

**THIRD FIVE-YEAR REVIEW REPORT FOR
WASTE DISPOSAL, INC. SUPERFUND SITE
LOS ANGELES COUNTY, CALIFORNIA**



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2/15/11

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Executive Summary

EPA has prepared this third Five-Year Review (FYR) for the Waste Disposal, Inc. (WDI) Superfund Site (Site) located in Santa Fe Springs, California. The purpose of this FYR is to review relevant site information to determine if the remedy is, and will continue to be protective of human health and the environment. The triggering action for this FYR was the signing of the previous FYR on September 9, 2014.

The Site covers 38 acres in an industrial and residential area of Santa Fe Springs. The main feature of the Site is a buried, concrete-lined, 42-million gallon, 600-foot-diameter reservoir, which was initially used for crude petroleum storage. By 1963, the reservoir was covered with fill, and by 1964 most, although not all, disposal activities appear to have ceased. Grading over the remainder of the buried wastes continued until approximately 1966.

The Site was added to the National Priorities List in July 1987, when it was determined that Site conditions posed several human health risks, including the potential for uncontrolled exposure via direct contact with buried wastes and contaminated soil, and soil vapor migration into nearby businesses. Contaminants of concern in the soil include 11 metals, 7 chlorinated pesticides, 16 volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs).

The original Record of Decision (ROD), which specified a cleanup remedy, was signed December 27, 1993. Following the issuance of the 1993 ROD, new information became available including: the expanded lateral extent and volume of buried waste on the Site, the nature and increased extent of soil gas beneath the Site, and the presence of liquids inside the buried concrete-lined reservoir at the center of the Site. Based on this new information, the U.S. Environmental Protection Agency (EPA) issued an amended ROD in June 2002. The Amended ROD selected a final sitewide remedy to contain waste materials, prevent exposure to contaminated soil, buried wastes, soil gases, and site liquids, and to protect long-term human health and the environment. The major components of the remedy are a Resource Conservation and Recovery Act (RCRA) cap over the existing reservoir, engineered capping systems for areas outside the reservoir, a gas collection, extraction, and treatment system, liquids collection systems, and implementation of institutional controls.

All components of the remedy (listed above) have been implemented, are functioning as designed, and maintain protectiveness. No issues with operation and maintenance or institutional controls have been identified. Original exposure assumptions and remedial action objectives remain valid. There have been changes in toxicity data; however, chemicals with the changed toxicity information are either not detected or detected at concentrations within EPA's acceptable protective risk range. No new information has come to light that could call remedy protectiveness into question.

The remedy is protective of human health and the environment. The remedy successfully contains on-site waste, blocks exposure pathways, and prevents direct exposure to contaminated soils. The reservoir gas collection system and engineering controls for on-site structures prevent migration of vapors to on-site indoor air and/or off-site. Groundwater remains unaffected by Site contamination.

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List of Abbreviations

ARARs	applicable or relevant and appropriate requirements
AROD	Amended Record of Decision (2002)
bgs	below ground surface
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
FYR	Five-Year Review
GW	groundwater
IATL	indoor air threshold limit
lb	pound
LCS	Liquids Collection System
MCL	maximum contaminant level
O&M	operations and maintenance
OU	Operable Unit
PAHs	polyaromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
ppbv	parts per billion by volume
PRP	Potentially Responsible Party
RI/FS	Remedial Investigation/Feasibility Study
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SGPS	soil gas performance standards
TCE	trichloroethene
VOC	volatile organic compound
VW	vapor well
WDI	Waste Disposal, Inc.
WDIG	Waste Disposal, Inc., Group

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 the reviews are documented in FYR 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) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, 42 United States Code (USC) § 9621 and the National Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), as well as EPA policy.

This is the third FYR for the Waste Disposal Inc. (WDI) Superfund Site (Site). The triggering action for this statutory review is the completion of the previous FYR. The FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

The remedy includes multiple components designed to contain waste materials and prevent exposures to buried waste, contaminated soil, and soil vapor.

Russell Mechem, EPA Remedial Project Manager, led the WDI Superfund Site Five-Year Review. Participants included Alison Burcham (environmental engineer) and David Sullivan (geologist) from the U.S. Army Corps of Engineers. The review began on November 16, 2018.

Table 1. Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Waste Disposal, Inc.		
EPA ID: CAD980884357		
Region: 9	State: CA	City/County: Santa Fe Springs/Los Angeles
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Russell Mechem		
Author affiliation: EPA Region 9 Remedial Project Manager		
Review period: 11/16/2018 – 7/9/2019		
Date of site inspection: 2/28/2019		
Type of review: Statutory		
Review number: 3		
Triggering action date: 9/9/2014		
Due date (five years after triggering action date): 9/9/2019		

1.1. Background

The Site covers 38 acres in an industrial and residential area of Santa Fe Springs. The main feature of the Site is a buried, concrete-lined, 42-million gallon, 600-foot-diameter reservoir, which was initially used for crude petroleum storage. The reservoir was constructed prior to 1924, and by the late 1920s, areas outside of the reservoir were used for the unregulated disposal of a variety of liquid and solid wastes. Between 1937 and 1941, the owner/operators removed the reservoir cover, and the reservoir was used as a landfill from the early to mid-1940s until the mid-1960s. The reservoir was then used for the disposal of a variety of liquid and solid wastes.

The disposal site operated under a permit from Los Angeles County from 1949 until 1964 and may have continued operating for roughly 2 to 3 years while the site was being graded. Permitted wastes included rotary drilling mud, clean earth, rock, sand, gravel, paving fragments, concrete, brick, plaster, steel mill slag, dry mud cake from oil field sumps, and acetylene sludge. Investigations show that disposed materials also included, but were not limited to, the following unpermitted wastes: organic wastes, oil refinery wastes, solvents, petroleum-related chemicals, and other chemical wastes. Wastes were disposed within the reservoir and in areas adjacent to and outside of the reservoir.

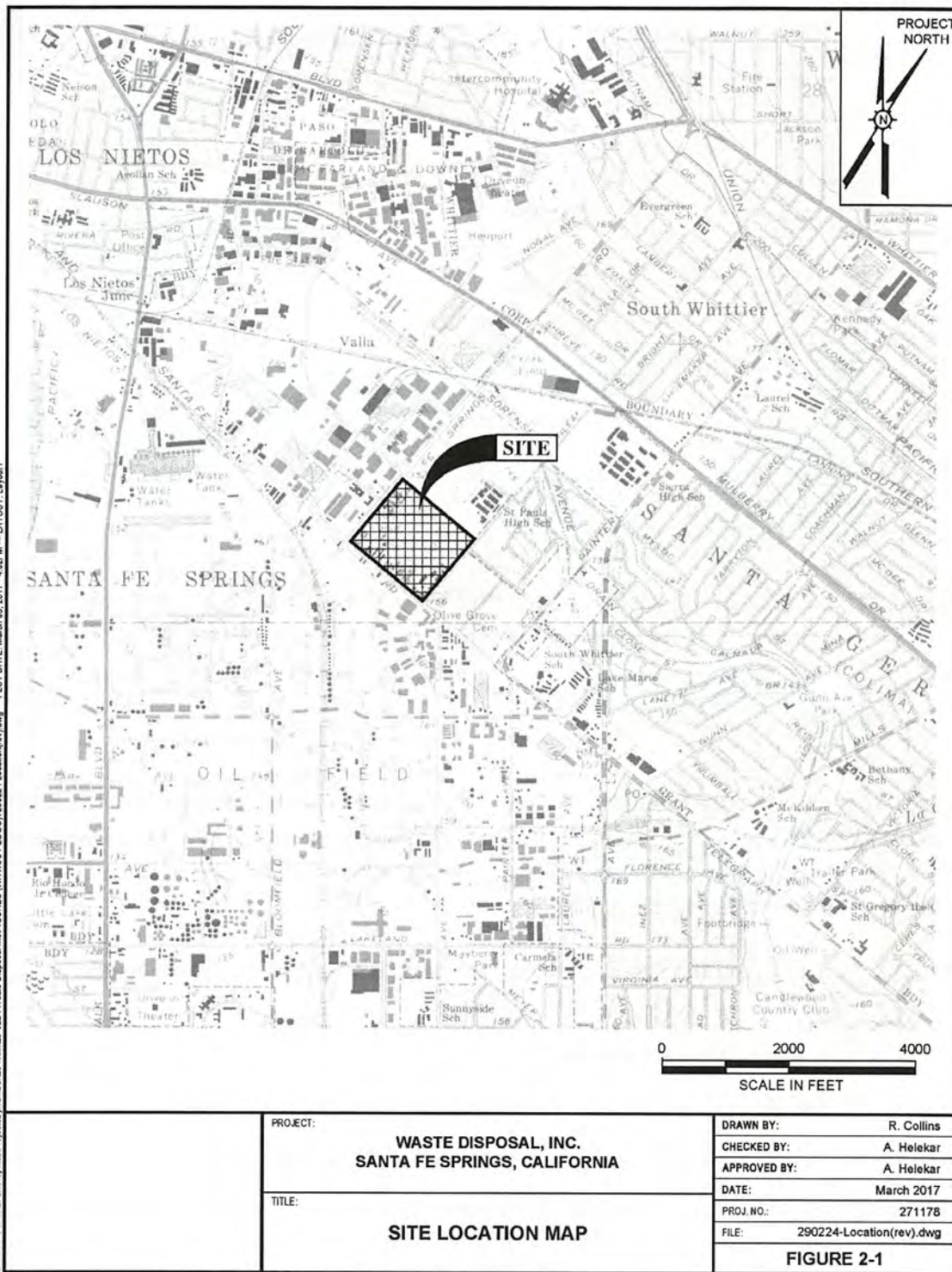
By 1963, the reservoir was covered with fill, and by 1964 most, although not all, disposal activities appear to have ceased. Grading over the remainder of the buried wastes continued until approximately 1966.

