
www.nj.gov/dep

PHILIP D. MURPHY
Governor

TAHESHA L. WAY
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

September 21, 2023

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

Re: CPS/Madison Superfund Site Record of Decision for Operable Unit 3
Old Bridge, Middlesex County

Dear Mr. Evangelista:

The New Jersey Department of Environmental Protection (Department) has completed its review of the Record of Decision (ROD), which addresses Operable Unit 3 (OU3). The Department concurs with the selected remedy, namely Alternative 2 – Excavation in Unpaved Areas and Off-Site Disposal.

The major components of the OU3 remedy include the following:

- Excavation and off-site disposal of 1,320 cubic yards of contaminated soil from unpaved areas on the Madison property;
- Use of existing pavement on the Madison property as an engineering control, in the form of capping, over contaminated soils;
- Long-term monitoring of sediment and surface water; and
- Institutional controls.

The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. The remedy is necessary to protect public health, welfare, and the environment.

The Department appreciates the opportunity to participate in the decision-making process to select an appropriate remedy. If you have any questions, please contact Gwen Zervas at (609) 292-1251, or by email at Gwen.Zervas@dep.nj.gov.

Sincerely,

David E. Haymes
Assistant Commissioner

APPENDIX V

RESPONSIVENESS SUMMARY

APPENDIX V

RESPONSIVENESS SUMMARY

Operable Unit 3 of the CPS/Madison Site

Old Bridge, New Jersey

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns regarding the Proposed Plan for Operable Unit (OU) 3 of the CPS/Madison Site ("Site") and 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 OU3 of the Site. This Responsiveness Summary is divided into the following sections:

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

This section provides the history of the community involvement and interests regarding the Site.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND 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 OU3. They are as follows:

Attachment A contains the Proposed Plan that was distributed to the public for review and comments.

Attachment B contains the public notice that appeared in the Home News Tribune.

Attachment C contains the transcript of the public meeting.

Attachment D contains the written public comments received during the public comment period. Note: personal information, such as email addresses, home addresses, and phone numbers contained in the letters and emails were redacted to protect the privacy of the commenters.

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The subject of the Record of Decision and Responsiveness Summary is the Third Operable Unit (OU3) of the CPS/Madison Site in Old Bridge, New Jersey.

On June 1, 2023, EPA released the Proposed Plan for OU3 to the public for comment. Supporting documentation comprising the administrative record was made available to the public at the EPA Region 2 Superfund Records Center, 290 Broadway, 18th Floor, New York, New York 10007 and EPA's website for the Site at https://www.epa.gov/superfund/cps-madison.

EPA published notice of the start of the public comment period, which ran from June 1 to July 3, 2023, and the availability of the above-referenced documents in the Home News Tribune on June 6, 2023. A news release announcing the Proposed Plan, which included the public meeting date, time, and location, was issued to media outlets and posted on EPA's Region 2 website on June 1, 2023.

A public meeting was held on June 15, 2023, at the Old Bridge Senior Center, 1 Old Bridge Plaza, Old Bridge, New Jersey. The purpose of this meeting was to inform local officials and interested members of the public about the Superfund process, to present the Proposed Plan for OU3, receive comments and respond to questions. At the meeting, EPA reviewed the history of the Site, the results of the investigation of contamination at the Site and the remedial alternatives developed for OU3, and details about the Proposed Plan, before taking questions from meeting attendees. The transcript of this public meeting is included in this Responsiveness Summary as Attachment C.

II. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES

A. SUMMARY OF QUESTIONS AND EPA'S REPONSES FROM THE PUBLIC MEETING CONCERNING THE CPS/MADISON SITE – One individual provided comments during the public meeting. The comments are provided below with EPA's responses. As needed, EPA has included further clarification to its responses made during the public meeting.

Comment #1: One commenter asked if the City of Perth Amboy had received any compensation for the loss of the 32 municipal wells in the Perth Amboy wellfield that were closed in the 1970s and if the groundwater would ever be clean enough to reopen those wells.

EPA Response: EPA cannot pursue cost recovery on behalf of Perth Amboy, nor is EPA aware if Perth Amboy has a basis to pursue claims for compensation related to municipal wells. The long-term objective of the Superfund cleanup that is the subject of the OU3 Record of Decision and the Record of Decision for OU1 and OU2 (September 2019) is to restore the groundwater for public use.

Comment #2: One commenter asked if EPA expects the ongoing groundwater pump and treatment systems to eventually eliminate any further threats to groundwater from the Site.

EPA Response: As stated above, the long-term objective at this Site is to restore the groundwater for public use. In order to achieve this, the selected cleanup actions for the Site include using the ongoing pump and treatment systems, in combination with chemical oxidation to treat groundwater, and actions to address the source areas of contaminants in soils. This Record of Decision for OU3 documents EPA's selected remedial action to address soils at the Madison property. Please see the Record of Decision for OU1 and OU2 (September 2019) at www.epa.gov/superfund/cps-madison for full details on the other cleanup actions that have been selected for the Site.

Comment #3: One commenter asked if the facilities at the Site were presently contributing to the groundwater contamination.

EPA Response: The facilities on the Madison property that are currently operating must adhere to federal and state regulations pertaining to their specific operations. These regulations have been established to protect human health and the environment and many of them were not in place in the past when historic operations at the Site originally resulted in soil and groundwater contamination. There are no facilities currently operating at the CPS property. Contamination present in soils at the Site may be contributing to groundwater contamination, therefore, the remedies selected for OU2 and OU3 will address soil contamination.

B. WRITTEN COMMENTS AND EPA'S REPONSES RECEIVED DURING THE PUBLIC COMMENT PERIOD FROM THE COMMUNITY – The public comment period is the time during which EPA accepts comments from the public on proposed actions and decisions. The public comment period ran from June 1, 2023, to July 3, 2023. EPA's responses to the written comments are provided below.

Comment #4: One commenter expressed concern that Madison Industries and Old Bridge Chemicals continue to emit harmful substances.

EPA Response: See EPA Response to Comment #3.

Comment #5: One commenter expressed concern that there is contamination in the surface structures on the Site that would not be addressed by the cleanup.

EPA Response: Contamination exceeding EPA's acceptable risk range has been identified in the soils located beneath the pavement and buildings in some areas on the Madison property. This contamination has not been identified in the building or pavement materials. EPA has determined it is technically impracticable to treat the soils in these areas due to the presence of buildings and active facility operations at the Site. Further, EPA has determined that capping in these areas will be fully protective of human health and the environment and is an appropriate element of the remedy in these areas. Additionally, excavation will be used to address contaminated soils in areas where pavement is not present and soils are exposed.

Comment #6: One commenter stated that the companies responsible for contamination should close their operations and not operate within the watershed.

EPA Response: The Superfund program's objective is to address contamination that presents an unacceptable risk to human health and the environment. In the course of the investigation process, EPA takes into account the current use of the site under evaluation, and the reasonably anticipated future use. The remedial alternatives evaluated in the OU3 Proposed Plan are premised on the assumption that the use of the properties that make up the Site will remain commercial or industrial. It is expected that upon completion of the OU1, OU2 and OU3 remedies, impacts to the watershed will be eliminated. Sampling will be used to evaluate progress towards this goal.

EPA is sensitive to the needs of the community and has provided an opportunity for the public to comment on the Proposed Plan. Input from the community was given consideration in the evaluation of the nine criteria for remedy selection and additional community outreach and engagement will continue through the remedial design and remedial action phases of the CPS/Madison Site.

ATTACHMENT A

PROPOSED PLAN

Superfund Program
U.S. Environmental Protection Agency
Region 2
Proposed Plan

CPS/Madison Superfund Site
Operable Unit 3
Old Bridge, New Jersey
June 2023

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the alternatives that the U.S. Environmental Protection Agency (EPA) considered to address contaminated soil at the Madison Industries/Old Bridge Chemicals portion of the CPS/Madison Superfund Site (Site), Operable Unit 3 (OU3), identifies EPA's preferred alternative, and describes the rational for this preference. The Site is located in Old Bridge Township, New Jersey (Figure 1).

The preferred alternative calls for the excavation of soil and the use of existing pavement as a cap. Excavated material would be disposed of off-site. Sediment and surface water would be monitored, following remedy implementation. Institutional controls would be implemented in the form of a deed notice.

Madison Industries, Inc. (Madison) completed a comprehensive Remedial Investigation (RI) pursuant to a 2015 Administrative Settlement and Order on Consent (AOC) with EPA. The RI activities were conducted by Madison and were overseen by EPA. The RI included sampling of soil, sediment, and surface water throughout OU3. The results of this investigation identified areas of soil contamination where remedial action is required.

This Proposed Plan contains descriptions and evaluations of the cleanup alternatives considered for OU3. This Proposed Plan was developed by EPA, the lead agency, in consultation with the New Jersey Department of Environmental Protection (NJDEP), the support agency. EPA, in consultation with NJDEP, will select a final soil remedy after reviewing and considering all information submitted during the 30-day public comment period.

EPA, in consultation with NJDEP, may modify the Preferred Alternatives or select another response action presented in this Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on the alternatives presented in this Proposed Plan.

EPA is issuing this Proposed Plan as part of its community relations program under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or

MARK YOUR CALENDARS

PUBLIC COMMENT PERIOD
June 1, 2023 – July 3, 2023
EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING
June 15, 2023, 6:30 PM
EPA will hold a public meeting to explain the Proposed Plan and alternatives presented in the Feasibility Study. Oral and written comments will also be accepted at the meeting. The meeting will be held at the Old Bridge Senior Center, 1 Old Bridge Plaza, Old Bridge, New Jersey 08857

For more information, see the administrative record at the following locations:

EPA Records Center, Region 2
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-4308
Hours: Monday-Friday – 9 A.M. to 5 P.M. by appointment

Online at the CPS/Madison Site Profile Page
https://www.epa.gov/superfund/cps-madison

Send comments on the Proposed Plan to:

Brennan Woodall, Remedial Project Manger
U.S. EPA, Region 2
290 Broadway, 19th Floor
New York, NY 10007-1866
Telephone: 212-637-3215
Email: woodall.brennan@epa.gov

EPA's website for the CPS/Madison Site:
https://www.epa.gov/superfund/cps-madison

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Superfund) 42 U.S.C. § 9617(a), and Section 300.435(c) (2) (ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This Proposed Plan summarizes information that can be found in greater detail in the OU3 RI and Feasibility Study (FS) Reports, as well as other related documents contained in the administrative record file. The location of the administrative record is provided on the previous page. EPA and NJDEP encourage the public to review these documents to gain a more comprehensive understanding of the site-related Superfund activities performed by Madison, under EPA and NJDEP oversight.

SITE DESCRIPTION

The Site is comprised of two adjacent facilities located along Water Works Road in Old Bridge Township, Middlesex County, New Jersey (Figure 1). The Site acts as a source area for groundwater contamination that flows southwest, into the Runyon Watershed.

