



EPA AND CITY OF FRESNO START CONSTRUCTION OF THE LANDFILL CAP AND EARLY GROUNDWATER CLEANUP ACTION

INTRODUCTION

The purpose of this fact sheet is to describe the landfill cover system, early groundwater cleanup action, and program schedules. The United States Environmental Protection Agency (EPA) and the City of Fresno (City) will begin construction of the landfill cover system in September 1999 for the Fresno Sanitary Landfill Superfund site in Fresno, CA (See Figure 1, a site map). The City initiated an Early Groundwater Cleanup Action in January 1999 prior to beginning the groundwater remedy required by the 1996 **Record of Decision (ROD)**. The 1996 groundwater ROD calls for a three-phased approach to cleaning up the groundwater. Construction of the first phase will begin in approximately two years and will coincide with the beginning construction of a new regional sports park complex. Prior to the start-up of the Phase 1 treatment system, the City plans to begin pumping and treating contaminated groundwater at the site using an interim treatment system (Early Groundwater Cleanup Action). There is a **glossary of the terms** used in this fact sheet at the end of this document.

The main objective of the construction activities at the site is to protect public health and the environment. The contaminants of concern at the site are **methane gas** and **volatile organic compounds (VOCs)**. The Fresno Sanitary Landfill is owned and was operated

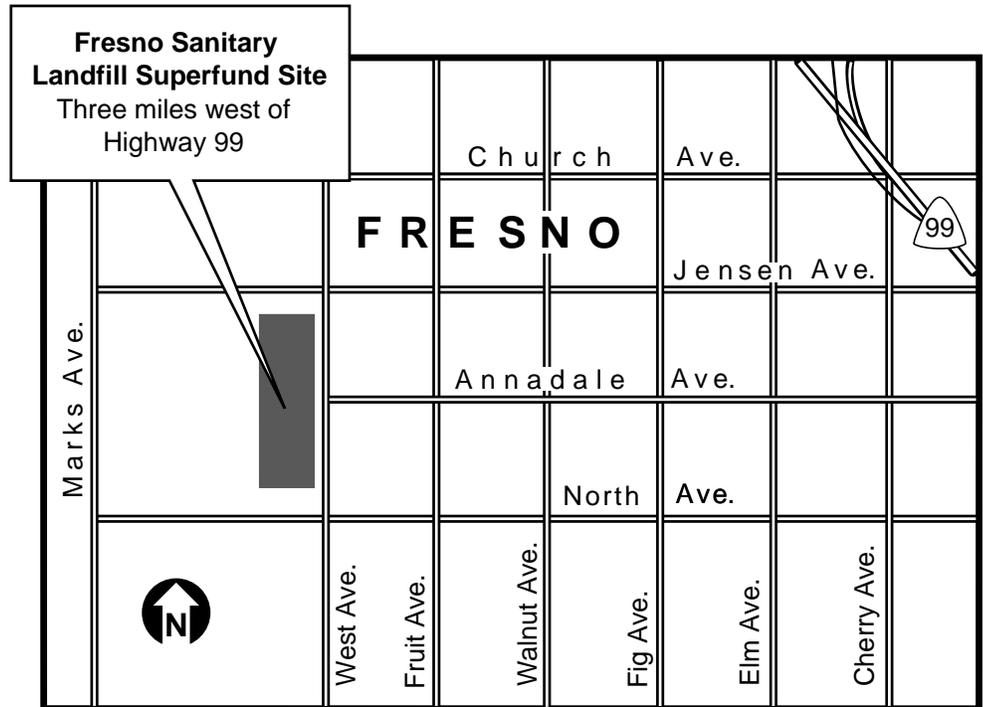


Figure 1, Site Location Map

by the City from 1937 and stopped accepting trash in 1987. Groundwater, soils, and air are all impacted by the release of contaminants from the landfill. At the beginning of the cleanup process, the City agreed to address any immediate threats to nearby residents or to the environment. In 1990, EPA directed the City to initiate an action to stop landfill gas from moving away from the site to nearby homes, and the City continues to give residents an alternative water source while the site groundwater is being cleaned up.