1.2. Physical Characteristics and Land Use

The WDI Site encompasses approximately 38 acres in an industrial and residential area on the east side of Santa Fe Springs in Los Angeles County, California. The Site is bounded by Santa Fe Springs Road on the northwest, a warehouse and a private high school on the northeast, Los Nietos Road on the southwest, and Greenleaf Avenue on the southeast (Figure 1). Adjacent land uses include residential areas and additional businesses that undertake light industrial and commercial activities. The Site is divided into Areas 1 through 8 (Figure 2).

Zoning for the site is M-2 Heavy Manufacturing with an industrial land use designation. The City has long been interested in having the site redeveloped and adopted a Specific Use Plan in May 2004. The Specific Use Plan lays out a vision for Site redevelopment along with conceptual site plans, siting and set-back requirements, and design guidelines. The WDI Site encompasses a total of 22 individual land parcels, 19 of which currently contain structures. Landowners and tenants operate a host of small business enterprises, encompassing commercial and light industrial activities. Existing structures accommodate a wide variety of light industrial businesses, including heavy equipment storage, a tool and die shop, printing and plating shops, and vehicle maintenance facilities, among others. A majority of small businesses use chemicals containing volatile organic compounds (VOCs), such as solvents and petroleum products, that can contribute to detections by indoor air monitoring systems installed as part of EPA's selected environmental remedy. No land uses near the Site have changed since selection of the remedial actions for the Site.

For many years, the City, some landowners, and other stakeholders expressed strong interest in commercial redevelopment of the Site. EPA, through the Superfund Redevelopment Initiative, coordinated with stakeholders to encourage and support appropriate beneficial reuse that would not compromise the integrity of the completed remedy. The selected remedy and the City's Specific Use Plan anticipate the possibility that additional portions of the Site might become available for beneficial reuse at some point in the future.



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Figure 1. Location Map for the WDI Superfund Site

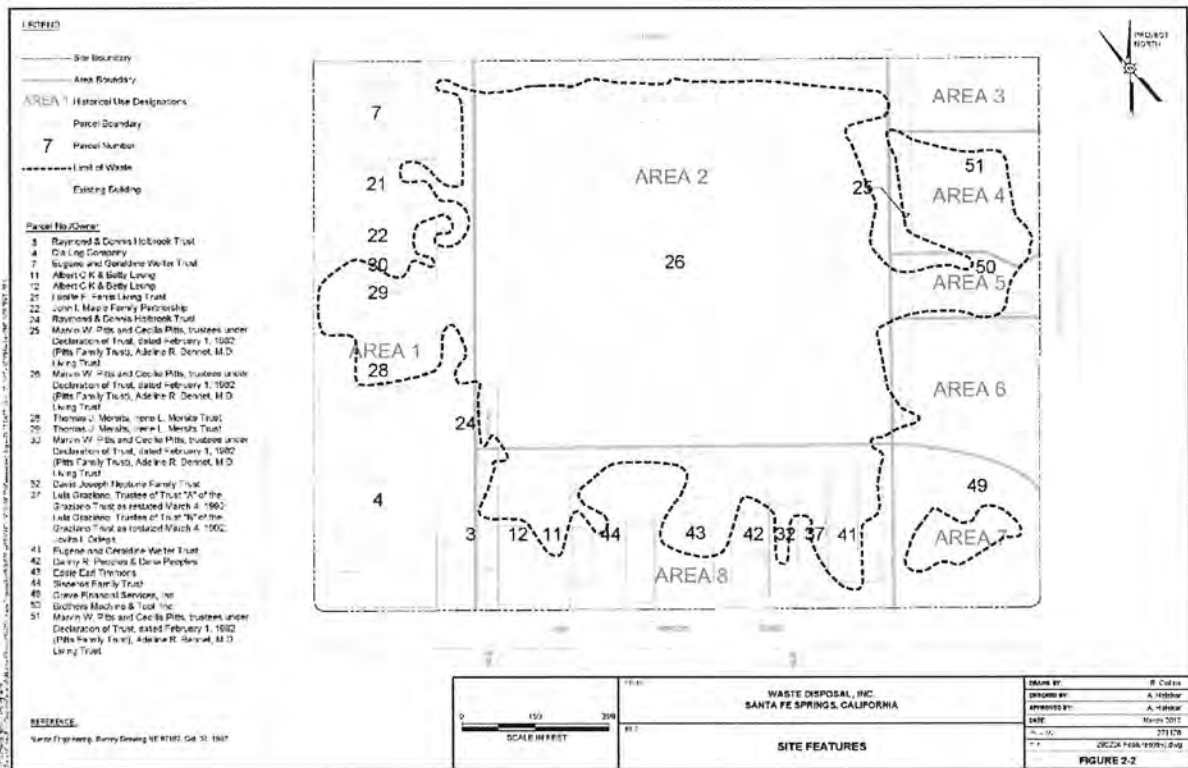


Figure 2. Detailed Map of the WDI Superfund Site

1.3. Hydrology

The Site is located in the Whittier area of the Los Angeles Central Groundwater Basin. The Site is underlain by unconsolidated recent alluvium and the Lakewood and San Pedro formations (primarily Pleistocene age fluvial sedimentary deposits). The subsurface stratigraphy and materials at the WDI Site, listed in increasing depth, include:

- 5 to 15 feet of fill material covering the concrete reservoir, waste containment areas, and most of the Site.
- 10 to 25 feet of sandy clay and silt.
- 50 feet of sandy, pebbly, channelized braided river (fluvial) deposits.
- At around 80 to 130 feet below ground surface (bgs), inter-bedded and pebbly sands.

The Site is underlain by (1) a shallow, upper water-bearing zone that exhibits localized groundwater flow generally to the southwest, and (2) a deeper, lower water-bearing zone that represents the regional flow pattern toward the southeast. The shallow water-bearing zone at the Site extends to a depth of approximately 48 to 70 feet. The deeper water-bearing zones extends from 70 feet to approximately 1,000 feet bgs. The upper and lower water-bearing zones exhibit some degree of hydraulic interconnection, and there does not appear to be a distinct physical separation between the two zones. Although local low hydraulic conductivity layers are present throughout the Site, the

deepest soil borings (100 to 130 feet bgs) at the Site have not identified laterally extensive low hydraulic conductivity layer. Groundwater flow rates are estimated to range from 6 to 60 feet per year based on the onsite soil characteristics.

2. Remedial Actions Summary

2.1. *Basis for Taking Action*

When the Site was added to the National Priorities List (NPL) in July 1987, Site conditions posed several human health risks, including the potential for uncontrolled exposure via direct contact with buried wastes and contaminated soil, and soil vapor migration into nearby businesses. There were concerns that Site waste also created a potential threat of groundwater contamination. After extensive Site investigations, however, current data indicates that the Site has not contributed to exceedances of groundwater standards.

The contaminants of concern (COCs) in the soil include 11 metals, 7 chlorinated pesticides, 16 VOCs, polyaromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The contaminants of concern identified for soil gas include benzene, ethylbenzene, toluene, xylene, carbon tetrachloride, chloroform, 1,2-dibromoethane, tetrachloroethene (PCE), 1,1,1-trichloroethane, trichloroethene (TCE), vinyl chloride, 1,2-dichloropropane, and methane. The presence of these contaminants of concern in the soil, soil gas, and potentially groundwater provided the basis for taking action under CERCLA.

2.2. *Remedy Selection*

EPA issued a Record of Decision (ROD) in 1993. The primary source of contamination at the WDI Site is a landfill, including the concrete reservoir in the central area and waste materials in the surrounding area. The selected remedy consisted of building a hazardous waste cap with capacity to add gas extraction and treatment if necessary. Following the issuance of the 1993 ROD, new information became available, including the expanded lateral extent and volume of buried waste on the Site, the nature and increased extent of soil gas beneath the Site, and the presence of liquids inside the buried concrete-lined reservoir at the center of the Site. Based on this new information, EPA issued an Amended ROD (AROD) in June 2002.

The Remedial Action Objectives (RAOs) for the remedy as stated in the 2002 AROD are as follows:

1. Protect human health and the environment by preventing exposure to buried wastes and contaminated soils.
2. Protect current and future onsite and off-site receptors from exposure to soil gases.
3. Prevent human exposure, from direct contact, consumption, and other uses, to Site liquids with contaminant concentrations exceeding State and Federal standards.

4. Prevent Site liquids from contributing to exceedances of State and Federal groundwater standards.
5. Prevent human exposure to groundwater that exceeds State and Federal standards due to Site-related contaminants.

The AROD modified the previously selected remedy for the contaminated soils and addressed waste materials, contaminated soil, subsurface liquids, subsurface gases, and groundwater conditions. Major components of the revised remedy are as follows:

- Installation of a Resource Conservation and Recovery Act (RCRA) equivalent cap for hazardous waste over the existing reservoir.
- Installation of engineered capping systems for areas outside of the reservoir that will be designed to achieve RCRA solid waste engineering and performance standards, including hydraulic conductivity of 10^{-6} centimeters per second, and graded soil mono-fill covers, asphalt, concrete paving, and/or building foundations.
- Installation of a gas collection, extraction, and treatment system beneath the RCRA-equivalent cap over the reservoir to collect, remove, and treat subsurface gases.
- Installation of liquids collection systems including liquids collection point in the reservoir, to monitor, collect, and extract leachate and free liquids for treatment and disposal at an off-site facility approved by EPA.
- Use of engineering controls at, and/or within, existing and new buildings overlying or adjacent to waste to prevent exposure to Site contaminants. Existing buildings or structures in locations where it is not technically feasible to install engineering controls will be demolished or removed.
- To minimize the potential exposure to soil gas, passive gas migration control (e.g. bio-venting wells) or active soil vapor extraction systems will be installed along portions of the waste perimeter outside of the reservoir area and near existing buildings. Monitoring systems will be installed to ensure performance. EPA selected the soil gas performance standards (SGPS) in the ROD amendment for contaminants of concern at the WDI Site (see Table 2).
- Implementation of institutional controls, including zoning ordinances, access controls, groundwater use restrictions, and restrictive covenants, to ensure the integrity of remedial systems, minimize the potential for exposure to residual wastes and hazardous substances, and restrict land use and site access.
- Implementation of long-term groundwater monitoring to ensure the revised remedy is not contributing to exceedances of groundwater standards and implementation of long-term operations and maintenance (O&M) to ensure that all environmental systems and control components are functioning effectively.