CPS Chemical Facility: The CPS Chemical Company (CPS) property is approximately 30 acres, located at 570 Water Works Road. The CPS facility, which is no longer active, is located within the western portion of the property and is approximately 6.7 acres. From 1967, until it ceased operations in 2001, organic chemicals used in the production of water treatment agents, lubricants, oil field chemicals, and anti-corrosive agents were processed at this facility, by CPS and then by Ciba Specialty Chemicals, Inc. (Ciba), which acquired the operations in 1998. While the main office and a storage building remain, the process equipment and storage tanks that were located at the south end of the facility were demolished and removed from the Site in 2005. This portion of the Site is now inactive.

Madison Industries Facility: The Madison property is 15 acres located at 554 Water Works Road. The Madison property is bordered to the east by the CPS property and to the west by the Perth Amboy wellfield. Madison has operated the facility (formerly known as "Food Additives") in the northern half (Northern Plant Area) of this property since 1967, producing inorganic chemicals used in fertilizer, pharmaceuticals, and food additives. On the southern half (Southern Plant Area) of the property, Madison's sister company, Old Bridge Chemicals, Inc., operates a plant that produces mostly zinc salts and copper sulfate. The Northern Plant Area is almost entirely paved or otherwise covered with impervious surfaces (such as buildings and tank farms) while approximately 2/3 of the Southern Plant Area is paved or covered with impervious surfaces.

Runyon Watershed: The Runyon Watershed is mostly undeveloped land which borders the Madison property to the southwest. The watershed contains the Perth Amboy wellfield which lies approximately 3,000 feet southwest (downgradient) of the CPS and Madison properties. The wellfield supplies over 5,000 gallons per minute (gpm) to the City of Perth Amboy. The extracted water is treated to remove solids and metals using an on-site clarification and filtration system. Contaminants have entered the watershed via groundwater and to a lesser extent by surface water from the CPS and Madison properties.

SITE HISTORY

In the early 1970s, releases of organic compounds and metals from the CPS and Madison properties resulted in the closing of 32 wells in the Perth Amboy wellfield. In 1979, a state court ordered the companies to perform a remedial investigation under the supervision of NJDEP. The investigation led to a 1981 court order for the companies to implement a remediation program to address groundwater contamination emanating from each of the properties, On September 1, 1983, the Site was placed on the National Priorities List (NPL) with New Jersey as the lead agency.

In 1991 and 1992, CPS and Madison installed an off-site groundwater collection system consisting of six recovery wells (three wells operated by each company) to protect the Perth Amboy wellfield. Between 1993 and 2000 the groundwater surrounding these recovery wells achieved the clean-up goals in place at that time; the recovery wells were shut down and replaced by wells on each of the company's properties which are collectively known as the Interim Remedial Measure (IRM) wells.

In 1998, NJDEP established a Classification Exception Area (CEA) and a Well Restriction Area (WRA) encompassing the area of the volatile organic groundwater plume, covering approximately 32 acres, to a depth of 80 feet. In 1999, NJDEP established CEAs and WRAs encompassing the areas of two metals plumes, which are approximately 20.7 acres, and 2.2 acres, to a depth of 80 feet.

In 1992, Madison filed for bankruptcy protection and in 2001, Ciba closed the CPS Chemical facility. In 2003,

NJDEP requested that EPA take the lead role in overseeing the Superfund cleanup.

In 2005, EPA entered into an administrative order on consent (AOC) with Ciba which required Ciba to perform a remedial investigation and feasibility study (RI/FS) to determine the extent of contamination of all contaminants of concern in groundwater (i.e., CPS and Madison impacts to groundwater), referred to as Operable Unit (OU) 1, and of CPS-related impacts to soil, referred to as OU2, determine if an action was needed to address the contamination, and identify potential alternatives to address the contamination. BASF Corporation (BASF) acquired Ciba in 2010, at which time BASF assumed the obligations of Ciba as its corporate successor, including responsibility for the RI/FS required in the 2005 AOC. BASF completed that RI/FS in August of 2018. EPA issued a Proposed Plan in April 2019, identifying the preferred alternative to address contamination. EPA released the Record of Decision (ROD) in September 2019, documenting the selection of remedies to address contamination in groundwater (both organic and metals contamination), (OU1) and soil on the CPS property (OU2).

In 2015, Madison entered into an AOC with EPA, which required Madison to perform an RI/FS to address contamination in soil (at the Madison property) and sediment in Prickett's Brook and Prickett's Pond on-site and downstream of the Madison property. The RI/FS was completed in May 2023 and is the basis for this Proposed Plan, along with other information in the administrative record file.

SITE CHARACTERISTICS

The Site is relatively flat, ranging from 20 to 25 feet above mean sea level (AMSL). Most of the Site lies within a 100-year flood hazard area, except for a small area in the northeast corner of the CPS Property that is 28 feet AMSL. The facilities are mostly surfaced with asphalt or concrete, except for the three-acre area of the former tank farm that was demolished by Ciba in 2005. The Magothy Formation, which underlies the Site, is used as a drinking water aquifer. Two of the geologic units of the Magothy lie directly under the Site, the Old Bridge sand, and the Perth Amboy fire clay. The Old Bridge sand is between 60 and 70 feet thick beneath the Site and readily conducts water. The fire clay is discontinuous under the Site but acts as a confining unit in some areas. Below the Magothy is the Raritan Formation which is also a drinking water aquifer. Groundwater under the Site generally flows southwest towards the Perth Amboy supply wells which are approximately half a mile downgradient.

Prickett's Brook, an intermittent stream on the Site, flows west along the southern border of the CPS property (Figure 1). The brook turns north along the border between the CPS and Madison properties until it turns west again and bisects the Madison property. From Madison it enters the Runyon Watershed and travels southwest through Prickett's Pond and eventually reaches Tennent Pond. Prickett's Brook and the downgradient ponds are not used for recreational purposes.

EPA conducted an Environmental Justice Screen for the Site using EJScreen 2.11. The EJ index percentiles for nearly all of the environmental and socioeconomic indicators for the area immediately adjacent to the Site are either below or comparable to state and/or national averages; therefore, the results did not suggest that there would be communities with environmental justice concerns immediately adjacent to the Site.

SUMMARY OF SITE INVESTIGATIONS

Performance Monitoring Program

Beginning in 1991, under the direction of NJDEP, CPS and Madison installed the IRM wells downgradient of the CPS property, to intercept Site groundwater contamination entering the Runyon Watershed. A Performance Monitoring Program (PMP) was initiated to evaluate the effectiveness of the IRM pump and treatment systems. Pursuant to the PMP, BASF and Madison continue to monitor the IRM wells, which have been reconfigured several times to adjust to reduced contaminant levels in the plumes. The IRM system for the Madison property has been operating since 1997, with occasional configuration adjustments.

The Remedial Investigation

In October 1992, NJDEP executed separate Administrative Consent Orders (ACOs) with CPS and Madison, for each to perform an RI/FS to determine the nature and extent of potential source areas of contamination, including soils and sediment contamination at their respective facilities, and to identify potential treatment technologies. CPS conducted its RI/FS in three phases, documented in three reports submitted in 1993, 1994, and 1996.

Madison completed its RI/FS in July 2001. NJDEP did not issue a record of decision and asked EPA to take over in 2003.

In 2003, EPA assumed responsibility from NJDEP as lead agency overseeing the Superfund cleanup. Since filing for bankruptcy protection in 1992, Madison Industries and Old Bridge Chemical have reorganized and are currently active entities. In 2015, Madison entered into an AOC with EPA to perform an RI/FS for Operable Unit 3 (OU3), consisting of the contaminated soil at the Madison property. In 2018, Madison submitted an RI/FS Work Plan for OU3 to address data gaps in the 2001 RI and provide more current data on the status of Site contamination. The main focus of the RI/FS was soil at the Madison property and sediment and surface water in Prickett's Pond and Prickett's Brook. The final Remedial Investigation Report was submitted in May 2023.

Summary of the Remedial Investigation

The full results of the OU3 RI can be found in the OU3 CPS/Madison Remedial Investigation Report (May 2023) which is in the administrative record file.

RI sampling of soil, sediment, and surface water by Madison, under EPA oversight, began in 2018 and continued to 2019. Additional sampling was conducted in 2021 for the Focused Baseline Ecological Risk Assessment.

The results of sample analyses were screened to determine if the levels of contamination posed a potential harm to human health and/or the environment. This was done by comparing the measured values of contaminants to standards that are protective of human health or ecological receptors.

The soil sample analytical results were compared to NJDEP's Residential Soil Remediation Standards (NJRSRS) for the Ingestion-Dermal and Inhalation Exposure Pathways, the Non-residential Soil Remediation Standards (NJNRSRS) for the Ingestion-Dermal and Inhalation Exposure Pathways, and the Migration to Groundwater Soil Remediation Standards (MGWSRS). The default MGWSRS were developed to be protective of the majority of sites when no site-specific information is available. When site-specific information is available, site-specific MGWSRS can be developed. For OU3 soils, site-specific MGWSRS were developed by analyzing the site-specific leachability of the contaminants in accordance with the NJDEP Alternative Remediation Standards Technical Guidance for Soil and Soil Leachate for the Migration to Groundwater Exposure Pathway. The recommended MGWSRS were determined by comparing their site-specific value to the default MGWSRS and selecting the highest value per NJDEP guidance. The sediment sample analytical results were compared to the lowest effect levels for ecological receptors and surface water results were compared to NJDEP's Surface Water Quality Standards (SWQS) for Fresh Water. In addition, a human health risk assessment and an ecological risk assessment were conducted to determine if levels of contaminants exceeded EPA's acceptable risk range. Explanations of the results of the human health and ecological risk assessments are provided in separate sections later in this document. The results of the RI showed that metals including lead, cadmium, and zinc are the major contaminants of concern (COCs) in OU3 soils.

Madison On-site Soils

Inorganic Contamination (Metals) The RI Report identified several metals in soils that exceeded at least one of the NJDEP remediation standards. The metals identified in the RI include arsenic, cadmium, copper, lead, mercury, silver, and zinc. Most exceedances were detected in or around the Northern Plant Area, with fewer exceedances being detected in the Southern Plant Area. Metals with concentrations exceeding the SRS were found at depths up to 8 feet, with most exceedances occuring between 0 to 2 feet below ground surface (bgs). Lead, zinc, and cadmium were identified at concentrations above the NJNRSRS and/or MGWSRS most frequently, while copper was only detected above the NJRSRS. Silver occurrence in soil appears to be co-located with the distribution of cadmium, copper, lead, and zinc. Arsenic was detected in one location above the NJNRSRS. This location also had NJRSRS or MGWSRS exceedances of copper, lead, and zinc. Mercury was detected in one location above the MGWSRS. Arsenic and mercury were also detected at similar concentrations in off-site and background samples. Their distribution appears to be random and not indicative of a spill or release.