EPA agreed to divide the site into two **operable units**: operable unit one (OU-1) is the source control operable unit that

addresses the methane gas movement from the site (1993 ROD) and operable unit two (OU-2) addresses the groundwater contamination (1996 ROD). The three elements of the OU-1 design are 1) landfill cover system, 2) landfill gas control system and treatment system and 3) surface water management system. The remedy for OU-2 will be implemented in three phases: Phase 1 objective is to contain the contaminated groundwater underneath the landfill by installing **extraction wells** along the edge of the landfill to remove contaminated groundwater, Phase 2 is to prevent the spread of the contaminants into clean portions of the **aquifer**, and Phase 3 is to

reduce existing contaminant levels in the contained groundwater plume by pumping and treating the contaminated groundwater. EPA and the City developed the **remedial designs** and work plans for the OU-1 and OU-2. In conjunction with these efforts, the City is also designing the regional sports park facilities to be built at the site after the landfill cover system is complete.

LANDFILL COVER SYSTEM CONSTRUCTION BEGINS

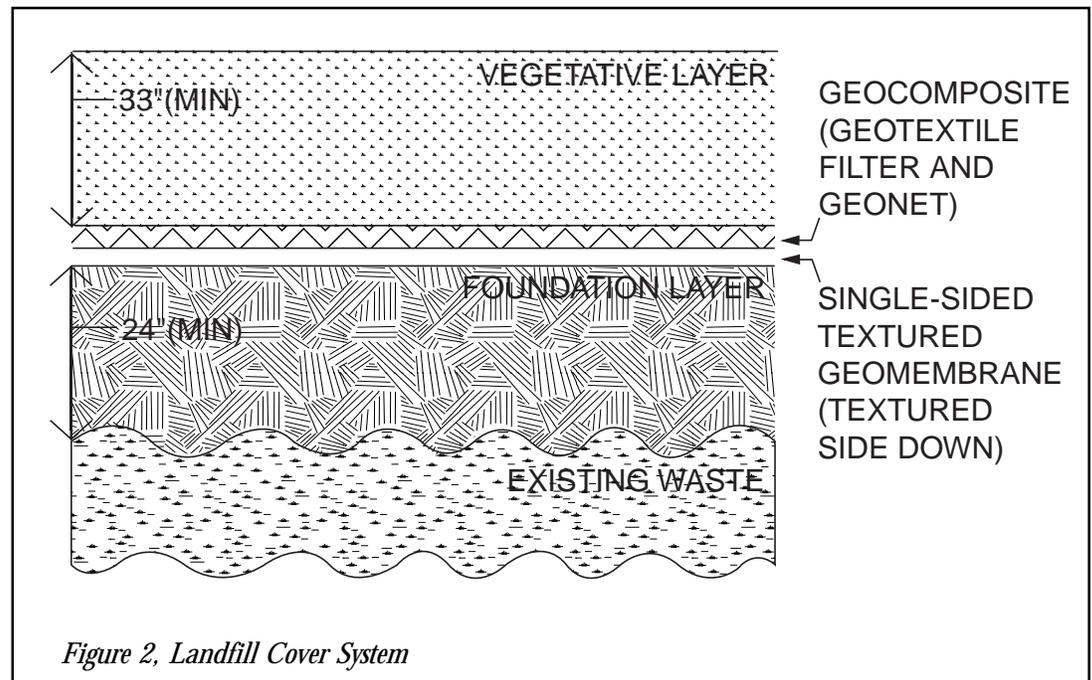


Figure 2, Landfill Cover System

The design for the control operable unit (OU-1) is complete and approved by EPA in August 1997. It includes a final multi-layered landfill cover with vegetation and an irrigation system, a surface water management system, a landfill gas collection and treatment system and a contingency leachate collection system. The primary objective of this cleanup is 1) to prevent groundwater contamination by stopping water from getting to the subsurface landfill trash and 2) to control off-site movement of methane gas. The City has developed a remedial action workplan that includes a sampling plan and a safety, health and emergency response plan, all of which were reviewed by the EPA.