No significant impacts from WDI wastes on groundwater quality were identified based on groundwater sampling and comparison of the sampling data with the locations and characteristics of waste sources at the Site. For groundwater, EPA determined that the groundwater would be monitored and the results would be compared to MCLs.

For soil gas, EPA calculated a soil gas performance standard for each chemical of concern by applying an attenuation factor of 100 to EPA's 2000 Ambient Air Preliminary Remediation Goals. Soil Gas Performance Standards are the only standards selected for in the ROD and the amended ROD.

Table 2. Soil Gas Performance Standards

Contaminant of Concern	Soil Gas Performance Standard (ppbv)
1,2-Dichloroethane	20
1,1-Dichloroethene	100
1,2,4-Trimethylbenzene	20
1,2-Dichloroethene (cis)	180
1,2-Dichloroethene (trans)	400
1,2-Dichloropropane	20
1,3,5-Trimethylbenzene	20
1,2-Dibromoethane	1
1,1,1-Trichloroethane	3,600
Carbon Tetrachloride	21
Benzene	10
Chloroform	20
Ethylbenzene	5,000
Methane	1.25% (near buildings) 5.0% (Site perimeter)
Xylene	4,000
Tetrachloroethene (PCE)	500
Toluene	2,000
Trichloroethene (TCE)	200
Vinyl Chloride	10

ppbv – parts per billion by volume

The AROD also stated that by ensuring that the Soil Gas Performance Standards are met, indoor air risks to theoretical future residential would not be a concern. Subsequent to the AROD, WDI submitted a *Sub-surface Gas Contingency Plan*¹, which EPA approved. The plan includes a program to conduct and monitor indoor air quality in on-site businesses. In-building monitoring helps ensure that subsurface soil gas is not migrating from waste source areas to the surface and into tenant-occupied buildings. Concentrations measured in site buildings are compared with the Indoor Air

¹ CDM Federal Programs Corporation, Sub-surface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, July 1997.

Threshold Limits (IATLs) to determine if there are potential health risks to tenants and employees (Table 3).

Table 3. Indoor Air Threshold Levels

Contaminant	Indoor Air Threshold Level (ppbv)
1,1-Dichloroethene	53
1,2,4-Trimethylbenzene	-
1,2-Dichloroethene (cis)	18.6
1,2-Dichloroethene (trans)	36.8
1,2-Dichloropropane	1.86
1,3,5-Trimethylbenzene	-
1,2-Dibromoethane	.06
1,1,1-Trichloroethane	368
Carbon Tetrachloride	.68
Benzene	2
Chloroform	3.4
Ethylbenzene	490
Methane	1.25%
Xylene	142.8
Tetrachloroethene (PCE)	10.6
Toluene	212
Trichloroethene (TCE)	3.0 $\mu\text{g}/\text{m}^3$ (0.56 ppbv)
Vinyl Chloride	.25

2.3. Remedy Implementation

Physical construction of the remedy components began in March 2004 and was completed in August 2005. Construction proceeded smoothly with third-party construction quality assurance and oversight by EPA.

Gas Collection, Extraction, and Treatment System: Although the radial gas collection system was initially constructed with blowers for active collection, it was converted to passive operation in December 2007 due to very low rates of gas generation. The long-term soil gas monitoring program monitors selected soil vapor monitoring wells and the reservoir gas collection system to ensure protectiveness and determine any potential for health risks associated with soil gas migration.

Liquids Collection System: This system includes four liquids collection points in the reservoir to monitor, collect, and extract leachate and free liquids for treatment and disposal at an off-site facility approved by EPA. Two of the collection points (LC-2 and LC-4) were automated in December 2007 and are pumped continuously. From December 2007 through September 2017, approximately 7,515 gallons of liquids were collected at well LC-2 and approximately 4,620 gallons of liquids were collected at well LC-4.

Engineering Controls: Passive Bio-venting Wells were installed for soil gas migration control along portions of the waste perimeter outside of the reservoir area and near existing buildings. Twenty-four bio-vent wells were constructed at the site. The bio-vent wells provide air to enhance aerobic decomposition/biodegradation.

Institutional Controls: These controls in the form of Environmental Restrictive Covenants (covenants) protect twenty-two site parcels. The covenants for each parcel place numerous restrictions on land and water uses and provide notice to prospective purchasers or other users about the status and condition of the Site. Among other restrictions, the covenants prohibit residential land use and require EPA's review and prior written approval for an extensive list of activities that could potentially damage the engineered capping and monitoring systems. The covenants also include extensive land use restrictions (Prohibited Uses) intended to prevent human exposure to harmful waste materials and to protect the integrity of the completed remedy. The covenants require Owners to maintain any necessary engineered capping systems and engineering controls for any new structures or buildings that may require city building permits, as specified by EPA. Owners may not use, or allow others to use, the property in a manner that may interfere with or adversely affect the implementation, integrity, or protectiveness of response actions required by EPA for the selected remedy. The Waste Disposal, Inc., Group (WDIG) implements an Institutional Controls Monitoring and Enforcement Work Plan under EPA oversight. The Institutional Controls Monitoring and Enforcement Work Plan is an "evergreen" document available for update on a periodic basis. The WDIG implements the Institutional Controls Monitoring and Enforcement Work Plan through (1) a combination of detailed parcel-specific site inspections; and (2) an extensive internet-based monitoring program designed to detect potential changes in property ownership, tenancy, financial status, land use, permitting, and upcoming construction. The annual Operations, Maintenance, and Monitoring reports include results of the Institutional Controls Monitoring and Enforcement Work Plan implementation.

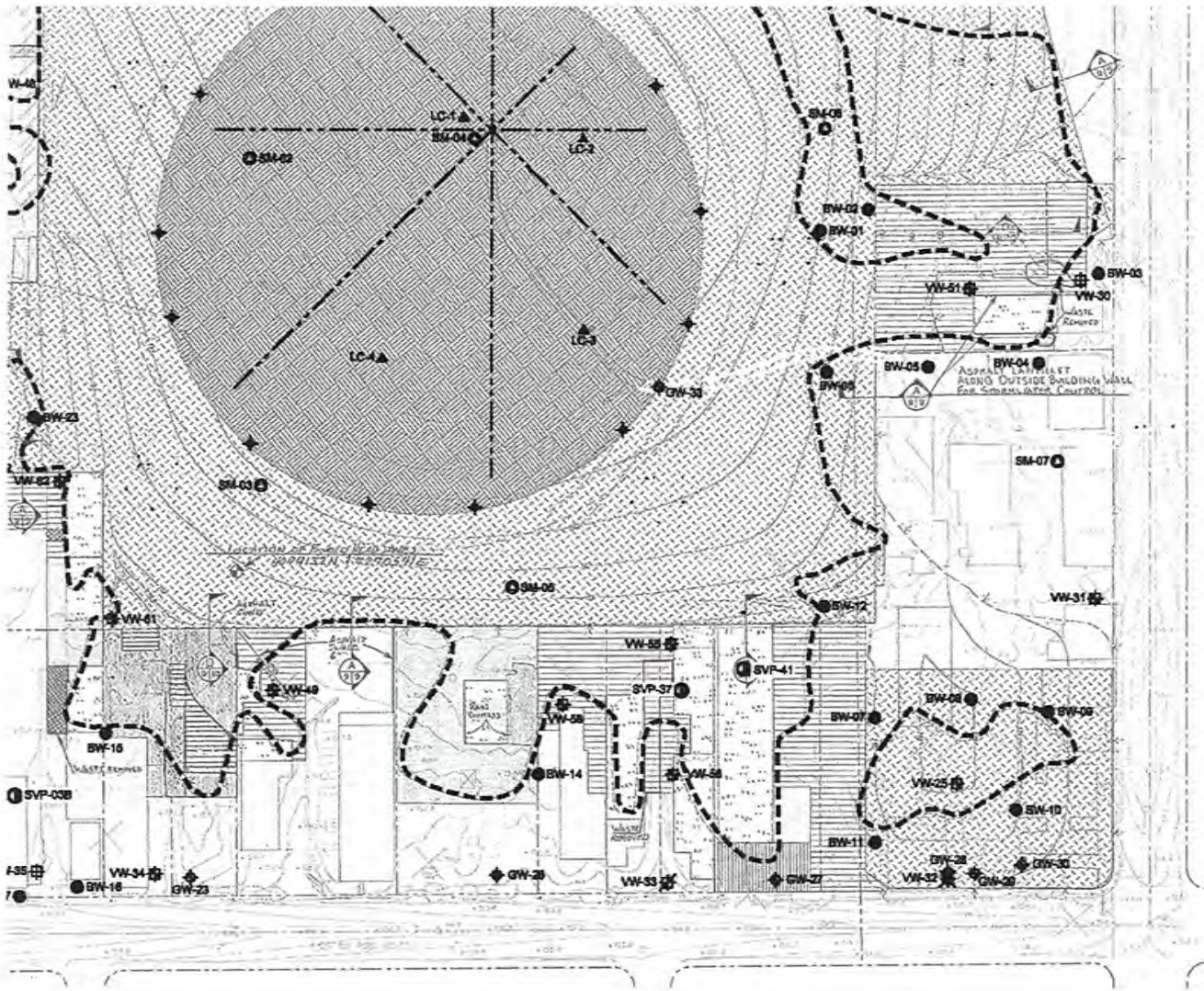


Table 4. Summary of Planned and/or Implemented Institutional Controls

Media, Engineered Controls, and Areas	Institutional Controls Needed	Institutional Controls Called for in the Decision Documents	Impacted Parcel(s)	Institutional Control Objectives	Title of Institutional Control Instrument Implemented
Groundwater	Yes	Yes	All Site Properties	<ul style="list-style-type: none"> • Notify potential Site users of hazardous material presence and presence of remedial systems. • Prohibit residential land use and limit future use to industrial activity. • Minimize potential for exposure of future Site users. • Protect the integrity of the remedy. • Provide access to the Site for regulatory agencies and responsible parties. 	Restrictive Covenants

