

Second FIVE-YEAR REVIEW REPORT FOR
T H Agriculture & Nutrition Site
SUPERFUND SITE
FRESNO COUNTY, CALIFORNIA



PREPARED BY

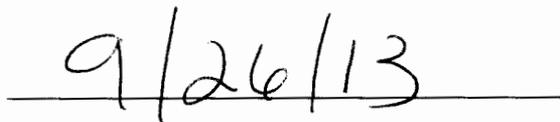
United States Environmental Protection Agency
Region 9
San Francisco, California

Approved by:

Date:



Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch
U.S. Environmental Protection Agency Region IX



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Executive Summary

This is the second Five-Year Review of the for the 5-acre T H Agriculture & Nutrition, L.L.C. (THAN) Site, which is located at 7183 East McKinley Avenue, Fresno County, California (Figure 1). The purpose of this Five-Year Review is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this Five-Year Review (FYR) was the signing of the previous FYR on September 30, 2008.

The Site consists of an approximately 5-acre, vacant, fenced parcel located at 7183 East McKinley Avenue in Fresno County, just east of the city of Fresno, California. The Site is the former location of an agricultural chemical formulation, packaging, and warehousing plant. Pesticides handled at the Site and detected in soil and/or groundwater included: organochlorine pesticides such as dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyldichloroethane (DDD), toxaphene, chlordane, benzene hexachloride isomers (BHC), and dieldrin; organophosphates such as diphenamid, malathion, trifluralin, and guthion; and chlorophenoxy herbicides and miscellaneous pesticides.

The Final Remedy for the Site was selected in the June 1999 final *Remedial Action Plan* (RAP) signed by California Department of Toxic Substance Control (DTSC). A concurrence letter from EPA was signed on September 29, 2004. The remedy included:

- a containment cover consisting of a bentonite clay liner, a rodent-control barrier, clean fill soil, and a vegetative top layer;
- an infiltration trench adjacent to the southern and western sides of the containment cover for collection and infiltration of surface stormwater runoff;
- perimeter fencing and signage;
- a deed restriction on the Site;
- monitored natural attenuation (MNA); and
- providing alternate water supplies to affected parties.

Implementation of the Soil Component of the Final Remedy was completed at the Site on January 24, 2003. The Deed Restriction was recorded on September 26, 2005 for the Site to ensure that future land use activities will not adversely affect the integrity and/or effectiveness of the Soil Component of the Final Remedy or result in exposures to the public and the environment of COCs at the Site. The Site was deleted from the NPL on August 21, 2006.

The remedy at the THAN Site is functioning as intended by the decision documents. The containment cover, fencing, and Deed Restriction, work together to restrict potential contact by human or ecological receptors with residual chemicals in soil at the Site. Groundwater concentrations of Site-related chemicals are well below their respective Maximum Contaminant Levels (MCL). There has been a change to the chloroform MCL in the past five years; however, current concentrations are below the new MCL.

The remedy at the THAN Superfund is protective of human health and environment. Groundwater concentration of chemicals associated with site activities are all below final remediation levels. The cap on site and the institutional controls prevent exposure to contaminated soil.

Five-Year Review Summary Form

| SITE IDENTIFICATION | | |
|--|--|----------------------------|
| Site Name: T H Agriculture & Nutrition Superfund Site | | |
| EPA ID: CAD009106220 | | |
| Region: 9 | State: CA | City/County: Fresno |
| SITE STATUS | | |
| NPL Status: Deleted | | |
| Multiple OUs? No | Has the site achieved construction completion? Yes | |
| REVIEW STATUS | | |
| Lead agency: State If "Other Federal Agency" was selected above, enter Agency name: California Department of Toxic Substances Control | | |
| Author name (Federal or State Project Manager): Cynthia Wetmore/ Daewon Rojas-Michaelson | | |
| Author affiliation: US. EPA | | |
| Review period: November 2012 – July 2013 | | |
| Date of site inspection: May 9, 2013 | | |
| Type of review: Statutory | | |
| Review number: 2 | | |
| Triggering action date: September 30, 2008 | | |
| Due date (five years after triggering action date): Septemeber 30, 2013 | | |

Five-Year Review Summary Form (continued)

| Issues/Recommendations | | | | |
|---|---|--|---------------------------------|-----------------------------|
| OU(s) without Issues/Recommendations Identified in the Five-Year Review: | | | | |
| There are no issues. | | | | |
| Issues and Recommendations Identified in the Five-Year Review: | | | | |
| OU(s): Click here to enter text. | Issue Category: Choose an item. | | | |
| | Issue: | | | |
| | Recommendation: Click here to enter text. | | | |
| Affect Current Protectiveness | Affect Future Protectiveness | Implementing Party | Oversight Party | Milestone Date |
| Choose an item. | | Choose an item. | Choose an item. | Enter date. |
| Sitewide Protectiveness Statement | | | | |
| <i>Protectiveness Determination:</i> Protective | | <i>Addendum Due Date (if applicable):</i> Click here to enter date. | | |
| <i>Protectiveness Statement:</i> The remedy at the THAN Superfund is protective of human health and environment. Groundwater concentration of chemicals associated with site activities are all below final remediation levels. The cap on site and the institutional controls prevent exposure to contaminated soil | | | | |

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List of Abbreviations

| | |
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| ARARS | Applicable or Relevant and Appropriate Requirements |
| BGS | Below Ground Surface |
| BHC | Benzene hexachloride isomers |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| COC | Contaminant of Concern |
| CFR | Code of Federal Regulations |
| DDD | Dichlorodiphenyldichloroethane |
| DDE | Dichlorodiphenyldichloroethylene |
| DDT | Dichlorodiphenyltrichloroethane |
| DHS | Department of Health Services |
| DTSC | Department of Toxic Substances Control |
| EPA | Environmental Protection Agency |
| FCOR | Final Close-Out Report |
| FRGs | Final Remediation Goals |
| HRA | Health Risk Assessment |
| MNA | Monitored Natural Attenuation |
| NPL | National Priority List |
| MCL | Maximum Contaminant Level |
| OM&M | Operations Monitoring and Management |
| FYR | Five Year Review |
| NCP | National Contingency Plan |
| RAOs | Remedial Action Objectives |
| RAP | Remedial Action Plan |
| RI/FS | Remedial Investigation Feasibility Study |
| RSLs | Regional Screening Levels |
| RWQCB | Regional Water Quality Control Board |
| SVE | Soil Vapor Extraction |
| THAN | T H Agriculture & Nutrition L.L.C. |
| VOCs | Volatile Organic Compounds |

Second Five-Year Review Report

for

T H Agriculture & Nutrition Site

1. Introduction

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of FYRs are documented in five-year review reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA 121 states:

“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.”

US EPA conducted the FYR and prepared this report regarding the remedy implemented at the T H Agriculture & Nutrition, L.L.C. (THAN) Site, in Fresno County, California. The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) is the lead agency for developing and implementing the remedy for the Site. EPA has prepared this report using the draft Five-Year Review report prepared by URS Corporation (2013) for DTSC.

This is the second FYR performed after implementation of the Final Remedy for the Site. The first FYR was initiated in 2007 and final reporting occurred in 2008. The conclusion of DTSC and USEPA in 2008

was that the Final Remedy continued to be protective of human health and the environment and that chemical specific Final Remediation Goals (FRGs) had been attained in groundwater.

2. Site Chronology

The following table lists the dates of important events for the THAN Superfund Site.

Table 1. Chronology of Site Events

| Activity | Year(s) |
|--|-------------|
| Agricultural chemicals were detected in groundwater samples collected by DHS from domestic wells near the Site. Operations ceased at the plant in the Autumn of 1981. | 1981 |
| Chemically-impacted soils were excavated and disposed of off-site at a permitted landfill facility. Also, various structures and plant features were demolished. | 1984 |
| DTSC issued an Order requiring THAN to sample nearby domestic wells, provide alternate domestic water supplies, and prepare a remedial investigation/feasibility study (RI/FS) report. | 1985 |
| EPA added the Site to the National Priorities List (NPL). | 1986 |
| Two soil vapor extraction (SVE) systems operated at the Site to remove volatile organic compounds (VOCs) from the unsaturated zone. | 1988 - 1993 |
| More chemically-impacted soils were excavated and disposed of off-site at a permitted landfill facility. Also, various structures and plant features were demolished. | 1989 |
| <i>Remedial Investigation Summary Report</i> and the final <i>Feasibility Study Report</i> completed. | 1993 |
| <i>Multi-Pathway Health Risk Assessment Report</i> completed. | 1996 |
| <i>Remedial Action Plan</i> signed by DTSC. | 1999 |
| THAN completed construction of the Soil Component of the Final Remedy. | 2003 |
| The <i>Operation, Maintenance, and Monitoring Plan</i> was finalized, and a Covenant and Agreement to Restrict Use of Property (Deed Restriction) was recorded. | 2005 |
| <i>Final Close-Out Report</i> (FCOR) was completed. | 2005 |
| USEPA deleted the Site from the NPL. | 2006 |
| The <i>Evaluation of Site Compliance Status and Proposed Modifications in Groundwater Monitoring</i> was submitted. | 2007 |

| | |
|---|------|
| The first <i>Five-Year Review Report</i> was completed. | 2008 |
|---|------|

3. Background

3.1. *Physical Characteristics*

The Site consists of an approximately 5-acre, vacant, fenced parcel located at 7183 East McKinley Avenue in Fresno County, just east of the city of Fresno, California. The Site is located in Section 35, Township 13 South, Range 21 East of the Mount Diablo Base and Meridian. The Fresno County Assessor's Parcel Number is 310-062-09. The Site is bordered on all four sides by cropland. Low-density residential parcels are located approximately 150 feet south of the Site. Otherwise, no environmentally sensitive areas are near the Site.