As previously discussed in the 2019 ROD for OU1 and OU2, metals originating from the Madison property have migrated to groundwater.

Volatile organic compounds (VOCs) A limited variety and number of organic compounds were identified in soil above the SRS. Three VOCs were identified in a small number of shallow soil (1-4.5 ft.) samples at concentrations that slightly exceeded the MGWSRS. They are benzene, methylene chloride, and trichloroethylene (TCE). Benzene exceeded the MGWSRS in two samples in the Northern Plant Area, methylene chloride exceeded the MGWSRS in two samples in the Southern Plant Area, and TCE exceeded the MGWSRS in one sample in the Northern Plant Area. No VOCs were detected above the NJRSRS or NJNRSRS.

Semi-volatile organic compounds (SVOCs) Two SVOCs were identified in a small number of shallow soil (1-2 ft.) samples at concentrations exceeding the SRS. Benzo(a)pyrene exceeded the NJRSRS in one sample in the Northern Plant Area and 2-Methylnaphthalene exceeded the MGWSRS in two samples in the Northern Plant Area. No other SVOCs were detected above the SRS.

Total polychlorinated biphenyls (PCBs) were detected above the NJRSRS in one sample in the Northern Plant Area as well as in one of the background locations.

Sediment

Cadmium, copper, lead, and zinc were the most common contaminants found at the highest concentrations above the Lowest Effects Levels (LELs) for the NJDEP Ecological Screening Criteria (ESC). Other constituents found above these criteria include arsenic, chromium, cobalt, mercury, nickel, cyanide, and eight organic compounds (including some VOCs/SVOCs, pesticides, and PCBs). These other constituents were found less frequently and based on their distribution, do not appear to be related to the Madison property.

Surface Water

Cadmium, copper, lead, and zinc were again the most common contaminants found at the highest concentrations above the SWQS for fresh water. Other constituents found above these criteria include arsenic, beryllium, chromium, cobalt, nickel, silver, vanadium, and ten organic compounds (including some VOCs/SVOCs and PCBs). These other constituents were found less frequently, and their distribution patterns do not suggest the Madison property is a source. The presence and distribution of the VOCs is consistent with discharge of VOC-impacted groundwater from the CPS property.

SCOPE AND ROLE OF OPERABLE UNIT

Due to the complexity of working with two facilities and varying land uses, EPA is addressing the cleanup of the Site in several phases called operable units. OU1 addresses groundwater contamination emanating from both facilities and impacting the Perth Amboy wellfield. OU2 addresses contaminated soil on the CPS property that is a direct contact hazard and acts as a contaminant source to groundwater. OU3 addresses contaminated soil on the Madison property that is a direct contact hazard and acts as a contaminant source to groundwater and sediment/surface water in Prickett's Brook and Prickett's Pond. This Proposed Plan addresses OU3, which is expected to be the final action for the CPS/Madison Site. The selection of remedies for OU1 and OU2 is documented in the 2019 ROD.

WHAT ARE THE "CONTAMINANTS OF CONCERN" (COCs)?

EPA has identified three metals as the primary contaminants of concern within OU3 soils that pose the greatest potential risk to human health and the environment. The primary contaminants of concern within OU3 are lead, zinc, and cadmium. Contamination likely occurred as a result of operations to produce zinc products.

Lead: Lead is hazardous. At high levels of exposure lead can cause nervous system damage, stunted growth, kidney damage, and delayed development. Lead is considered a probable human carcinogen.

Cadmium: Cadmium is hazardous. Chronic exposure can result in kidney, bone, and lung disease. Cadmium is considered a probable human carcinogen.

Zinc: Zinc is a common element found in air, soil, and water, and is present in all foods. It is an essential nutrient that helps the immune system and metabolism function. Zinc, combined with other elements to form zinc compounds, is widely used in industry to make products or in manufacturing processes. At very high levels of exposure, zinc may cause short-term flu-like illness, nausea/vomiting, skin irritation, and damage to the pancreas.

WHAT IS A "PRINCIPAL THREAT"?

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. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

PRINCIPAL THREAT WASTE

Principal Threat Waste is defined in the box above. Although cadmium, lead, and zinc in soil may act as sources to groundwater or surface water, these sources are not highly mobile and are not considered principal threat wastes at this OU.

SUMMARY OF SITE RISKS

As part of the RI/FS, a baseline risk assessment consisting of a Human Health Risk Assessment (HHRA), Screening Level Ecological Risk Assessment (SLERA), Baseline Ecological Risk Assessment (BERA), and a focused Ecological Risk Assessment (ERA) were conducted 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 caused by hazardous substance exposure in the absence of any actions to control or mitigate these exposures under current and future site uses.

In the HHRA, cancer risk and noncancer health hazard estimates are based on current reasonable maximum exposure (RME) scenarios. The estimates were developed by taking into account various health protective assumptions about the concentrations, frequency, and duration of an individual's exposure to chemicals selected as contaminants of potential concerns (COPCs), as well as the toxicity of these contaminants.

Ecological risk was evaluated in three steps, where representative ecological receptors were identified, and measurement and assessment endpoints were developed to identify potential risk from contaminants of potential ecological concern (COPECs) to those receptors.

Human Health Risk Assessment Summary

A four-step human health risk assessment process was used for assessing site-related cancer risks and noncancer health hazards. The four-step process is comprised of Hazard Identification, Exposure Assessment, Toxicity Assessment, and Risk Characterization (see box below, "What is Risk and How is it Calculated").

The HHRA began with selecting COPCs in various media at the Site (i.e., surface soil, subsurface soil, sediment, and surface water) that could potentially cause adverse effects in exposed populations. COPCs were selected by comparing the maximum detected concentrations of the contaminants identified with state and federal risk-based screening values. The screening of each COPC was conducted separately for each medium of interest and exposure area.

The Site was divided into the following exposure areas based on historical and current use of the Site, current land features and anticipated future use of the Site:

- Northern Plant (NP) Areas 1/9
- Southern Plant (SP) Areas 3/8
- Southern Plant (SP) Area 5
- Southern Plant (SP) Area 6/12
- Southern Plant (SP) Area 10
- Sitewide (combining all the exposure areas)
- Off-site Area 4
- Off-site Area 14
- Prickett's Brook (On-site and Off-site)
- Prickett's Pond
- Tennent Pond

The current and anticipated future use of the Madison property is industrial. As such, the following receptors and exposure pathways were evaluated for the on-site and off-site soil areas and surface water and sediment features of Prickett's Brook, and for the off-site surface water and sediment features of Prickett's Pond and Tennent Pond:

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 potential concern (COPCs) 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 COPCs. 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.

- Current/future outdoor industrial worker: exposure to soil via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air. Incidental ingestion and dermal contact with sediment and surface water in the on-site portion of Prickett's Brook.
- Current/future construction/utility worker: exposure to surface and subsurface soil (0-15 ft below ground surface) via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air.
- Adult and Youth (6-18 years old) trespassers: exposure to surface soils via incidental ingestion, dermal contact, and inhalation of particulate emissions in ambient air. Incidental ingestion and dermal contact with sediment and surface water while wading in the on-site portion of Prickett's Brook.
- Adult and Youth (6-18 years old) recreational visitors: incidental ingestion and dermal contact with sediments and surface water while wading or hiking in/near the off-site portion of Prickett's Brook, and to Prickett's Pond and Tennent Pond.

For contaminants other than lead, exposure point concentrations (EPCs) were estimated using either the maximum detected concentration of a contaminant or the 95% upper-confidence limit (UCL) of the average concentration. Chronic daily intakes were calculated based on reasonable maximum exposure (RME), which is the highest exposure reasonably anticipated to occur at the Site. The RME is intended to estimate a conservative exposure scenario that is still within the range of possible exposures.

For contaminants other than lead, two types of toxic health effects were evaluated in the risk assessment: cancer risk and noncancer hazard. Calculated cancer risk estimates for each receptor were compared to EPA's target risk of 10^{-6} (one-in-one million) to 10^{-4} (one-in-ten thousand). The calculated noncancer hazard index (HI) estimates were compared to EPA's target threshold value of 1.

Since there are no published quantitative toxicity values for lead, it is not possible to evaluate cancer and noncancer risk estimates from lead using the same methodology as the other COPCs. However, since the toxicokinetics (the absorption, distribution, metabolism, and excretion of toxins in the body) of lead are well understood, lead risks are assessed based on blood lead

level (PbB), which can be correlated with both exposure and adverse health effects. Consequently, when screening indicated further evaluation was necessary, lead risks were evaluated using blood lead models, which predict PbB based on the total lead intake from various environmental media. More specifically, lead risks for adolescent and adult receptors at the Site were assessed using EPA's Adult Lead Methodology (ALM). Consistent with EPA guidance, EPCs for lead were based on the arithmetic mean of all the samples within the exposure area from the appropriate depth interval. Results of the ALM were compared to the regional risk reduction goal for lead which is to limit the probability of a child or developing fetus' blood lead level (PbB) from exceeding 5 micrograms per deciliter (µg/dL) to 5% or less.

A summary of the numeric findings of the HHRA is shown in Table 1. A complete discussion of the exposure pathways and estimates of risk is available in the administrative record for the Site.

Estimates of cancer risk, noncancer hazard and lead risk for all exposure areas and receptors evaluated at the Site are shown in Table 1. As shown, the noncancer hazard estimates did not exceed the threshold value of 1 for all receptors evaluated. Further, all calculated cancer risk estimates fell within EPA's target threshold of 10^{-6} to 10^{-4}. For lead, results of the ALM modeling show the predicted probabilities of a fetal blood lead concentration exceeding 5 µg/dL surpassed EPA's risk reduction goal of 5% for: a sitewide outdoor industrial worker, and an outdoor industrial worker and construction worker on the Northern Plant Areas 1/9. Predicted probability exceedances for the outdoor industrial worker exposed to lead in surface soil ranged between 16.4% sitewide and 42.5% for the Northern Plant Areas 1/9. The construction worker's predicted probability of a fetal blood lead level exceeding 5 µg/dL was estimated at 38.1%. Exposure to lead in surface and subsurface soil on the Northern Plant Areas 1/9 was the media of concern for the construction worker.

Metals from the Madison property have migrated to groundwater and are present at levels exceeding the New Jersey Groundwater Quality Standards.

Ecological Risk Assessment

As described above, there were three evaluations conducted to evaluate the potential ecological risk

WHAT IS *ECOLOGICAL* RISK AND HOW IS IT CALCULATED?