The landfill cover system will consist of four layers: foundation layer, geomembrane (low-permeability) layer, drainage and filtration layer, and a vegetative protection layer (See Figure 2, Landfill Cover System). These layers serve to control surface-water infiltration, wind and water erosion, and dust nuisances.

The foundation layer will be at the bottom of the cover system close to the trash. It consists of soil and nonhazardous waste materials that serve to reduce impacts on the cover due to settlement of the trash. This layer also will create a smooth and even surface for the rest of the layers to follow.

The geomembrane layer (or flexible membrane liner) will prevent surface water from getting to the landfill and control landfill gas movement. A geomembrane layer is strong, resists punctures, and has long-term durability.

The drainage and filtration layer is designed to intercept water and remove excess water from the cover system. This third layer will improve stability of the cover system during storm events and reduce infiltration of rainwater. The filtration layer provides a separation between the drainage layer and overlying vegetative protection layer. Its primary purpose is to reduce the movement of particles,

which may lead to clogging the drainage layer.

The vegetative protection layer is the uppermost layer of the final cover system and serves to protect the underlying layers from damage. This layer consists of soil that will support vegetative growth and an irrigation system to help in maintaining adequate vegetation. A landfill gas conveyance piping system will be installed at a minimum of one foot below the top of the vegetative layer. A mixture of grass and shrubby vegetation will be planted after the gas conveyance system is installed.

The construction for the cover is scheduled to begin in the fall of 1999 and will take approximately a year to complete. *See schedule on page three.*

EARLY GROUNDWATER CLEANUP ACTION

The remedial design for OU-2 is in its final stage of completion. The City has volunteered to implement an early action

LANDFILL COVER SYSTEM CONSTRUCTION SCHEDULE	
ACTIVITY	APPROXIMATE SCHEDULE
Clearing of Land	October 1999
Foundation Layer Installation	April 2000
Gas Wells	April 2000
Geomembrane Placement	August 2000
Drainage Layer Installation	August 2000
Access Road Built	September 2000
Vegetative Protection Layer	September 2000

cleanup measure prior to the completion of the design and construction of the Phase 1 OU-2 groundwater remedy. The objectives of the Early Action are to begin to control the contaminant plume, to begin treating the groundwater VOCs, and to gather data that will be useful for refining the design of the permanent groundwater treatment system. It is also the first step in accomplishing the goals of Phase 1 of OU-2. The comprehensive three phased groundwater cleanup will follow this activity.

The Early Action groundwater treatment system consists of two air stripper units and three existing extraction wells (PW- 1A, PW-2A and PW-3A). Air Stripper Treatment Unit 1 will treat the contaminated groundwater extracted from wells PW-1A and PW-2A and Air Stripper Treatment Unit 2 will treat contaminated groundwater extracted from the PW-3A well (See Figure 3, Aerial View Map).

HOW DOES THE AIR STRIPPER TREATMENT SYSTEM WORK?

The extraction wells will pump contaminated groundwater through a transmission pipe to the treatment units (See Figure 4, Treatment Unit). The extraction wells for the treatment system are installed in the shallow "A" aquifer zone. The "A" aquifer zone occurs at depths of 60 to 90 feet below ground. Each extraction well pump will control water flow to the treatment unit. Upon reaching the treatment unit, the contaminated water is sent through highly turbulent jets of air that remove the VOCs from the water. The treatment units are designed to achieve the VOC cleanup goals established by EPA in the 1996 ROD. Before the air used in this process (which includes the removed VOCs) is released into the atmosphere, it will be monitored to make sure it is within the air quality emission standards set by the San Joaquin Valley Unified Air Pollution

