Proposed Plan
Commodity Credit Corporation Former Grain Storage Facility
Albany, Missouri

February 2025

THE PROPOSED PLAN

This Proposed Plan has been prepared by the U.S. Army Corps of Engineers (USACE) for the U.S. Department of Agriculture (USDA) to present the preferred remedy for the Commodity Credit Corporation/USDA former Grain Storage Facility at Albany, Missouri. This document summarizes the preferred remedy, the basis for this recommendation, and solicits public input. USDA requests that input be provided in writing during the public comment period.

INTRODUCTION

An acronym list and glossary are provided at the end of this document, defining terms that may be unfamiliar to the general public. Terms that are included in the glossary are shown in ***bold and italicized*** text when introduced.

This ***Proposed Plan*** (PP) is prepared by the ***U.S. Army Corps of Engineers*** (USACE) for the ***Commodity Credit Corporation*** (CCC)***/U.S. Department of Agriculture*** (USDA) former grain storage facility near Albany, Gentry County, Missouri (herein referred to as the Albany site) in accordance with the ***Comprehensive Environmental Response, Compensation, and Liability Act of 1980*** (CERCLA) and the ***National Oil and Hazardous Substances Pollution Contingency Plan*** (NCP). This Albany site PP solicits public participation as required by CERCLA and the NCP.

This PP summarizes Albany site background and characteristics, human health risks, ***Remedial Action Objectives*** (RAOs), and remedial alternatives considered during the ***Feasibility Study*** (FS***)***. The PP provides the basis for USDA's preferred alternative.

PUBLIC COMMENT PERIOD
February 18, 2025 – March 20, 2025

Written comments may be submitted during the public comment period to the address provided below.

Send written comments post-marked by March 20, 2025 to:

Mr. Jacob Allen
U. S. Army Corps of Engineers
601 E. 12th Street
Kansas City, Missouri 64106
Phone: 816-389-3654
E-mail: Jacob.T.Allen@usace.army.mil

Administrative Record:
The ***Proposed Plan*** and other documents are available electronically by contacting:

Mr. Kale Horton
U.S. Department of Agriculture
1972 NW Copper Oaks Circle
Blue Springs, Missouri 64015
Phone: 816-399-9107
Email: Kale.Horton@usda.gov

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

USDA will consider comments submitted during the 30-day public comment period. After consideration, USDA will select the final remedy. USDA, in consultation with USACE and the Missouri Department of Natural Resources (MDNR), may modify the preferred alternative or select another alternative presented in this plan based on new information or public comments; therefore, the public is encouraged to review and comment on all alternatives presented in this PP. If requested, a public meeting may be held to present the alternatives and provide an opportunity for further discussion and public comments.

Responses to public comments will be provided in a "Responsiveness Summary" as an attachment to a ***Decision Document*** (DD) that presents the final selected remedy for the site.

More detailed information regarding the former CCC Grain Storage Facility at Albany site, including the FS report (USACE 2024), is available in the site ***Administrative Record*** file, available electronically by contacting Mr. Kale Horton, USDA. The public is encouraged to review the information.

SITE BACKGROUND

The Albany site is located on U.S. Highway 136, approximately 4 miles west of the city of Albany, in Gentry County, Missouri (Figure 1). The site occupies approximately 2 acres of agricultural land and is surrounded by residential and agricultural land.

The former CCC Grain Storage Facility at Albany was one of many temporary facilities that was used by CCC for storing surplus grain as part of a grain bin program that began in the 1940s. During storage, it was sometimes necessary to fumigate the grain to control destructive pests. The most common fumigant at that time was a mixture of 80% carbon tetrachloride (CTC) and 20% carbon disulfide. The mixture was applied directly onto the grain from the top of the storage bin and allowed to disperse throughout the bin. The grain bin program was terminated by the early 1970s, at which time CCC sold all existing grain storage bins and equipment. At the Albany site, the CCC operated the grain storage facility from the 1950s through the early 1970s through five-year leases with the property owners. During the time that the CCC leased the property, there were approximately 30 to 40 grain bins and two Quonset huts on-site. Currently, the site is comprised of one Quonset hut, one concrete pad (former Quonset hut), and 12 cylindrical grain storage bins.

SITE CHARACTERISTICS

The site lies in the Dissected Till Plains region, which predominantly consists of gently rolling hills and broad floodplains with local relief of less than 100 feet (ft). A groundwater resources study for Gentry County noted the presence of a deep, buried valley that cuts west to east across Gentry County, and the Albany site lies directly over this buried valley (Fuller et al., 1956; Consultech 2015a).

The Albany site is located at the crest of a hill that slopes to the southwest, southeast, and north. It is approximately 945 ft above mean sea level. Surface runoff flows off-site to the southwest, southeast, and north, primarily to a ditch south of the site that flows east and west along U.S. Highway 136. Runoff would eventually flow to the Middle Fork Grand River approximately 0.5 miles east of the site (Figure 1).

A series of site characterization and remediation activities has been completed for USDA and the MDNR at the Albany site, including:

- Phase II Site Characterization (Consultech 2015a)
- Vapor Intrusion Investigation (Consultech 2015b)
- Post-Injection Results and Groundwater Sampling of a Pilot Test (Consultech 2018)
- Remedial Activity Summary (Consultech 2020)
- Additional Indoor Air Sampling during the FS (USACE 2024)

Samples were collected from soil, groundwater, and indoor air for analysis of CTC and chloroform (CF, a degradation product of CTC) that were related to the former Grain Storage Facility operations. The concentrations of CTC and CF were compared to the ***screening levels*** described in this section.

The Phase II Site Characterization results showed that groundwater CTC and CF were detected at concentrations greater than drinking water ***Maximum Contaminant Levels*** (MCLs) at the Albany site and southeast of the site (Consultech 2015a). Soil samples collected at the site contained CTC and CF at concentrations exceeding the U.S. Environmental Protection Agency (USEPA) soil screening levels for residential land use and protection of groundwater at depths greater than 10 ft below ground surface (bgs).

Site Screening Levels

To see whether there are harmful effects to human health, chemical concentrations in soil, groundwater, and indoor air were compared to screening levels published by the USEPA. Screening levels are risk-based concentrations of chemicals, below which daily exposures in residential or industrial settings are acceptable.

Screening levels for soil were obtained from USEPA's soil Regional Screening Levels (RSLs). Screening levels for groundwater are USEPA MCLs when available and USEPA tap water RSLs when MCLs are unavailable. Screening levels for indoor air were obtained from USEPA Vapor Intrusion Screening Levels (VISLs). When contaminants are present in groundwater, vaporization into living air space could occur, and the groundwater-based VISL can be used to evaluate human health risks.

Screening levels for known and suspected carcinogens reflect an extra 1-in-1-million chance of developing cancer from site exposures. This is in addition to a person's background chance of developing cancer unrelated to the site (currently one in two for men and one in three for women [American Cancer Society 2024]). The extra chance of developing cancer is termed an ***Incremental Lifetime Cancer Risk*** (ILCR).

Non-cancer hazard is evaluated using ***Hazard Quotients***. The sum of the Hazard Quotient for each contaminant of potential concern (COPC) is the ***Hazard Index***. A Hazard Index of 1 corresponds to the lowest level of chemicals that may cause harmful noncancer health effects. Screening levels for non-carcinogens reflect a concentration that is 10 times lower than the level at which noncancer health effects are expected (termed a Hazard Index of 0.1).

In November-December 2017 and October 2019, in situ chemical reduction (ISCR) through injections of EHC® reagents was conducted at the site (Figure 2). ISCR is a treatment method where a chemical reductant is injected into the subsurface to contact and chemically convert contamination to nonhazardous or less toxic compounds that are more stable, less mobile, or inert. EHC® is a reagent composed of controlled-release carbon, zero valent iron (ZVI), and nutrients. After the ISCR treatment, CTC concentrations were reduced but still exceeded screening levels in soil and groundwater. Additionally, a vapor intrusion risk, suspected at an off-site residence (MDNR 2021), was investigated during the FS (USACE 2024). Results show that indoor air samples were above the vapor intrusion screening levels for CTC from the off-site residence in July 2023.

Soil (Figures 3 and 4)

From approximately 2012-2020, soil samples were collected from the Albany site and analyzed for CTC and CF. The concentrations of these chemicals were compared with screening levels (see "Screening Levels for Albany Site" text box for more information).

Soil samples were collected during Phase I and Phase II site characterizations at depths ranging from 0 to 60 ft bgs. During Phase I, 23 soil borings were advanced to 10 ft bgs and samples were collected from 8-10 ft bgs. CTC was detected in only one of the soil samples at a concentration of 7.6 micrograms per kilogram (µg/kg), less than the USEPA residential soil RSL for CTC (650 µg/kg) (USEPA 2024a). CF was not detected in the soil samples.

Soil samples were also collected from depths greater than 10 ft bgs during monitoring well installation in Phase I. At the boring where MW-D1 was installed, the CTC concentration in the sample collected at 28-30 ft bgs was 1800 µg/kg, and at 38-40 ft bgs it was 850 µg/kg. These concentrations exceeded the residential soil RSL (650 µg/kg). Direct contact with soil at these depths is unlikely.

In 2017, 36 soil borings were drilled using ***membrane interface probe*** (MIP) technology. Samples were collected and analyzed for CTC and CF (USACE 2024). In four of the 36 samples, CTC concentrations exceeded the residential soil RSL (650 µg/kg) (Table 1). None of those samples had concentrations exceeding the residential soil RSL for CF (320 µg/kg). The greatest concentration of CTC (4460 µg/kg) was measured in sample from MIP32 at a depth of 24 ft bgs. The greatest concentration of CF (119 µg/kg) was also measured in MIP32, at a sample depth of 35-36 ft bgs. MIP32 was located just west of the northernmost remaining grain silos (Figure 3). The sample collected in MIP31, located directly south of MIP32, did not have exceedances for CTC or CF.

In 2020, after the 2017 and 2019 ISCR treatments, 14 borings were advanced to resample the same depths and locations as the MIP borings used in 2017, to assess the treatment effectiveness (Consultech 2018). The results of the CTC and CF sampling are shown in Figure 3 and Figure 4. At most locations, both CTC and CF concentrations decreased after ISCR treatment (Table 2). Overall, CTC and CF screening level exceedances were distributed throughout the site, but they occurred at depths greater than 13 ft bgs (Table 2).