A Superfund baseline ecological risk assessment is an analysis of the potential adverse health effects to biota caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land and resource uses. The process used for assessing site-related ecological risks includes:

Problem Formulation: In this step, the contaminants of potential ecological concern (COPECs) at the site are identified. Assessment endpoints are defined to determine what ecological entities are important to protect. Then, the specific attributes of the entities that are potentially at risk and important to protect are determined. This provides a basis for measurement in the risk assessment. Once assessment endpoints are chosen, a conceptual model is developed to provide a visual representation of hypothesized relationships between ecological entities (receptors) and the stressors to which they may be exposed.

Exposure Assessment: In this step, a quantitative evaluation is made of what plants and animals are exposed to and to what degree they are exposed. This estimation of exposure point concentrations includes various parameters to determine the levels of exposure to a chemical contaminant by a selected plant or animal (receptor), such as area use (how much of the site an animal typically uses during normal activities); food ingestion rate (how much food is consumed by an animal over a period of time); bioaccumulation rates (the process by which chemicals are taken up by a plant or animal either directly from exposure to contaminated soil, sediment or water, or by eating contaminated food); bioavailability (how easily a plant or animal can take up a contaminant from the environment); and life stage (e.g., juvenile, adult).

Ecological Effects Assessment: In this step, literature reviews, field studies or toxicity tests are conducted to describe the relationship between chemical contaminant concentrations and their effects on ecological receptors, on a media-, receptor- and chemical-specific basis. In order to provide upper and lower bound estimates of risk, toxicological benchmarks are identified to describe the level of contamination below which adverse effects are unlikely to occur and the level of contamination at which adverse effects are more likely to occur.

Risk Characterization: In this step, the results of the previous steps are used to estimate the risk posed to ecological receptors. Individual risk estimates for a given receptor for each chemical are calculated as a hazard quotient (HQ), which is the ratio of contaminant concentration to a given toxicological benchmark.
In general, an HQ above 1 indicates the potential for unacceptable risk. The risk is described, including the overall degree of confidence in the risk estimates, summarizing uncertainties, citing evidence supporting the risk estimates and interpreting the adversity of ecological effects.

associated with the CPS/Madison Site – A SLERA, a BERA and a focused ERA. These documents can be found in the administrative record.

The SLERA evaluated all detected compounds in soil, sediment, and surface water. The conclusions were that metals, specifically cadmium, copper, lead, nickel, vanadium, and zinc, in sediment and surface water have a potential for adverse effects in vertebrate invertivores. The recommendation from the SLERA was to proceed with further site-specific evaluations to assess the potential for adverse effects in invertivores.

The BERA was conducted focusing on the site-related metals (cadmium, copper, lead and zinc) in soil, sediment, and surface water. The conclusions were that elevated risks were identified in aquatic receptors for the evaluated metals in surface water and sediment; however, toxicity tests and invertebrate surveys did not show any toxicity or impact to community structure suggesting that the metals are not bioavailable.

The focused ERA was then conducted to investigate site-specific bioavailability and toxicity of metals in the sediment. The focused evaluation included measuring sediment bioaccumulation of metals in invertebrates, sediment toxicity in invertebrates, sediment chemical residue analysis and updated food web models. The result of this evaluation indicates sporadic sediment toxicity to invertebrates that is not directly correlated to sediment concentrations of Madison property-related metals. The toxicity may be related to groundwater discharge associated with OU1 and OU2 or may be associated with upstream impacts. It is expected that as remedial actions are implemented for the other operable units, if the toxicity is associated with groundwater discharge, it will decrease over time. A long-term monitoring program to measure toxicity associated with groundwater discharge, as well as to include additional baseline sediment sampling, is part of each remedial alternative for OU3.

Based on the results of the HHRA and ecological risk assessments, a remedial action is necessary to protect public health, welfare, and the environment from actual or threatened releases of hazardous substances.

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), to-be-considered (TBC) advisories, criteria and guidance, and site-specific risk-based levels. The primary objective of any remedial strategy is overall protectiveness.

The following RAOs were developed to address the human health and ecological risks discussed above for OU3 contaminated media:

- Prevent migration of on-going sources of Madison property-related soil contaminants to groundwater that pose a potential risk to human health and the environment.

- Prevent ingestion, dermal, and inhalation exposure to Madison property-related soil contaminants that pose unacceptable human health risk to the current and future industrial worker and construction/utility worker.

- Prevent the potential erosion and migration of soil containing Madison-property related contaminants to surface water and sediment.

Achieving the RAOs relies on the remedial alternatives' ability to meet final remediation goals/cleanup levels derived from Preliminary Remediation Goals (PRGs), which are based on such factors as ARARs, risk, and background levels of contaminants in the environment that occur naturally or are from other industrial sources. In this Proposed Plan, EPA selected the more stringent of the NJNRSRS for the Ingestion-Dermal Exposure Pathway and the NJDEP recommended MGWSRS as the preliminary remediation goals (PRGs) for COCs in the OU3 unsaturated soils. Lead was identified as a COC for OU3 soils because lead drives the human health risk identified in the HHRA. Cadmium and zinc were identified as COCs for OU3 soils because both cadmium and zinc exceed the recommended MGWSRS in OU3 soils. The list of PRGs may be found in Table 2. PRGs may be further modified through the evaluation of alternatives and will be used to select the clean-up goals in the OU3 ROD.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA requires that each selected remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. 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 the hazardous substances.

Potential technologies applicable to soil remediation were identified and screened by effectiveness, implementability, and cost criteria, with emphasis on effectiveness. Those technologies that passed the initial screening were then assembled into remedial alternatives.

For the active alternatives, the proposed depths of excavation are based on the soil boring data taken during the RI. These depths were used to estimate the quantity of soil to be addressed and the associated costs. The actual depths and quantity of soil to be addressed will be finalized during the remedial design phase and implementation of the selected remedy. Full descriptions of each proposed alternative can be found in the May 2023 Feasibility Study Report which is in the administrative record file.

The time frames below are for construction and do not include the time to negotiate with the responsible party, design a remedy, or the time to procure necessary contracts. Five-year reviews will be conducted as a component of the alternatives that would leave contamination in place above levels that allow for unlimited use and unrestricted exposure.

Soil Alternatives:

Common Elements for Active Alternatives

Each soil alternative contains the following common elements:

- Use of existing paved areas on the Madison property as a cap to protect against direct contact hazards to human health and to address the migration to groundwater pathway in these areas. The existing paved areas will be assessed to determine if they meet NJDEP capping requirements and, if they do not, upgraded to meet them. This will also include ongoing inspections, maintenance, and reporting to ensure the continued effectiveness of a cap on these areas.
- Long-term sediment and surface water monitoring to assess the effectiveness of remedial actions, once implemented, for OU1, OU2, and soil within OU3. A workplan for this monitoring will be developed during the remedial design.
- Institutional controls (in the form of a deed notice) to restrict the Madison property to non-residential uses. A deed notice would also define the restricted areas on the Madison property and provide a description of engineering controls in the restricted areas and specify actions to be taken if a restricted area is to be disturbed. In addition, a deed notice would require annual inspections to determine that the engineering controls remain protective of human health and the environment and biennial certifications to document continued protectiveness of the remedial action.

Alternative 1 – No Action

Capital Cost:	*$0*
Annual O&M Cost:	*$0*
Present Worth Cost:	*$0*
Construction Time Frame:	*N/A*
Estimated Time to Achieve RAOs:	*N/A*

The NCP requires that a "No Action" alternative be evaluated to establish a baseline for comparison with other remedial alternatives. Under this alternative, no action would be taken to remediate the contaminated soil on the Madison property.

Alternative 2 – Excavation in Unpaved Areas and Off-Site Disposal; Use of Existing Pavement as a Cap; Institutional Controls

Capital Cost:	*$1,330,000*
Annual O&M Cost:	*$620,000*
Present Worth Cost:	*$1,950,000*
Construction Time Frame:	*18 months*
Estimated Time to Achieve RAOs:	*5 years*

In addition to the common elements, this alternative employs excavation and off-site disposal of contaminated soils. Soils in unpaved areas where site

COCs exceed PRGs would be excavated and staged on-site prior to characterization sampling and off-site disposal at a permitted disposal facility. Excavated areas would be backfilled with certified clean fill. In areas where the site is paved, the existing pavement would act as a cap over contaminated soils, as detailed earlier in the Common Elements for Active Alternatives section. This alternative would provide immediate removal of contaminated soil that presents a direct contact hazard and eliminate the potential migration to groundwater pathway.

Approximately 1,320 cubic yards (cy) of soil would be excavated under this alternative. The 1,320 cy would contain approximately 16,000 square feet (sf) of soil, between 2-5 feet in depth, from 11 areas impacted by site COCs. The 11 areas are mostly located along the perimeter of the Madison property where soil is not currently covered by pavement (Figure 2).

Alternative 3 – Capping of Unpaved Areas Exceeding PRGs; Use of Existing Pavement as a Cap; Institutional Controls

Capital Cost:	*$830,000*
Annual O&M Cost:	*$620,000*
Present Worth Cost:	*$1,450,000*
Construction Time Frame:	*18 months*
Estimated Time to Achieve RAOs:	*5 years*

In addition to the common elements, this alternative involves placing a cap of impermeable material (such as asphalt or concrete) over impacted soils in unpaved areas where site COCs exceed PRGs (Figure 2). In areas where the site is paved, the existing pavement would act as a cap over contaminated soils, as detailed earlier in the Common Elements for Active Alternatives section. Capping would address human health concerns and control potential impacts to groundwater; therefore, this alternative would address both the direct contact hazard posed by the contaminated soil and the potential migration to groundwater pathway. The placement of additional impermeable material on the property may also require improved stormwater management controls due to a reduction in water storage capacity for the property.

EVALUATION OF ALTERNATIVES

The NCP lists nine criteria that EPA uses to evaluate the remedial alternatives individually and against each other to select a remedy. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it 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 detailed analysis of each of the alternatives is in the FS Report.

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.

Evaluation of Soil Alternatives

1. Overall Protection of Human Health and the Environment

Alternative 1, No Action, would not be protective of human health or the environment because no action would be taken to address soil contamination. For this reason, Alternative 1 was eliminated from further consideration under the remaining eight criteria.

Alternative 2 would be protective of human health and the environment by removing soil in unpaved areas to meet PRGs. In paved areas where impacted soils exceed PRGs, the existing pavement would serve as a cap to mitigate the direct contact and MGW pathways. A deed notice would be required for areas that have soil contamination remaining above the NJRSRS for the ingestion-dermal exposure pathway, to restrict the use of the property to non-residential use, define the restricted areas, and describe engineering controls.

Alternative 3 would also be protective of human health and the environment. Alternative 3 would require capping to be placed over unpaved areas with PRG exceedances to address the ingestion-dermal and MGW pathways. Similar to Alternative 2, existing paved areas would serve as a cap and a deed notice would be required to restrict the property to non-residential uses, define the restricted areas, and describe engineering controls.