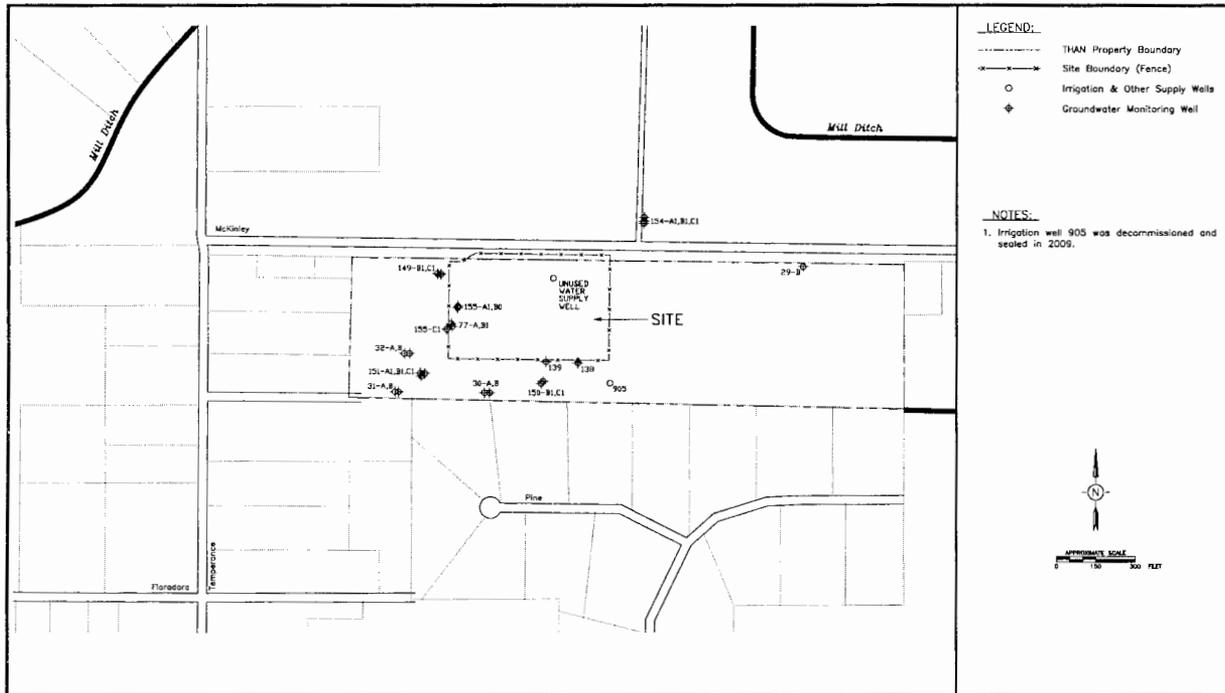
Figure 1: Location Map for the THAN Superfund Site



Site Location Map
T H Agriculture & Nutrition Site
Fresno County, California

Figure 1

Figure 2: Site Map



ON-SITE AND NEAR-SITE WELL LOCATION MAP
T H Agriculture & Nutrition Site
Fresno County, California
FIGURE 2

3.2. Hydrology

The Site is within the eastern portion of the San Joaquin Valley, about 15 miles from the westernmost foothills of the Sierra Nevada mountains. The San Joaquin Valley is a geomorphic province consisting predominantly of alluvial fans and plains, lacustrine and marsh deposits, flood basin deposits, and sand dunes. The Fresno region of the San Joaquin Valley is underlain by a basement complex of metamorphic and igneous rocks. Consolidated marine and continental sedimentary rocks of Cretaceous and Tertiary age consisting mainly of sandstone, siltstone, and shale overlie the basement complex. The most important water-bearing geologic unit for water supply is the older alluvium, which consists of layers and lenses of variable-sized sediments. The Site overlies Quaternary older alluvium.

During the Remedial Investigation (RI), over 200 soil borings were drilled in the Site vicinity to depths of up to 250 feet below ground surface (bgs). The lithology encountered consisted of heterogeneous mixtures of sand, silt, gravel, and occasional clay lenses [K/J, 1993].

The RI identified four lithologic units of sand and gravel representing the most significant water-bearing zones in the uppermost 250 feet of alluvium. These four units are identified in order of increasing depth as the A-, B-, C-, and D-zones. Semi-confined permeable subunits within each water-bearing zone are designated with numbers increasing with depth in a given zone (i.e., B0, B1, B2, C0, and C1). The zones and subunits are not continuous, and are separated from one another by less permeable sediments. The four most significant water-bearing zones are:

1. The A-zone, consisting generally of clayey gravels and sands between approximate depths of 15 and 45 feet bgs. The A-zone became dry in 1987 and has remained dry with rare exception due to generally declining groundwater elevations in the area.
2. The B-zone, consisting generally of silty sand and sand between approximate depths of 58 and 72 feet bgs in subunit B0, silty sand and sand between approximate depths of 70 and 102 feet bgs in subunit B1, and silty sand and sand between approximate depths of 99 and 115 feet bgs in subunit B2.
3. The C-zone, consisting generally of silty sand and sand between approximate depths of 116 and 144 feet bgs in subunit C0, and silty sand, sand, and gravel between approximate depths of 140 and 184 feet bgs in subunit C1.
4. The D-zone, consisting generally of silty sand, sand, and gravel between approximate depths of 172 and 232 feet bgs.

On-site and near-site groundwater monitoring well locations are shown on Figure 2. The water-bearing zones (B-, C-, and D-zones) appear to be in hydraulic communication, with preferential horizontal flow paths dominating groundwater movement. The groundwater flow direction is generally toward the southwest in all three water-bearing zones. No significant vertical gradients between the three zones have been observed, indicating that they are hydrologically interconnected.

There are no natural surface water bodies, such as lakes or streams, near the Site, nor are there any nearby man-made ponds. Several irrigation canals traverse the nearby area.

3.3. Land and Resource Use

The Site is the former location of an agricultural chemical formulation, packaging, and warehousing plant. THAN and prior owners of the Site, including the Geigy Company, Inc. (now Syngenta, Inc.) and Olin Mathieson Chemical Corporation (now Olin Corporation) formulated agricultural chemicals at the Site. From 1959 until the present, the Site has been owned or operated by THAN, which discontinued operations at the Site in 1981.

There are no current plans to develop the Site. At some future time, it is possible that the Site would be developed for commercial or industrial activity. The Deed Restriction recorded in 2005 prohibits the use of the Site as a residence, hospital, school, day-care center for children, or any other purpose involving residential occupancy on a 24-hour basis.

In addition to the Site, THAN currently owns an adjacent 20-acre orchard parcel that borders on the south, east, and west sides of the Site. North of the Site, across East McKinley Avenue, is cropland not owned by THAN. Other nearby properties consist of cropland and low-density residential parcels. The nearest low-density residential parcels are approximately 150 feet south of the Site.

The Site and surrounding land are outside the city limits of the City of Fresno, but are within the City's sphere of influence. The area is designated as the City's major new growth community in the 2025 City of Fresno General Plan. The City is in the process of preparing its 2035 General Plan. The tentative 2035 land use planning map posted on the City's website as of May 2013 shows the area surrounding the Site as planned for residential development. As new properties are incorporated into the City, it is anticipated that City water service will be extended to those properties.

There are currently no water supply wells on the Site or on THAN's adjacent 20-acre orchard parcel. Irrigation water for landscaping vegetation along the northern edge of the Site, and for orchard trees, is obtained from the City's potable-water system. Current and potential beneficial uses of groundwater in the area of the Site include municipal, domestic, and agricultural [RWQCB, 2004]. Most of the parcels downgradient (southwest) of the Site are now connected to the City's potable-water supply system, although some of these parcels still also maintain domestic water wells.

3.4. History of Contamination

Between 1950 and 1981, the Site was used by several owners for the formulation, packaging, and warehousing of agricultural chemicals, or pesticides. Chemicals handled at the Site included agricultural chemicals, various raw materials used in agricultural chemical formulation, quality assurance laboratory chemicals, and solvents. In addition, certain chemicals were consigned or purchased and warehoused at the Site solely for resale. Pesticides handled at the Site and detected in soil and/or groundwater included: organochlorine pesticides such as dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyldichloroethane (DDD), toxaphene, chlordane, benzene hexachloride isomers (BHC), and dieldrin; organophosphates such as diphenamid, malathion, trifluralin, and guthion; and chlorophenoxy herbicides and miscellaneous pesticides.

In 1981, agricultural chemicals were detected in groundwater samples collected by DHS from nearby domestic wells. DHS, RWQCB, and Fresno County requested further investigation by THAN. Operations ceased at the plant in approximately the Fall of 1981.

The Site was added to the NPL on June 10, 1986.

3.5. Initial Response

In 1984, approximately 14,000 cubic yards of impacted soil and debris were removed from the former landfill area that was historically used for on-site disposal of wastes. Also, the laboratory cisterns (former Drainage System A) and surrounding impacted soils were excavated. In 1989, approximately 10,000 cubic yards of impacted soil were excavated in the former solvent storage area, the former railroad loading dock area, several known drainage systems, and in the area of former chemical storage tanks. In both phases of excavation, the soil and debris were transported and disposed of off-site at a permitted landfill facility.

In conjunction with the 1984 soil excavation in the former landfill area, the nearby concrete sump, tank, and concrete pad in the solvent storage area, the metal frame shed, and chemical storage tanks were demolished. In conjunction with the 1989 soil excavation, five structures were demolished at the Site, including the two-story brick building and the one-story wood-frame building that housed the laboratory. In addition, an aboveground storage tank and a concrete slab were also demolished. Demolition waste materials were disposed of off-site at a permitted landfill facility.

In 1992, an underground storage tank (UST) for boiler fuel oil was identified southeast of the pump house. The UST was removed in 1992 and disposed of off-site.

Two SVE systems were installed at the Site. One SVE system was installed in 1988 to evaluate the feasibility of removing chloroform and other volatile or semi-volatile organic compounds from unsaturated-zone soils in the former laboratory area. Another SVE system was installed in 1990 to evaluate the feasibility of removing xylenes and ethylbenzene from unsaturated-zone soils in the former solvent storage area. Through system shutdown in 1993, an estimated 11,700 pounds of xylenes and

ethylbenzene, and an estimated 15,800 pounds of total non-methane hydrocarbons were removed by the SVE system.

In 1985, THAN began providing bottled water or household carbon adsorption systems to residents downgradient (southwest) of the Site. From 1988 to 1990, THAN funded an extension of the City's potable water distribution system eastward to Temperance Avenue. Households downgradient of the Site were offered connection to the City's potable water distribution system at THAN's expense.

3.6. *Basis for Taking Action*

Several compounds were found in the soils at the Site including:

- organochlorine pesticides (DDT, DDD, DDE, dieldrin, and lindane);
- volatile organic compounds (chloroform, xylenes, and ethylbenzene); and
- the nematocide 1,2-dibromo-3-chloropropane (DBCP).

The primary COCs identified in on- and off-site groundwater, potentially a source of potable water, comprised:

- the organochlorine pesticide dieldrin;
- volatile organic compounds (carbon tetrachloride, chloroform, and 1,2-dichloroethane [1,2-DCA]);
- the nematocide DBCP; and
- the agricultural-chemical impurity 1,2,3-trichloropropane (1,2,3-TCP).

People who accidentally ingest or come into direct contact with contaminated groundwater or soils may suffer adverse health effects. The presence of the above COCs above MCLs provided the basis for taking action.

DBCP and 1,2,3-TCP have been widely detected in eastern Fresno County groundwater, including upgradient and crossgradient from the Site, and they are considered to be regional groundwater contaminants resulting from past agricultural practices.

4. Remedial Actions

4.1. *Remedy Selection*

The Final Remedy for the Site was selected in the June 1999 final *Remedial Action Plan* (RAP) signed by DTSC. A concurrence letter from EPA was signed on September 29, 2004. The RAP did not identify Remedial Action Objectives, and subsequently DTSC issued a letter to THAN dated 6 August 1993, which identified "key performance objectives" that would need to be met for the Soil and

Groundwater Components of the Final Remedy. These key performance objectives are summarized below.

For the Soil Component, the key performance objective was:

- Reduce the toxicity, volume, and mobility of chemicals present in on-site soils to the extent practical in order to: (1) eliminate existing or potential human exposures which pose a total cancer risk from all exposure routes of greater than 1×10^{-6} or a total hazard index greater than one for non-carcinogenic risks, and (2) control the migration of chemicals from Site soils to other media.