Results indicate that high CTC concentrations were detected in areas adjacent to either an existing or a removed grain bins, consistent with the understanding that the bins were the source area.

Groundwater (Figures 5 and 6)

Groundwater monitoring as part of site characterizations began in 2012 (Consultech 2015a). A series of groundwater monitoring wells were installed on-site (Figure 2) and off-site (Figure 6) since 2012. Groundwater monitoring results from 2012 to 2020 are reported in Tables 3, 4, and 5, and in the FS (USACE 2024).

In July 2012, the greatest CTC concentration measured in the samples was 1600 micrograms per liter (µg/L) at MW-2, exceeding the MCL of 5 µg/L (Consultech 2015a, USACE 2024). No CF detections exceeded the MCL of 80 µg/L. Based on the proximity of well locations and depth intervals, the FS concluded that the CTC/CF plume is vertically limited to a depth of up to 47 ft bgs (USACE 2024).

During the sampling event in late 2013, the highest CTC and CF concentrations were also detected in MW-2 at 1900 µg/L and 57 µg/L, respectively. Among the monitoring wells installed during Phase II, CTC was detected (1.2 µg/L) only in MW-9, located at the northwest corner of the site (Consultech 2015a).

In May 2015, MW-15 was installed off-site approximately 2000 ft east of the Albany site (Figure 6). Sampling results indicated CTC MCL exceedances (>5 µg/L) in three on-site monitoring wells (MW-2, MW-4, MW-5) and one off-site monitoring well (MW-6). There were no MCL exceedances for CF (Consultech 2015a).

MW-16 and MW-18 were installed off-site in 2017 and sampled from 2017 to 2020. MW-18 is in the vicinity of the off-site residence (Figure 6).. In MW-16, CTC consistently exceeded the CTC MCL of 5 µg/L, with concentrations ranging from 62 to 89.9 µg/L in samples collected from 2017 to 2020 (Consultech 2020). In MW-16 CF ranged from non-detect to 4.29 µg/L, below its MCL (80 µg/L). MW-18 was sampled in January and December 2018. CTC concentrations exceeded the MCL both times, at a concentration of 11 µg/L in January and 15.1 µg/L in December. CF concentrations did not exceed the MCL, at a concentration of 1.8 µg/L in January and 2.52 µg/L in December.

The monitoring well installation and sampling completed from 2012 to 2017 indicated that CTC concentrations were greatest near the existing and former grain bins (source area). Groundwater is moving in the southeast direction, as shown by CTC concentrations in off-site wells.

In November-December 2017, an ISCR pilot test was conducted in two of the eleven identified areas of concern at the site, Area 3 and Area 11 (Figure 2). The primary objective of the ISCR test was to evaluate the effectiveness of a chemical reduction approach to reduce the CTC and CF levels both in soil and in local groundwater through injection of EHC® reagents (Consultech 2018).

In those two areas, CTC concentrations reduced over time. In Area 11, prior to the ISCR injections in 2017, the greatest CTC concentration was 2790 µg/L. By 2020, CTC was not detected in three of the four wells and detected at a concentration of 87.1 µg/L in the fourth well. In Area 3, CTC concentrations decreased in both wells from a maximum concentration of 749 µg/L to non-detectable levels.

Based on the overall success of the pilot testing, ISCR injections were completed at Areas 1, 2, and 4-10 in October 2019. A group of 18 monitoring wells and one residential well (Residential Well #1, east and closest to the Albany site) were sampled to evaluate baseline conditions before injections. Results indicated that CTC concentrations in nine of the samples exceeded the MCL (5 µg/L). The remaining nine samples contained concentrations below the limit of quantitation. Based on the baseline results, three additional target wells were added to ISCR injections: MW-19, MW-21, and MW-25 (Figure 2). MCL exceedances occurred throughout the proposed treatment areas.

Samples were collected six months and approximately one year after the ISCR injections, in April and September 2020 (Consultech 2020). By September 2020, CTC MCL exceedances remained present in eight of seventeen on-site wells (Figure 5). In three wells, concentrations of CTC increased from April to September 2020, but were less than the pre-treatment concentrations measured in October 2019 (USACE 2024).

Residential Well #1, located directly east and closest to the Albany site (Figure 6), has been sampled from July 2012 through September 2020, and neither CTC nor CF has been detected in the samples (Table 5). Ponds on the private property where Residential Well #1 is located were sampled in 2013 and no contaminants were detected. Residential Well #2, located southeast and downgradient of the site (Figure 6), was sampled in 2012, 2013, and 2015. Concentrations of CTC, at 7.9 µg/L in 2012 and 17.3 and 16.9 µg/L in 2015, were above the MCL (Table 5). Residential Well #2 is no longer being used because the residence was connected to the area public water supply.

Overall, ISCR was successful in decreasing CTC concentrations; however, a CTC plume still exists extending off-site. Figures 5 and 6 show monitoring wells with CTC MCL exceedances in 2020 and the interpreted plume boundary.

Indoor Air

In 2015 a vapor intrusion investigation was conducted at the affected off-site residence (Consultech 2015b). At the time of the sampling in October 2015, the water supply at the residence was treated with a carbon filtration system. CTC was detected in indoor air samples (Table 6). The highest concentration was 0.75 micrograms per cubic meter (µg/m^3) in the sample collected in the first-floor living space.

In July 2023, indoor air samples were collected and analyzed (Table 6). Compared to the 2015 data, CTC concentrations decreased slightly but exceeded the USEPA VISL of 0.47 µg/m^3 for CTC with a target ILCR of 1 in 1,000,000 (denoted as 10^{-6}) that was used in the 2023 investigation. The only non-detection was in the ambient air, a sample collected from outdoors to assess the conditions in the general sample area. Additionally, CF exceeded its VISL (0.12 µg/m^3) in each indoor sample (USACE 2024).

SCOPE AND ROLE OF RESPONSE ACTION

The FS (USACE 2024) identified viable remedial alternatives for the Albany site and evaluated them to select the preferred alternative. The preferred alternative consists of additional ISCR treatment, ***Monitored Natural Attenuation*** (MNA), Institutional Control, and a vapor mitigation system installed at the affected off-site residence southeast of the site, which is currently occupied. The technologies used in the preferred alternative will be described in the following sections.

Implementation of remedies will comply with ***applicable or relevant and appropriate requirements (ARARs)*** and achieve the RAOs for the site (discussed in the following section). The proposed action will be the final action for the site.

SUMMARY OF SITE RISKS

USEPA identifies risk thresholds to provide a framework for determining whether a site, or a specific chemical or individual exposure pathway at a site, poses unacceptable risk to human health in the ***baseline risk assessment.*** USEPA's acceptable range for total receptor ILCR (from all chemicals and exposure pathways) is 1 in 10,000 (denoted as 10^{-4}) to 1 in 1,000,000 (denoted as 10^{-6}). Acceptable levels of noncancer hazard are defined by USEPA as a Hazard Index of 1 or less.

The human health risk assessment included an analysis of cancer risks and noncancer hazards from exposure to chemicals in groundwater and indoor air for future on-site residents, current and future off-site residents, and future commercial/ utility /excavation workers. Concentrations of CTC and CF in soil are limited to depths greater than 13 ft bgs; therefore, direct human contact with contaminated soil is unlikely.

Groundwater

The potentially complete exposure pathways are tap water use and vapor intrusion. The two closest residential water wells to the site, Residential Well #1 and Residential Well #2, have depths of 27 ft bgs and approximately 30-40 ft bgs, respectively (Figure 6). The off-site residence is connected to a public water supply and groundwater is no longer used in this home (Consultech 2021). Residential Well #1 is still used for drinking water, but contaminants have not been detected in this well (Table 5). There are currently no complete exposure pathways to contaminated groundwater associated with the Albany site; however, there are no restrictions in place that would prevent future installation of water supply wells at or near the CTC/CF groundwater plume.

Cancer risks and non-cancer hazards were calculated using the CTC and CF results from well samples collected in 2020 (Consultech 2021), assuming groundwater is used as residential tap water. The results of human health risk assessment for groundwater exposure (Figures 7 and 8) show that cancer risks and non-cancer hazards are greater than 10^{-4} and 1, respectively, in MW-16, MW-21, MW-23, MW-24, MW-25, and MW-26. A 10^{-4} risk level corresponds to the upper end of acceptable cancer risk range of 10^{-6} to 10^{-4} as discussed in the NCP, 40 Code of Federal Regulations 300.430. A target hazard of 1 is generally used as a threshold for remedial action (USEPA 2024a).

Indoor Air

Vapor intrusion risks were evaluated using the most recent measured groundwater concentrations against residential and commercial VISLs for CTC and CF (USEPA 2024b). Contaminants in groundwater can volatilize and lead to a vapor intrusion risk. An ILCR of 10^{-5} and Hazard Index of 1 are used to derive the USEPA's groundwater VISLs. Figures 9 and 10 show the monitoring wells where CTC and CF concentrations exceeded their respective residential and commercial groundwater VISLs. Most of the exceedances occurred in locations more than 100 ft from existing buildings, except for MW-18, which is near the off-site residence.

A hypothetical utility or excavation worker could be exposed in an excavation trench if CTC and CF vaporized into the trench from groundwater. The measured concentrations in groundwater at the Albany site are significantly less than CTC and CF screening levels (2100 and 9600 µg/L, respectively) calculated using the Virginia Unified Risk Assessment Model (VURAM) trench model (VDEQ 2022) for construction workers. Therefore, there are no unacceptable cancer risks and non-cancer hazards for utility workers from exposure to groundwater at the Albany site.