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

The chemical-specific ARARs and related PRGs for cadmium, lead, and zinc would be met under Alternative 2 as exceedances of the NJNRSRS for the ingestion-dermal pathway would either be (1) removed via excavation or (2) would remain but exposure would be controlled via the existing cap(s). In the case of Alternative 3, the chemical-specific ARARs would be met by capping unpaved areas where there are PRG exceedances as well as the existing cap(s).

Location-specific ARARs would be met by Alternatives 2 and 3 during the construction phase by following substantive requirements for construction and development in flood hazard areas.

Action-specific ARARs would be met by Alternative 2 during the construction phase by proper design and implementation of the action including disposal of excavated soil at the appropriate disposal facility. Action-specific ARARs would be met by Alternative 3 during the construction phase by following NJDEP's substantive technical requirements for site remediation.

3. Long-Term Effectiveness and Permanence

Alternative 2 affords the greatest degree of long-term effectiveness and permanence because it removes the soils impacted by COCs in the unpaved areas and has greater climate resilience than Alternative 3.

To a lesser degree than Alternative 2, the capping of unpaved impacted areas included under Alternative 3 would reduce potential mobility and exposure concerns posed by the COCs by mitigating the potential migration to groundwater and direct contact pathways. Additionally, the addition of impermeable caps required under Alternative 3 would increase the amount of stormwater runoff and could make the Madison property more susceptible to flooding. Therefore, in considering climate resiliency, Alternative 3 may provide a lesser degree of long-term effectiveness and permanence compared to Alternative 2.

For both alternatives, the caps would require maintenance for the foreseeable future.

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

Neither of the soil alternatives include treatment, so there would be no reduction of toxicity, mobility, or volume through treatment under any alternative.

5. Short-Term Effectiveness

Alternative 2 would pose some short-term risks during implementation. Risks to site workers, the community and the environment include potential short-term exposure to contaminants during excavation of soil. Potential risks would be addressed via implementation of a health and safety plan, air monitoring, and the use of dust control technologies, as needed, during earth disturbances. An exclusion zone would be established during excavation activities to restrict Madison facility workers from entering the excavation area. Remediation workers and anyone entering the exclusion zone would be required to wear personal protective equipment to prevent exposure to COCs.

Alternative 3 presents less short-term risks during implementation. Capping is unlikely to require the disturbance of impacted soils beyond grading that may be required to prepare the subbase prior to cap installation. Any potential risks arising from the disturbance of impacted soil would be addressed using the same measures listed for Alternative 2.

The construction timeframe for both Alternative 2 and Alternative 3 would be approximately 18 months.

6. Implementability

Alternatives 2 and 3 have common implementability issues related to the removal of soil (Alternative 2) and installation of caps (Alternative 3). The technologies needed for both alternatives are proven and conventional. Contractors needed to perform the work for both alternatives are readily available. Coordination with other agencies including NJDEP will be required. Pursuant to the permit exemption at Section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1), no permits would be required for on-site work although substantive requirements of otherwise-required permits would be met. Both Alternative 2 and Alternative 3 will also require filing a deed notice, followed by periodic inspections, and submission of biennial certifications to NJDEP.

7. Cost

The total estimated present worth costs, calculated using a 7% discount rate, are: $1,950,000 for Alternative 2; and $1,450,000 for Alternative 3.

8. State Acceptance

The State of New Jersey concurs with EPA's preferred alternative for OU3 of the CPS/Madison Superfund Site, as presented in this Proposed Plan.

9. 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. Based on public comment, the preferred alternative could be modified from the version presented in this Proposed Plan. The Record of Decision is the document that formalizes the selection of the remedy for a site.

PREFERRED ALTERNATIVE

The preferred alternative for cleanup of OU3 is Alternative 2, Excavation in Unpaved Areas and Off-Site Disposal; Institutional Controls. Alternative 2 includes the following remedial activities to address inorganic contaminants at the Madison property:

- Use of existing paved areas as a cap to protect against direct contact hazards to human health and address the migration to groundwater pathway in these areas.
- Excavation of soils contaminated with lead, cadmium, and zinc from the unpaved areas and disposal of the soils off-site.
- Institutional controls in the form of a deed notice restricting the future use of the Madison property to prohibit residential use.
- Long-term sediment and surface water monitoring to assess the effectiveness of remedial actions, once implemented, for OU1, OU2, and soil within OU3. A workplan for this monitoring will be developed during the remedial design.

The environmental benefits of the preferred remedial alternative may be enhanced by employing design technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy.[1]

Basis for the Remedy Preference

The preferred alternative was selected over other alternatives because it is expected to achieve the greatest degree of long-term effectiveness and permanence by removing impacted soils in the unpaved areas. The preferred alternative will be protective of human health and the environment, comply with all ARARs, and be easily implementable with little short-term risk. The preferred alternative reduces the risk from OU3 contaminants within approximately 18 months, at a cost comparable to other alternatives and should be reliable over the long-term.

1 https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy

Though the preferred alternative would be protective, it would not achieve levels that would allow for unrestricted use. Therefore, institutional controls, consisting of a deed notice restricting the future use of the Madison property, would be required. Five-year reviews would also be conducted.

COMMUNITY PARTICIPATION

EPA provided information regarding the cleanup of OU3 through meetings, the administrative record file for OU3 and announcements published in the local newspaper and online. EPA encourages the public to gain a more comprehensive understanding of the Site and the RI activities that have been conducted.

The dates for the public comment period; the date, the location and time of the public meeting; and the locations of the administrative record file are provided on the front page of this Proposed Plan.

For further information on EPA's Preferred Alternative for CPS/Madison – OU3 contact:

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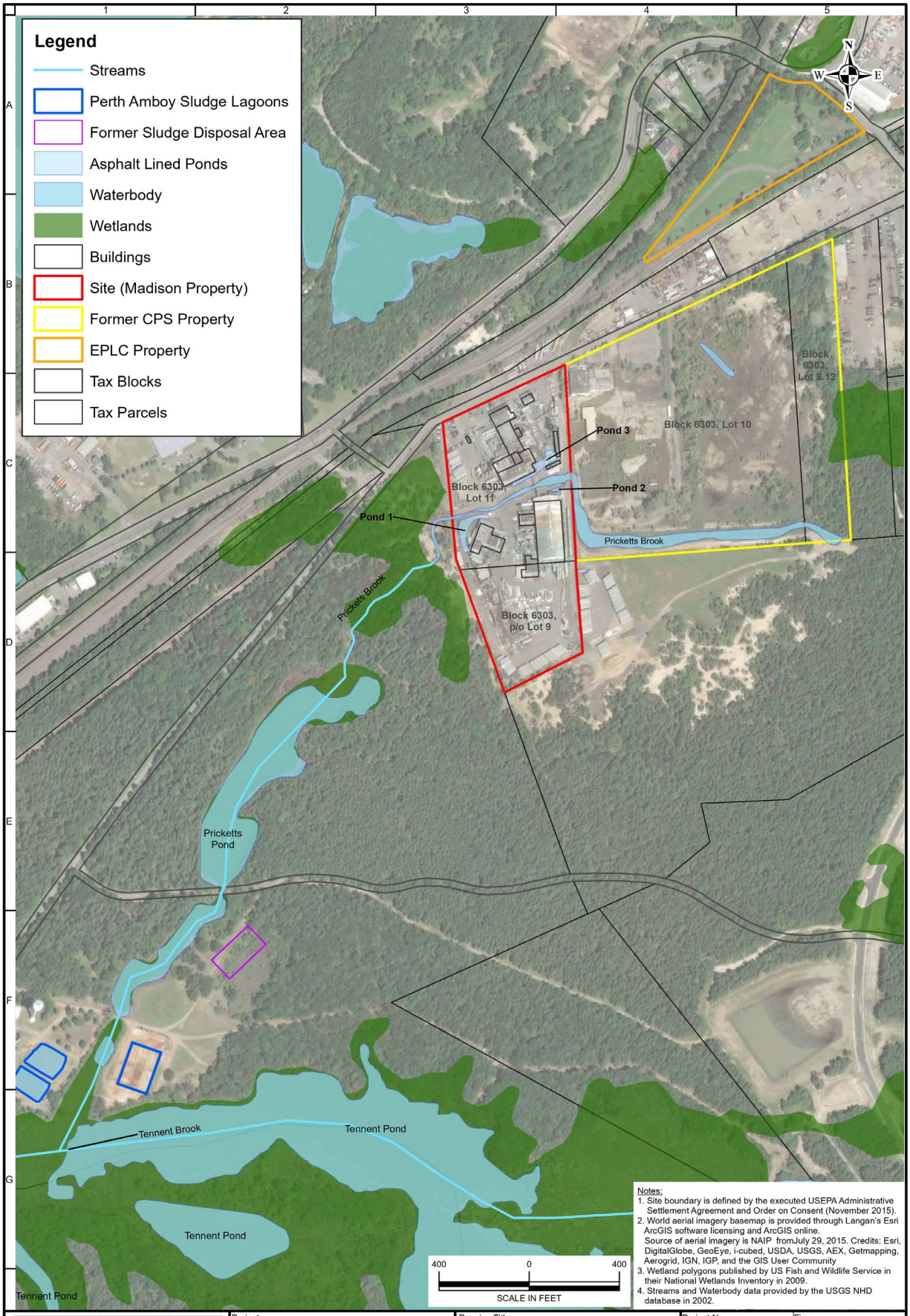

Notes:
1. Site boundary is defined by the executed USEPA Administrative Settlement Agreement and Order on Consent (November 2015).
2. World aerial imagery basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Source of aerial imagery is NAIP fromJuly 29, 2015. Credits: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
3. Wetland polygons published by US Fish and Wildlife Service in their National Wetlands Inventory in 2009.
4. Streams and Waterbody data provided by the USGS NHD database in 2002.

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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

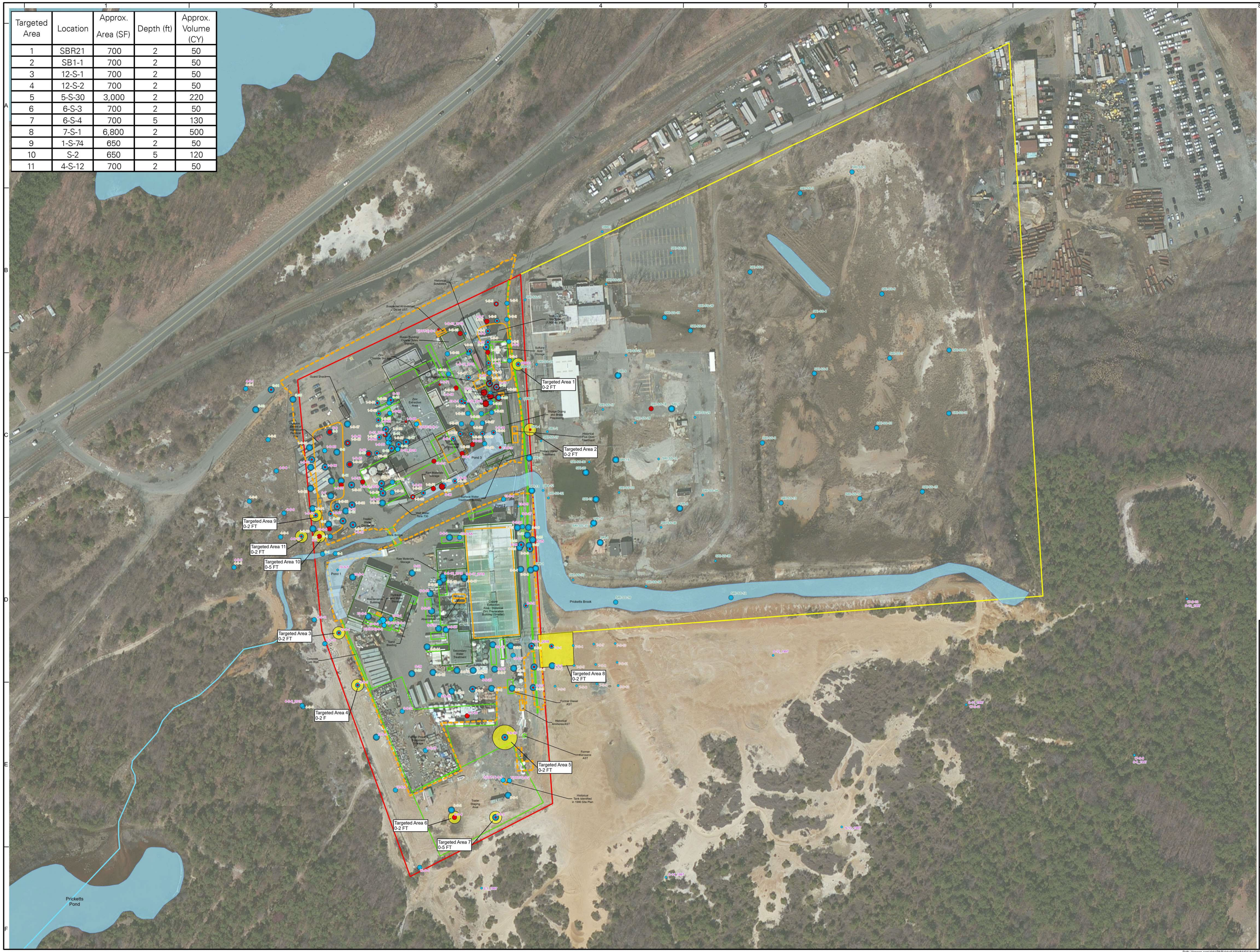
Project
CPS/MADISON SUPERFUND SITE
OLD BRIDGE TOWNSHIP
MIDDLESEX COUNTY NEW JERSEY

Drawing Title
SITE AREA

Project No.	100484401
Date	5/30/2017
Scale	1"=400'
Drawn By	JR
Last Revised	7/26/2022

Figure
1

Targeted Area	Location	Approx. Area (SF)	Depth (ft)	Approx. Volume (CY)
1	SBR21	700	2	50
2	SB1-1	700	2	50
3	12-S-1	700	2	50
4	12-S-2	700	2	50
5	5-S-30	3,000	2	220
6	6-S-3	700	2	50
7	6-S-4	700	5	130
8	7-S-1	6,800	2	500
9	1-S-74	650	2	50
10	S-2	650	5	120
11	4-S-12	700	2	50



N
W E
S

Legend

- Non-Detect Soil Sample
- Detected Non-Exceedance Soil Sample
- Soil Sample with PRG Exceedance

For Historical Samples:
- .3 or C (Deep):5-11.5 ft bgs
- .2 or B (Intermediate):1.5-6 ft bgs
- .1 or A (Shallow):0-2.5 ft bgs

For 2018/2019 RI (Remedial Investigation) Samples:
- >5 ft bgs
- 2-5 ft bgs
- 0-2 ft bgs

Sample location labels are color-coded as follows:
- 1-S-11 2018/2019 RI, Langan
- SRI-1 2015 RIR, Princeton Geoscience
- 7-S-1 December 1997 Soil Sampling, Madison Industries
- S-1 September 1997 Soil Sampling, Madison Industries
- 1-S-1 1996 Phase II RIR, Madison Industries
- S-1 1993 RIR, Converse Consultants East
- Streams
- Waterbody
- Asphalt Lined Ponds
- Buildings
- Historical Site Features
- Current Site Features
- Site (Madison Property)
- Former CPS Property
- Impervious Surface
- Targeted Remediation Areas

0 100 200
SCALE IN FEET

Notes:
1. Site boundary is defined by the executed USEPA Administrative Settlement Agreement and Order on Consent (November 2015).
2. World aerial imagery basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online.
Source of aerial imagery is NAIP fromJuly 29, 2015. Credits: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
3. Streams data provided by the USGS NHD database in 2002.
4. All sample locations that are not presented in this figure but were presented in Figures 7A and 7B do not have available soil analytical results for the constituent of concern.
5. The location of sample, CPS1H, could not be verified. Cadmium and copper were not detected in this sample. Lead and zinc were detected, but not in exceedance of the respective regulatory criteria.
6. Only the three shallowest sample results at SRI-1, SRI-3, SRI-5, SRI-7, SRI-9, SRI-11, SRI-13, SRI-15, SRI-17, SRI-19, and SRI-20 are provided. Deeper samples were collected and the analytical results were provided in the 2016 SCSR, prepared by Langan. The analytical results for all deeper samples were below criteria.
7. Depth identifiers listed above apply to all 2018/2019 sample locations, with the exception of 12-S-3 (where the deepest sample collected was from 3-5 ft bgs), 7(UST-2)-S-1 (where the only sample was collected from 1.0-3.5 ft bgs), and 7(UST-7)-S-1 (where the only sample was collected from 2.5-5.5 ft bgs).

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Project

CPS/MADISON SUPERFUND SITE

OLD BRIDGE TOWNSHIP

MIDDLESEX COUNTY NEW JERSEY

Drawing Title

MADISON PRIMARY RISK DRIVING COPCS SOIL ANALYTICAL RESULTS COMPARED TO PRGS AND TARGETED REMEDIATION AREAS

Project No. 100484401	Figure 2
Date 1/10/2023	
Scale 1"=100'	
Drawn By PDT	
Submission Date	

Table 1: Summary of Noncancer Hazard, Cancer Risk, and Lead Risk Estimates

Exposure Area	Outdoor Industrial Worker			Construction/Utlility worker			Adult Tresspasser			Youth Tresspasser (6-18 years)		Adult Recreational Visitor			Youth Recreational Visitor (6-18 years)	
	Noncancer Hazard Index	Cancer Risk	Lead Risk[1]	Noncancer Hazard Index	Cancer Risk	Lead Risk[1]	Noncancer Hazard Index	Cancer Risk	Lead Risk[1]	Noncancer Hazard Index	Cancer Risk	Noncancer Hazard Index	Cancer Risk	Lead Risk[1]	Noncancer Hazard Index	Cancer Risk
Northern Plant (NP) Areas 1/9	0.16	2.3E-06	**42.5%**	0.79	2.6E-07	**38.1%**	0.026	4.3E-07	0.7%	0.039	3.4E-07					
Southern Plant (SP) Areas 3/8	0.014	2.2E-06	--	0.046	1.6E-07	--	0.0025	4.2E-07	--	0.0035	2.7E-07					
Southern Plan (SP) Area 5	0.049	1.7E-06	0.1%	0.34	1.2E-07	0.0%	0.0082	3.3E-07	0.0%	0.012	2.1E-07					
Southern Plan (SP) Area 6/12	0.12	1.6E-06	--	0.54	8.4E-08	--	0.019	3.0E-07	--	0.029	1.9E-07					
Southern Plan (SP) Area 10	0.14	2.0E-06	--	0.78	1.2E-07	--	0.022	3.8E-07	--	0.033	2.4E-07					
Sitewide	0.18	2.0E-06	**16.4%**				0.03	3.7E-07	0.2%	0.044	2.9E-07					
Offsite Area 4	0.043	5.1E-06	--	0.54	1.8E-06	--	0.0075	9.6E-07	--	0.011	7.8E-07					
Offsite Area 14	0.14	7.4E-06	--	0.34	5.9E-07	--	0.024	1.4E-06	--	0.034	9.1E-07					
Prickett's Brook- Onsite	0.034	6.1E-06	0.0%				0.041	8.7E-06	0.0%	0.048	1.2E-05					
Prickett's Brook-Offsite												0.32	1.7E-05	0.0%	0.4	1.9E-05
Prickett's Pond												0.077	7.0E-07	0.0%	0.093	6.4E-07
Tennent Pond												0.066	7.8E-07	0.0%	0.083	4.8E-07

Footnotes:

1	lead risks are expressed as predicted probability of fetal blood lead concetrations exceeding 5 µg/dL
	not evaluated
--	lead not a COPC for this exposure area
outlined and bolded	denote predicted fetal blood lead concentrations that exceed reference values

Table 2: Preliminary Remediation Goals for Soil

Contaminant of Concern	NJDEP NRSRS	NJDEP MGWSRS	Recommended MGWSRS	PRG	Unit
Cadmium	1,100	1.9	11.9	**11.9**	mg/kg
Lead	800	90	90	**90**	mg/kg
Zinc	390,000	930	3,120	**3,120**	mg/kg

Notes:

NJDEP NRSRS – New Jersey Department of Environmental Protection Non-Residential Soil Remediation Standards for the Ingestion-Dermal Exposure Pathway, last revised May 17, 2021.

NJDEP MGWSRS – New Jersey Department of Environmental Protection Migration to Groundwater Soil Remediation Standards, last revised May 17, 2021.

PRG – Preliminary Remediation Goal

Site-specific MGWSRS were calculated for various metals.

The Recommended MGWSRS consists of either the NJDEP Default MGWSRS value or the site-specific value, depending on which is less stringent.

PRGs were selected for each contaminant as the lower of: (1) the Recommended MGWSRS and (2) the NJDEP NRSRS.

ATTACHMENT B

PUBLIC NOTICE

EPA United States Environmental Protection Agency

EPA INVITES PUBLIC COMMENT ON THE PROPOSED PLAN FOR THE CPS/MADISON SUPERFUND SITE IN OLD BRIDGE, NEW JERSEY

The U.S. Environmental Protection Agency (EPA) is proposing a plan to address contaminated soil and groundwater at the CPS/Madison Superfund site in Old Bridge, New Jersey.

EPA is taking comments from the public on the proposed cleanup plan for this site from **Thursday June 1st, 2023** to **Monday July 3rd, 2023**. EPA will consider comments submitted during the comment period before making a final decision. Stakeholders are encouraged to review the plan, attend the public meeting, and comment on the cleanup alternatives. Comments may be emailed to woodall.brennan@epa.gov or mailed to Brennan Woodall, US EPA, 290 Broadway, 19th Floor, New York, NY 10007-1866 no later than **July 3rd, 2023.**

EPA will hold an in-person public meeting on **June 15th, 2023** at **6:30pm** at the Senior Center, 1 Old Bridge Plaza, Old Bridge, NJ. For more information, please contact EPA's Community Involvement Coordinator, Pat Seppi at seppi.pat@epa.gov or visit https://www.epa.gov/superfund/cps-madison.

AP-GCI1069183-01

ATTACHMENT C

PUBLIC MEETING TRANSCRIPT

CPS MADISON PRAP PUBLIC MEETING

June 15, 2023

Video Runtime: 0:31:18

(Beginning of Video Recording.)

SHEREEN KANDIL: Get started. To take care of some of your time. Welcome to the CPS Madison Public meeting. I'm Shereen Kandil (phonetic). I'm the community affairs team lead and the Public Affairs Office at EPA. Pat Seppi (phonetic), who is the Community Involvement coordinator, some of you might know her. She couldn't make it tonight. So I'm here representing Pat.

And we just -- we're going to do some introductions and get right into the presentation, just so you know who we all are. Like I said, I'm Shereen. Brennan Woodall (phonetic) is the remedial project manager for this site.

We also have Rich Puvogel (phonetic), who's the section supervisor. We have Chuck Nace (phonetic), who's also a section supervisor. We have Ula Kinahan (phonetic). And Abby is the ecological risk assessor. So we're all here.

We're going to get right into the presentation, and then we're going to do a Q&A right after the presentation. So, Brennan,

are you good?

BRENNAN WOODALL: Yeah.

SHEREEN KANDIL: All right.

BRENNAN WOODALL: Thanks, Shereen.

SHEREEN KANDIL: You're welcome.

BRENNAN WOODALL: Okay. Good evening, everyone. Once again, my name is Brennan. I'm the project manager for the CPS Madison site. Tonight, I'll be walking you through our proposed cleaning plan that we recently issued for the site.

To give you some context, if you're unfamiliar with what a proposed plan is, a proposed plan is a document that we issue after performing an investigation at the site. This document will summarize the results of the investigation and the cleanup options that were considered during the investigation.

Finally, the proposed plan also presents the cleanup option that we prefer and are proposing to perform. So this presentation will summarize the proposed plan, but you can find more details about the information we go over tonight by reading the full proposed plan document on our website.

And there's a link to that in the back in the update, as well as at the end of the function.

All right. The discussion will be broken down into four parts. We'll do a brief background, go through some site history. We'll get to the cleanup plan, and then we'll have plenty of time for questions. And the presentation part will last about 20 minutes.

Okay. First, I want to give you a background of the location and surrounding features of the site. So this is an aerial photo of the site. It's located on Old Waterworks Road. I've got my laser pointer here. Old Waterworks Road kind of just runs right along the top of the site here, these red and yellow boundaries.

Now, this section of Old Waterworks Road also sits just south of Bordentown Avenue, or County Road 615. And that runs right along here.

Now, although we're talking about one superfund site here, there are actually two properties that sit adjacent to each other that make up the site. So we can think of the site in two parts.

First part is the CPS property, which is outlined in yellow here in the top right corner of the photo. A few years back in 2019, we selected some cleanup actions to address soil in this part of the site, the CPS part, as well as groundwater for the whole site.

Some of you may recall that as we went through the same process as we're going through now, and we had a public meeting for that just like this one.

So the second part of the site is the Madison property, which is outlined in red over here. And we have it labeled as well. As you can guess, the Madison portion of the site is the focus of tonight's presentation. And I want to give you a few details about (inaudible).

The property is approximately 15 acres in size. Madison has operated a facility in the northern half of the property since 1967, and that facility produces inorganic chemicals that are used in fertilizer, pharmaceuticals, and food additives.

On the southern half of the property, a

second facility, Madison's sister company, Old Bridge Chemicals, operates and they produce zinc salts and copper sulfates. Those compounds are used in a wide range of applications, again, like pesticides and pharmaceuticals.

On this slide, there are just a couple more things I'd like to point out to you. There is a brook called Prickett's Brook. It starts over here, and it runs from east to west along the bottom boundary of the CPS property. And then it cuts through the middle of the Madison property here.

Then you can see it kind of travels down southwest, first into this pond called Crickets Pond, and then finally down here, you can see it goes into Tennant Pond as well.

Now, I'm showing you this because for this proposed plan, we looked at soil on the Madison property as well as surface water and sediment in these water bodies. So I just wanted to provide some context as to where those features are relative to the site.

And then finally, I just want to point out the location of the Perth Amboy well

field, which you can see down here. This is located south of the CPS Madison site and it supplies drinking water to the City of Perth Amboy.

This well field plays an important part in the site's history, which I'll talk about briefly on the next slide.

So next, we're going to look at how the site came to be a superfund site and what has taken place at the site since then. Now, I want to go over some of the major milestones in the site's history that have gotten us to where we are today.

I'll reiterate that this is just a summary of the site's history because there is a lot of history with this site, but I've laid out a few milestones here that should give you a good overall understanding of the history.

Our discussion of the history begins in the 1970s when a series of wells in the Perth Amboy well field became impacted by groundwater contamination coming from operations off of the CPS and Madison facilities. Those wells had to be shut down, and new wells were installed downgradient --

farther downgradient in an area that was not impacted by the contamination.

As a result of this event, in 1979, New Jersey State Court ordered the companies at both CPS and Madison to perform an investigation to determine the extent of the contamination on their sites in the well field.

In 1981, this investigation led to another state court order to implement a groundwater remediation program. It was also around this time that the site was brought to EPA's attention, and EPA listed CPS Madison as a superfund site in 1983. And that's important because when a site goes on our superfund list, it becomes eligible for us to spend money on that site. That is money that specifically comes from, you know, collection set aside for superfund sites. At the time of the listing, New Jersey was the lead agency on the site.

In 1991 and 1992, the companies placed extraction wells near the Perth Amboy well field. These extraction wells would capture the contamination coming off of the site and

prevent it from reaching the Perth Amboy drinking water supply wells. Those extraction wells worked really well. In between 1993 and 2000, the groundwater around those wells began to achieve cleanup goals.

So since the groundwater near the well field was achieving cleanup goals, those wells were shut down, and new extraction wells were installed on the CPS and Madison properties themselves, which is closer to the sources of contamination.

So the new wells continued to capture contamination coming from the site. And those wells are still in operation today. Still in operation and treating groundwater.

Next on our list here in 2003, at New Jersey's request, EPA took over the lead role in overseeing the superfund cleanup. And then between 2005 and 2019, additional investigations took place to investigate soil at the CPS property and further characterized groundwater contamination coming off of the site.

In 2019, at the end of this investigation, EPA selected clean-up actions

to address site wide groundwater contamination and contaminated soil on the CPS property. As I mentioned earlier in the presentation, when we were looking at that aerial photo and we pointed out CPS.

Those actions are currently in the engineering phase and are being designed. Also during this time period in 2015, EPA entered into an order with Madison to perform an investigation of the Madison property.

Now, that brings us to where we are today. The Madison investigation is complete, and EPA has issued this proposed plan to address soil contamination on the Madison property.

Just kind of a quick summary there of some major milestones and what we're here for today.

On the next slide, I'm going to summarize the results of the investigation. So the purpose of a remedial investigation is to find out, one, what type of contaminants are there are, and two, where are those contaminants?

Now, there are a lot of other questions

we ask and a lot of other information we gather, but those are some of the two big ones. Based on previous investigations at CPS Madison, we already had some knowledge that the type of soil contamination at the Madison property mainly consisted of inorganics, or in other words, metals. This investigation confirmed that and identified the primary contaminants of concern as lead, cadmium, and zinc.

As a part of the investigation, we also perform risk assessments to determine if the contaminants have the potential to affect human health or the environment. If we determine that there is unacceptable risk, that is a level of risk that falls outside of our acceptable range, that triggers an action for us to address that unacceptable risk. The process is very in-depth, and you can find extensive details about it in the proposed plan. But right now, I just want to summarize the results of those risk assessments.

So for human health, we found unacceptable risk associated with potential future exposures to soil on the Madison

property, and that unacceptable risk was associated associated with lead.

For the environment, we found that there was some toxicity towards invertebrates associated with the sediment in the water bodies that were investigated. However, that toxicity could not be directly connected to the metals coming from Madison, which suggests that there are other factors also contributing to that toxicity.

So next, I'm going to talk about the goals that we set in order to address the unacceptable risk and the contamination that have been identified during the remedial investigation.

So these are our remedial action objectives, but we can also think of them simply as our goals for the cleanup. These goals direct our decisions on the cleanup in order to ensure that the actions we take are protective of human health and the environment.

When we establish these objectives, they have the tendency to get pretty specific and wordy. So I've summarized them here. But

you can also find the full objectives in the full proposed plan document.

The first objective is to prevent soil contamination from migrating to the groundwater. The second objective is to prevent human exposure to soil contamination. And the third objective is to prevent soil contamination from migrating to surface water and sediment.

So this kind of steers our path in the next phase of the investigation. And on the next slide, I'll talk about the cleanup options that have been considered, and one one word we use to refer to those cleanup options is alternatives.

So we developed three alternatives for the Madison cleanup. The first alternative looks at what happens if we take no action. Now, this is an alternative that's only used as a baseline to compare to the other alternatives.

The second alternative includes removal of contaminated soil in the unpaved areas on the Madison property. Now, a large proportion of the Madison property is paved or otherwise

covered in impervious surfaces. So to address contamination under these paved areas, the second alternative also calls for the existing pavement on this property to be used as a cap or a protective barrier over the contaminated soil that is not removed and already under the pavement.

For our third alternative, instead of removing soil in the unpaved areas, this alternative calls for placing a cap over soil contamination in those unpaved areas. So that would mean placing pavement over those unpaved areas. Like alternative two, alternative three would also use the existing pavement on the property as a cap over the contaminated soil that's already under pavement.

And there are two additional elements that are common components to both alternatives two and three. Those elements are long term monitoring of sediment and surface water to assess the effectiveness of the selected alternative for the Madison soils, as well as the alternatives that were selected for groundwater and for the CPS soils back in 2019 once all alternatives have been

implemented.

The second element is institutional controls, and that's in the form of a deed notice on the Madison property. And a deed, notice what that does is it would it would restrict the Madison property to nonresidential uses only.

So in the next slide, I'll briefly talk about the process that we use and the criteria that we look at to evaluate each alternative and ultimately select one.

So the process we used to come up with possible cleanup alternatives starts very broad, and we screen out technologies and actions and narrow that list down until we have a list of the best alternatives that we've determined are available to us.