For the Groundwater Component, the key performance objectives were:

- Comply with Applicable or Relevant and Appropriate Requirements (ARARs);
- Develop and implement a groundwater extraction and treatment system capable of achieving permanent containment, or removal of, chemicals released on or from the Site, which exceed Final Remediation Goals (FRGs);
- Develop and implement a groundwater monitoring program capable of: (1) verifying that unacceptable human exposures or environmental impacts are not occurring as a result of the presence or movement of chemicals in groundwater, and (2) providing sufficient information to allow for analysis of the effectiveness of the groundwater remediation system;
- Require extracted groundwater to be put to beneficial use to the extent practicable;
- Establish a non-numeric preliminary remedial goal for DBCP in groundwater due to its regional presence, which would require an evaluation of DBCP at the time that final groundwater remediation goals are attained for other chemicals associated with the Site; and
- Establish provisions to deal with any significant release of DBCP, should it occur, from Site soils to groundwater resulting from a re-saturation of the A-zone.

The Final Remediation Goals for groundwater were selected in the RAP and were based on the promulgated regulations at the time of the RAP with the exception of dieldrin. Dieldrin's Final Remedial Goal was based on an excess cancer risk level of 1 in 1,000.

| Chemical Of Concern | Final Remediation Goal (ppb) |
|----------------------|------------------------------|
| Carbon Tetrachloride | 0.5 |
| Chloroform | 100 |
| 1,2-DCA | 0.5 |
| Dieldrin | 0.3 |
| 1,2,3-TCP | Non-numeric (a) |
| DBCP | Non-numeric (b) |

(a) Because 1,2,3-TCP has been detected in groundwater unaffected by site-related activities, a numeric remediation goal have been deferred by DTSC. If 1,2,3-TCP was found to be strictly site-related, then using the criteria applied to site-related chemicals, a health-based level of 0.2 ppb would be established.

(b) Due to regional DBCP levels, satisfactory remediation of DBCP will be based on mass of DBCP attenuated by the remedy and an evaluation of its background levels at the time the other remediation goals have been met.

The soil Final Remediation Goals were derived from the lesser value (more health protective value) of either the site-specific values calculated from the HRA, or U.S. Preliminary Remediation Goals (PRGs) for industrial land use.

| Chemical | Final Remediation Goal mg/kg |
|--------------------|---------------------------------|
| Acetone | 770 |
| Arsenic | 2.4 |
| Chloroform | 0.16 |
| Dacthal | 100000 |
| DBCP | 0.004 |
| DDD | 3.2 |
| DDE | 2.3 |
| DDT | 2.0 |
| DEF | 4.6 |
| 1,2-Dichloroethane | 0.55 |
| Dieldrin | 0.05 |
| Diphenamid | 4600 |
| Ethion | 140 |
| Ethylbenzene | 230 |
| Lindane | 1.5 |
| Malathion | 3500 |
| Methyl Parathion | 68 |
| Parathion | 1000 |
| PCNB | 1.8 |
| Phosalone | 630000 |
| Toxaphene | 0.08 |
| Triflurian | 87 |
| Xylenes | 320 |

The remedy for the Site includes a soil component, a groundwater component, and engineering/administrative/institutional controls. The soil component includes: (a) a containment cover consisting of a bentonite clay liner, a rodent-control barrier, clean fill soil, and a vegetative top layer; (b) an infiltration trench adjacent to the southern and western sides of the containment cover for collection and infiltration of surface stormwater runoff; (c) perimeter fencing and signage; and (d) a deed restriction on the Site. The groundwater component includes monitored natural attenuation (MNA) of COCs and contingency plans in case COC concentrations exceed Final Remediation Goals (FRGs), which are provided in Table 1. The engineering/administrative/institutional controls of the Final Remedy include: (a) providing alternate water supplies to affected parties, (b) providing financial assurances to ensure long-term maintenance and operation of the Final Remedy, and (c) conducting reviews every five years to assess whether the Final Remedy remains effective in protecting human health and the environment.

4.2. Remedy Implementation

Implementation of the Soil Component of the Final Remedy was completed at the Site on January 24, 2003. A Documentation Report for Implementation of the Soil Component of the Final Remedy was submitted to DTSC to summarize activities conducted during implementation of the soil component at the Site, and a Final Remedial Action Completion Report was signed by DTSC on September 28, 2004. EPA sent a concurrence letter to THAN on September 29, 2004.

A *Covenant & Agreement to Restrict Use of Property for the T.H. Agriculture & Nutrition Site* (Deed Restriction) was recorded on September 26, 2005 for the Site to ensure that future land use activities will not adversely affect the integrity and/or effectiveness of the Soil Component of the Final Remedy or result in exposures to the public and the environment of COCs at the Site.

A *Final Close-Out Report* (FCOR), documenting that all response actions for the Site were completed in accordance with the Close-Out Procedures for National Priorities List (NPL) Sites (OSWER Directive 9320.0-09A-P), was published by USEPA on September 29, 2005. A *Notice of Intent to Delete the T.H. Agriculture & Nutrition Site from the National Priorities List* (NOID) was published in the Federal Register, Vol. 71, No. 132, dated July 11, 2006 with a request for public comment. The Site was deleted from the NPL as announced in the Federal Register, Vol. 71, No. 161, dated August 21, 2006.

4.3. Operation and Maintenance (O&M)

Ongoing inspections of the Soil Component and groundwater monitoring wells are performed to evaluate the integrity, permanence, and effectiveness of the Final Remedy. These inspections are performed on a semi-annual basis. Inspection requirements are described in the Operations Monitoring and Management (OM&M) Plan and include observations of the containment cover, vegetation, fences, signage, infiltration trench, monitoring wells, and general Site conditions. Areas of erosion, ponding, burrowing, or other threats to the cover are to be noted.

In addition to the semi-annual inspections, a local contractor visits the Site on a bi-weekly basis to observe general Site conditions and report to URS. The contractor looks for trash dumping, fence damage, other types of vandalism, containment cover damage, excess vegetation, water ponding, or other evidence damage.

If any significant repairs to the Site are needed, DTSC requires that THAN provide 60 calendar days' advance written notice. If any emergency or upset event occurs, DTSC requires that THAN submit a written report within seven working days. To date, no significant repairs have been needed, and no emergency or upset event has occurred.

In addition to monitoring the soil remedy, groundwater monitoring program is completed semi-annually, as set forth in the Supplemental Groundwater Report, and includes 28 on-site, near-site, and off-site groundwater monitoring wells, completed in the A, B, C, or D hydrogeologic zones, and 13 domestic wells. Only rarely since 1987 have A-zone monitoring wells yielded sufficient water to be sampled. THAN submits an annual groundwater monitoring report to DTSC that includes monitoring results for the previous calendar year. The analytical results for domestic well samples are provided to each domestic well owner, along with a table summarizing the COCs detected in that well and the regulatory limit for each COC, within 30 working days after receipt of the analytical results.

O&M costs are incurred for inspecting and maintaining the Soil Component, groundwater monitoring, reporting, and maintaining a letter of credit for financial assurance. O&M costs for 2008 through 2012 are as follows:

Table 2. Annual O&M Costs

| Calendar Year | Approximate Total Actual OM&M Cost |
|---------------|------------------------------------|
| 2008 | \$99,000 |
| 2009 | \$107,000 |
| 2010 | \$116,000 |
| 2011 | \$60,000 |
| 2012 | \$53,000 |

The annual O&M costs were originally estimated in 2004 at approximately \$145,000.

5. Progress Since the Last Five-Year Review

5.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2008 FYR for the THAN Site stated the following:

“The Final Remedy for the Site is functioning as intended and remains protective of human health and the environment.”

On September 30th 2008 EPA issued a concurrence letter agreeing with the protectiveness decision above. Additionally EPA noted the FYR did not include an analysis of DBCP and 1,2,3-TCP which are regional contaminants. EPA recommended an evaluation of these regional contaminants.

The first FYR report identified six minor issues and provided recommendations for follow-up actions to address the issues. Each recommendation and the current status are discussed in the table below:

Table 3. Status of Recommendations from the 2007 FYR

| Issue | Recommendation | Party Responsible | Action Taken and Outcome | Date of Action |
|-----------------------------------|---|-------------------|--|----------------|
| Animal burrowing at few locations | Repair current holes; perform ongoing O&M to minimize | THAN | Holes filled with top soil, as found; poison bait placed | Periodic |

| Issue | Recommendation | Party Responsible | Action Taken and Outcome | Date of Action |
|--|--|-------------------|--|----------------|
| | burrowing; monitor in future | | to kill rodents | |
| Minor berm erosion | Regrade berms | THAN | Berms regraded using additional top soil, as necessary | Periodic |
| Minor soil/silt accumulation in stormwater infiltration trench | Remove soil and rock from infiltration trench, wash rock, and replace rock | THAN | Upon further review, no action deemed necessary as yet; infiltration trench still operating adequately | --- |
| Missing locks on monitoring well covers | Replace locks | THAN | Locks replaced | 2009 |
| Small space between security fence and ground at few locations | Regrade ground to eliminate space below fence | THAN | Regrading performed and space eliminated | 2009 |
| Outdated signs | Replace with updated signs | THAN | Signs replaced | 2009 |

5.2. Work Completed at the Site During this Five Year Review Period

THAN evaluated regional concentrations for DBCP and TCP to determine whether numeric standards would be triggered as discussed in the RAP.

“DBCP is a regional pollutant in addition to being a chemical associated with the Site. In either the A-zone (if resaturated) or the B-zone, if DBCP is detected and the concentrations are found to be elevated above background, a FRG for DBCP will be established by DTSC based on an evaluation of background groundwater quality conditions. Based on the presence of 1,2,3-TCP in groundwater from areas clearly unaffected by Site activities, the initial indications are that 1,2,3-TCP is similar to DBCP in being a regional groundwater pollutant, if the regional presence of 1,2,3-TCP in groundwater is confirmed, 1,2,3-TCP will be evaluated in the same manner as DBCP.”

THAN submitted the *Evaluation of DBCP and TCP in Underlying Groundwater*. The report provided several converging lines of evidence to support the conclusion that DBCP and 1,2,3-TCP are regional groundwater contaminants, and that detections of these chemicals in domestic-well groundwater samples

near the Site are most likely primarily attributable to past non-point source applications on agricultural cropland in the region, and not to releases at the Site. The lines of evidence supporting the conclusion included:

- mapping of estimated DBCP usage in east-central Fresno County;
- comparison of analytical results for Site's wells to reported regional concentrations;
- comparison of analytical results for upgradient and downgradient wells;
- spatial distribution of DBCP and 1,2,3-TCP detections as compared to the predominant groundwater flow direction from the Site; and
- the estimated mass reduction of DBCP and 1,2,3-TCP in groundwater due to natural attenuation.

EPA reviewed the *Evaluation of DBCP and TCP in Underlying Groundwater* and agrees with the conclusion that the concentrations of DBCP and 1,2,3-TCP at the THAN Superfund site are consistent with regional groundwater contaminants concentrations. The two strongest pieces of evidence are: the statistical comparison of upgradient and downgradient wells and their insignificant differences in contaminant concentration; and the documented albeit estimated use of DBCP on adjacent and upgradient properties. Present concentrations at the Site of DBCP are within the range of concentrations found in the region during the Remedial Investigation in 1999. TCP concentrations at the Site are also consistent with concentrations documented in wells throughout Fresno County and surrounding areas. It should be noted EPA does not make remediation evaluations based on contaminant mass, but only by concentration units.