REMEDIAL ACTION OBJECTIVES

RAOs specify the COPCs, media of interest, and exposure pathways. Typically, RAOs are developed based on the exposure pathways found to pose potentially unacceptable risks according to the results of the Risk Assessment and to satisfy ARARs. The following RAOs were developed for the Albany site to mitigate future potential exposure risks to hypothetical residents:

- Mitigate the potential of exposure to contamination from potable use of groundwater containing CTC and CF above the groundwater remediation goals (RGs). RGs for this site are set at the primary MCLs as follows:
  - CTC 5 µg/L
  - CF 80 µg/L
- Mitigate the potential of exposure to indoor air containing CTC and CF at concentrations that would pose unacceptable risks or hazards to human health. Indoor air RGs for the site and surrounding residences are set to the VISLs (target risk of 10^{-6}) as follows:
  - CTC 0.47 µg/m^3
  - CF 0.12 µg/m^3

SUMMARY OF ALTERNATIVES

Remedial alternatives were developed using the RAOs. Three alternatives were retained for detailed evaluation in the FS (USACE 2024). The alternatives, including major components and total cost, are described in the following subsections.

Alternative 1: No Action

The NCP requires Alternative 1, the No Action alternative, to establish a baseline set of conditions that other remedial actions may be compared. The total cost of the Alternative is $0.

Alternative 2: Monitored Natural Attenuation with Institutional Controls and Vapor Mitigation System at Off-Site Residence

This alternative includes monitoring the migration and attenuation of the CTC/CF plume via MNA, Institutional Controls, and a vapor mitigation system.

MNA involves regular sampling of monitoring wells at the Albany site. Chemical analyses of CTC and CF and other parameters (such as dissolved oxygen, oxidation-reduction

potential, methane, nitrate, nitrite, sulfate, and sulfide, total and ferrous iron, etc.), data processing, and reporting would be conducted to demonstrate that geochemical conditions are favorable for natural degradation of CTC and CF. The existing monitoring well network would be used. Five-Year Reviews of the remedial action would be conducted. Institutional Controls would prevent drinking water use near the contaminated plume.

Because the properties at the Albany site and surrounding areas are privately owned, Institutional Controls consist of the following:

1) A notice to the property owner regarding the contaminated groundwater and a recommendation to implement a groundwater use restriction.
2) Periodic monitoring of the site and surrounding area using visual inspection and a search of the MDNR well database to verify that no new wells have been installed near the contaminated plume.

Additionally, a vapor mitigation system would be installed at the off-site residence (with permission from the property owner) to manage the CTC and CF concentrations in the indoor air. Indoor air sampling would be performed in the first, second, and fifth year after installation of the mitigation system (IDEM 2019). Periodic sampling would then be conducted every fifth year thereafter. Because future constructed structures may be affected by vapor intrusion, vapor mitigation systems would be considered at new potentially affected properties, as needed.

Monitoring will continue until RGs are reached. The remediation timeframe for Alternative 2 was assumed to be 30 years. The estimated cost of Alternative 2 is $924,898 (USACE 2024). This alternative prevents groundwater use near the contaminated groundwater plume and reduces the indoor CTC concentrations at the off-site residence.

Alternative 3: In Situ Treatment via ISCR with MNA, Institutional Controls, and Vapor Mitigation System at Off-Site Residence

Alternative 3 contains all the components in Alternative 2, as well as ISCR to treat the residual CTC and CF detected after the 2019 treatment activities (Consultech 2020). ISCR would be implemented in fifteen total target areas: eight areas where post-injection monitoring showed CTC concentrations above MCL in groundwater; five target areas where post injection soil sampling showed CTC and CF concentrations above the soil-to-groundwater migration standards; and two target areas immediately adjacent to the existing silos to address source area contamination (Figure 11). The proposed injection treatment would include a controlled-release of carbon, zero valent iron (ZVI), and nutrients.

Performance monitoring to evaluate the effectiveness of the remedy would be conducted at 30, 60, and 90-days post injection. Quarterly sampling and analysis would be conducted in Years 2 and 3 to provide treatment performance data, including seasonal trends. Semi-annual monitoring in Years 4 and 5 would provide data on potential rebound in contaminant concentrations after the initial ISCR injection. Annual sampling in Years 6 through 10 would continue to monitor the long-term MNA trends. ISCR implemented previously at the site resulted in a significant decrease in CTC concentrations within 1 year; the 10-year period allows continued monitoring after active treatment to determine whether contaminant rebound occurs. Based on the results of the monitoring wells, a request to reduce the number of monitoring wells and/or terminate the MNA program would be submitted to MDNR for review and approval.

Reports would be submitted annually documenting monitoring activities, including groundwater sampling and land use inspection. The results of quarterly and semiannual sampling events would be documented in memorandum form and summarized in the annual reports.

This alternative also includes Institutional Controls and vapor mitigation at the affected off-site residence downgradient of the site (with permission from the property owner).

The total estimated cost to complete Alternative 3 is $1,157,348, assuming a 10-year period to reach RGs. This alternative:

1) Prevents groundwater use near the contaminated CTC and CF plume.
2) Reduces the concentration of CTC and CF at the locations where they were the most elevated.
3) Reduces rebound of CTC and CF in groundwater wells by repeating ISCR treatment.
4) Reduces the indoor CTC concentrations at the off-site residence.

EVALUATION OF ALTERNATIVES

Alternatives were evaluated using NCP evaluation criteria (shown in the "NCP Evaluation Criteria" text box). The first two criteria are the minimum requirements that must be met. The remaining balancing criteria provide additional means of evaluating alternatives.

Discussion in the following subsections summarizes the comparison of alternatives using seven of the nine criteria. The last two criteria, state agency acceptance and community acceptance, are best evaluated after comments are received from community members on this PP. Additional information about the detailed analysis of alternatives is provided in the FS report (USACE 2024).

1) Overall Protection of Human Health and the Environment
   a) Alternative 1 does not meet this criterion.
   b) Alternative 2 meets this criterion. Institutional

Controls will prohibit drinking water use of the groundwater around the CTC/CF plume. This alternative reduces the indoor CTC concentrations at the off-site residence.

c) Alternative 3 meets this criterion. This alternative reduces the concentration of CTC/CF at the locations where they were highest and reduces the indoor CTC concentrations at the off-site residence.

2) Compliance with ARARs as detailed in the FS report (USACE 2024)
   a) Alternative 1 does not meet this criterion.
   b) Alternative 2 meets this criterion and complies with ARARs. Groundwater monitoring results will determine if ARARs (MCLs) are being met. Periodic monitoring of the vapor mitigation system will determine if indoor air concentrations remain at or below VISLs.
   c) Alternative 3 will comply with ARARs. Groundwater treatment followed by monitoring will continue to determine if ARARs (MCLs) are being met. Periodic monitoring of the vapor mitigation system will determine if indoor air concentrations remain at or below VISLs.
3) Short-Term Effectiveness
   a) This criterion is not relevant for Alternative 1.
   b) Alternative 2 meets this criterion. A notice to the landowner(s) will be made regarding the contaminated groundwater. The area will be periodically monitored both visually and by reviewing the MDNR well database to verify that no new water supply wells have been installed near the CTC plume. Adverse effects and risks to human health during the remedial phase are low.
   c) Alternative 3 meets this criterion. This Alternative will have the short-term effectiveness in protecting the community, worker health, and environment during the implementation of in situ treatment and groundwater sampling. A notice to the landowner(s) will be made regarding the contaminated groundwater. The area will be periodically monitored visually and by reviewing the MDNR well database to verify that no new wells have been installed near the plume.
4) Long-Term Effectiveness and Permanence
   a) This criterion is not relevant for Alternative 1.
   b) Alternative 2 meets this criterion by monitoring natural degradation of contamination to ensure potential receptors are not being affected. The sample collection and chemical analyses, data processing and reporting associated with MNA will provide a better understanding of fate and transport of contaminants and a more accurate prediction of when contaminant levels will reach RGs.
   c) Alternative 3 meets this criterion by using active treatment. The in situ remediation technology can result in contaminant degradation and mass reduction, and the continued monitoring activities would ensure that potential receptors are not being affected. The additional natural attenuation data collection, analysis, and reporting will provide a better understanding of contaminant fate and

NCP Evaluation Criteria

1. Overall Protection of Human Health and the Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled.
2. Compliance with ARARs addresses whether or not a remedy will meet all applicable federal and state environmental laws and/or provide grounds for a waiver.
3. Short-Term Effectiveness addresses the period of time needed to complete the remedy and any adverse effects to human health and the environment that may be caused during the construction and implementation of the remedy.
4. Long-Term Effectiveness and Permanence refers to the ability of a remedy to provide reliable protection of human health and the environment over time.
5. Reduction of Toxicity, Mobility, or Volume Through Treatment refers to the preference for a remedy that reduces health hazards, the movement of contaminants, or the quantity of contaminants at the site through treatment.
6. Implementability refers to the technical and administrative feasibility of the remedy, including the availability of materials; services needed to carry out the remedy; and coordination of federal, state, and local governments to work together to clean up the site.
7. Cost evaluates the estimated ***capital costs*** and ***operation and maintenance costs*** of each alternative in comparison to other equally protective measures.
8. State agency acceptance indicates whether the state agrees with, opposes, or has no comment on the preferred alternative. Final acceptance by MDNR of the preferred alternative will be evaluated after the public comment period ends and will be described in the DD for this action.
9. Community acceptance includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose. Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the DD for this action.

transport and a more accurate prediction of when contaminant levels will reach RGs.

5) Reduction of Mobility, Volume, Toxicity Through Treatment
   a) This criterion is not relevant for Alternative 1.
   b) Alternative 2 meets this criterion. Although the Alternative does not actively treat groundwater to reduce the toxicity, mobility, or volume of contamination, it includes data collection to demonstrate whether conditions are favorable for natural degradation to be active in reducing toxicity, mobility, or volume of contamination in groundwater. The vapor mitigation system will reduce indoor air contamination, although it does not reduce the toxicity, mobility, or volume of contamination in the soil gas beneath the residence.
   c) Alternative 3 meets this criterion. The ISCR treatment can reduce the mass of contamination. The treatment can break down CTC, thus reducing its toxicity in the groundwater. Alternative 3 includes performance monitoring to demonstrate that favorable conditions are enhanced for natural attenuation that further reduces toxicity and mobility of contaminants, and/or volume of groundwater contamination. The MNA data reporting would also show whether geochemical conditions are favorable for contaminant degradation after active remediation is completed.
6) Implementability
   a) This criterion is not relevant for Alternative 1.
   b) Alternative 2 meets this criterion. Alternative 2 can be easily implemented since there is already an existing monitoring well network. The vapor mitigation system can be easily implemented using off-the-shelf technologies.
   c) Alternative 3 meets this criterion. Alternative 3 will be readily implemented after the remedial design is developed and approved by stakeholders and all appropriate coordination with local, state, and federal agencies is completed. It can have some challenges depending on site characteristics. However, ISCR remedial actions have been implemented at the site resulting in significant reduction in CTC and CF concentrations. Monitoring groundwater through the existing monitoring well network and installation of a vapor mitigation system can be implemented easily.
7) Cost
   a) This criterion is not relevant for Alternative 1.
   b) Alternative 2 has the total estimated cost of $924,898 for sampling, analysis and reporting of the groundwater for 30 years. The cost also includes Five-Year Reviews for the next 30 years. The present value cost for Alternative 2 was calculated at $791,776, using a 2% discount factor (OMB 2023).
   c) Alternative 3 has a total cost of $1,157,348, assuming a 10-year period to reach RGs. The present value cost is estimated to be $1,117,025, assuming a 2% discount factor (OMB 2023). The cost estimates include implementation of in situ treatment, performance monitoring, repeating treatment (if needed), MNA monitoring, off-site gas mitigation, annual and Five-Year Reviews reporting for the next 10 years following the initial treatment. Given the limited groundwater data post-ISCR, the time period for remediation has uncertainty.