2.4. Operation and Maintenance

Long-term O&M and performance monitoring ensures environmental systems and institutional control components continue to function effectively. There have been no significant issues since implementation of O&M activities, which started in September 2006. Regular O&M, generally conducted annually, includes the following:

- Inspection of the RCRA Subtitle C-equivalent and Subtitle D-equivalent covers (annual).
- Reservoir gas collection, venting, and treatment system operation and inspections (semiannual).
- Groundwater and soil vapor monitoring well inspections (inspections conducted during sampling events – annual for groundwater, and semiannual for soil vapor).
- Bio-vent well inspections.
- Stormwater drainage system inspections.
- Monitoring of liquid levels and liquid removal.
- Landscape maintenance.
- Site security.
- Reporting.

Monitoring of institutional controls occurs in accordance with the Institutional Controls Monitoring and Enforcement Work Plan. The WDIG Site Trust (“Trust”) conducts quarterly Institutional Control monitoring and enforcement inspections of site properties with recorded covenants. A third-party company, Terradex, monitors land usage on behalf of the Trust.

The Gas Migration Control System operates in passive mode and is inspected, with samples taken semiannually.

In accordance with the modified Operations, Maintenance and Monitoring Sampling Program, in-business indoor air is conducted semiannually. The analyte list consists of methane, trichlorofluoromethane, trichlorofluoroethane, benzene, TCE, PCE, and toluene.

The liquid collection wells are inspected, sounded, and bailed as necessary on a semiannual basis.

3. Progress Since the Last Five-Year Review

3.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2014 FYR for the Waste Disposal, Inc. Site states the following:

The remedy is protective of human health and the environment. The remedy successfully contains on-site waste, blocks exposure pathways, and prevents direct exposure to contaminated soils. The reservoir gas collection system and engineering controls for on-site structures prevent migration of vapors to on-site indoor air, or off of the Site. Groundwater remains unaffected by Site contamination.

The 2014 FYR did not list any issues or recommendations affecting protectiveness.

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

RCRA Subtitle C and D Equivalent Cover crack repairs were performed in February and March 2015. Additional repairs took place in September 2016, October 2017, and October 2018.

Observations requiring action during this period included silt fencing repairs, weed control, and gopher abatement. Resolution of all of these issues occurred soon after they were found. Additional maintenance required for the soil gas migration control system during this time included crack repairs. Actions also included removal of liquid present in the well box associated with the liquid monitoring and control system.

Ownership changed at parcels 22, 32, and 50. Terradex completed associated title searches to ensure the new deeds included restrictive covenants.

Interest in commercial redevelopment at the Site has increased towards the end of this recent Five-Year Review period. EPA has been approached by a commercial developer, which is proceeding to acquire portions of the site and exploring alternatives for redevelopment. The WDIG Site Trust has been

coordinating with EPA, DTSC, the City of Santa Fe Springs, and the redevelopment firm to ensure that remedy components would not be compromised by redevelopment activities. EPA would remain actively involved in any future redevelopment activities to ensure the integrity and protectiveness of the completed environmental remedy.

O&M activities for the leachate collection system were suspended in October 2017 to evaluate the system over a period of at least 12 months, and to identify opportunities to improve system efficiency. A downhole video inspection of each of the leachate collection system wells was conducted in October 2017. Each well was monitored weekly during the 12-month period from October 2017 through September 2018 (MY 2018) to observe liquid recovery rates liquid column height stabilization levels. Results of this work will be used to help optimize the liquids management program.

The Institutional Controls Monitoring and Enforcement Work Plan is an 'evergreen' document, and revisions are made on an on-going basis, when needed. The last revisions to the Institutional Controls Monitoring and Enforcement Work Plan occurred in 2015.

4. Five-Year Review Process

4.1. *Community Notification and Involvement*

A public notice was published in the *Whittier Daily News* newspaper on April 24, 2019. The notice announced the beginning of the FYR for the Site, described the purpose and process for the review, invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site information repository located at the Santa Fe Springs Library at 11700 Telegraph Road in Santa Fe Springs. The Five-Year Review report will also be made available on EPA's webpage at www.epa.gov/superfund/wastedisposal.

4.2. *Data Review*

Data reviewed included the Site Visit Report, interviews, the Operations, Maintenance and Monitoring Plan, Operations, Maintenance and Monitoring Plan reports, and RCRA cover inspection reports. The Operations, Maintenance and Monitoring Plan reports (annual and quarterly) contain reviews of data gathered, project status updates, sampling data collected, and inspection checklists.

4.2.1. Soil Vapor

Vapor wells are designated as either "compliance" or "non-compliance" wells and are discussed separately. Compliance vapor wells are located along the perimeter of the Site and are used to detect and monitor for any potential migration of soil vapor off-site and toward nearby buildings. Non-compliance vapor wells are located in or near areas of historic non-compliance (contaminants present above Soil Gas Performance Standards).

In accordance with the Operations, Maintenance and Monitoring Plan, two compliance wells (VW-30 and VW-35) and two non-compliance wells (VW-46 and VW-55) are monitored semiannually. The rest of the

vapor wells are monitored annually. All wells are sampled for total gaseous non-methane organics, fixed gases, benzene, chloroform, and TCE.

Compliance vapor wells: There are 25 nested wells at 11 locations around the Site perimeter: VW-29, 30, 31, 34, 35, 36, 37, 38, 39, 41, and 42. None of the Compliance vapor wells had exceedances from 2014-2018.

Non-compliance vapor wells: There are 25 nested wells at 9 locations adjacent to on-site structures and in the Site interior near areas of historic non-compliance: VW-25, 46, 49, 51, 55, 56, 58, 61, and 62. According to the Operations, Maintenance and Monitoring Plan report for the past 5 years, results of sample analysis from non-compliance vapor wells show that methane concentrations have decreased since remedy implementation. The only well with exceedances during the last 5 years is VW-35-D, see Table 5.

Table 5. Non-Compliance Vapor Well with chemical concentration exceedances 2014-2018

Well: VW-35-D			
Year	Chemical of Concern	Soil Gas Performance Standard (ppbv)	Sampling Result (ppbv)
2016	TCE	200	200
2017	TCE	200	210
2018	TCE	200	230
2018	Benzene	2.0	12-25

4.2.2. Groundwater

Groundwater is sampled for VOCs, chlorides, sulfates, pH, semivolatile organic compounds, and total dissolved metals. The locations of the groundwater monitoring wells were chosen to provide data to establish background groundwater contaminant concentrations, point of compliance (on the down-gradient waste unit) concentrations, near-source detection concentrations, and verification. The groundwater monitoring wells include both shallow- and deep-screened well intervals.

Groundwater monitoring wells are divided into four categories:

- Point of Compliance wells (downgradient edge of waste source) – GW-22, GW-23, and GW-26.
- Near-source detection wells – GW-10 and GW-33
- Verification wells (downgradient of waste source, near edge of site) – GW-27, GW-29, GW-30
- Background wells – GW-01, GW-02, GW-11, GW-32

Table 6. Groundwater monitoring wells with exceedances 2014-2018

Year	Contaminant	MCL (mg/L)	Results (mg/L)
Well: GW-02 (Background Well)			
2014	Arsenic	0.01	0.051
Well: GW-11 (Background Well)			
2014	PCE	0.005	0.0061
2016	Manganese	0.05	0.18
2017	Manganese	0.05	0.38
2018	Manganese	0.05	0.21
Well: GW-32 (Background Well)			
2014	Manganese	0.05	0.070
2018	Manganese	0.05	0.19

The source of the contaminants of concern in GW-11 is unlikely to be associated with the WDI site because GW-11 is located up-gradient to Site contaminant sources. PCE presence in GW-11 (and pre-2014 for other wells) is likely related to an up-gradient, off-site source. GW-32 is considered a background well and is situated to monitor encroachment of the up-gradient Omega Chemical Company Superfund Site groundwater plume and other potential off-site sources.

Due to ongoing drought in southern California, several wells have been dry during most if not all the last five years, and few to no samples could be collected.

- Background wells: GW-01 and GW-02 were last sampled in 2014, dry since then.
- Point of compliance wells: GW-22 was sampled in 2014, dry since then. GW-23 was dry for the last 5 years. GW-26 was sampled in 2014, dry since then.
- Near-source detection wells: GW-10 was sampled in 2014, dry since then. GW-33 was dry for the last 5 years.
- Verification wells: GW-27 and GW-29 were sampled in 2014, dry since then.