After the above report was submitted, additional groundwater data was collected in 2011 and 2012. The DBCP and 1,2,3-TCP concentrations detected in groundwater monitoring and domestic wells in 2011 and 2012 were very similar to the data through 2010 on which the report's conclusions were based. The current highest concentration of DBCP is 0.33 µg/L in well 986 which is less than 0.67 µg/L detected in the same well five years ago. Several wells are above MCLs for both DBCP and 1,2,3-TCP. These wells are identified in the *Evaluation of DBCP and TCP in Underlying Groundwater*.

6. Five-Year Review Process

6.1. Administrative Components

EPA Region 9 and DTSC initiated the FYR in November 2012. DTSC request that a FYR Work Plan be prepared and submitted to DTSC. The final Work Plan was submitted in February 2013. The "Draft Second Five-Year Review Report" was submitted to DTSC by URS Corporation on June 28, 2013. This Five Year Review was prepared by Cynthia Wetmore and Daewon Rojas-Michaelson of EPA and is based on the data provided by URS.

6.2. Community Involvement

On March 18, 2013, DTSC published a public notice in the dominant local newspaper, *the Fresno Bee*, announcing the commencement of the FYR process for the Site, providing Danny Domingo's contact information, and inviting community participation. The public notice is provided in Appendix C. No-one contacted Mr. Domingo as a result of this advertisement.

This FYR report will be made available to the public, once it has been finalized, by placing a copy in the designated public document repository: Fresno County Library, Sunnyside Branch, 5566 East Kings Canyon Road, Fresno, California. Upon completion of the FYR, DTSC will publish a public notice in the Fresno Bee to announce the availability of the final FYR report in the public document repository.

6.3. Document Review

This FYR included a review of relevant, site-related documents including the remedial action plan, recent monitoring data and the notice of deletion from the NPL. A complete list of the documents reviewed can be found in Appendix A.

ARARs Review

Section 121 (d)(2)(A) of CERCLA specifies that Superfund RAs must meet any federal standards, requirements, criteria, or limitations that are determined to be legally ARARs. Applicable or Relevant and Appropriate Requirements are those standards, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, RA, location, or other circumstance at a CERCLA site.

Chemical-specific ARARs identified in the 1999 Final RAP for COCs strictly associated with the Site in groundwater are listed below, along with current ARARs:

Table 4. Summary of Ground Water ARAR Changes

| COC | 1999 RAP FSL ¹ (µg/L) | Current ARAR ¹ (µg/L) | Changed? |
|----------------------|----------------------------------|----------------------------------|----------------|
| Dieldrin | None | None | No |
| Chloroform | 100 | 80 ² | More stringent |
| 1,2-DCA | 0.5 | 0.5 | No |
| Carbon Tetrachloride | 0.5 | 0.5 | No |

Notes:

¹The more stringent of the federal MCL or the California MCL.

²The federal MCL of 80 µg/L is for total trihalomethanes, which include chloroform, bromoform, bromodichloromethane, and dibromochloromethane.

Otherwise, no revisions to laws or regulations were identified that affect the protectiveness of the remedy.

Human Health Risk Assessment Review

The multi-pathway health risk assessment (HRA) completed in 1996 evaluated cancer risks and non-cancer hazards for several exposure scenarios including on- and off-site workers, off-site residents, and on-site trespassers. Exposure pathways considered included exposure to on-site soil via ingestion, dermal contact, and inhalation of vapors and particulates, and exposure to groundwater via ingestion, bathing, and swimming. DBCP and dieldrin were the primary risk drivers for groundwater exposures.

Other than the potential vapor-intrusion pathway, as discussed below, there are no additional exposure scenarios, pathways, or receptors that were not sufficiently addressed by the original HRA.

Vapor Intrusion: EPA’s understanding of contaminant migration from soil gas and/or groundwater into buildings has evolved over the past few years leading to the conclusion that vapor intrusion may have a greater potential for posing risk to human health than assumed when the RAP was prepared. The HRA did not address the possibility of future vapor intrusion of volatile COCs to buildings that may be constructed at or near the Site. There are currently no buildings at, or adjacent to, the Site. At the present time, THAN has no plans for future construction of buildings at, or adjacent to, the Site.

In September 2002, EPA released an external review draft version of its vapor intrusion guidance titled “Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils” (EPA 2002). In August 2010, EPA released its “Review of the 2002 Draft OSWER Subsurface Vapor Intrusion Guidance” out for public comment. The basis of the guidance is evaluated following a “multiple lines of evidence” approach.

The EPA has developed a spreadsheet tool, the Vapor Intrusion Screening Level Calculator, that identifies chemicals considered to be volatile and sufficiently toxic through the inhalation pathway; and provides screening levels to assess whether chemicals found in ground water can pose a significant risk through vapor intrusion; and, if so, whether a site-specific vapor intrusion investigation is warranted. Of the four chemicals of concern at the Site, three are considered volatile and could pose an inhalation risk. Dieldrin is not considered to be an inhalation risk.

Table 5. Maximum Groundwater Concentration in Shallow Groundwater

| Chemical of Concern | Groundwater Screen Level | Maximum Concentration detected in Shallowest Groundwater (2011) |
|----------------------|--------------------------|---|
| Chloroform | 0.7 µg/L | 0.32 µg/L |
| 1,2-DCA | 6.6 µg/L | N.D. |
| Carbon tetrachloride | 0.36 µg/L | N.D. |

At current groundwater concentration levels there is no risk of vapor intrusion.

Toxicity values: EPA’s Integrated Risk Information System (IRIS) has a program to update toxicity values used by the Agency in risk assessment when newer scientific information becomes available. EPA uses the updated values to develop the U.S. EPA Regional Screening Levels (RSLs) as a first step in determining whether response actions may be needed to address potential human health exposures. The RSLs are chemical-specific concentrations for individual contaminants that correspond to an excess cancer risk level of 1×10^{-6} (or a Hazard Quotient (HQ) of 1 for noncarcinogens), and they have been developed for a variety of exposure scenarios (e.g., residential, commercial/industrial). RSLs are not de facto cleanup standards for a Superfund site, but they do provide a good indication of whether actions may be needed.

In the past five years, there have been a number of changes to the toxicity values for certain contaminants of concern at the Site.

Table 6. Regional Screening Levels

| Chemical Of Concern | Final Remediation Goal (µg/L) | Regional Screening Level (µg/L) | Current Maximum Detection (µg/L) |
|----------------------|-------------------------------|---------------------------------|----------------------------------|
| Carbon Tetrachloride | 0.5 | 0.39 | 0.36 |
| Chloroform | 100 | 0.19 | 7.3 |
| 1,2-DCA | 0.5 | 0.15 | 0.4 |
| Dieldrin | 0.3 | 0.0015 | 0.096 |

Revisions to the toxicity values for chloroform, 1,2-DCA and dieldrin indicate a higher risk from exposure to these chemicals than previously considered. However, the FRG for 1,2 DCA is still within EPA's acceptable risk range of 10^{-4} to 10^{-6} excess cancer risk. The FRG for chloroform and dieldrin are outside EPA's excess cancer risk range. The maximum chloroform detection in 2012 was 7.3 µg/L which is within the acceptable EPA risk range of 0.19 µg/L to 19 µg/L. And the maximum dieldrin concentration in 2012 was 0.096 µg/L which is also within the acceptable risk range of 0.0015 µg/L and 0.15 µg/L. Therefore, the changes in toxicity values do not affect protectiveness.

Ecological Review

The original ecological risk assessment concluded that potential effects of Site chemicals to on-site and off-site ecological habitats are expected to be negligible. The containment cover, including a rodent-control barrier, limits exposure of ecological receptors to COCs in soil. There are no active water wells on, or adjacent to, the Site. No changes at the Site since the previous FYR were identified that could change the ecological risk assessment.

6.4. Data Review

The monitoring data collected from 2008 through 2012, including the semi-annual inspection, and the groundwater monitoring data (water-level data and analytical results for groundwater samples collected from monitoring and domestic wells) were the basis for the review. Results of the data review are summarized in the subsections below.

Soils

Review of the semi-annual inspection records for 2008 through 2012 indicates that no major O&M issues were encountered. Minor issues such as shallow rodent burrows, minor erosion at the edges of the containment cover, and minor vandalism were encountered and addressed, as necessary.

Groundwater

Regional groundwater elevations have been on a generally declining trend since 1981, although groundwater elevations fluctuate upward or downward in the short term based on many factors, especially annual precipitation amount in the region. Until 1987, groundwater in the Site vicinity was consistently encountered in the A-zone, which extends from approximately 15 to 45 feet bgs, but only rarely since 1987 has groundwater been encountered in the A-zone. During the FYR period of 2008 through 2012,

uppermost groundwater was encountered in the upper portion of the B-zone, which extends from approximately 58 to 115 feet bgs.

The groundwater flow direction in the Site vicinity in all of the monitored zones has consistently been interpreted as being toward the southwest at a gradient of approximately 0.005 foot per foot, which is equivalent to 26 feet per mile.

Contaminant concentrations detected in groundwater samples have decreased substantially since groundwater investigation began at the Site in 1981. During the FYR period of 2008 through 2012, only 6 of the 19 sampled monitoring wells, and one of the 13 sampled domestic wells, contained detectable concentrations of the four non-regional contaminants with established groundwater FRGs (i.e., dieldrin, chloroform, 1,2-DCA, and carbon tetrachloride), and none of the detected COC concentrations exceeded the FRGs.

URS performed a statistical trend analysis of COC concentrations in groundwater samples using the Mann-Kendall non-parametric test with a 95-percent confidence coefficient. The trend analysis was performed using the past 15 years of analytical results (1998 through 2012), and was only performed for wells in which any the four non-regional COC was detected during the FYR period of 2008 through 2012.

There were no FRG exceedances from 2008 through 2012 (Table 2). There are no apparent trends to indicate a reasonable likelihood of a future FRG exceedance for any of the wells. Two wells had increasing trends for chloroform, but the maximum detected chloroform concentration in these wells from 2008 through 2012 was 7.3 µg/L, which was substantially less than the FRG of 100 µg/L (or the new MCL of 80 µg/L).

Table 7. Groundwater Concentration Trend Analysis Results

| | Max Concentration Detected | Result from Trend Analysis | Type of Well |
|-----------------------------|----------------------------|---|--------------|
| Dieldrin | FRG: 0.3 µg/L | | |
| Well 150-B1 | 0.039 µg/L | statistically significant decreasing trend | Monitoring |
| Well 183-B1 | 0.096 µg/L | No statistically significant trend | Monitoring |
| Chloroform | FRG: 100 µg/L | | |
| Well 184-B1 | 0.34 | no statistically significant trends | Monitoring |
| Well 184-C1 | 7.3 µg/L | no statistically significant trends | Monitoring |
| Well 184-D1 | 2.0 µg/L | statistically significant increasing trend | Monitoring |
| Well 1010 | 0.29 µg/L | statistically significant increasing trend | Domestic |
| 1,2-DCA | FRG: 0.5 µg/L | | |
| Well 183-B2 | 0.40 µg/L | statistically significant decreasing trend | Monitoring |
| Well 184-C1 | 0.31 µg/L | no statistically significant trend ¹ | Monitoring |
| Carbon Tetrachloride | FRG: 0.5 µg/L | | |
| Well 183-B2 | 0.36 µg/L | a statistically significant decreasing trend | Monitoring |

A review of the inspection records for the Groundwater Component of the Final Remedy for 2008 through 2012 indicates that no major O&M issues were encountered. Minor issues, such as missing locks and a wellhead damaged by a wayward vehicle, were encountered and addressed, as necessary.