PREFERRED ALTERNATIVE

Based on the site characterization and remediation activities (Consultech 2015a, Consultech 2015b, Consultech 2020), FS (USACE 2024) and a review of available data, USDA recommends that Alternative 3 is the preferred alternative. This involves implementation of ISCR to treat the residual CTC and CF at the site. After the treatment, performance monitoring will be conducted to evaluate the effectiveness of the remedy every month for 3 months, and then quarterly, and semi-annually up to 5 years after the treatment. Annual sampling in Years 6 through 10 will continue to monitor the long-term MNA trends. ISCR implemented previously at the site resulted in a significant decrease in CTC concentrations within 1 year; the 10-year period allows continued monitoring after active treatment to determine whether contaminant rebound occurs. In the event that rebound occurs, a contingency has been included to retreat the areas. Based on the results of the monitoring wells, a request to reduce the number of monitoring wells and/or terminate the MNA program will be submitted to MDNR for review and approval.

This alternative also includes Institutional Controls and vapor mitigation at the off-site residence (with permission from the property owner). This alternative:

1) Reduces the concentration of CTC and CF at the site.
2) Reduces the indoor CTC concentrations at the off-site residence.
3) Prevents groundwater use near the contaminated groundwater plume.

Alternative 3 is protective of human health, is effective in both the short- and long-term, is a permanent solution, and is easily implementable. Although the cost is slightly higher than Alternative 2, Alternative 3 offers a shorter time frame to clean up the site.

USDA is the lead federal agency, and MDNR is the lead regulatory agency. Based on the information currently available, Alternative 3 meets the threshold criteria and

provides the best balance or tradeoffs of all alternatives with respect to the balancing and modifying criteria without potentially detrimental impacts on the environment. USACE and USDA expect the preferred alternative to satisfy the statutory requirements of CERCLA S 121(b):

1) Be protective of human health and the environment.
2) Comply with ARARs (or justify a waiver).
3) Be cost-effective.
4) Use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.
5) Satisfy the preference for treatment as a principle element or explain why the preference for treatment will not be met.

COMMUNITY PARTICIPATION

USDA will provide information regarding the remedial action for the Albany site to the public through the Administrative Record file for the site and announcements published in the local newspapers. USDA encourages the public to gain a more comprehensive understanding of the site and the Remedial Investigation/FS activities that have been conducted.

Written comments on this PP may be sent to Jacob Allen no later than 30 days from the PP announcement. After public comments are received, USACE and USDA, in consultation with MDNR, will develop a responsiveness summary and make its final remedy selection. The responsiveness summary and decision will be published in a DD.

The dates for the public comment period and the locations of the Administrative Record files are provided on the front page of this PP.

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KEY SUPPORTING DOCUMENTS

American Cancer Society 2024. Lifetime Risk of Developing or Dying from Cancer. Accessed June 13, 2024 at https://www.cancer.org/cancer/risk-prevention/understanding-cancer-risk/lifetime-probability-of-developing-or-dying-from-cancer.html.

Consultech (Consultech ERC JV, LLC) 2015a. Phase II Site Characterization Services Report – Revision 1.0, Former CCC/USDA Grain Storage Facility, U.S. 136 Highway, 4 Miles West of Albany, Albany, Gentry County, Missouri. August.

Consultech (Consultech ERC JV, LLC) 2015b. Vapor Intrusion Investigation Report, John J. Sciortino Residence, 3327 520th Road (R. Gillespie Road), Albany, Gentry County, Missouri 64402. October.

Consultech (Consultech ERC JV, LLC) 2018. Post-Remediation Results and Groundwater Sampling Report, Former CCC/USDA Grain Storage Facility, U.S. Highway 136, 4 Miles West of Albany, Albany, Gentry County, Missouri, July.

Consultech (Consultech ERC JV, LLC) 2020. Remedial Activity Summary, In-Situ Chemical Reduction Phase II, Former CCC/USDA Grain Storage Facility, U.S. Highway 136, 4 Miles West of Albany, Albany, Gentry County, Missouri. January.

Consultech (Consultech ERC JV, LLC) 2021. Post Remediation Groundwater Monitoring Report, April/September 2020 Monitoring Events, Former CCC/USDA Grain Storage Facility, U.S. Highway 136, 4 Miles West of Albany, Albany, Gentry County, Missouri. March.

Fuller, D.; McMillen, J.; Pick, H.; Russell, W.; Wells, J. 1956. Water Possibilities from the Glacial Drift of Gentry County. Missouri Geological Survey and Water Resources, Water Resources Report 7.

IDEM (Indiana Department of Environmental Management) 2019. *Vapor Remedy Selection and Implementation.* July.

MDNR (Missouri Department of Natural Resources) 2021. Letter to USDA/FSA/CEPD, Washington, DC, December 16.

OMB (Office of Management and Budget) 2023. Circular No. A-94. Subject: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, November.

USACE (U.S. Army Corps of Engineers) 2024. *Final Feasibility Study Report, Former CCC/USDA Grain Storage Facility, Albany, Missouri.* April.

USEPA (U.S. Environmental Protection Agency) 2024a. Regional Screening Levels (RSLs) – Tables as of May 2024.

USEPA (U.S. Environmental Protection Agency) 2024b. Vapor Intrusion Screening Level Calculator. Accessed online June 2024, https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator

VDEQ (Virginia Department of Environmental Quality) 2022. Virginia Unified Risk Assessment Model-VURAM User's Guide for Risk Assessors.

ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
CCC	Commodity Credit Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CF	chloroform
COPC	contaminant of potential concern
CTC	carbon tetrachloride
ft	feet
ILCR	Incremental Lifetime Cancer Risk
ISCR	in situ chemical reduction
MCL	Maximum Contaminant Level
MDNR	Missouri Department of Natural Resources
MIP	membrane interface probe
MNA	Monitored Natural Attenuation
MW	monitoring well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PP	Proposed Plan
RAO	remedial action objective
RG	remediation goal
RSL	Regional Screening Level
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
VISL	Vapor Intrusion Screening Level
VURAM	Virginia Unified Risk Assessment Model
ZVI	zero-valent iron
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter

GLOSSARY

Administrative Record: The body of documents USACE/USDA uses to form the basis for selection of a response.

applicable or relevant and appropriate requirements (ARARs): Federal and state requirements for cleanup, control, and environmental protection that a selected remedy for a site will meet.

baseline risk assessment: A baseline risk assessment is conducted to determine the current and future effects of contaminants on human health and the environment.

capital costs: Expenses related to the labor, equipment, and material costs of construction.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party can be identified.

Decision Document (DD): The Decision Document presents the remedy selection decision and remedial action plan. It describes the technical parameters of the remedy, methods selected to protect human health and the environment, Institutional Controls, and cleanup levels.

Feasibility Study (FS): Identifies and evaluates the most appropriate technical approaches to address contamination problems at a CERCLA site.

Hazard Index: The sum of hazard quotients for chemicals that affect the same target organ or organ system. Because different chemicals can cause similar adverse health effects, combining hazard quotients from different chemicals is often appropriate. A hazard index (HI) of 1 or lower means chemicals are unlikely to cause adverse noncancer health effects over a lifetime of exposure. However, an HI greater than 1 doesn't necessarily mean adverse effects will occur from exposure, it merely indicates that site-related exposures may present a hazard to human health.

Hazard Quotient: The ratio of the potential exposure to a substance and the level at which no adverse effects are expected (calculated as the exposure divided by the appropriate chronic or acute value). A hazard quotient of 1 or lower means adverse noncancer effects are unlikely, and thus can be considered to have negligible hazard.

Incremental Lifetime Cancer Risk (ILCR): The incremental probability of an individual developing cancer over a lifetime as a result of site-related exposure to potential carcinogens.

Maximum Contaminant Levels (MCLs): The highest level of a contaminant that is allowed in drinking water.

membrane interface probe (MIP): A probe system used during subsurface investigations with three detectors: a photoionization detector, a flame ionization detector, and a halogen-specific detector. Detector responses are a semi-qualitative indication of volatile organic compound concentrations.

Monitored Natural Attenuation (MNA): Natural attenuation processes are expected to reduce contaminant concentrations over time due to dispersion, diffusion, dilution, volatilization, sorption, and degradation by microorganisms. MNA is the practice of observing concentrations of contaminants and geochemical parameters indicating conditions that lead to reduction of contaminants over an extended period of time.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): USEPA's regulations governing all cleanups under the Superfund program.

operation and maintenance cost: The cost and timeframe of operating labor, maintenance, materials, energy, disposal, and administrative components of the remedy.

Proposed Plan (PP): A document that summarizes cleanup alternatives studied in the Feasibility Study and highlights the recommended cleanup method.

Remedial Action Objective (RAO): A specific goal to be achieved by the selected remedy.

Screening Level: A concentration of a chemical of potential concern, at which potential human health risks could occur if exposed.

Figure 1. Site location.