Groundwater monitoring results from the last five years are consistent with the EPA's earlier findings in the Amended ROD (EPA, 2002) that remaining Site waste contaminants are not migrating into the groundwater.

4.2.3. Vapor Intrusion

Indoor air is sampled semiannually at the following ten locations: IBM-03, 03B, 21, 22, 24B, 28, 32 37, 41, and 50. Sub-slab vapor samples are also collected semiannually at the five businesses: 03B, 21, 22, 37, and 41. Samples with exceedances during the last 5 years are presented in Table 7.

Table 7. In-business air monitoring parcels with exceedances 2014-2018

Year	Chemical	Indoor Air Threshold Level (ppbv)	Result (ppbv)
Parcel: IBM-03			
2016	Benzene	2.0	4-4.4
Parcel: IBM-03B			
2014	Benzene	2.0	3.3
2018	Benzene	2.0	4.7
Parcel: IBM-21			
2018	Benzene	2.0	3.0
Parcel: IBM-22			
2018	TCE	0.56	<0.97
Parcel: IBM-24B			
2016	TCE	0.56	1.2
2016	PCE	10.6	23
2017	Benzene	2.0	14.0
Parcel: IBM-37			
2016	Benzene	2.0	2.1-2.3
2017	Benzene	2.0	3.4
2018	Benzene	2.0	4.1
Parcel: IBM-41			
Year	Chemical	IATL (ppbv)	Sampled conc (ppbv)
2014	Benzene	2.0	4.3
2015	Benzene	2.0	7.3-18
2015	Toluene	212.0	370
2016	Benzene	2.0	2.8
2016	Toluene	212.0	220
2017	Benzene	2.0	2.0
2017	Toluene	212.0	240
2018	Benzene	2.0	2.0
Parcel: IBM-50			
2017	Benzene	2.0	2.9-21

The data shows inconsistent exceedances of indoor air threshold limits at a few businesses. Such exceedances are not uncommon in light industrial settings where business frequently use chemicals as part of their work. Chemicals used at the sampled locations include: various paints containing benzene, acetone, and other chemicals; gas cylinders containing argon, oxygen, 1,1,1-2-tetrachloroethane, acetylene, and propane; brake parts cleaners and other industrial cleaners; various lubricant products including oil; paint remover and paint thinner; adhesives; bleach; glues and resins; saturated oil absorbent pads; grease; hydraulic fluid; gasoline (which contains benzene); diesel fuel; ethylene glycol; and others.

Detections and exceedances are inconsistent over time at every location where samples were collected from both the in-business air and from the sub-slab probes. There is no correlation between indoor air and sub-slab results. Thus, in-business air monitoring results do not indicate that gas migration from soil to in-business air locations is occurring. The floor slabs in all the Site structures are intact with no indications of breaches or other exposure pathways.

There were no exceedances in samples collected from the sub-slab vapor probes from 2014-2018. Therefore, it is reasonable to conclude that all detected exceedances within Site structures over the last 5 years relate to chemical usage by tenants within the buildings on the Site.

4.2.4. Leachate Monitoring and Control System

Leachate wells 1 and 3 are monitored and bailed monthly in accordance with the modified Operations, Maintenance and Monitoring Plan. Wells 2 and 4 have automatic recovery systems (installed pumps). In October 2017, a down-hole camera survey of all four wells was conducted and showed that all wells were in good condition. Monitoring of the wells, without purging or bailing, began after the camera survey to observe rates of liquid recovery and liquid column height level. The automatic recovery systems in wells 2 and 4 have functioned nominally over the past 5 years. There was an intentional shutdown of the system initiated on September 22, 2017 to evaluate current liquid recovery rates and stabilization levels. The shutdown is currently ongoing pending further discussion between EPA, State regulators, and WDIG regarding optimization of the leachate control system. Collected liquids are disposed of off-site.

Table 8. Liquid collection system - Volume of liquids collected and removed

Volume recovered by location (gallons)				
MY	LC-1	LC-2	LC-3	LC-4
2018	0	0	0	0
2017	73	600	9	110
2016	75	460	8	375
2015	97	645	8.5	460
2014	115	635	10	415

During 2018, no liquids were removed from the system due to a study conducted by WDIG.

4.2.5. Reservoir Gas Collection System

EPA approved a WDIG request in December 2007 to convert operation of the gas collection system from active to passive mode. Passive operation has been warranted based on very low rates of gas generation, less than 0.1 pound (lb) per day. WDIG retains the ability to return the system to active operation if appropriate. The South Coast Air Quality Management District, which manages air quality in the region that includes Santa Fe Springs, requires treatment if the emission rate of total VOCs is above 1.0 lb/day. The system is inspected and samples are collected semiannually.

No concerns with the operation of the reservoir gas collection system have been reported. Although methane and total VOC levels increased from 2012 through 2018, and total gaseous non-methane organics levels fluctuated, they did not exceed 0.1 lb/day. However, if soil gas levels continue to increase, it may become necessary to resume active operation of the gas collection system.

Table 9. Reservoir Gas Collection System Contaminant of Concern Over Time

Monitoring Year	Methane (ppmv)	Total Gaseous Non-Methane Organics (ppmv)	Total VOCs (ppbv)
2009-2012	2-4,800	6-16	Unknown
2014	1,700-10,000	ND-14	65-4,923
2015	360,000-420,000	120-640	510-1,687
2016	410,000-570,000	74-92	500-827
2017	530,000-580,000	290-300	366-3,928
2018	540,000-650,000	55-66	6,700-7,500

4.3. Site Inspections

A Site inspection was conducted on February 28, 2019. Participants included Russell Mechem, (EPA), Helen Sanchez (USACE), Raudel Sanchez (Project Navigator), and Anand Helekar (TRC). The purpose of the inspection was to assess the protectiveness of the remedy.

The inspection team reviewed all visible remediation systems, including site control features (i.e., perimeter fencing, gates, and warning signs), the gas control system, monitoring wells and bio-vents, the leachate collection system, and surface water management systems. The visitors also reviewed site maintenance, including landscaping, silt fencing, signs of erosion, and recent repairs to the foul ball netting. A photographic log was prepared to document each vapor monitoring well, groundwater monitoring well, biovent well, and survey monument.

During regular inspections and sampling events, inspectors and sampling team members make observations of the chemicals in use and stored within on-site businesses. However, these observations alone may not provide a complete picture of all on-site chemical use and storage. Updated chemical inventories could provide more complete information regarding chemical use for onsite buildings. Chemical inventories were completed in 1999. Nine of the twelve locations have new tenants who have not provided inventory lists, and none of the lists have been updated. Updated inventories would help validate that the indoor air threshold limit (IATL) exceedances are tenant-related, not site-related. Regular updates of chemical inventories could possibly be added to the Operations, Maintenance and Monitoring Plan.

Informal inspections are also performed by the designated inspection engineer at various times. The covers are inspected for signs of erosion, settlement, vegetative growth, animal burrows, and cracks and fractures in asphalt/concrete surface areas. No significant problems have been identified to date. Some minor cracks and erosion were noted and subsequently repaired.

The annual land survey was conducted in 2018 and detected no significant settling that might compromise the remedy. The settling that was observed ranged from 0.1 to 0.24 feet from the baseline survey in January 2005.

WDIG performs annual inspections of building floors and foundations. No significant problems have been identified since the last FYR. During inspections, cracks have occasionally been observed and quickly repaired and sealed.

WDIG inspects the bio-vent system wells semiannually. No problems were reported since the last FYR. The bio-vent wells are not sampled because their purpose is to allow air infiltration for natural biodegradation.

WDIG inspects the vapor and groundwater monitoring wells during each sampling event. No issues or deficiencies were noted in the vapor or groundwater monitoring wells.

WDIG performs an annual inspection of Site control features, such as fencing, gates, locks, warning signs, undermining, and erosion. Informal inspections are also conducted during frequent routine Site visits. There have been no significant problems with Site security. However, minor repairs to fencing and graffiti removal are recurrent minor issues.

WDIG crews conduct annual inspections and maintenance of the Site's landscaping and vegetation. Activities include mowing, vegetation replacement, pruning, weeding, and general cleanliness. The cap vegetative cover remains above 70 percent (the "nominal" range is 70% or higher).

5. Technical Assessment

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

The remedy functions as designed and intended. The remedial actions continue meeting the performance standards described in the Amended ROD. Natural attenuation of the soil gas is ongoing. Groundwater remains unaffected by WDI site contamination, and monitoring results demonstrate indoor air in the businesses around the site periphery are unaffected by soil gases. Site contaminants remain contained beneath the well maintained by the RCRA C and D Covers. Operations and maintenance procedures at the site maintain the effectiveness and integrity of the response actions. No potential problems or issues are evident.

The Institutional Controls Monitoring and Enforcement Work Plan continues regular review and update by WDIG and EPA, most recently in 2015.

If the drought in southern California ends, and groundwater levels rise, there may be potential for contaminants trapped in the vadose zone to remobilize, and concentration levels may, or may not, rise, depending how much, if any, contaminants remain trapped in the vadose zone. Current Operations, Maintenance and Monitoring Plan and sample collection procedures are adequate to properly assess and characterize the presence and concentration of Site contaminants.

5.2. Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

Since the previous FYR, there have been no substantive changes to applicable or relevant and appropriate requirements (ARARs, see Appendix B) and no changes to existing or anticipated land use, though the Site may be subject to redevelopment in the future.

Toxicity data has changed, and for some chemicals, Indoor Air Threshold Levels are greater than 2019 Industrial Air Regional Screening Levels (see Appendix C). Most of those chemicals have not been detected above Soil Gas Performance Standards in the compliance wells since remedy completion (Project Navigator/TRC, 2019), and so are not monitored in indoor air samples. The four chemicals detected in the indoor air sampling over the past five years, benzene, PCE, TCE and toluene, are at concentrations considered protective by EPA.