6.5. Site Inspection

The special Site inspection for the FYR was performed on May 9, 2013 by Danny Domingo, PG, of DTSC and Stuart St. Clair, PE, of URS. USEPA's "Five-Year Review Site Inspection Checklist" in Appendix E of the *Comprehensive Five-Year Review Guidance* was used as a guide for conducting the Site inspection. The completed checklist is provided in Appendix F, along with Site photographs taken in May 2013. The following is a summary of the important observations from the special Site inspection:

- The chainlink fence and gates are in good condition. At a few locations, rodent burrows (approximately 6-inch diameter) under the fence are present and need to be filled with top soil from the adjacent orchard. Some of the warning signs on the fence have deteriorated, are nearly illegible, and need to be replaced.

¹ Based on the past 10 years of results (2003 through 2012)

- The containment cover is in good condition. No significant vegetative growth or erosion damage was observed. A few small rodent burrows (approximately 6-inch diameter and 6-inch deep) were observed in the vegetative top layer of the containment cover. These burrows need to be filled with top soil from the adjacent orchard.
- The monitoring wells are in good condition.
- The stormwater infiltration trench on the west and south sides of the containment cover is in good condition.
- No accumulations of litter or debris, or signs of vandalism or unauthorized entry to the Site, were observed.
- In the northeast quadrant of the Site, there is an unused water well that should be properly destroyed, because it has not been used in over one year, and THAN does not intend to use it in the future. The well location is shown on Figure 2.

6.6. Interviews

The Site O&M manager, Bill Pretzer of Pretzer Farms was interviewed by Stuart St. Clair of URS via telephone on May 13, 2013. Mr. Pretzer provided the following information:

- A field person visits the Site at least every two weeks to check for vandalism or other issues.
- There are no major O&M problems or issues at the Site.
- Rodent burrows under the fence, and in the vegetative layer of the containment cover, are filled in with top soil from the adjacent orchard, as they are found.
- Rodent poison bait is placed in bait stations, and scattered in active burrows, on a monthly basis.
- A few years ago, vandals cut a hole in the fence and stole the electrical wire that ran from the utility pole to the on-site water supply well. The hole in the fence was repaired, and no further intrusion inside the fence has occurred.

6.7. Institutional Controls

A Covenant & Agreement to Restrict Use of Property for the T.H. Agriculture & Nutrition Site (Deed Restriction) was recorded on September 26, 2005 for the Site to ensure that future land use activities will not adversely affect the integrity and/or effectiveness of the Soil Component of the Final Remedy or result in exposures to the public and the environment of COCs at the Site. The Deed Restriction is provided in Appendix H. A new title search was not conducted for this second FYR, because the parcel has not changed ownership since the previous FYR for which a title search was conducted and showed that the Deed Restriction was in place and functioning as intended.

The Deed Restriction sets forth:

- prohibited uses of the Site (i.e., the Site cannot be used as a residence, hospital, school, or day care center for children);
- requirements for management of on-site soils and extracted groundwater, if any;
- prohibitions on disturbing the containment cover or monitoring wells; and
- requirements for inspections and maintenance.

No evidence was found during the FYR to indicate that any portion of the Deed Restriction has been violated or is in danger of being violated.

7. Technical Assessment

7.1. Question A: Is the remedy functioning as intended by the decision documents?

Yes, based on the second FYR activities, the remedy is functioning as intended by the decision documents. The containment cover, fencing, and Deed Restriction, are working in concert to restrict potential contact by human or ecological receptors with residual COCs in soil at the Site. The containment cover also restricts potential movement of residual COCs from on-site soils to other media (groundwater, surface water, and air). No significant O&M issues were identified during the FYR.

The Groundwater Component of the remedy includes MNA of COCs in groundwater to ensure that unacceptable human exposures or environmental impacts do not occur. Alternate water supplies have been provided to affected properties downgradient of the Site. None of the groundwater samples collected from monitoring or domestic wells during the FYR period of 2008 through 2012 contained COC concentrations exceeding the FRGs. In fact, even during the first FYR period of 2003 through 2007, there were no FRG exceedances in groundwater samples. The last time an FRG exceedance occurred was in 2002 when a groundwater sample from well 183-B2 had 1,2-DCA and carbon tetrachloride concentrations that slightly exceeded the FRGs.

7.2. Question B: Are the exposure assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of Remedy Selection Still Valid?

Based on the second FYR activities, the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection are still valid, with two exceptions that do not affect protectiveness. The federal MCL for total trihalomethanes (chloroform, bromoform, bromodichloromethane, and dibromochloromethane) in public drinking water systems has been reduced from 100 to 80 µg/L. However, the highest chloroform concentration detected in groundwater samples collected from monitoring and domestic wells during the FYR period of 2008 through 2012 was 7.3 µg/L in monitoring well 184-C1.

The multi-pathway health risk assessment did not address the possibility of future vapor intrusion of COCs to buildings that may be constructed at or near the Site. However, there are no current buildings at or adjacent to the Site, and there are no plans to construct such buildings. Current groundwater concentrations are too low to be a vapor intrusion risk.

7.3. Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?

No other information was obtained during the second FYR to call into question the protectiveness of the Final Remedy.

Appendix A: List of Documents Reviewed

- California EPA, Department of Toxic Substances Control, 2005. *Covenant & Agreement to Restrict Use of Property for the T.H. Agriculture & Nutrition Site*. 26 September 2005.
- Kennedy/Jenks Consultants. 2003. *Documentation Report for Implementation of Soil Component of Final Remedy, T H Agriculture & Nutrition Site, Eastern Fresno County, California*. 26 June 2003.
- Kennedy/Jenks Consultants. 2001. *Evaluation of DBCP and TCP in Underlying Groundwater, T H Agriculture & Nutrition Site, Eastern Fresno County, California*. 18 February 2011.
- Kennedy/Jenks Consultants. 1999. *Final Remedial Action Plan, T H Agriculture & Nutrition Site, Eastern Fresno County, California*. June 1999.
- United States Environmental Protection Agency. 2001. *Comprehensive Five-Year Review Guidance, EPA 540-R-01-007, OSWER No.9355.7-03B-P*. June 2001.
- United States Environmental Protection Agency, Superfund. 2005. *Final Close-Out Report for the T. H. Agriculture & Nutrition Site, Fresno, California*. 29 September 2005.
- United States Environmental Protection Agency, Superfund. 2008. *Five Year Review Report for T.H. Agriculture & Nutrition Site, Fresno, California*. 2 September 2008.
- United States Environmental Protection Agency, Superfund. 2006. *Notice of Deletion of the T.H. Agriculture & Nutrition Site from the National Priorities List Federal Register, 71 Fed. Reg. 48,479*. 21 August 2006.
- URS Corporation. 2013. *draft SECOND Five-Year Review REPORT, T H Agriculture & Nutrition Site*. 28 June 2013

Appendix B: Fact Sheet

Public Notice

The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances through the restoration of contaminated resources, enforcement, regulation and pollution prevention.

TH Agriculture & Nutrition LLC 5 Year Review to Begin

The California Department of Toxic Substances Control (DTSC) and the United States Environmental Protection Agency, Region 9 (EPA) are conducting a five-year review of the Former TH Agriculture and Nutrition (THAN) site. The five-acre site is located at **7183 East McKinley Avenue, Fresno, CA**. DTSC and USEPA are required to review the final remedy for a site every five years to ensure that the remedy is still effective, functioning as planned, and protects human health and the environment.

The site is the former location of an agricultural chemical manufacturing plant. Activities at the site caused contamination of soil and groundwater with agricultural chemicals. In June 1999, DTSC approved a cleanup plan called a Remedial Action Plan (RAP) for the site. The plan called for capping of contaminated soil, monitoring groundwater, restricting the site to industrial and commercial use, and an agreement to maintain the final remedy. Monitoring of the groundwater started in 1999. Consolidation and capping of the contaminated soil began in June 2002 and ended in June 2003. The site was certified clean by DTSC in January 2006. The site is currently vacant and fenced.

The five-year review process includes: 1) notifying the community that the review is being conducted; 2) inspecting the capped area to determine the condition of the cap. 3) inspecting the groundwater monitoring system; 4) collecting, reviewing, and evaluating groundwater data from the previous years, and 5) preparing a report that details the findings of the five-year review.

What You Can Do To Get Involved

Community involvement is an important part of the five-year review process. If you have questions, would like to participate, and/or provide information regarding the site, please contact Mr. Danny Domingo, DTSC Project Manager at (559) 297-3932 or Danny.domingo@dtsc.ca.gov. You may also contact Wayne Hagen, DTSC Public Participation Specialist, at (510) 540-3911 or Wayne.hagen@dtsc.ca.gov.

WHERE CAN I FIND MORE INFORMATION? Copies of project-related documents are available at:

Fresno County Library, Sunnyside Branch, 5566 E. Kings Canyon Road, Fresno, California.

To review this information online at www.envirostor.dts.ca.gov/publi, click on "Site/Facility Search" and enter "Fresno" as the City then click "Get Report." Find the "TH Agriculture & Nutrition LLC" Site then click on "Report."

Members of the media please contact Charlotte Fadipe at (916) 323-3395 or Charlotte.Fadipe@dtsc.ca.gov.

NOTICE TO HEARING IMPAIRED INDIVIDUALS: TDD users can obtain additional information by using the California State Relay Service (1-888-877-5378).

Appendix C: Site Inspection Checklist

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Site Inspection Checklist

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

| I. SITE INFORMATION | | | | | | | | | | | | | |
|---|--|--|--|-------|------|-------------|---------|-----------|----------|------------------------|--|-----------------|-------|
| Site name: <u>THAN Fresno</u> | Date of inspection: <u>5/9/2013</u> | | | | | | | | | | | | |
| Location and Region: <u>7183 E. McKinley Ave, Fresno County, CA</u> | EPA ID: | | | | | | | | | | | | |
| Agency, office, or company leading the five-year review: <u>DTSC</u> | Weather/temperature: <u>Sunny, clear, warm</u> | | | | | | | | | | | | |
| Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls Groundwater pump and treatment Surface water collection and treatment Other _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Monitored natural attenuation Groundwater containment Vertical barrier walls </td> </tr> </table> | | <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls Groundwater pump and treatment Surface water collection and treatment Other _____ | <input checked="" type="checkbox"/> Monitored natural attenuation Groundwater containment Vertical barrier walls | | | | | | | | | | |
| <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls Groundwater pump and treatment Surface water collection and treatment Other _____ | <input checked="" type="checkbox"/> Monitored natural attenuation Groundwater containment Vertical barrier walls | | | | | | | | | | | | |
| Attachments: Inspection team roster attached * Site map attached | | | | | | | | | | | | | |
| II. INTERVIEWS (Check all that apply) | | | | | | | | | | | | | |
| 1. O&M site manager _____ <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 10%; text-align: center;">Date</td> </tr> <tr> <td>Interviewed</td> <td>at site</td> <td>at office</td> <td>by phone</td> </tr> <tr> <td colspan="2">Problems, suggestions;</td> <td>Report attached</td> <td>_____</td> </tr> </table> | | | Name | Title | Date | Interviewed | at site | at office | by phone | Problems, suggestions; | | Report attached | _____ |
| | Name | Title | Date | | | | | | | | | | |
| Interviewed | at site | at office | by phone | | | | | | | | | | |
| Problems, suggestions; | | Report attached | _____ | | | | | | | | | | |
| 2. O&M staff _____ <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 10%; text-align: center;">Date</td> </tr> <tr> <td>Interviewed</td> <td>at site</td> <td>at office</td> <td>by phone</td> </tr> <tr> <td colspan="2">Problems, suggestions;</td> <td>Report attached</td> <td>_____</td> </tr> </table> | | | Name | Title | Date | Interviewed | at site | at office | by phone | Problems, suggestions; | | Report attached | _____ |
| | Name | Title | Date | | | | | | | | | | |
| Interviewed | at site | at office | by phone | | | | | | | | | | |
| Problems, suggestions; | | Report attached | _____ | | | | | | | | | | |