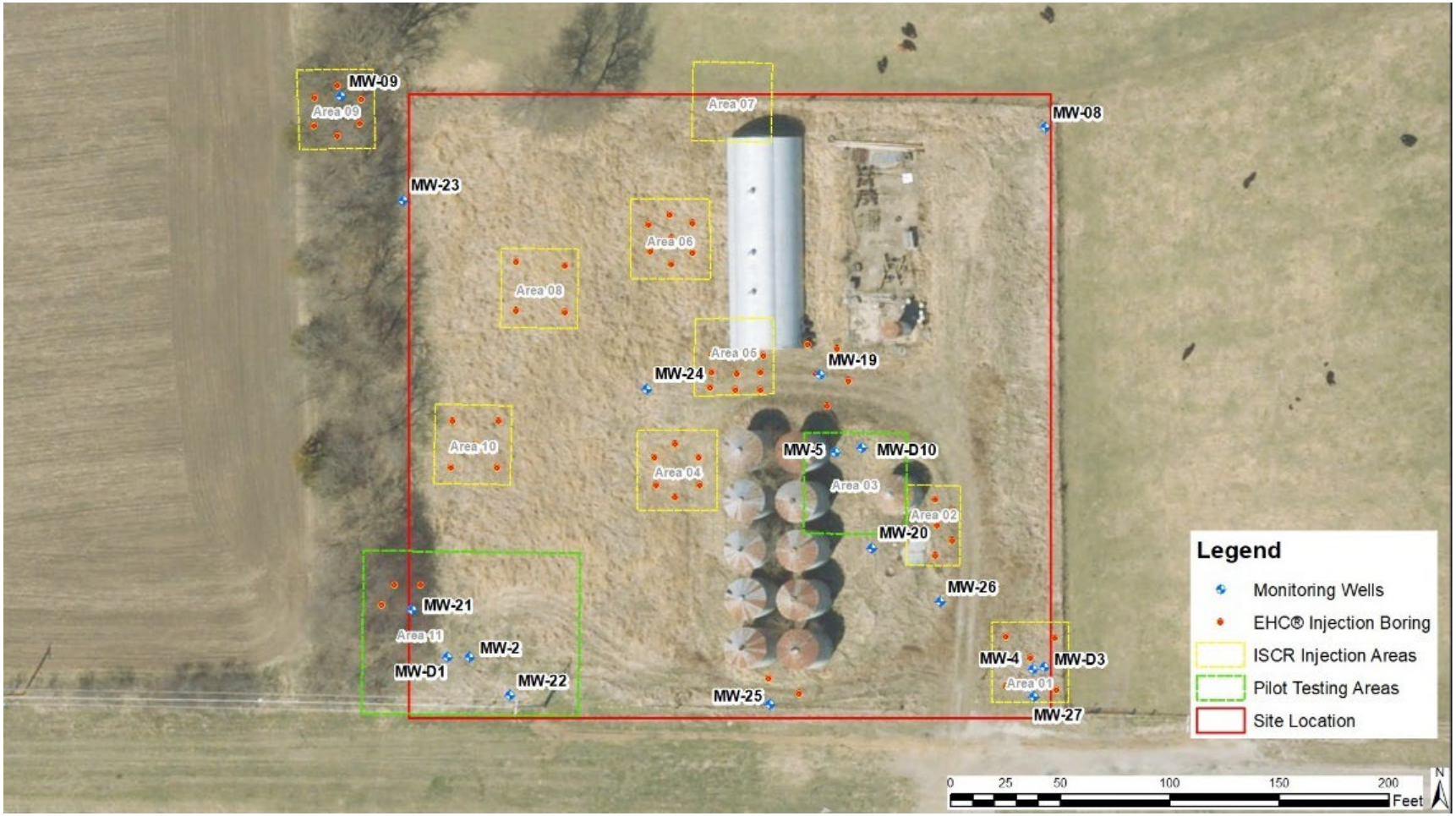
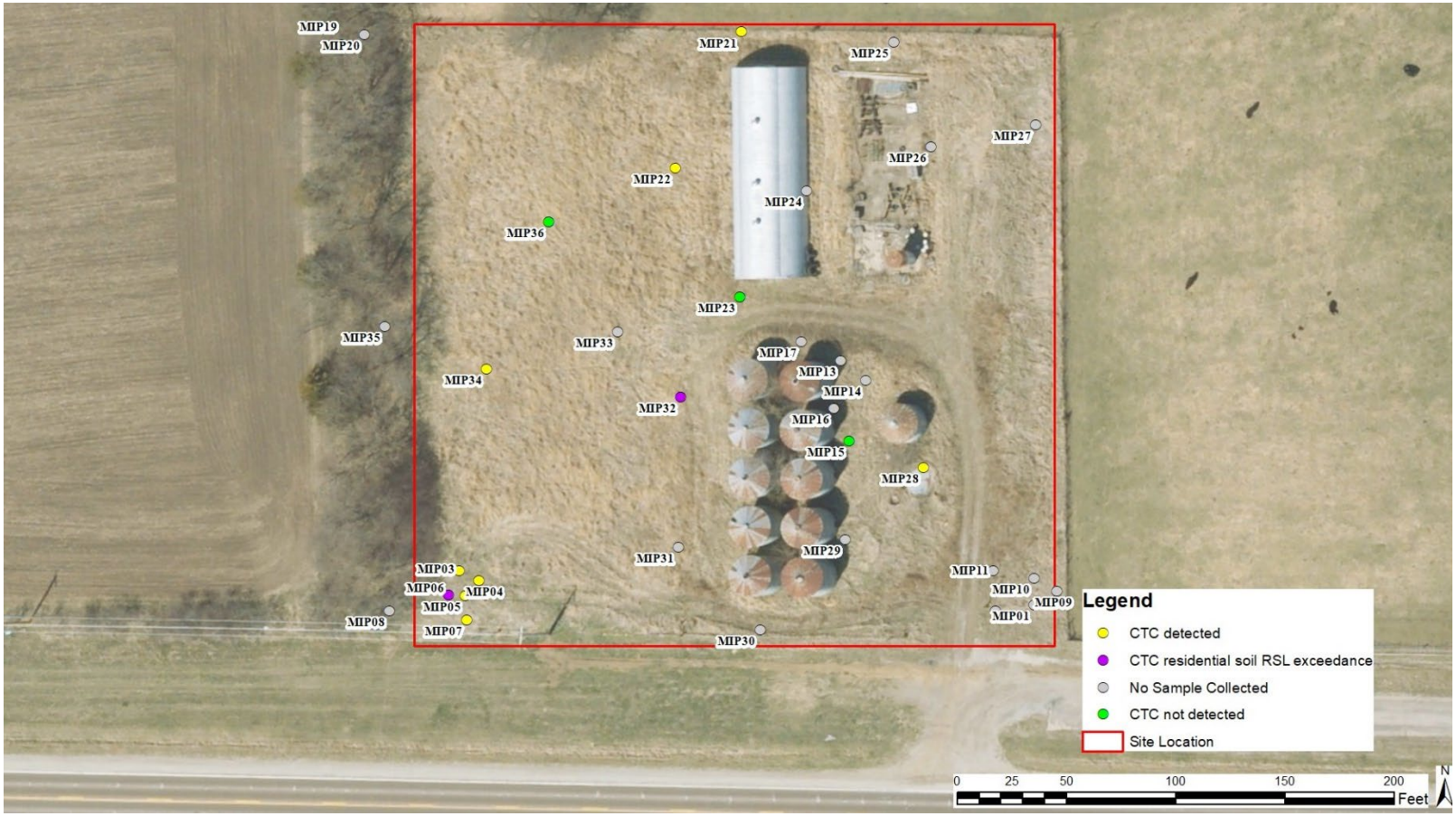
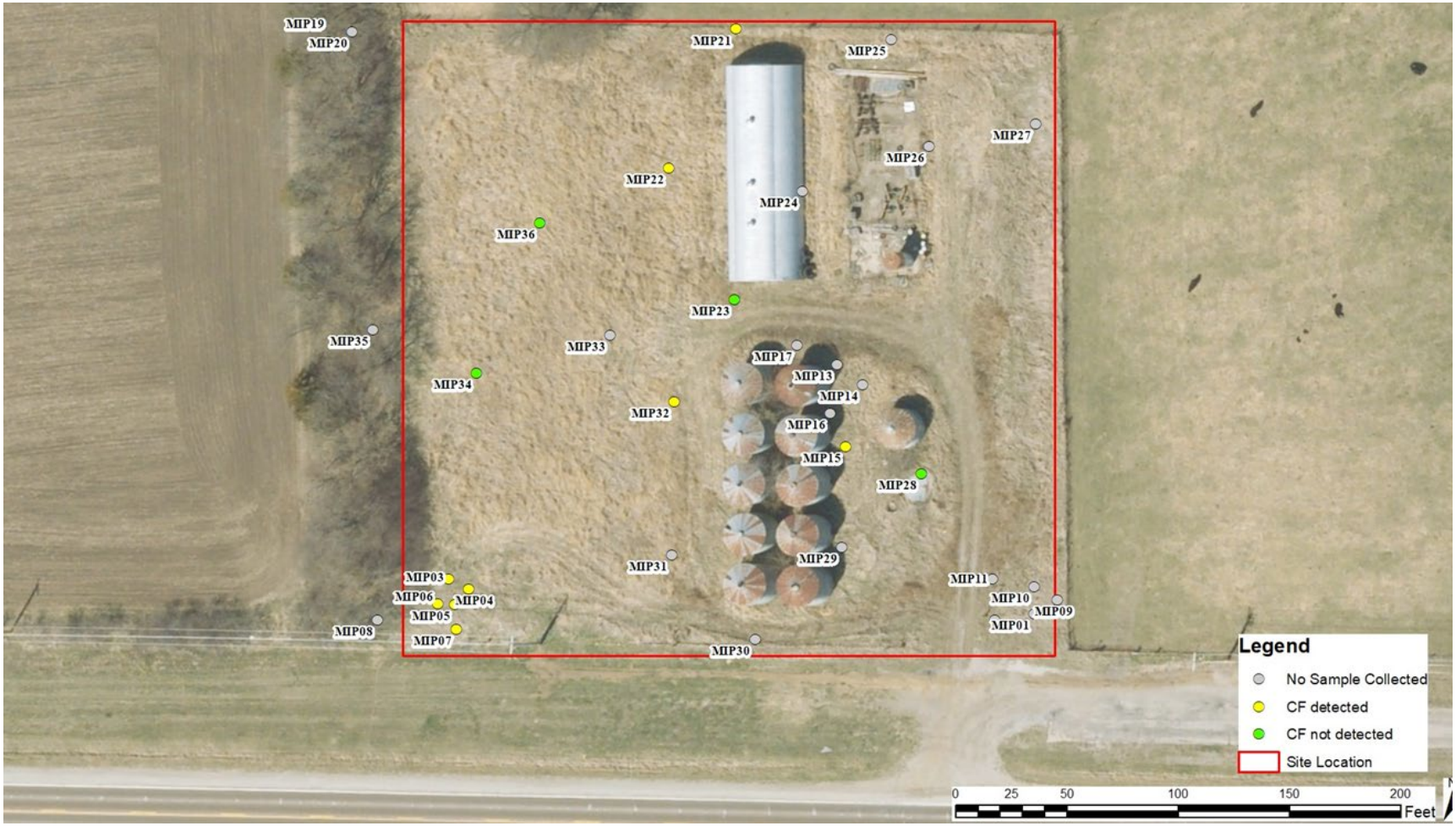


Figure 2. Site layout and previous in situ chemical reduction (ISCR) treatment locations.