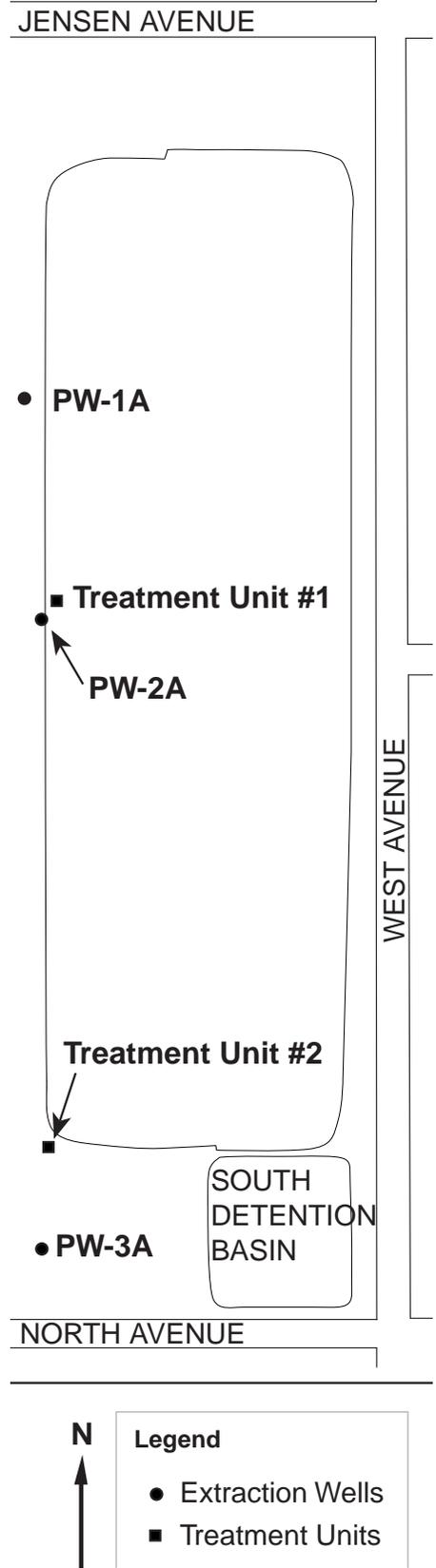


Figure 3, Aerial View Map

Control District. The treated water from the units will be pumped to an existing agricultural water supply pipeline that extends to an on-site concrete discharge structure to allow discharge into the South Detention Basin. The South Detention Basin is adjacent to the southeast corner of the landfill and is currently used as a **stormwater detention basin** (See Figure 3). Throughout this process, the extraction, treatment and discharge systems will be tested and monitored carefully. The groundwater quality monitoring data collected during this Early Action will be used to assess water quality trends and refine the understanding of groundwater VOC concentrations. These data will influence the development of the full-scale treatment system. *See early groundwater cleanup action schedule.*

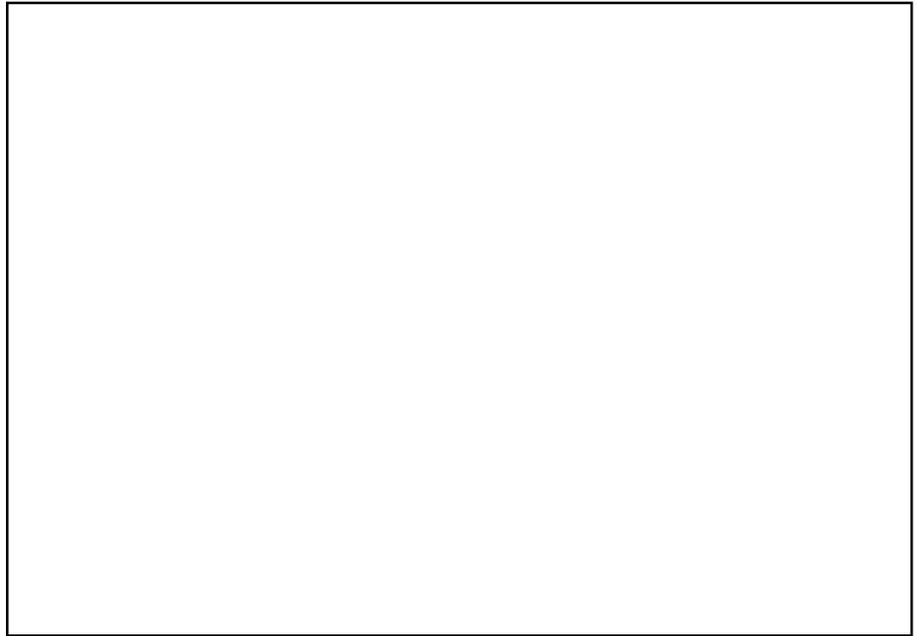


Figure 4, Treatment Unit

REGIONAL SPORTS PARK COMPLEX UPDATE

The City presented the preliminary plans for a regional sports park complex to the Fresno City Council to request permission to seek and secure additional outside funding to build the park. The Council approved this measure. With this approval, the City can begin the process of obtaining commercial financing. It will cost approximately eight million to twelve million dollars to build the park.