* Inspection team:

Danny Domingo, DTSC

Stuart St. Clair, URS Corporation

| III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply) | | | | |
|--|--|---------------------|--------------|-------|
| 1. | O&M Documents | | | |
| | O&M manual | ✓ Readily available | ✓ Up to date | N/A |
| | As-built drawings | ✓ Readily available | ✓ Up to date | N/A |
| | Maintenance logs | ✓ Readily available | ✓ Up to date | N/A |
| | Remarks _____ | | | |
| 2. | Site-Specific Health and Safety Plan | ✓ Readily available | ✓ Up to date | N/A |
| | Contingency plan/emergency response plan | ✓ Readily available | ✓ Up to date | N/A |
| | Remarks _____ | | | |
| 3. | O&M and OSHA Training Records | ✓ Readily available | ✓ Up to date | N/A |
| | Remarks _____ | | | |
| 4. | Permits and Service Agreements | | | |
| | Air discharge permit | Readily available | Up to date | ✓ N/A |
| | Effluent discharge | Readily available | Up to date | ✓ N/A |
| | Waste disposal, POTW | Readily available | Up to date | ✓ N/A |
| | Other permits _____ | Readily available | Up to date | ✓ N/A |
| | Remarks _____ | | | |
| 5. | Gas Generation Records | Readily available | Up to date | ✓ N/A |
| | Remarks _____ | | | |
| 6. | Settlement Monument Records | Readily available | Up to date | ✓ N/A |
| | Remarks _____ | | | |
| 7. | Groundwater Monitoring Records | ✓ Readily available | ✓ Up to date | N/A |
| | Remarks _____ | | | |
| 8. | Leachate Extraction Records | Readily available | Up to date | ✓ N/A |
| | Remarks _____ | | | |
| 9. | Discharge Compliance Records | | | |
| | Air | Readily available | Up to date | ✓ N/A |
| | Water (effluent) | Readily available | Up to date | ✓ N/A |
| | Remarks _____ | | | |
| 10. | Daily Access/Security Logs | Readily available | Up to date | ✓ N/A |
| | Remarks <u>Controlled access (security fence, gates, locks).</u> | | | |
| | <u>No logs.</u> | | | |

| IV. O&M COSTS | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------------|-------|--------------------|----------------------|------------|--|---------------------|-------|--------------------|----------------------|------------|--|---------------------|-------|--------------------|----------------------|------------|--|---------------------|-------|--------------------|----------------------|------------|--|
| 1. | O&M Organization State in-house _____ Contractor for State PRP in-house <input checked="" type="checkbox"/> Contractor for PRP Federal Facility in-house _____ Contractor for Federal Facility Other _____ | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | O&M Cost Records * <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Up to date Funding mechanism/agreement in place Original O&M cost estimate _____ Breakdown attached Total annual cost by year for review period if available <table border="0"> <tr> <td>From _____ To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td> Date Date</td> <td> Total cost</td> <td></td> </tr> <tr> <td>From _____ To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td> Date Date</td> <td> Total cost</td> <td></td> </tr> <tr> <td>From _____ To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td> Date Date</td> <td> Total cost</td> <td></td> </tr> <tr> <td>From _____ To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td> Date Date</td> <td> Total cost</td> <td></td> </tr> </table> | From _____ To _____ | _____ | Breakdown attached | Date Date | Total cost | | From _____ To _____ | _____ | Breakdown attached | Date Date | Total cost | | From _____ To _____ | _____ | Breakdown attached | Date Date | Total cost | | From _____ To _____ | _____ | Breakdown attached | Date Date | Total cost | |
| From _____ To _____ | _____ | Breakdown attached | | | | | | | | | | | | | | | | | | | | | | | |
| Date Date | Total cost | | | | | | | | | | | | | | | | | | | | | | | | |
| From _____ To _____ | _____ | Breakdown attached | | | | | | | | | | | | | | | | | | | | | | | |
| Date Date | Total cost | | | | | | | | | | | | | | | | | | | | | | | | |
| From _____ To _____ | _____ | Breakdown attached | | | | | | | | | | | | | | | | | | | | | | | |
| Date Date | Total cost | | | | | | | | | | | | | | | | | | | | | | | | |
| From _____ To _____ | _____ | Breakdown attached | | | | | | | | | | | | | | | | | | | | | | | |
| Date Date | Total cost | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: <u>Replacement of stolen water-supply backflow prevention valve</u> <u>outside fence in 2011.</u> <u>Repair of monitoring well 29-B wellhead, outside fence, hit</u> <u>by vehicle in 2012.</u> | | | | | | | | | | | | | | | | | | | | | | | | |
| V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A | | | | | | | | | | | | | | | | | | | | | | | | | |
| A. Fencing | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Fencing damaged Location shown on site map <input checked="" type="checkbox"/> Gates secured N/A Remarks <u>A few rodent burrows under fence need filling with</u> <u>top soil.</u> | | | | | | | | | | | | | | | | | | | | | | | | |
| B. Other Access Restrictions | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Signs and other security measures Location shown on site map N/A Remarks <u>Signs have deteriorated, are hard to read, and need</u> <u>replacement.</u> | | | | | | | | | | | | | | | | | | | | | | | | |

* Landfill cover O&M costs are a few thousand dollars per year for bi-weekly drive-by inspections, periodic rodent poison bait placements, annual mowing in spring, and rodent burrow filling with top soil as needed.

| C. Institutional Controls (ICs) | | | |
|---------------------------------|---|--|--|
| 1. | Implementation and enforcement | | |
| | Site conditions imply ICs not properly implemented | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | N/A |
| | Site conditions imply ICs not being fully enforced | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | N/A |
| | Type of monitoring (e.g., self-reporting, drive by) | Drive-by | |
| | Frequency | Bi-weekly | |
| | Responsible party/agency | Pretzer Farms (subcontractor to URS) | |
| | Contact | Bill Pretzer | (559) 456-0700 |
| | | Name | Title Date Phone no. |
| | Reporting is up-to-date | <input checked="" type="checkbox"/> Yes | No <input type="checkbox"/> N/A |
| | Reports are verified by the lead agency | <input checked="" type="checkbox"/> Yes | No <input type="checkbox"/> N/A |
| | Specific requirements in deed or decision documents have been met | <input checked="" type="checkbox"/> Yes | No <input type="checkbox"/> N/A |
| | Violations have been reported | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | N/A |
| | Other problems or suggestions: | Report attached | |
| | | | |
| | | | |
| | | | |
| 2. | Adequacy | <input checked="" type="checkbox"/> ICs are adequate | ICs are inadequate N/A |
| | Remarks | | |
| | | | |
| | | | |
| D. General | | | |
| 1. | Vandalism/trespassing | Location shown on site map <input checked="" type="checkbox"/> No vandalism evident <i>currently</i> | |
| | Remarks | Electrical wire inside fence stolen 2010. Back-flow prevention valve outside fence stolen 2011. | |
| 2. | Land use changes on site | <input checked="" type="checkbox"/> N/A | |
| | Remarks | | |
| 3. | Land use changes off site | <input checked="" type="checkbox"/> N/A | |
| | Remarks | | |
| VI. GENERAL SITE CONDITIONS | | | |
| A. Roads | Applicable | <input checked="" type="checkbox"/> N/A | |
| 1. | Roads damaged | Location shown on site map | Roads adequate <input checked="" type="checkbox"/> N/A |
| | Remarks | | |
| | | | |

| | | | |
|---|---|---|--------------------------|
| B. Other Site Conditions | | | |
| Remarks _____ _____ _____ _____ | | | |
| VII. LANDFILL COVERS ✓ Applicable N/A | | | |
| A. Landfill Surface | | | |
| 1. | Settlement (Low spots) Areal extent _____ Remarks _____ | Location shown on site map _____ Depth _____ | ✓ Settlement not evident |
| 2. | Cracks Lengths _____ Widths _____ Remarks _____ | Location shown on site map _____ Depths _____ | ✓ Cracking not evident |
| 3. | Erosion Areal extent _____ Remarks _____ | Location shown on site map _____ Depth _____ | ✓ Erosion not evident |
| 4. | Holes Areal extent <u>6" dia. (typical)</u> Remarks <u>A few rodent burrows observed. Site O&M contractor fills holes with top soil from adjacent orchard as found, and places poison bait periodically.</u> | Location shown on site map _____ Depth <u>6" (typical)</u> | Holes not evident |
| 5. | Vegetative Cover Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>Grass green in winter, dies off in summer. No corrective action needed.</u> | ✓ Grass ✓ Cover properly established | ✓ No signs of stress |
| 6. | Alternative Cover (armored rock, concrete, etc.) Remarks _____ | | ✓ N/A |
| 7. | Bulges Areal extent _____ Remarks _____ | Location shown on site map _____ Height _____ | ✓ Bulges not evident |

| | | | |
|--|-------------------------------|-------------------------------------|---|
| 8. | Wet Areas/Water Damage | <input checked="" type="checkbox"/> | Wet areas/water damage not evident |
| | Wet areas | | Location shown on site map Areal extent _____ |
| | Ponding | | Location shown on site map Areal extent _____ |
| | Seeps | | Location shown on site map Areal extent _____ |
| | Soft subgrade | | Location shown on site map Areal extent _____ |
| | Remarks _____ | | |
| 9. | Slope Instability | Slides | Location shown on site map <input checked="" type="checkbox"/> No evidence of slope instability |
| | Areal extent _____ | | |
| | Remarks _____ | | |
| B. Benches | Applicable | <input checked="" type="checkbox"/> | N/A |
| (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.) | | | |
| 1. | Flows Bypass Bench | | Location shown on site map N/A or okay |
| | Remarks _____ | | |
| 2. | Bench Breached | | Location shown on site map N/A or okay |
| | Remarks _____ | | |
| 3. | Bench Overtopped | | Location shown on site map N/A or okay |
| | Remarks _____ | | |
| C. Letdown Channels | Applicable | <input checked="" type="checkbox"/> | N/A |
| (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) | | | |
| 1. | Settlement | | Location shown on site map No evidence of settlement |
| | Areal extent _____ | Depth _____ | |
| | Remarks _____ | | |
| 2. | Material Degradation | | Location shown on site map No evidence of degradation |
| | Material type _____ | Areal extent _____ | |
| | Remarks _____ | | |
| 3. | Erosion | | Location shown on site map No evidence of erosion |
| | Areal extent _____ | Depth _____ | |
| | Remarks _____ | | |