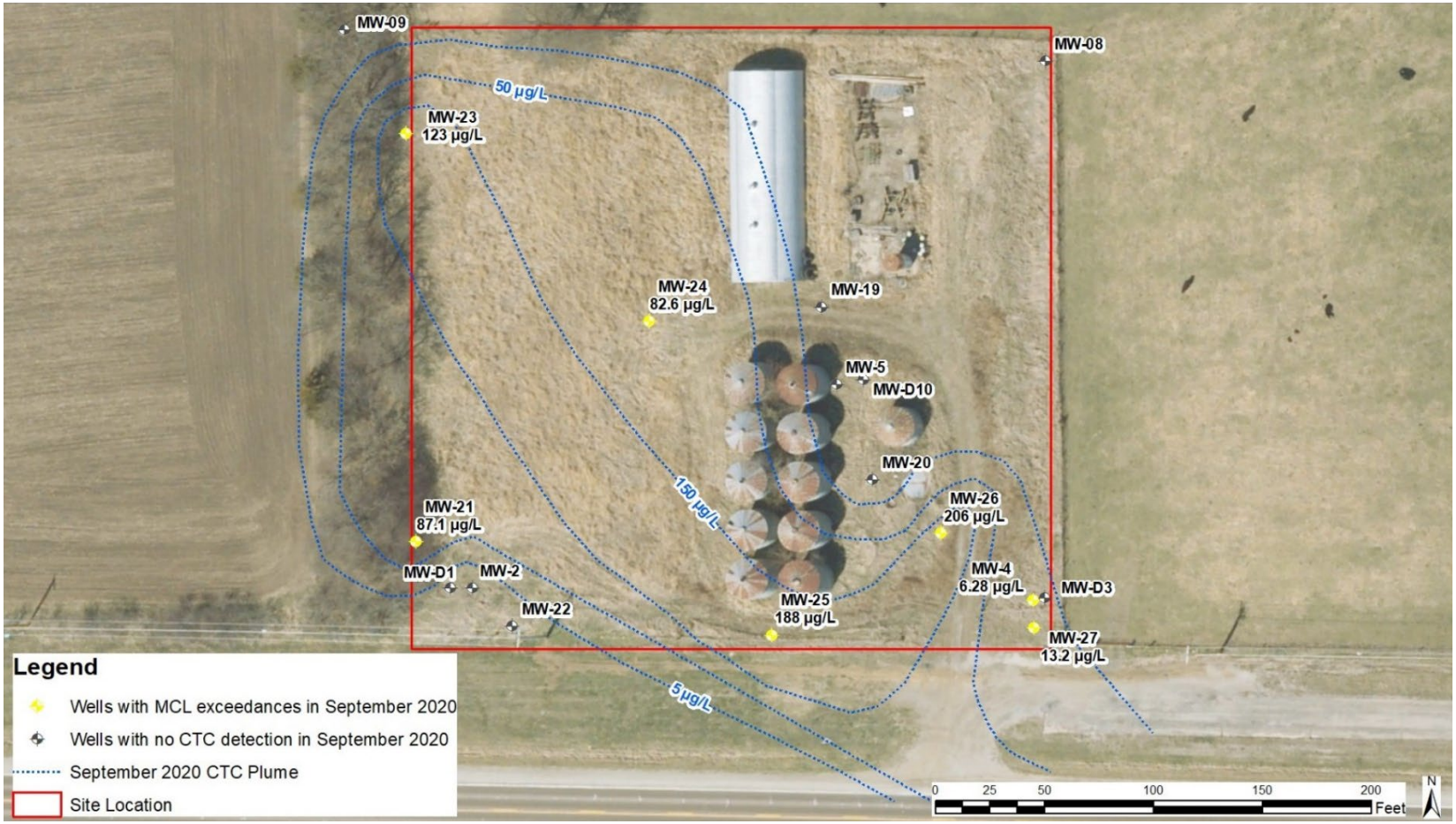
ISCR: in situ chemical reduction
MIP: Membrane Interface Probe
RSL: Regional Screening Level

Figure 3. 2020 Soil sample results of carbon tetrachloride (CTC) screening level exceedance in MIP borings (after ISCR treatments).



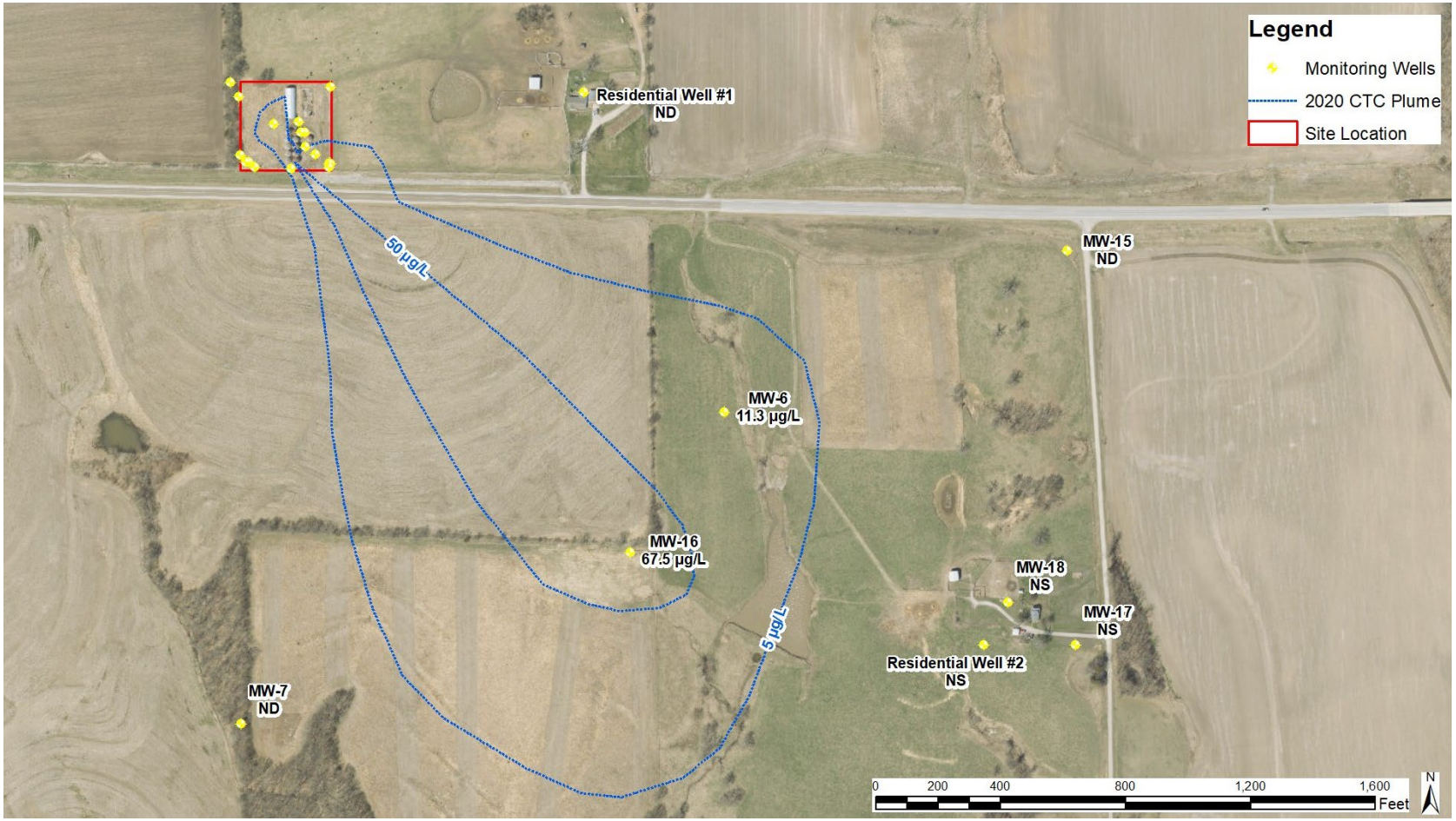
ISCR: in situ chemical reduction
MIP: membrane interface probe

Figure 4. 2020 Soil sample results of chloroform (CF) screening level exceedance in MIP borings (after ISCR treatments).



ISCR: in situ chemical reduction
MCL: Maximum Contaminant Level
µg/L: micrograms per liter

Figure 5. On-site carbon tetrachloride (CTC) plume based on 2020 groundwater results (after ISCR treatments).



ISCR: in situ chemical reduction
ND: not detected
NS: not sampled
µg/L: micrograms per liter

Figure 6. Off-site carbon tetrachloride (CTC) plume based on 2020 groundwater results (after in situ chemical reduction [ISCR] treatments).

Figure 7. Estimated cancer risks and non-cancer hazards from use of groundwater as tap water supply, on-site, east and north.

Figure 8. Estimated cancer risks and non-cancer hazards from use of groundwater as tap water supply, southeast of site

VISL: Vapor Intrusion Screening Level

Figure 9. Vapor intrusion risk assessment results based on groundwater carbon tetrachloride (CTC) / chloroform (CF) concentrations, on-site, east and north.