Remedial action objectives at the time of remedy selection remain valid.

5.3. Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

6. Issues/Recommendations

There are no issues that affect protectiveness.

Although this does not affect protectiveness, updated site chemical use inventories would help validate that the indoor air threshold limit exceedances are tenant-related, not Site related. Regular updates of chemical inventories could possibly be added to the Operations, Maintenance and Monitoring Plan.

7. Protectiveness Statement

Table 10. Protectiveness Statement

Protectiveness Statement(s)		
<i>Operable Unit:</i>	<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> Click here to enter a date
<i>Protectiveness Statement:</i> The remedy at the Waste Disposal, Inc. Site is protective of human health and the environment. The remedy successfully contains on-site waste, blocks exposure pathways, and prevents direct exposure to contaminated soils. The reservoir gas collection system and engineering controls for on-site structures prevent migration of vapors to on-site and/or off-site indoor air. Groundwater remains unaffected by Site contamination.		

8. Next Review

The next Five-Year Review report for the Waste Disposal, Inc. Superfund Site is required 5 years from the completion date of this review.

Appendix A: List of Documents Reviewed

Environmental Protection Agency. Waste Disposal Inc. Soil and Subsurface Gas Operable Unit Record of Decision. December 1993.

Environmental Protection Agency. Waste Disposal Inc. Amended Record of Decision. June 2002.

Environmental Protection Agency. Five-Year Review Report for Waste Disposal Inc. Superfund Site. September 2014.

Project Navigator Ltd. Institutional Controls Monitoring and Enforcement Work Plan, Revision 2, Waste Disposal Inc. Superfund Site. October 2007.

Project Navigator Ltd. and TRC Solutions, Inc. Operations, Maintenance, and Monitoring Plan (OMMP), Waste Disposal Inc. Superfund Site. June 2013

Project Navigator Ltd. and TRC Solutions, Inc. MY2014 Annual Operations, Maintenance and Monitoring Report, Waste Disposal Inc. Superfund Site. April 2015.

Project Navigator Ltd. and TRC Solutions, Inc. MY2015 Annual Operations, Maintenance and Monitoring Report, Waste Disposal Inc. Superfund Site. April 2016.

Project Navigator Ltd. and TRC Solutions, Inc. MY2016 Annual Operations, Maintenance and Monitoring Report, Waste Disposal Inc. Superfund Site. March 2017.

Project Navigator Ltd. and TRC Solutions, Inc. MY2017 Annual Operations, Maintenance and Monitoring Report, Waste Disposal Inc. Superfund Site. May 2018.

Project Navigator Ltd. and TRC Solutions, Inc. MY2018 Annual Operations, Maintenance and Monitoring Report, Waste Disposal Inc. Superfund Site. May 2019.

USACE and CDM Federal. Groundwater Data Evaluation Report. 2000

Appendix B: ARAR Assessment

Section 121(d)(1)(A) of CERCLA s that remedial actions at CERCLA sites must meet (or justify the waiver of) any Federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Federal ARARs may include requirements promulgated under any Federal environmental law. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than Federal requirements and identified by the state in a timely manner. ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements and pertain only to on-site activities. There are three general categories of ARARs: chemical-specific, location-specific, and action-specific.

Federal and state laws and regulations that have been promulgated or changed over the past 5 years are described in Table C-1. The table does not include those ARARs identified that are no longer pertinent, now that the response action has transitioned from construction to long-term operations and maintenance (O&M) phase work. For example, ARARs related to remedial design and construction are not included in the table if they do not continue into long-term O&M.

The 2002 ROD amendment cites the Toxic Substances Control Act, 15 U.S.C. §§2601-2692; however, §§2641-2692 are specific to asbestos, radon, and lead, which are not concerns described in the scope of requirement for the Waste Disposal, Inc. Superfund Site.

The following ARARs have not changed since the last Five-Year Review, and therefore do not affect protectiveness:

- Clean Air Act, 42 USC §7401, et seq.; National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61; SCAQMD Regulation X (adopting federal standards)
- Toxic Substances Control Act, 15 USC §§2612, 2616, 2621-22, 2628; 40 CFR §§761.50--761.79
- Gas Monitoring and Control during Closure and Post Closure, 27 CCR §20921
- Post Closure Land Use, 27 CCR §21190
- Transportable and Fixed Treatment Unit, 22 CCR §67450.3
- Solid Waste Management Act of 1972, Gas Control 27 CCR §20919
- Monitoring during Closure and Postclosure, 27 CCR §20923
- Perimeter Monitoring Network, 27 CCR §20925
- Structure Monitoring, 27 CCR §20931
- Monitored Parameters, 27 CCR §20932

- Reporting and Control of Excessive Gas Concentrations, 27 CCR §20937
- Dust Control for Landfill and Disposal Sites, 27 CCR §20800
- Drainage and Erosion Control, 27 CCR §21150
- Grading of Fill Surface at Landfill and Disposal Sites, 27 CCR §20650
- Security at Closed Sites, 27 CCR §21135
- CIWMB – Monitoring Frequency, 27 CCR §20933
- Vadose Zone Monitoring, 27 CCR §20415(d)
- Post Closure Maintenance, 27 CCR §21180
- Water Quality Monitoring Requirements for Permitted Facilities, 22 CCR §§66264.95, 66264.97, 66264.98, 66264.99
- SWRCB – Monitoring Points and the Point of Compliance, 27 CCR §§20405
- Water Quality Monitoring and Response Programs for Solid Waste Management Units, 27 CCR 2041520430
- Porter-Cologne Water Quality Control Act

There have been no revisions to laws or regulations that affect the protectiveness of the remedy.

Table B-1. Applicable or Relevant and Appropriate Requirements Evaluation

Original ARAR	Document	Original ARAR Requirement	Revised Requirement	Revision Date (between Sept. 2014-present)	Effect on Protectiveness
Clean Water Act (CWA), 33 USC §1251-1387, and 40 CFR pt. 122, National Pollution Discharge Elimination System (NPDES), implemented by State Water Resources Control Board Statewide General Permits re Stormwater Discharges	2002 AROD	Establishes the framework for regulations over the control of water pollution and restoration of water resources. Requirements for certain industrial and construction activities to ensure stormwater discharges do not contribute to a violation of surface water quality standards. Includes measures to minimize or eliminate pollutants in stormwater discharges and monitoring to show compliance.	<ul style="list-style-type: none"> a. Definition of “Waters of the United States” b. Requirement of electronic reporting and sharing of CWA NPDES) program information c. NPDES Municipal Separate Storm Sewer System General Permit Remand Rule d. Public notification requirements for combined sewer overflows to the Great Lakes Basin e. Addition of a final applicability date to the “Clean Water Rule: Definition of ‘Waters of the United States’” f. Regulatory definitions; permit applications; and public notice. Deleted a provision relating to best practicable waste treatment technology for publicly owned treatment works. Promotion to submission of complete permit applications, and clarify regulatory requirements to allow more timely development of NPDES permits that protect human health and the environment. 	<ul style="list-style-type: none"> a. June 29, 2015 b. October 22, 2015 c. December 9, 2016 d. January 8, 2018 e. February 6, 2018 f. February 12, 2019 	No effect on protectiveness
Clean Air Act (CAA), 42 USC §7401, et seq.; New Source Performance Standards (NSPSs), 40 CFR Part 60; SCAQMD Regulation IX (adopting Federal standards)	2002 AROD	Establishes standards for new stationary sources of air emissions to ensure that they are designed, equipped, operated, and maintained to reduce emissions to a minimum. The emission control technology on which the NSPSs are based is the best demonstrated technology.	<ul style="list-style-type: none"> a. Standards of performance for new residential wood heaters b. Standards of performance for new residential wood heaters, new residential hydronic heaters, and forced-air furnaces c. Standards of performance for Portland Cement plants d. Standards of performance for crude oil and natural gas production, transmission, and distribution e. Standards of performance for greenhouse gas emissions from new, modified, and reconstructed stationary sources: electric utility generating units f. Standards of performance for petroleum refineries g. Standards of performance for electric utility steam generating units h. Standards of performance for crude oil and natural gas facilities for which construction, modification, or reconstruction commenced after September 18, 2015 	<ul style="list-style-type: none"> a. March 16, 2015 b. March 16, 2015 c. July 27, 2015 d. August 12, 2015 e. October 23, 2015 f. December 1, 2015 g. April 6, 2016 h. June 3, 2016 	No effect on protectiveness

<p>Toxic Substances Control Act, 15 USC §§2601-2692; 40 CFR §§761.50-761.79</p>	<p>2002 AROD</p>	<p>Establishes means for storage and disposal of material contaminated with polychlorinated biphenyls (PCBs) of concentrations of 50 parts per million or greater.</p>	<ul style="list-style-type: none"> a. 15 USC §§ 2601: Section 2(b)(1) amended to strike “data” and insert “information” b. 15 USC §§2602: Insertion of “any component of such an article (limited to shot shells, cartridges, and components of shot shells and cartridges), and” c. 15 USC §§2602: Amendments to Section 3 striking “data” and inserting “information” d. 15 USC §§2603: Text revisions of “rule” and “order” e. 15 USC §§2604: Text revisions to change “rule” to “rule, order, or consent agreement” f. 15 USC §§2605: Text revisions regarding prioritization, risk evaluation, and regulation of chemical substances and mixtures g. 15 USC §§2606: Text revisions regarding imminent hazards and determinations h. 15 USC §§2607: Text revisions of “data” and “information” and regarding time period and review i. 15 USC §§2608: Revisions to reporting, time period, and deadlines. Additional revisions to change text to “Health and Human Services” j. 15 USC §§2609: Revisions to strike “data” and change to “information” and strike “Health, Education, and Welfare” and insert “Health and Human Services” k. 15 USC §§2610: Strike “data” and replace with “information” and strike “rule promulgated” and insert “rule promulgated, order issued, or consent agreement entered into” l. 15 USC §§2611: Strike “will present” and insert “presents” and insertion of “and Mercury Compounds” and striking “data” and replacing with “information” m. 15 USC §§2613: Revisions to disclosure language n. 15 USC §§2614: Strike “(A) any rule” and text through (D) and insert “any requirement of this title or any rule promulgated, order issued, or consent agreement entered into under this title, or” o. 15 USC §§2615: Revisions to penalties and applicability p. 15 USC §§2617: Amendment to subsection (a) to clarify establishment or enforcement, time period, applicability, provide details on exceptions, determination and deadlines. q. 15 USC §§2618: Setting a deadline of 60 days after publication for a civil action and stating jurisdiction to civil actions filed. Additional revision to language regarding rule or order. 	<ul style="list-style-type: none"> a. June 22, 2016 b. November 25, 2015 c. June 22, 2016 d. June 22, 2016 e. June 22, 2016 f. June 22, 2016 g. June 22, 2016 h. June 22, 2016 i. June 22, 2016 j. June 22, 2016 k. June 22, 2016 l. June 22, 2016 m. June 22, 2016 n. June 22, 2016 o. June 22, 2016 p. June 22, 2016 q. June 22, 2016 r. June 22, 2016 s. June 22, 2016 t. June 22, 2016 u. June 22, 2016 v. June 22, 2016 w. June 22, 2016 x. June 22, 2016 y. June 22, 2016 z. December 15, 2015 	<p>No effect on protectiveness</p>
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			<ul style="list-style-type: none"> r. 15 USC §§2619: Administrative change and addition of time period. Additional change to include and order issued under section 4 or 5 s. 15 USC §§2620: Revision to include orders 4 or 5 and 6(a) or 8 t. 15 USC §§2623: Removal of a clause and associated typographical change u. 15 USC §§2624: Repeal of Section 25. v. 15 USC §§2625: Description of collection and deposition of fees associated with TSCA. Also typographical changes to “Health and Human Services” and “information” w. 15 USC §§2626: Typographical changes x. 15 USC §§2627: Removal of subsections (c) and (d) y. 15 USC §§2629: Administrative change z. 40 CFR §761.60: Revision to disposal requirements 		
Resource Conservation and Recovery Act, Public Law No. 94-580, 90 Stat. 2795, 42 U.S.C. §6901, et seq.	2002 AROD	Establishes criteria and methods for characterizing hazardous wastes	<ul style="list-style-type: none"> a. §6939d. Public Vessels: Revisions update references to other sections. b. §6939f. Long-term storage: Applies to long-term management and storage of elemental mercury generated with the United States. c. §6945. Upgrading of open dumps: Subsection was added regarding State programs for control of coal combustion residuals. 	<ul style="list-style-type: none"> a. 2019 b. 2016 c. 2016 	No effect on protectiveness

<p>Hazardous Waste Control Act, Health and Safety Code Div 20, Ch 6.5, §25100. et seq.</p>	<p>2002 AROD</p>	<p>Establishes criteria and methods for characterizing hazardous wastes</p>	<p>a. §25123.3: Repeal provisions exempting hazardous waste management activities from certain standards but would provide that those exceptions adopted prior to that date shall remain valid, unless repealed.</p> <p>b. §25143.2.5: Addition of language regarding cathode ray tubes</p> <p>c. §25150.6: Section repealed</p> <p>d. §25150.65: New section. Any regulation adopted by the repealed section above remains valid unless repealed</p> <p>e. §25150.82: Authorization to adopt regulations establishing alternative management standards</p> <p>f. §25150.86: Additional language regarding treated metal shredder waste</p> <p>g. §25158.1: Requirement for a hazardous waste generator include all hazardous waste generation when computing compliance requirements.</p> <p>h. §25150.7: Addition of requirement to report compliance and lessons learned until December 31, 2020</p> <p>i. §251580.84: Limitations to appropriation got water enforcement rights positions.</p> <p>j. §25163.3: Renumbering</p> <p>k. §25173.6: Authorization to receive items or money up to \$100,000 without approval of the director</p> <p>l. §25173.7: Revision related to funding</p> <p>m. §25186.2.5: Requirement for the Department of Toxic Substances Control to issue decisions</p> <p>n. §25196: Requirement for the state board to enter into contracts or agreements with the Office of Environmental Health Hazard Assessment for Risk Assessments</p> <p>o. §25186, §25186.05: Requirement for the department to consider multiple violations as cause to deny, suspend, or revoke a permit application</p> <p>p. §25186.2, 25189.4: Additional penalty related to previous violations</p> <p>q. §25187.2: Changes to liability regarding cost recovery</p> <p>r. §25190: Requirement for a person with knowledge to hazardous substances or release sites to furnish the information</p> <p>s. §25200.21 and 2500.23: Requirement to establish or update for a new or modified permit and to develop and implement programmatic reforms</p> <p>t. §25205.6: Revisions related to funding</p> <p>u. §25205.18 and §25227: Provisions to establish procedures for reimbursement</p> <p>v. §25205.19: Placement of state bill into effect immediately</p>	<p>a. September 25, 2014</p> <p>b. September 22, 2016</p> <p>c. September 25, 2014</p> <p>d. September 25, 2014</p> <p>e. September 28, 2014</p> <p>f. September 28, 2014</p> <p>g. October 2, 2015</p> <p>h. September 13, 2016</p> <p>i. September 13, 2016</p> <p>j. September 21, 2015</p> <p>k. June 24, 2015</p> <p>l. February 29, 2016</p> <p>m. September 24, 2014</p> <p>n. September 25, 2014</p> <p>o. October 2, 2015</p> <p>p. October 2, 2015</p> <p>q. October 2, 2015</p> <p>r. October 2, 2015</p> <p>s. October 8, 2015</p> <p>t. February 29, 2016</p> <p>u. September 13, 2016</p> <p>v. September 13, 2016</p> <p>w. September 26, 2016</p> <p>x. September 28, 2016</p> <p>y. September 26, 2016</p> <p>z. July 22, 2016</p> <p>aa. September 27, 2018</p> <p>bb. September 13, 2016</p> <p>cc. October 7, 2017</p> <p>dd. October 1, 2015</p>	<p>No effect on protectiveness</p>
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			<ul style="list-style-type: none"> w. §25215-25215.75; Revisions to Lead Battery Act x. §25214.14: Requirement to establish a Retail Waste Working Group y. §25247: Restoration of the authority enforcements and adopt regulations to impose postclosure plan requirements z. §25250.15: Non-substantive change aa. §25250.19: Revision to requirements for testing used oil and revision to clarification of associated reimbursement bb. §25253.5: Addition of lead acid batteries for evaluation cc. §25257.2: Non-substantive change dd. §25259: Authorization for end-of-life photovoltaic modules and clarification of associated reimbursement 		
Criteria for Identifying Hazardous Wastes, 22 CCR, §§6626.1-66261.126	2002 AROD	Establishes criteria and methods for characterizing hazardous wastes	<ul style="list-style-type: none"> a. §66261.4. Exclusions: Section was revised with regard to disposal of cathode ray tube panel glass. Otherwise, revisions were filed as changes without regulatory effect. b. §66261.6. Requirements for Recyclable Materials: Amendment was filed as a change without regulatory effect. 	<ul style="list-style-type: none"> a. September 15, 2014, September 12, 2016, October 22, 2018 b. August 20, 2018 	

Appendix C. Human Health and the Environment Risk Assessment

The human health risk assessment method and results for the WDI Site are detailed in the Endangerment Assessment and updated in the Amended ROD.

The Final Endangerment Assessment of November 1989 identified three possible exposure pathways and one potential future exposure pathway. The exposure pathways considered in the Endangerment Assessment were:

- Direct contact with contaminated surface soils;
- Inhalation of airborne particles by students and nearby residents; and
- Inhalation of volatiles by students and nearby residents.

The future risk pathway evaluated in the Endangerment Assessment was:

- Direct contact with contaminated surface soils by future hypothetical residents with homes built on top of the site.

The 2002 Amended ROD added a new possible exposure pathway: inhalation of subsurface soil gas constituents migrating from the waste pits through structure foundations. The Amended ROD also evaluated the potential for migration of contaminants from the waste pit to groundwater and determined that this was not a likely exposure potential.

No significant changes to risk assessment methodology or in the risk assessment results since 2002 that would affect protectiveness of the remedy. The exposure parameters used to develop the corrective action objectives are standard default EPA values. The exposure assumptions are for a future residential receptor, and are therefore conservative, valid, and appropriate.

Toxicity values: EPA's Integrated Risk Information System (IRIS) is a program that is used to determine whether there have been updates to toxicity values used by the Agency in risk assessment based on newer scientific information that has become available.

Subsequent to the ROD, EPA approved Indoor Air Threshold Levels (IATLs) that WDI submitted in the *Sub-surface Gas Contingency Plan*². **Table C-1** compares the IATLs to the April 2019 Regional Screening Levels (RSLs) for industrial air.

For many contaminants, the current Industrial Air RSLs are greater than the IATLs (Table C-1), indicating that the IATLs are conservative and protective. However, for nine contaminants, 1,2-dichloroethane, 1,2-dichloropropane, 1,2-dibromoethane, carbon tetrachloride, benzene, chloroform,

² CDM Federal Programs Corporation, Sub-surface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, July 1997.

ethylbenzene, xylene, and tetrachloroethene, the RSLs are less than the IATLs. For five of those contaminants, 1,2-dichloropropane, carbon tetrachloride, benzene, chloroform, and tetrachloroethene, the IATL falls within the RSL protective range, based on EPA’s acceptable risk range of 1×10^{-4} to 1×10^{-6} (Table C-1). For the other four of those contaminants, 1,2-dichloroethane, 1,2-dibromoethane, ethylbenzene, and xylene, the IATL is greater than the RSL protective range. Two contaminants, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene, do not have IATLs, but have RSLs. For contaminants with IATLs greater than the protective range, or without IATLs, those contaminants have not been detected above Soil Gas Performance Standards (SGPS) in the compliance wells since remedy completion (Project Navigator/TRC, 2019), and so are not monitored in indoor air samples. Only benzene, chloroform, and trichloroethene been detected above SGPS in the compliance wells since remedy completion. Three contaminants with IATLs do not have RSLs, therefore the IATLs are conservative and protective.

Table C-1. Comparison of Indoor Air Threshold Levels to Current Industrial Air RSLs

Contaminant	Media	Indoor Air Threshold Level ^(1,2)		2019 Industrial Air RSL ^(2,3)		RSL Protective Range (ppbv)
		(ppbv)	($\mu\text{g}/\text{m}^3$)	(ppbv)	($\mu\text{g}/\text{m}^3$)	
1,2-Dichloroethane	Air	3.6	15	0.12	0.47	0.12 - 12
1,1-Dichloroethene	Air	53	210	222	880	< 222
1,2,4-Trimethylbenzene	Air	-	-	52.9	260	< 52.9
1,2-Dichloroethene (cis)	Air	18.6	73.7	-	-	-
1,2-Dichloroethene (trans)	Air	36.8	146	-	-	-
1,2-Dichloropropane	Air	1.86	8.59	0.71	3.3	0.71 - 71
1,3,5-Trimethylbenzene	Air	-	-	0.672	260	< 0.672
1,2-Dibromoethane	Air	0.06	0.5	0.003	0.02	0.003 - 0.3
1,1,1-Trichloroethane	Air	368.0	2007	4034.7	22000	< 4034.7
Carbon Tetrachloride	Air	0.68	4.3	0.32	2.0	0.32 - 32
Benzene	Air	2.0	6.4	0.50	1.6	0.50 - 50
Chloroform	Air	3.4	17	0.33	0.53	0.33 - 33
Ethylbenzene	Air	490	2126	1.1	4.9	1.1 - 110
Methane	Air	1.25%	-	-	-	-
Xylenes	Air	142.8	619.7	101	440	< 101
Tetrachloroethene	Air	10.6	71.8	6.9	47	6.9 - 690
Toluene	Air	212.0	798.4	5841.5	22000	< 5841.5
Trichloroethene	Air	0.56	3.0	0.56	3.0	0.56 - 56
Vinyl Chloride	Air	0.25	0.64	1.1	2.8	1.1 - 110


- (1) CDM Federal Programs Corporation, Sub-surface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, July 1997.
- (2) Converted IATL from ppbv to $\mu\text{g}/\text{m}^3$, and RSL from $\mu\text{g}/\text{m}^3$ to ppbv, using standard pressure (1 atmosphere) and standard temperature (25 degrees Celsius) for comparison to current Industrial Air RSL.
<https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/ia_unit_conversion.html>

- (3) EPA Regional Screening Levels Summary Table, April 2019.
- (4) The protective range for cancer-derived RSLs is 1×10^{-4} to 1×10^{-6} , EPA's acceptable risk range. The protective range for noncancer-derived RSLs is less than the RSL.

Ecological Review

The Endangerment Assessment included a qualitative ecological assessment which indicates the Site is located in an industrial area and does not represent a significant habitat for wildlife. A subsequent assessment determined that there is no evidence of species listed by any federal agency as endangered, threatened, or otherwise sensitive or protected within the Site boundaries and that the likelihood of any such species occupying the Site is low given its history of surface disturbance, recent remedial activities, and effects of human intrusion from adjacent development. In addition, EPA received additional assurance from the Department of Interior and the National Oceanic and Atmospheric Administration confirming that those organizations had no concerns about ecological receptors at the Site. There are no changes in exposure to ecological receptors.

Appendix D: Press Notice



EPA CONDUCTS REVIEW OF CLEANUP ACTIONS AT WASTE DISPOSAL SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is conducting its third Five-Year Review (FYR) of the cleanup work at the Waste Disposal, Inc. Superfund site (site), located in the City of Santa Fe Springs, CA.

This review covers cleanup work for soil, soil vapor, groundwater monitoring, institutional controls, and long-term operations and maintenance at the site to ensure the remediation work remains protective. The 38-acre site consists of 22 individual parcels of land owned by multiple owners. Wastes disposed at the site include petroleum-related chemicals, solvents, sludges, construction debris and other waste materials.

Cleanup actions completed in 2006 included construction of a hazardous waste cap; a landfill gas extraction and treatment system; removal of underground liquids; improvements to concrete foundations; construction of physical barriers in buildings; a passive soil vapor extraction system; restrictions on activities on site that could damage the cap; and a long-term operations, maintenance and monitoring program.

EPA invites the community to share input into this process. If you would like to be interviewed, please contact Russell Mechem, the site's Remedial Project Manager, by May 31, 2019 via email at: rmechem.puss@epa.gov. EPA plans to complete this FYR in September 2019. The final report will be available on EPA's webpage and at the information repositories listed below.

To view documents and reports that assisted EPA to make cleanup decisions at this site, you can visit the Santa Fe Springs City Library at 11700 Telegraph Road, Santa Fe Springs, CA, (562) 866-7738, or contact EPA's Superfund Records Center at 75 Hawthorne Street, Room 3010, San Francisco, CA, (415) 947-8717. Site information is also available on EPA's webpage at www.epa.gov/superfund/wastedisposal.

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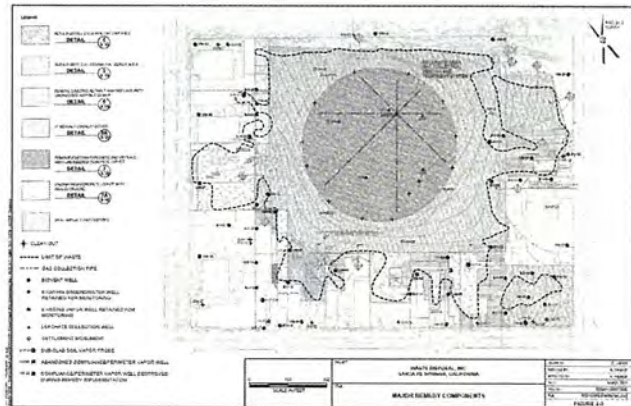
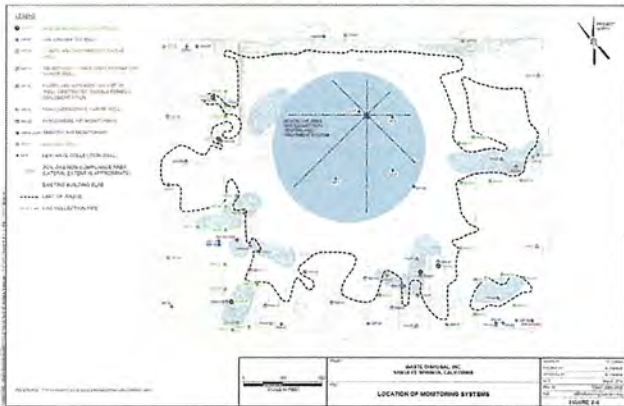
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Appendix E: Site Inspection Report

WDI Five Year Review- site visit Summary

- Rainwater Catch Basin
- Liquids Collection Tank
- Bilingual Signs
- Foul Ball Netting
- Vapor Wells
- Biovent Wells
- Leachate Collection Wells
- Settlement Monuments



Catch Basins



Liquids Collection Tanks



Examples of LC-1 and LC-3 tanks are displayed, where leachate collection is stored until sent off site as waste.

Bilingual Signs



Signs now show both languages of English and Spanish, the predominant language in the community, in order to communicate the contaminants of concern present at the Superfund site.



Silt Fencing



Silt fencing was repaired where broken and it surrounds perimeter.



Foul Ball Netting



- Netting had had holes created due to foul balls and also to wind destruction in early 2019. Netting was repaired after geotechnical investigation was completed in early 2019, as shown in pictures

Biovent Wells

BW-09



• A few examples of biovent wells, with location on first map.

BW-10



BW-11



BW-08



BW-12



BW-06



BW-01



BW-02



BW-24



BW-25



BW-04



BW-05



BW-03



BW-14



BW-16



Groundwater Wells

GW-30



GW-29



- A few examples of groundwater wells, with location on first map.

GW-28



GW-33



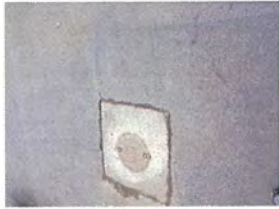
GW-26



GW-23



GW-01



GW-02



Vapor Wells

VW-25



- A few examples of vapor wells, with location on first map.

VW-31



VW-29



VW-42



VW-46



VW-30



VW-56



VW-55



VW-58



VW-49



VW-34



VW-35



VW-38



VW-39



Leachate Collection Wells

LC-1 (Leachate Collection Well)



- Monitoring of all four wells without bailing or purging to reach steady state levels was initiated on October 3, 2017. Monitoring of all four wells will be conducted until steady state levels are achieved.

LC-3 (Leachate Collection Well)



Settling Monuments

SM-01



- few examples of settlement monuments, with location on second map.

SM-03



SM-05



SM-04



SM-06