| | | | |
|---|---|----------------------------|-----------------------------|
| 4. | Undercutting | Location shown on site map | No evidence of undercutting |
| | Areal extent _____ | Depth _____ | |
| | Remarks _____ | | |
| 5. | Obstructions | Type _____ | No obstructions |
| | Location shown on site map | Areal extent _____ | |
| | Size _____ | | |
| | Remarks _____ | | |
| 6. | Excessive Vegetative Growth | Type _____ | |
| | No evidence of excessive growth | | |
| | Vegetation in channels does not obstruct flow | | |
| | Location shown on site map | Areal extent _____ | |
| | Remarks _____ | | |
| D. Cover Penetrations ✓ Applicable N/A | | | |
| 1. | Gas Vents | Active | Passive |
| | Properly secured/locked | Functioning | Routinely sampled |
| | Evidence of leakage at penetration | | Good condition |
| | ✓ N/A | | Needs Maintenance |
| | Remarks _____ | | |
| 2. | Gas Monitoring Probes | Functioning | Routinely sampled |
| | Properly secured/locked | | Good condition |
| | Evidence of leakage at penetration | | Needs Maintenance |
| | | | ✓ N/A |
| | Remarks _____ | | |
| 3. | Monitoring Wells (within surface area of landfill) | | |
| | ✓ Properly secured/locked | ✓ Functioning | ✓ Routinely sampled |
| | Evidence of leakage at penetration | | Good condition |
| | | | Needs Maintenance |
| | | | ✓ N/A |
| | Remarks _____ | | |
| 4. | Leachate Extraction Wells | Functioning | Routinely sampled |
| | Properly secured/locked | | Good condition |
| | Evidence of leakage at penetration | | Needs Maintenance |
| | | | ✓ N/A |
| | Remarks _____ | | |
| 5. | Settlement Monuments | Located | Routinely surveyed |
| | | | ✓ N/A |
| | Remarks _____ | | |

| | | | |
|---|---|--|----------------------|
| E. Gas Collection and Treatment | | Applicable | ✓ N/A |
| 1. | Gas Treatment Facilities Flaring Good condition Remarks _____ | Thermal destruction Needs Maintenance | Collection for reuse |
| 2. | Gas Collection Wells, Manifolds and Piping Good condition Remarks _____ | Needs Maintenance | |
| 3. | Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____ | Needs Maintenance | N/A |
| F. Cover Drainage Layer | | Applicable | ✓ N/A |
| 1. | Outlet Pipes Inspected Remarks _____ | Functioning | N/A |
| 2. | Outlet Rock Inspected Remarks _____ | Functioning | N/A |
| G. Detention/Sedimentation Ponds | | Applicable | ✓ N/A |
| 1. | Siltation Areal extent _____ Depth _____ Siltation not evident Remarks _____ | | N/A |
| 2. | Erosion Areal extent _____ Depth _____ Erosion not evident Remarks _____ | | |
| 3. | Outlet Works Remarks _____ | Functioning | N/A |
| 4. | Dam Remarks _____ | Functioning | N/A |

| H. Retaining Walls | | Applicable | <input checked="" type="checkbox"/> N/A |
|--|---|----------------------------|--|
| 1. | Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____ | Location shown on site map | Deformation not evident Vertical displacement _____ |
| 2. | Degradation Remarks _____ | Location shown on site map | Degradation not evident |
| I. Perimeter Ditches/Off-Site Discharge | | Applicable | <input checked="" type="checkbox"/> N/A |
| 1. | Siltation Areal extent _____ Remarks _____ | Location shown on site map | Siltation not evident Depth _____ |
| 2. | Vegetative Growth Vegetation does not impede flow Areal extent _____ Remarks _____ | Location shown on site map | N/A Type _____ |
| 3. | Erosion Areal extent _____ Remarks _____ | Location shown on site map | Erosion not evident Depth _____ |
| 4. | Discharge Structure Remarks _____ | Functioning | N/A |
| VIII. VERTICAL BARRIER WALLS | | Applicable | <input checked="" type="checkbox"/> N/A |
| 1. | Settlement Areal extent _____ Remarks _____ | Location shown on site map | Settlement not evident Depth _____ |
| 2. | Performance Monitoring Performance not monitored Frequency _____ Head differential _____ Remarks _____ | Type of monitoring _____ | Evidence of breaching |

| | | | |
|---|---|--|---|
| IX. GROUNDWATER/SURFACE WATER REMEDIES | | <input checked="" type="checkbox"/> Applicable | N/A |
| A. Groundwater Extraction Wells, Pumps, and Pipelines | | Applicable | <input checked="" type="checkbox"/> N/A |
| 1. | Pumps, Wellhead Plumbing, and Electrical Good condition All required wells properly operating | Needs Maintenance | N/A |
| Remarks _____ _____ | | | |
| 2. | Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance | | |
| Remarks _____ _____ | | | |
| 3. | Spare Parts and Equipment Readily available Good condition Requires upgrade | Needs to be provided | |
| Remarks _____ _____ | | | |
| B. Surface Water Collection Structures, Pumps, and Pipelines | | <input checked="" type="checkbox"/> Applicable | N/A |
| 1. | <input checked="" type="checkbox"/> Collection Structures, Pumps, and Electrical Good condition Needs Maintenance | | |
| Remarks <u>Infiltration trench on south and west edges of</u> <u>landfill cover.</u> | | | |
| 2. | Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance | | |
| Remarks _____ _____ | | | |
| 3. | Spare Parts and Equipment Readily available Good condition Requires upgrade | Needs to be provided | |
| Remarks _____ _____ | | | |

| C. Treatment System | | Applicable | <input checked="" type="checkbox"/> N/A |
|---------------------------|---|--|--|
| 1. | Treatment Train (Check components that apply) Metals removal Oil/water separation Bioremediation Air stripping Carbon adsorbers Filters _____ Additive (e.g., chelation agent, flocculent) _____ Others _____ Good condition Needs Maintenance Sampling ports properly marked and functional Sampling/maintenance log displayed and up to date Equipment properly identified Quantity of groundwater treated annually _____ Quantity of surface water treated annually _____ Remarks _____ | | |
| 2. | Electrical Enclosures and Panels (properly rated and functional) N/A Good condition Needs Maintenance Remarks _____ | | |
| 3. | Tanks, Vaults, Storage Vessels N/A Good condition Proper secondary containment Needs Maintenance Remarks _____ | | |
| 4. | Discharge Structure and Appurtenances N/A Good condition Needs Maintenance Remarks _____ | | |
| 5. | Treatment Building(s) N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks _____ | | |
| 6. | Monitoring Wells (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks _____ | | |
| D. Monitoring Data | | | |
| 1. | Monitoring Data | <input checked="" type="checkbox"/> Is routinely submitted on time | <input checked="" type="checkbox"/> Is of acceptable quality |
| 2. | Monitoring data suggests: | <input checked="" type="checkbox"/> Groundwater plume is effectively contained | <input checked="" type="checkbox"/> Contaminant concentrations are declining |

| | | | |
|--|--|-------------------|---------------------|
| D. Monitored Natural Attenuation | | | |
| 1. | Monitoring Wells (natural attenuation remedy) | | |
| | ✓ Properly secured/locked | ✓ Functioning | ✓ Routinely sampled |
| | ✓ All required wells located | Needs Maintenance | ✓ Good condition |
| | Remarks | | N/A |
| X. OTHER REMEDIES | | | |
| If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. | | | |
| XI. OVERALL OBSERVATIONS | | | |
| A. Implementation of the Remedy | | | |
| Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). | | | |
| The remedy appears to be effective and functioning as intended to minimize infiltration. | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| B. Adequacy of O&M | | | |
| Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. | | | |
| O&M activities appear adequate. | | | |
| No major issues identified. | | | |
| A few minor maintenance items were identified and will be addressed: | | | |
| - continued filling of rodent burrows and placement of poison bait. | | | |
| - new signs on fence. | | | |
| | | | |
| | | | |

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None identified.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None identified.

**T H Agriculture &
Nutrition, L.L.C.**

Second Five-Year Review Site Inspection
T H Agriculture & Nutrition Site
7183 E. McKinley Ave.
Fresno County, California

URS Project No.
18715323

Dates: May 9 & 21, 2013

Photo No.

1

**Direction Photo
Taken:**

Looking south from near
the northwest corner of
the Site.

Description:

View of the infiltration
trench on west side of
containment cover. Note
infiltration-trench
inspection port in
foreground. Note utility
pole and electrical panel
located approximately 60
feet south and 8 feet east
of northwest corner of
Site.

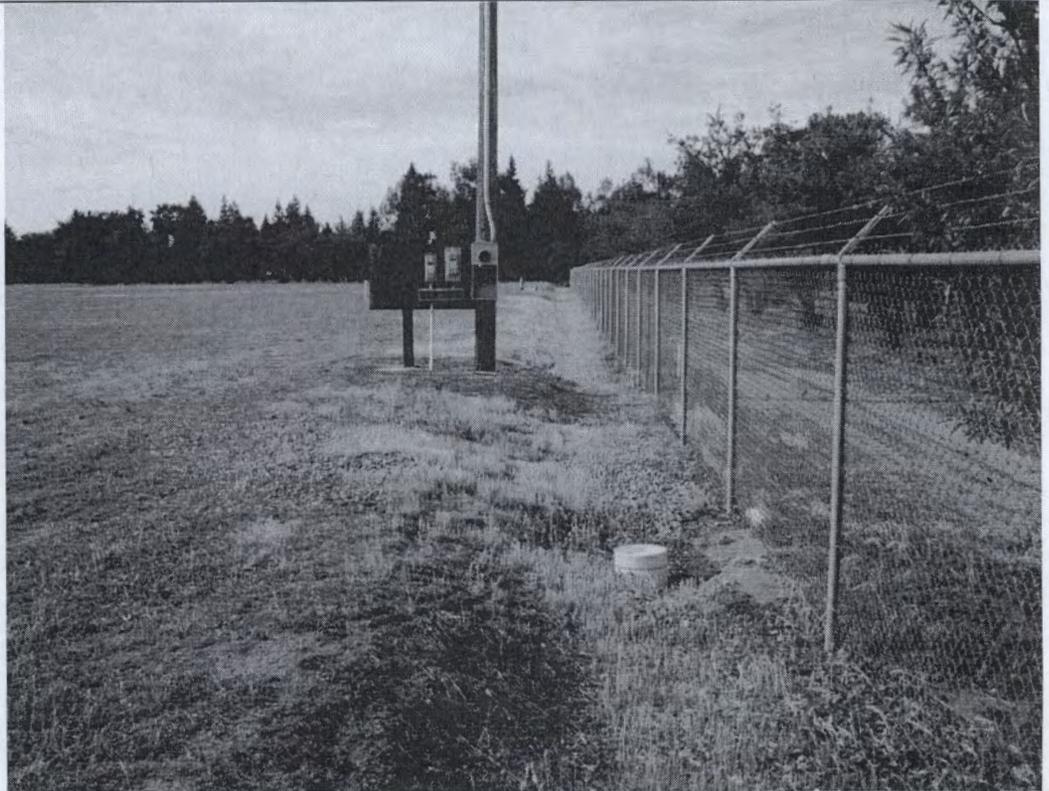


Photo No.

2

**Direction Photo
Taken:**

Looking northwest.

Description:

View of water supply
hose bib faucet located
approximately 1 foot
south and 12 feet east
of northwest corner of
Site.