VISL: Vapor Intrusion Screening Level

Figure 10. Vapor intrusion risk assessment results based on groundwater carbon tetrachloride (CTC) / chloroform (CF) concentrations, southeast of site.

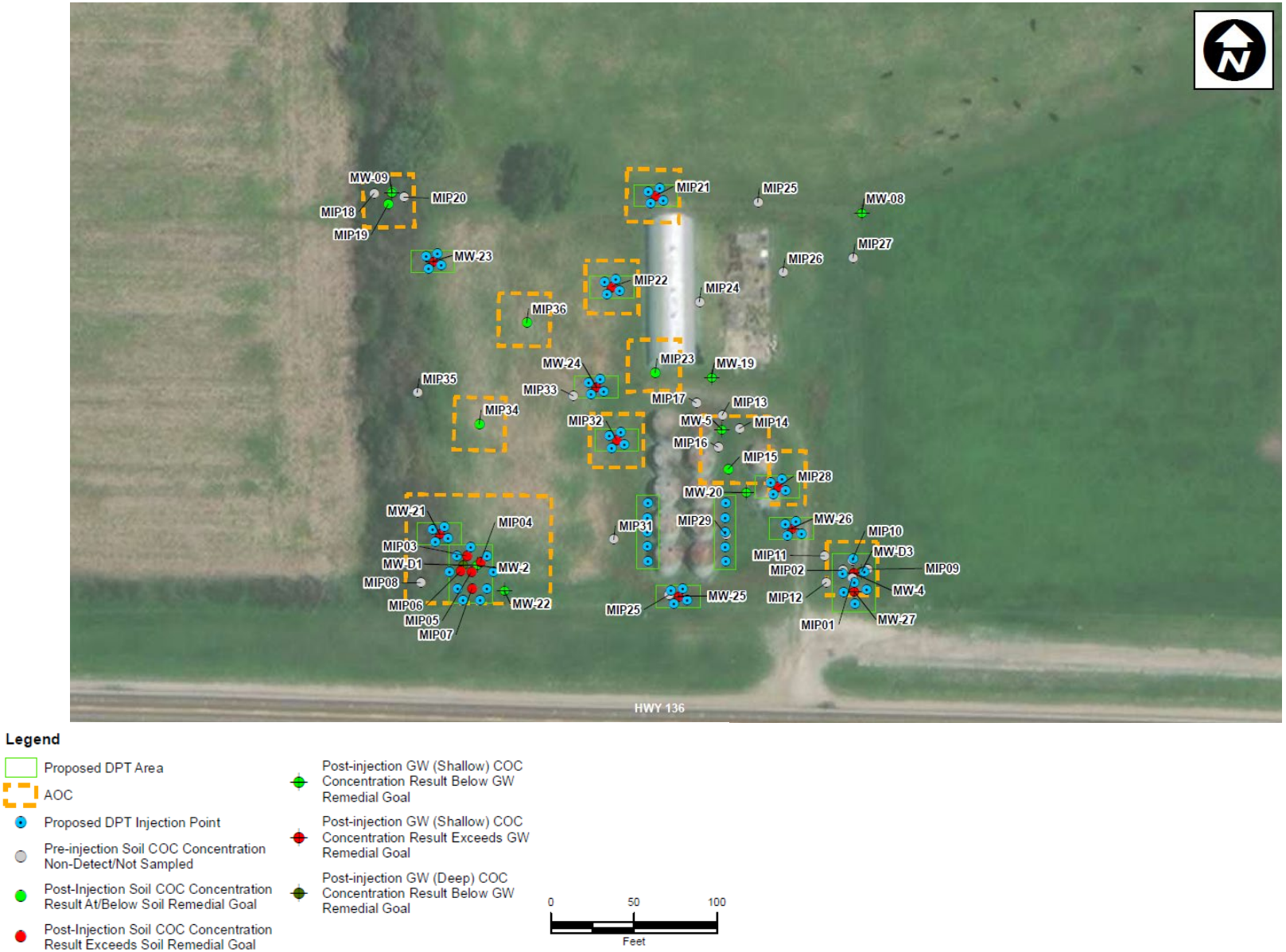


Figure 11. Proposed ISCR locations at the Albany site.

Table 1. Soil Analysis Results from 2017 Membrane Interface Probe Screening

Sample Location	Sample Date	Depth (ft bgs)	Carbon Tetrachloride (µg/kg)	Chloroform (µg/kg)
		Residential Soil RSL [1]	**650**	**320**
MIP01	6/10/2017	AWT	ND	ND
MIP02	6/10/2017	28-32	ND	ND
MIP03	6/10/2017	12-14	**184**	**2.54**
	6/10/2017	AWT	**260**	**66.4**
MIP04	6/11/2017	11-15	**97.9**	ND
MIP05	6/11/2017	12-13	**9.57**	**0.878**
	6/11/2017	AWT	**141**	**3.53**
MIP06	6/11/2017	15-16	**208**	**46.4**
	6/11/2017	26-26.5	**32.9**	ND
MIP07	6/11/2017	18-20	**47.7**	**1.66**
MIP08	6/11/2017	AWT	ND	ND
MIP10	6/10/2017	AWT	ND	ND
MIP14	6/10/2017	9	ND	ND
MIP15	6/10/2017	12	**94.9**	**1.59**
	6/10/2017	17	**742**	**9.96**
MIP17	6/10/2017	AWT	ND	ND
MIP19	6/11/2017	AWT	**57.7**	**3.44**
MIP21	6/11/2017	11-13	**29.9**	**5.57**
MIP22	6/12/2017	AWT	**833**	**15.5**
MIP23	6/12/2017	9	**162**	**16.9**
	6/12/2017	13	**104**	**17.9**
MIP24	6/12/2017	AWT	**1.58**	**1.02**
MIP25	6/12/2017	12.5	ND	ND
MIP26	6/12/2017	AWT	ND	ND
MIP27	6/12/2017	AWT	ND	ND
MIP28	6/12/2017	AWT	**11**	**0.85**
MIP29	6/12/2017	13	**0.739**	ND
MIP30	6/13/2017	AWT	ND	ND
MIP31	6/12/2017	23	**0.66**	ND
MIP32	6/13/2017	24	**4460**	**55.3**
	6/13/2017	35-36	**1250**	**119**
MIP33	6/13/2017	23-25	**1.27**	ND
MIP34	6/13/2017	8-9	ND	ND
	6/13/2017	29-31	**9.03**	ND
MIP35	6/13/2017	AWT	ND	ND
MIP36	6/13/2017	AWT	**7.68**	**0.744**

Bolded results indicate detections; bolded and highlighted results indicate RSL exceedances

AWT: above water table; bgs: below ground surface; ft: feet; ND: non-detection; RSL: Regional Screening Level; µg/kg: micrograms per kilogram

[1] USEPA Regional Screening Levels, May 2024

Table 2. Soil Analysis Result Comparison of pre- (2017) and post- (2020) In Situ Chemical Reduction

Sample Location	Sample Date	Depth (ft bgs)	Carbon Tetrachloride (µg/kg)	Chloroform (µg/kg)	% Change Carbon Tetrachloride	% Change Chloroform
		Residential Soil RSL (µg/kg)[1]	**650**	**320**		
MIP03	6/10/2017	12-14	**184**	**2.54**	72%	211%
	9/23/2020		**316**	**7.89**		
	6/10/2017	40-45	**260**	**66.4**	-57%	96%
	9/23/2020		**113**	**130**		
MIP04	6/11/2017	11-15	**97.9**	ND	55%	INCREASE
	9/23/2020		**152**	**17.3**		
MIP05	6/11/2017	12-13	**9.57**	**0.878**	1885%	1825%
	9/24/2020		**190**	**16.9**		
	6/11/2017	40-43	**141**	**3.53**	DECREASE TO ND	DECREASE TO ND
	9/24/2020		ND	ND		
MIP06	6/11/2017	15-16	**208**	**46.4**	DECREASE TO ND	-3%
	9/24/2020		ND	**45.2**		
	6/11/2017	26-27	**32.9**	ND	5584%	INCREASE
	9/24/2020		**1870**	**43.8**		
MIP07	6/11/2017	19-20	**47.7**	ND	-21%	INCREASE
	9/23/2020		**37.9**	**39**		
MIP15	6/10/2017	12	**94.9**	**1.59**	DECREASE TO ND	DECREASE TO ND
	9/23/2020		ND	ND		
	6/10/2017	17	**742**	**9.96**	DECREASE TO ND	314%
	9/23/2020		ND	**41.2**		
MIP19	6/11/2017	40-43	**57.7**	**3.44**	DECREASE TO ND	DECREASE TO ND
	9/24/2020		ND	ND		
MIP21	6/11/2017	11-13	**29.9**	**5.57**	1679%	764%
	9/23/2020		**532**	**48.1**		
MIP22	6/12/2017	43-44	**933**	**15.5**	-83%	-57%
	9/23/2020		**159**	**6.67**		
MIP23	6/12/2017	9	**162**	**16.9**	DECREASE TO ND	DECREASE TO ND
	9/23/2020		ND	ND		
	6/12/2017	13	**104**	**17.9**	DECREASE TO ND	DECREASE TO ND
	9/23/2020		ND	ND		
MIP28	6/12/2017	43-44	**11**	**0.85**	40%	DECREASE TO ND
	9/23/2020		**15.4**	ND		
MIP32	6/13/2017	24	**4460**	**55.3**	DECREASE TO ND	139%
	9/24/2020		ND	**132**		
	6/13/2017	35-36	**1250**	**119**	-45%	-62%
	9/24/2020		**684**	**45.3**		
MIP34	6/13/2017	29-31	**9.03**	ND	-20%	ND
	9/23/2020		**7.22**	ND		
MIP36	6/13/2017	40-42	**7.68**	**0.744**	DECREASE TO ND	DECREASE TO ND
	9/24/2020		ND	ND		

Bolded results indicate detections; bolded and highlighted results indicate RSL exceedances

bgs: below ground surface; ft: feet; ND: non-detection; RSL: Regional Screening Level; µg/kg: micrograms per kilogram