At this stage, the alternatives then go through a comprehensive evaluation where we compare them against these nine criteria, and we also compare them against one another.

I won't read through all of the criteria here, but I put them up here in case you're interested in reading through them. One thing I do want to point out, though, is

the group column on the left side of this table.

We divide the nine criteria into these three groups, threshold, balancing, and modifying. For the threshold criteria, any alternative that could possibly be chosen has to pass the threshold criteria. If it doesn't pass, it doesn't move on, move forward in this process.

The alternatives that pass the threshold criteria, the next five criteria are the balancing criteria are used to differentiate between the remaining alternatives in the five different areas. You can see here numbers three through number seven.

After this stage, EPA will select a preferred alternative, and we put it into the proposed plan and start the public comment period. Now, this is where the last two criteria or the modifying criteria come in. This is where we ask you to take a look at the proposed plan and send us your comments and your feedback and your questions. Once the public comment period ends, we will address

all of that comment -- all of those comments and questions, and we'll make a final decision on the cleanup.

On the next slide, I'll go ahead and introduce EPA's preferred alternative. So EPA's preferred alternative is alternative number two.

And if you recall, this alternative calls for the excavation of contaminated soil, the unpaved areas on the Madison property. Approximately 1320 cubic yards of soil would be removed in total from these areas.

It also calls for the existing pavement on the property to be used as a cap over contaminated soil. These paved areas will be assessed to determine if they're meeting the requirements to function as a cap and be protected, and if necessary, they'll be upgraded to meet those requirements.

The component also -- this component of the alternative also includes ongoing inspections and maintenance, and those would be to ensure that the cap remains effective over these areas.

Additionally, alternative two includes

the common elements that I discussed earlier. Those were long term monitoring of sediment and surface water and the placement of institutional controls in the form of that deed notice on the Madison property. And once again, the deed notice would restrict the Madison property to nonresidential uses (inaudible).

So the estimated cost of alternative two is approximately 1.95 million. And on this slide I've got a visual representation of the alternative to hopefully kind of give a better picture of what's going on here.

So if you'll recall from the beginning of the presentation, this is an aerial photo of the Madison site again, just we're zoomed in a little closer this time. Same as before, this red line shows the boundaries of the Madison property.

Now, around and within the -- within the Madison boundaries, you'll see an orange dashed line. And let me go ahead and zoom in for you so you can see a little brighter.

So I can't use my laser pointer and zoom in at the same time. But at the very top

of the screen above the red line, you'll see that orange dashed line. Now that represents the areas of the site that are paved. And this is where under alternative two, the existing pavement would be used as a cap.

So I zoomed in on the northern half a little bit. I'll go ahead and come down and we can look at the southern half as well. And as you can see, about most of the northern half of the property is paved, and about two thirds of the southern half of the property was paved.

And one other thing I want to draw your attention to on this slide is these yellow circles and squares. Right there. Right there, for example. These areas illustrate the unpaved areas that are targeted for the soil removal under this alternative.

There are 11 of these areas in total. And again, these areas are where the 1320 cubic yards of soil would be removed under this alternative.

So that concludes the presentation. And next, we can take any questions or go back and look at any slides again that you want to

see.

Before we take any questions, I do just want to mention that we released this proposed plan on June 1st, and that's the start of the public comment period. And again, that's where we take questions and comments from the public on the proposed plan. And that comment period will end on July 3rd.

So after that point, we'll address any feedback or comments or questions that we've received. So if you have any written comments that you'd like to send in after you leave today, you can send them to me, and you can email me or send them by snail mail to the address listed there.

And then anything we talk about today will be captured in a transcript, and those will also be included as part of the public comment period.

SHEREEN KANDIL: Great and any questions beyond the public comment period, you can always reach out to the community involvement coordinator Pat Seppi, who is not here.

So because we're doing it this way, if

you can just state your -- your name before your question or comment, that would be great just so that we have --

BRENNAN WOODALL: Don't all ask at once.

BILL SCHULTZ: Bill Schultz at Riverkeeper. Perth Amboy lost use of 35 wells was (inaudible). Did the city ever receive any compensation for the loss of those wells or is there any way the city can get the -- something -- get something out of the loss of the use of a property?

BRENNAN WOODALL: Rich, do you remember anything?

RICH PUVOGEL: I don't recall exactly, but that's an action taken by the city against parties who are responsible for that because it was shown that the cost recovery for the city.

BILL SCHULZ: Is it likely that or even possible that the site -- the ground water can be cleaned up enough for it to reopen those wells?

RICH PUVOGEL: That's the long term objective of the cleanup to eventually have

the groundwater restored to its -- to public use for the long term to eventually get there. But we're concentrating, and we're looking at the soil at Madison (inaudible). (Inaudible) for the groundwater pumping has been going on since the 1990s, and it's gone back (inaudible) towards the source areas and the pumping continues to capture the -- the contaminants coming off the source areas.

And this remedy, it would certainly help that process (inaudible) potential solution for sources to the (inaudible).

BRENNAN WOODALL: I add that looking at the plumes in the 1990s when we first started those wells to capture that contamination, and looking at them through the years till today, those plumes, the organics and the metals and from dramatically from where they originally were.

We do actually have some slides that we had in our first public meeting when we went over groundwater that kind of shows how those shrink over the years. It all goes up in the (inaudible) to be able to see.

All right. So this first one here,

we've got an organic benzene in 1994. There are a couple of years here. 2004. And then 2014. Let me just -- just so we're clear, with kind of yellowish green color is the groundwater plume. But the (inaudible).

BILL SCHULTZ: (Inaudible).

BRENNAN WOODALL: Yeah, those -- those wells have been working extremely well. It's good to see. And if you've got a benzene plume as well. 1991. 2002. 2016. We have (inaudible). 1996. 2004. 2014. Just to kind of give a quick picture of how we changed since those wells were first put it.

BILL SCHULTZ: Now there is no ongoing contamination from the site is there? (Inaudible) new --

BRENNAN WOODALL: Well, CPS is -- there are no current operations on CPS site. Madison Industries still has to (inaudible) facilities. But --

BILL SCHULTZ: Are they contributing to groundwater contamination at this time?

BRENNAN WOODALL: It's -- so when I was talking about the contamination in the soil on the site, one reason we want to address that

is because that soil contamination can serve as a source for groundwater.

Now, I also showed that most of the site is paved, and that wasn't so kind of early on in the site's history when a lot of this kind of -- we first discovered the groundwater contamination.

That, in itself, could be contributing to and could well -- could be helping to prevent the soil contamination from getting to the groundwater today. When you have the ground -- the soil contamination in the unsaturated part of the soil and you have payment over that, you don't have things like erosion and infiltration of like rainwater or surface water runoff that could carry those soil contaminants into the groundwater.

Now, part of what we'll do in the remedial design is inspect the existing pavement and upgrade it, if necessary, to make sure that that can be functional and effective as a cap, to make sure that there is no additional contributing -- contributions to the groundwater contamination from any soil contamination that's -- that's left under that

area.

And for the unpaved areas, that's why we want to remove that soil contamination so that it can't go anywhere else. It's not -- propose -- it's not providing unacceptable risk as a human health hazard as well.

BILL SCHULTZ: So your groundwater contamination from your sites has been reduced very dramatically. Continue with your -- this is a pump and treat operation, I assume. Right?

BRENNAN WOODALL: Yes and no. Yeah.

BILL SCHULTZ: (Inaudible) pumping, do you eventually see the -- no further threats to groundwater from the site?

BRENNAN WOODALL: Possible. I mean, long term, I mean, that would be -- that would be the hope. See how well that continues to work.

So part of the alternatives that were chosen in 2019 for the metals, the alternative that was chosen was to continue this -- this pump and treat system. But on top of that, for the organics, what we're looking at doing is using chemical oxidation, not only in the

organics that were in the CPS soils, but also the organics in that groundwater plume, and using that to transform those organics into other compounds that would be (inaudible), and that would eliminate the source area contributing to that -- to that groundwater plume.

So part of the groundwater remedy for the organics is to try out that chemical oxidation before kind of seeing if we need the pump and treat from those wells that are on the CPS property to continue those pump and treat wells.

It may be that that chemical oxidation is successful enough that we would no longer need those wells at some point, but we'll continue to use those pump and treat wells until we know for sure how that remedy is working. And for the metals plume, the remedy is to continue that pump and treat system, so.

BILL SCHULTZ: Okay. Thank you.

BRENNAN WOODALL: Yeah.

RICH PUVOGEL: Anybody else have any other questions?

SHEREEN KANDIL: And so, as Brennan

mentioned, you can provide comments, questions until July 3rd, and you can send it via email or snail mail. If you have questions beyond this proposed plan, you can reach out to Brennan or Pat Seppi. We thank you for coming. And if you haven't taken a fact sheet, they're out on the table, and we appreciate it.

RICH PUVOGEL: And Brennan's contact information is on the fact sheet as well.

BRENNAN WOODALL: Yes, happy to (inaudible).

SHEREEN KANDIL: Great. Have a great night.

BILL SCHULTZ: Thank you.

BRENNAN WOODALL: Thanks, guys.

(End of Video Recording.)

CERTIFICATE

I, Wendy Sawyer, do hereby certify that I was authorized to and transcribed the foregoing recorded proceedings, and that the transcript is a true record, to the best of my ability.

DATED this 29th day of June, 2023.

WENDY SAWYER, CDLT

ATTACHMENT D

WRITTEN COMMENTS

Woodall, Brennan

From: Vincent Mackiel
Sent: Monday, July 3, 2023 3:51 PM
To: Woodall, Brennan
Subject: CPS/Madison Superfund Site--Operational Unit 3--Old Bridge, NJ--June 2023

Vincent Mackiel

July 3, 2023

Mr. Brennan Woodall
Remedial Program Manager
USEPA, Region 2
290 Broadway, 18 floor
New York, NY 10007-1866

Dear Mr Woodall:

Please accept my comments regarding the CPS/Madison Industries Superfund Site ID #652515.
I am affected as a resident by the pollution that originates in the watershed that eventually comes into the tap water for drinking,washing and through treatment by-products in Perth Amboy, NJ.

As the cleanup plan mentions--32 wells have been closed from decades of disturbing off loading industrial behavior in the watershed by the chemical firms.

Presently the Madison Old Bridge Chemical Plants continue to admit harmful substances. Your record documents the need to extract lead, cadmium and zinc with clean fill in area OU3. But,the allowance for surface structures to hold contamination violates any real complete cleanup effort.

In OU3 addressing soil on Madison property that is a direct contact hazard and acts as a contaminant source to groundwater and surface water of Prickett's Brook and Prickett's Pond.

These conditions in such a natural watershed area can only be solved by redirecting the chemical firms development completely away from the watershed, meaning the closure of those companies.

I am hopeful, one day, I can drink cleaner water in Perth Amboy.

Respectfully,

Vincent Mackiel