PHOTOGRAPHIC LOG

T H Agriculture & Nutrition, L.L.C.

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URS Project No.
18715323

Dates: May 9 & 21, 2013

Photo No.

3

Direction Photo Taken:

Looking southwest.

Description:

View of rodent poison bait station just outside western fence at Site.



Photo No.

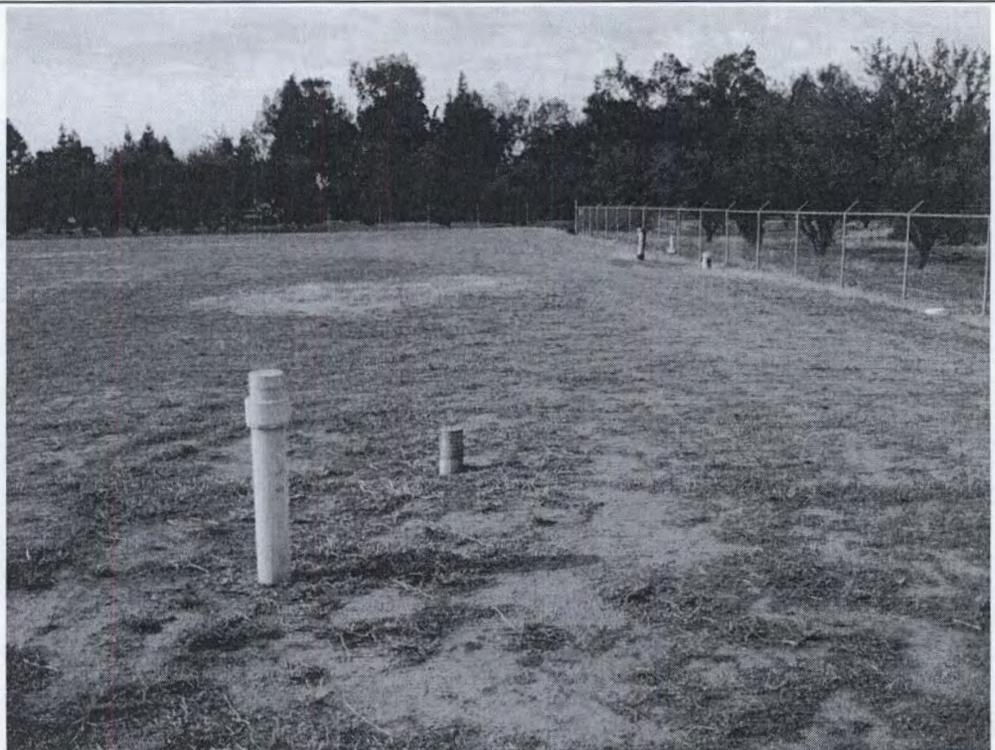
4

Direction Photo Taken:

Looking south-southwest.

Description:

View of groundwater monitoring wells 155-A1 and 155-B0, in foreground, and monitoring wells 77-A and 77-B1, in background, located in southwest quadrant of the Site.





PHOTOGRAPHIC LOG

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**Photo No.
5**

**Direction Photo
Taken:**

Looking southwest.

Description:

View of typical rodent burrow (approximately 6-inch diameter) under western fence at Site.



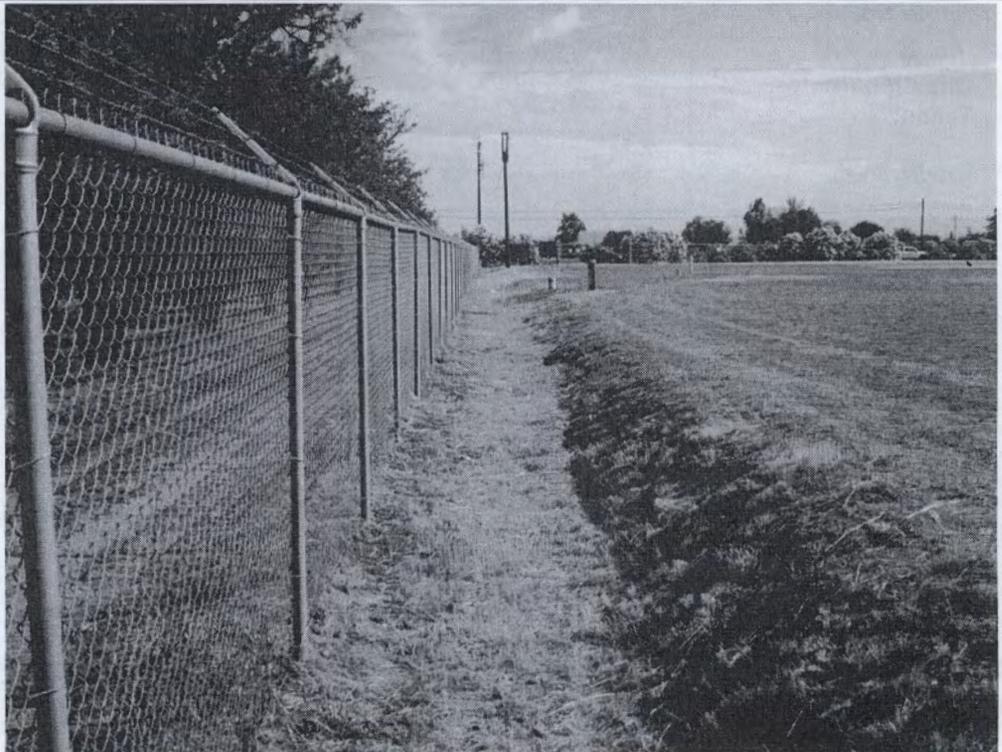
**Photo No.
6**

**Direction Photo
Taken:**

Looking north from near the southwest corner of the Site.

Description:

View of the infiltration trench on west side of containment cover.



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PHOTOGRAPHIC LOG

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Photo No.

7

**Direction Photo
Taken:**

Looking east from near
the southwest corner of
the Site.

Description:

View of the infiltration
trench on south side of
containment cover.

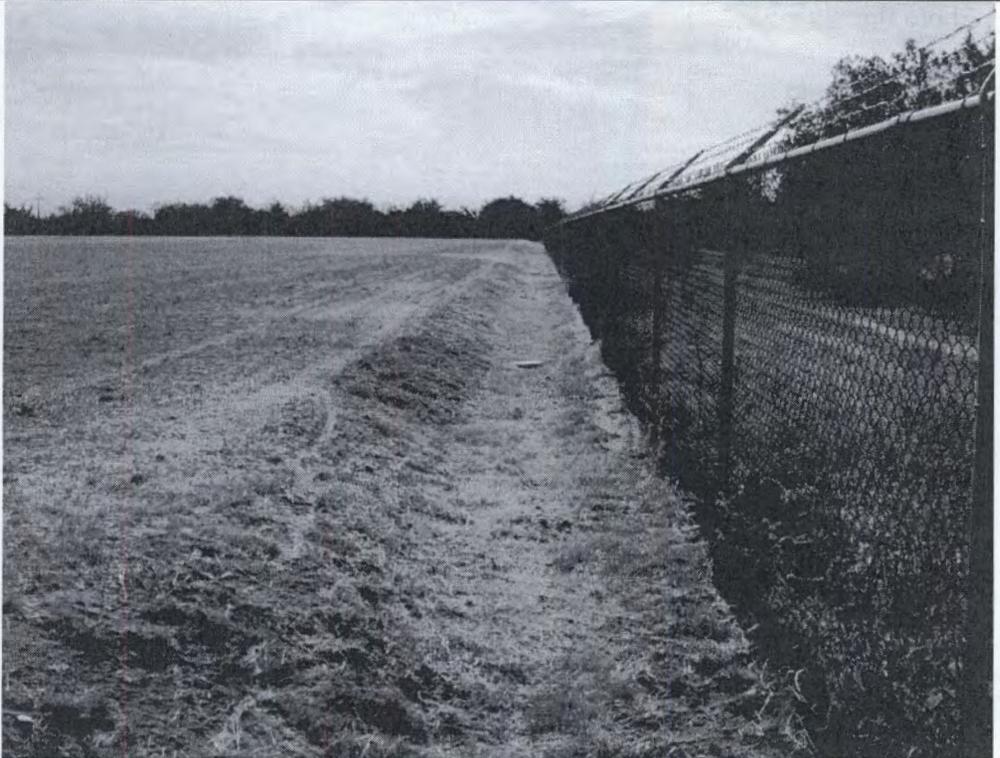


Photo No.

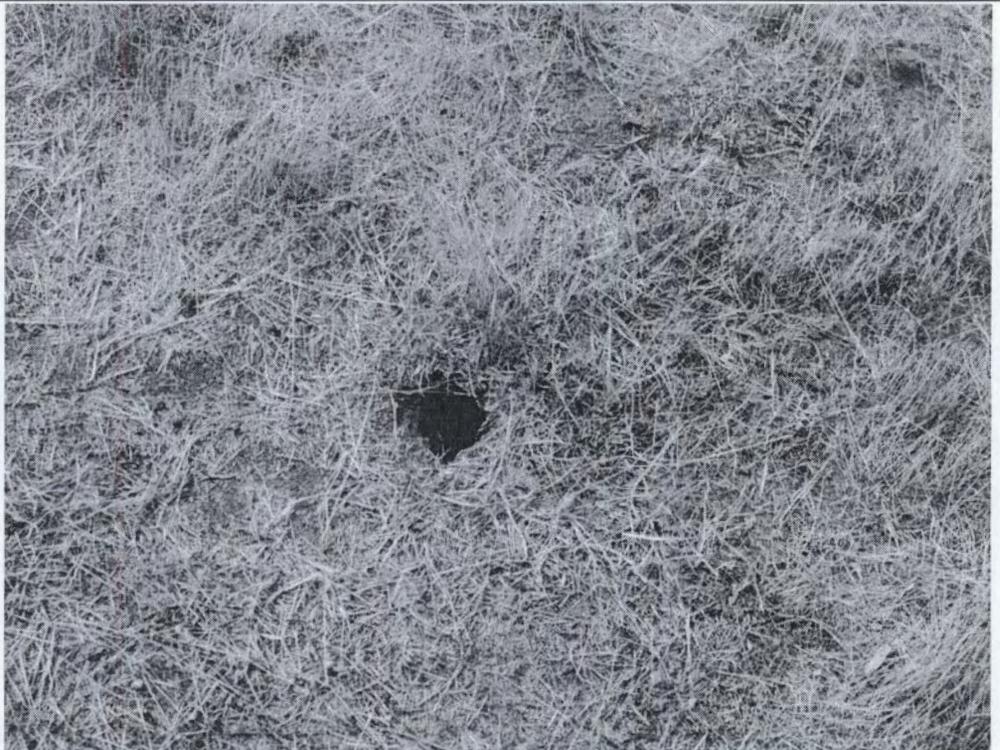
8

**Direction Photo
Taken:**

Looking south.

Description:

View of typical rodent
burrow (approximately 4-
inch diameter) in the top
layer of the containment
cover near the southern
edge.



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Dates: May 9 & 21, 2013

Photo No.

9

**Direction Photo
Taken:**

Looking northeast.

Description:

View of the approximately 7-foot by 15-foot concrete pad with a water well, two water tanks, and electrical panel, located approximately 70 feet south and 230 feet west of northwest corner of Site.