The City continues to work with three different consultants to incorporate the remedy designs of OU-1 and OU-2 with the park design. The City and consultants will continue to meet throughout the process to ensure that all three projects, once constructed, will operate smoothly. Upon completion of the landfill cap area, shrubby vegetation will be planted to complement the rest of the park's surrounding areas. The landfill cover system will become an integrated

part of the sports complex. The landfill area of the park will primarily be used as a walk and bike trail area.

The park facility will incorporate the use of recycled materials such as plastic wood (made from food and beverage

containers) and technology used to remediate the landfill. A demonstration area will highlight the recycled products use, the beneficial uses of recovered methane and treated water, and the pioneering of landfill technology previously used at the site.

EARLY GROUNDWATER CLEANUP ACTION PROJECT SCHEDULE	
ACTIVITY	SCHEDULE
Install extraction wells and groundwater monitoring wells	Completed January 1999
Construct treated water discharge structure	Completed February 1999
Gas Wells	Completed February 1999
Install two skid-mounted air stripper units	Completed May 1999
Build a fence around the treatment units	Completed May 1999
System start-up and testing	Through June 1999

GLOSSARY OF TERMS

Aquifer

is an underground geologic formation composed of materials such as sand, soil, or gravel that can store and supply groundwater to wells and springs.

Extraction Well

a well constructed to remove groundwater. Groundwater extracted from these wells is sent to a treatment facility for cleanup.

Methane

a colorless odorless flammable gas that is a product of decomposition of organic matter.

Operable Unit

an action taken as one part of an overall site cleanup.

Remedial Design

is the engineering phase that follows the record of decision when technical drawings and specifications are developed to guide remedial action at a Superfund site.

Record of Decision

a public document that explains which cleanup alternative will be used at a site. It is based on information and technical analysis generated during the remedial investigation and feasibility study and considers public comments and community concerns.

Stormwater Detention Basin

stores stormwater run off until it evaporates or infiltrates into the ground.

Volatile Organic Compounds

an organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature.

SITE REPOSITORY INFORMATION

The Administrative Record is a file that contains all the documents and reports on which EPA based its cleanup decisions for the Fresno Sanitary Landfill. Copies of the Administrative Record and all site documents are available for public review at:

**Fresno County Library
Mosqueda Center Branch**
4670 E. Butler Avenue
Fresno, CA 93702
(209) 488-3195

HOURS
Tues. and Thurs.
10:30AM - 12:30PM and
1:00PM - 5:30PM
Saturday: 1:30PM - 4:30PM

**Fresno County Central Library
Government Document**
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Fresno, CA 93721
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HOURS
Mon. - Thurs. 10AM-8PM
Friday: 10AM - 6PM and
Saturday: 10AM-5PM

CITY OF FRESNO CONTACT

If you should have any questions regarding the ongoing or upcoming activity at the Fresno Sanitary Landfill Superfund site, please call Ron Anderson, City of Fresno at (559) 498-4891. The construction work hours are from 7AM until 5PM, Monday through Friday.

FOR FURTHERMATION ABOUT FRESNO SANITARY LANDFILL

The Superfund program and the Department of Toxic Substances Control (DTSC) place a high importance on community input in addressing hazardous waste cleanups. We invite and encourage your comments. If you have any questions or concerns about the cleanup activity at the site or would like to be placed on the EPA mailing list, please contact the following people:

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EPA COMMUNITY
INVOLVEMENT COORDINATOR

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75 HAWTHORNE STREET
SAN FRANCISCO, CA 94105

*Toll Free (800) 231-3075
or (415) 744-2267*

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PROJECT MANAGER

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Attention: Jacqueline Lane

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