[1] USEPA Regional Screening Levels, May 2024

Table 3. On-Site Groundwater Sample Results, 2012-2020

Well ID	Sample Date	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
	MCL (µg/L)[1]	**5**	**80**
MW-D1	7/23/2012	ND	ND
	9/26/2013	ND	ND
	5/21/2015	ND	ND
	6/14/2017	ND	ND
	11/28/2017	ND	ND
	1/4/2018	4.41	0.86
	5/8/2018	ND	ND
	12/6/2018	ND	ND
	10/2/2019	ND	ND
	4/21/2020	ND	ND
	9/22/2020	ND	ND
MW-2	7/23/2012	**1600**	38
	9/26/2013	**1900**	57
	5/21/2015	**191**	24.7
	6/14/2017	**2790**	**82.4**
	6/14/2017	**2690**	**85.9**
	11/28/2017	**2500**	65.2
	1/3/2018	**2030**	**206**
	5/8/2018	**50.3**	**186**
	12/6/2018	ND	**128**
	12/6/2018	ND	**123**
	10/2/2019	ND	9.67
	4/21/2020	ND	ND
	9/22/2020	ND	ND
MW-D3	7/23/2012	ND	ND
	9/26/2013	ND	ND
	5/21/2015	ND	ND
	6/14/2017	ND	ND
	11/29/2017	ND	ND
	12/5/2018	ND	ND
	10/2/2019	ND	ND
	4/20/2020	ND	ND
	9/22/2020	ND	ND
MW-4	7/23/2012	**190**	15
	9/26/2013	**110**	16
	5/21/2015	**319**	28.6
	6/14/2017	**51.4**	15
	11/29/2017	**125**	16
	5/10/2018	**267**	17.8
	12/5/2018	**199**	14.6
	10/2/2019	**199**	17.7
	4/20/2020	3.04	4.89
	9/22/2020	**6.28**	ND

Well ID	Sample Date	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
	MCL (µg/L)[1]	**5**	**80**
MW-5	7/23/2012	**200**	20
	9/25/2013	**140**	13
	5/21/2015	**749**	47
	6/15/2017	**435**	34.3
	11/28/2017	**359**	22
	1/4/2018	**118**	**90.6**
	5/10/2018	2.96	62.2
	12/4/2018	ND	1.95
	10/1/2019	**90.6**	9.43
	4/23/2020	ND	ND
	9/23/2020	ND	ND
MW-8	9/27/2013	ND	ND
	5/21/2015	ND	ND
	6/13/2017	2.82	0.72 J
	11/29/2017	ND	ND
	5/8/2018	ND	ND
	12/4/2018	ND	ND
	10/3/2019	2.58	ND
	4/22/2020	ND	ND
	9/21/2020	ND	ND
MW-9	9/27/2013	1.2	ND
	9/27/2013	ND	ND
	9/27/2013	ND	ND
	5/21/2015	2.8	1.1
	6/13/2017	**104**	21.5
	11/28/2017	**152**	18.1
	5/8/2018	**153**	15.7
	12/4/2018	**51.7**	8.33
	10/3/2019	**110**	23.4
	4/22/2020	ND	ND
	9/21/2020	ND	ND
MW-D10	10/5/2013	ND	ND
	5/21/2015	ND	ND

MCL: Maximum Contaminant Level; ND: non-detection; µg/L: micrograms per liter

Bolded and highlighted results exceed the MCL.

[1] USEPA Regional Screening Levels, May 2024

Table 4. Off-Site Groundwater Sample Results, 2012-2020

Well ID	Sample Date	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
	MCL (µg/L)[1]	**5**	**80**
MW-6	7/23/2012	**5.1**	ND
	9/24/2013	**7.1**	ND
	5/22/2015	**20.1**	2.1
	5/22/2015	**20.2**	2.1
	6/12/2017	**11.2**	1.35
	11/30/2017	ND	ND
	5/9/2018	**15.2**	1.59
	12/5/2018	**15.2**	1.53
	10/1/2019	**35.8**	2.56
	4/21/2020	**12.5**	1.58
	9/21/2020	**11.3**	ND
MW-7	7/23/2012	ND	ND
	9/24/2013	ND	ND
	5/22/2015	ND	ND
	6/12/2017	ND	ND
	11/30/2017	ND	ND
	5/9/2018	ND	ND
	12/5/2018	ND	ND
	4/21/2020	ND	ND
	9/21/2020	ND	ND
MW-11	5/21/2015	ND	ND
MW-12	9/27/2013	ND	ND
	9/27/2013	ND	ND
	5/22/2015	ND	ND
	12/4/2018	ND	ND
MW-13	9/28/2013	ND	ND
	10/2/2013	ND	ND
	5/21/2015	ND	ND
	6/12/2017	ND	ND
	11/29/2017	ND	ND
	5/10/2018	ND	ND
	12/5/2018	ND	ND
	4/22/2020	ND	ND
MW-14	10/4/2013	ND	ND
	5/21/2015	ND	ND
	12/5/2018	ND	ND
MW-15	5/22/2015	ND	ND
	12/4/2018	ND	ND
	10/1/2019	ND	ND
	4/21/2020	ND	ND
MW-16	6/12/2017	**64.5**	3.47
	11/30/2017	**89.9**	4.09
	5/9/2018	**84**	4.29
	12/5/2018	**62**	3.37
	9/21/2020	**67.5**	ND
MW-18	1/23/2018	**11**	1.8
	12/5/2018	**15.1**	2.52
MW-19	12/3/2017	**310**	24.2
	1/4/2018	**234**	35.7
	5/8/2018	**298**	21
	12/4/2018	**70.6**	6.4
	10/1/2019	**347**	22.6
	9/23/2020	ND	ND
MW-20	12/3/2017	**968**	49.1
	1/4/2018	**78.7**	**121**

Well ID	Sample Date	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
	MCL (µg/L)[1]	**5**	**80**
	1/23/2018	**10**	**89**
	5/8/2018	ND	31.5
	12/5/2018	ND	51.1
	10/1/2019	ND	5.44
	4/20/2020	ND	3.09
	9/23/2020	ND	ND
MW-21	12/3/2017	**295**	9.09
	1/4/2018	**158**	6.27
	5/8/2018	**289**	14.2
	12/6/2018	**295**	9.09
	10/2/2019	**319**	9.75
	4/23/2020	**133**	17.1
	9/22/2020	**87.1**	51.1
MW-22	12/3/2017	**220**	7.81
	1/4/2018	ND	ND
	1/4/2018	ND	ND
	5/8/2018	ND	NA
	12/6/2018	ND	4.18
	10/2/2019	ND	ND
	4/23/2020	ND	ND
	9/22/2020	ND	ND
MW-23	10/21/2019	**464**	23.3
	4/22/2020	**37.1**	18.7
	9/21/2020	**123**	9.29
MW-24	10/3/2019	**218**	6.37
	4/23/2020	**34.2**	26.8
	9/23/2020	**82.6**	19.6
MW-25	10/21/2019	**258**	12.6
	4/20/2020	**210**	10.5
	9/22/2020	**188**	16.8
MW-26	10/21/2019	**219**	37
	4/20/2020	**88.5**	14.1
	9/21/2020	**206**	35.1
MW-27	10/3/2019	**218**	16.6
	4/20/2020	3.79	1.71
	9/22/2020	**13.2**	ND

MCL: Maximum Contaminant Level; ND: non-detection; µg/L: micrograms per liter

Bolded and highlighted results exceed the MCL.

[1] USEPA Regional Screening Levels, May 2024

Table 5. Residential Groundwater Sample Results, 2012-2020

Sample Location	Sample Date	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
	MCL (µg/L)[1]	**5**	**80**
Residential Well #1	7/13/2012	ND	ND
	9/24/2013	ND	ND
	5/22/2015	ND	ND
	11/30/2017	ND	ND
	5/9/2018	ND	ND
	12/4/2018	ND	ND
	10/3/2019	ND	ND
	4/20/2020	ND	ND
	9/23/2020	ND	ND
Residential Well #2	7/13/2012	**7.9**	ND
	9/24/2013	**4.4**	ND
	5/22/2015	**17.3**	**0.75**
	5/22/2015	**16.9**	**2**

MCL: Maximum Contaminant Level; ND: non-detection; µg/L: micrograms per liter

Detections are bolded; bolded and highlighted results exceed the MCL.

[1] USEPA Regional Screening Levels, May 2024

Table 6. Indoor Air Sampling Results from 2015 and 2023 Sampling Events

Sample Location	Sample Date	Carbon Tetrachloride ($\mu g/m^3$)	Chloroform ($\mu g/m^3$)
	Residential VISL[1]	**0.47**	**0.12**
Basement Crawlspace	9/8/2015	**0.62**	0.98 U
	7/22/2023	**0.52**	**0.26**
Basement	9/8/2015	**0.48**	0.98 U
	7/22/2023	**0.57**	**0.14**
	7/22/2023	**0.55**	**0.14 J**
First Floor	9/8/2015	**0.75**	0.98 U
	7/22/2023	**0.54**	**0.64**
Ambient (Outdoor)	9/8/2015	13 U	9.8 U
	9/8/2015	13 U	9.8 U
	7/22/2023	0.32	0.095 J

J: estimated detection; U: analyte not detected in sample (quantitation limit of 0.98 $\mu g/m^3$); VISL: Vapor Intrusion Screening Level; USEPA: U.S. Environmental Protection Agency; $\mu g/m^3$: micrograms per cubic meter

[1] USEPA VISL Calculator, target risk = $1x10^{-6}$, target hazard = 0.1, output generated in June 2024

Bolded concentrations exceeded the VISL

COMMENT SHEET – Proposed Plan for the Albany Site
(Former CCC Grain Storage Facility)

Use this space to write your comments, or to be added to the mailing list.

USDA encourages your written comments on the Albany site (former CCC Grain Storage Facility) Proposed Plan. You can use the form below to send written comments. If you have any questions about how to comment, please contact Jacob Allen at 816-389-3654 or by email at Jacob.T.Allen@usace.army.mil.

This form is provided for your convenience. Please mail this form or additional sheets of written comments, **postmarked no later than March 20, 2025**, to the following address:

Mr. Jacob Allen
U. S. Army Corps of Engineers
601 E. 12th Street
Kansas City, Missouri 64106

Comment submitted by:

Address: