

Modesto Soil Stockpiles

Welcome to the Open House

Wednesday, August 29, 2012
6:00 p.m. - 8:00 p.m.

Please sign in

Clarion Inn & Conference Center
1612 Sisk Road
Conference Room Vineyard II & III
Modesto, CA 95350



Modesto Soil Stockpiles

Modesto - 1950s / Early 1960s

- Population growing at twice the state rate
- Identified as major industrial/transportation center
- Need for freeway development recognized
- Highway Commission adopts State Route 99 (SR-99) alignment
- State begins buying property for SR-99 and SR-132 alignments
- One of the properties included 4.3 acres owned by Food Machinery & Chemicals(FMC) Corporation
- FMC processed barite and celestite ores as well as manufactured other chemicals
- The FMC generated waste slurry was discharged into unlined settling ponds

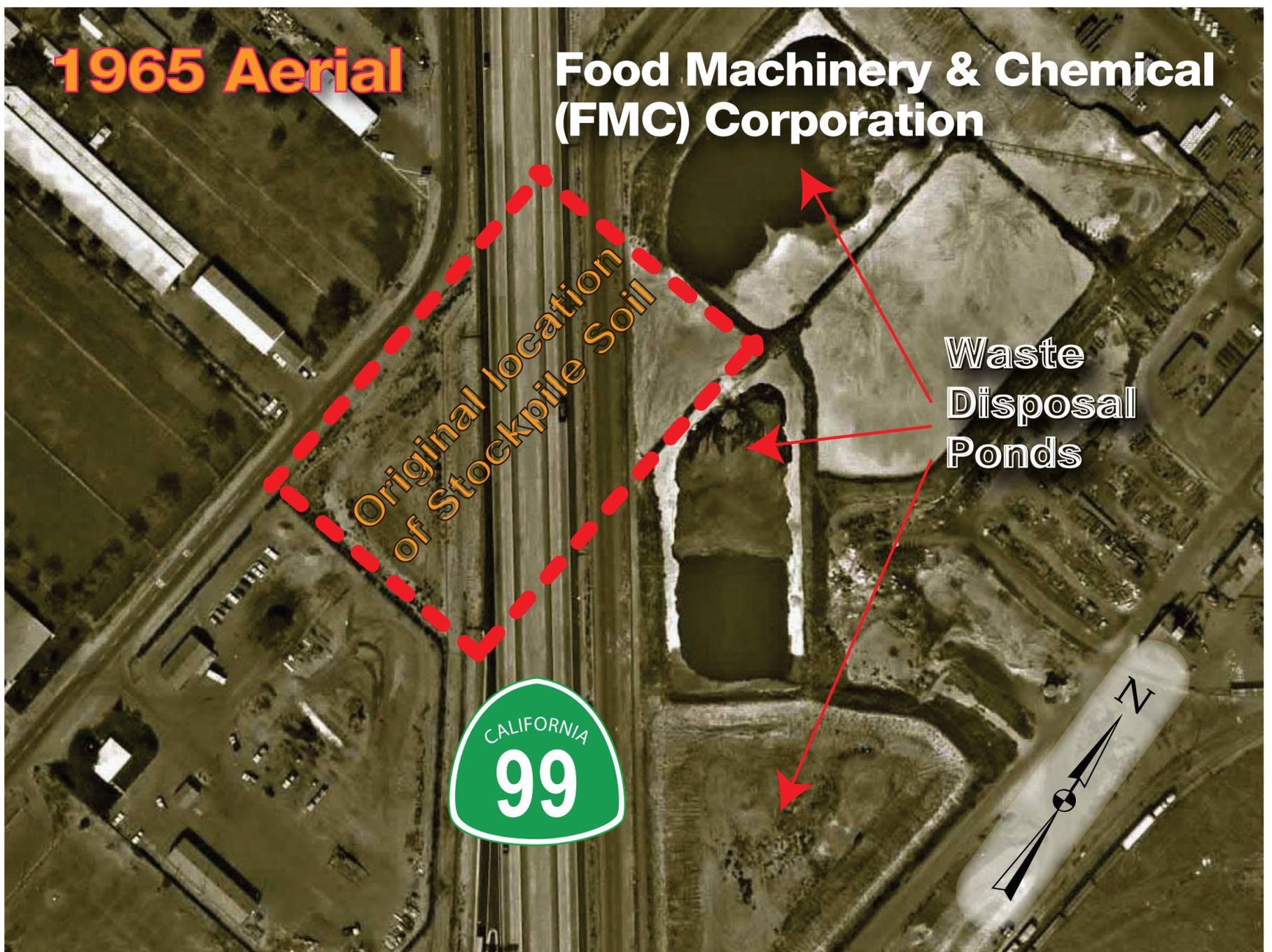


Modesto Soil Stockpiles

State Route 99 Alignment: 1965

State Route 99 Alignment

- State Route 99 (SR-99) was constructed over property bought from Food Machinery & Chemical (FMC) Corporation
- Excess soil from construction of SR-99, including soil removed from the location of the waste disposal pond, totaled over 120,000 cubic yards
- The soil was placed in three stockpiles on state-owned property south of Kansas Avenue
- The stockpiles were placed in their present location in anticipation of the construction of the SR-99/132 West Freeway/Expressway



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1990 - 2004

- **Late 1990s** - Interest in the State Route 132 (SR-132) West Freeway/ Expressway project was revived due to increased traffic and accidents on SR-132 (Maze Boulevard)
- **1998 to 2000** - Begin preliminary environmental review process following selection of seven alternative routes
- **2001** - Stanislaus County Environmental Health, The Department of Toxic Substances Control (DTSC) and Central Valley Regional Water Quality Control Board (CVRWQCB) were contacted during the initial environmental review process
- **2002** - Historical Research Report prepared to determine if a segment of SR-99 in Modesto was constructed on property purchased from the Food Machinery & Chemical (FMC) Corporation Modesto Processing Plant. Research report identified location of one of FMC's disposal ponds on the 4.3-acre parcel purchased by Caltrans. Report also reviewed construction of SR-99 through the pond area and stockpiling excavated soil at the SR-99/132 West project
- **2004** - Caltrans tests stockpiles. A total of 244 samples were analyzed for heavy metals (including arsenic, barium, and strontium), polycyclic aromatic hydrocarbons, nitrate, and soil pH. Testing confirmed high concentrations of primary contaminant - barium. Other metals detected in lesser frequencies and amounts. Polynuclear Aromatic Hydrocarbons were not detected and nitrate was within background values. Report submitted to DTSC and CVRWQCB



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Groundwater Quality

Groundwater samples were collected for the 2007 Human Health Risk Assessment. Additional groundwater samples were also collected on March 12, 2012, according to sampling protocol approved by Department of Toxic Substance Control and the Central Valley Regional Water Quality Control Board.

The samples were transported to a state-certified laboratory and analyzed for twelve general minerals, including chloride, nitrate as nitrogen, sulfate, and total dissolved solids, as well as polynuclear aromatic hydrocarbons (PAHs).

The samples were also tested for nineteen heavy metals including arsenic, barium, lead, and strontium. Based on the 2012 analytical results, the values reported by the laboratory are consistent with results from 2006.

Tabulated results are available in the respective reports and may be accessed through the Caltrans District 10 website under the State Route 132 West Freeway/Expressway project link.



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2012 and Forward

- **2012** - Caltrans re-initiates groundwater sampling of monitoring wells installed at the stockpile site. Caltrans executes Interagency Agreement task order for the Department of Toxic Substances Control guidance and oversight in coordination with the Central Valley Regional Water Quality Control Board for the collection of additional data necessary to update the Human Health Risk Assessment (HHRA) and to prepare a Feasibility Study/Remedial Action Plan.

Groundwater monitoring resumed in March 2012. Two new wells were installed adjacent to Kansas Avenue, north of the stockpiles. The monitoring frequency has been increased from quarterly to every other month.

Caltrans will complete the following proposed studies:

Report/Activity	
Report/Activity	Proposed Date
• Supplemental Site Soil Characterization Report of Analysis	• October 2012
• Update Human Health Risk Assessment	• January 2013
• Soil Management Feasibility Study	• July 2013
• Remedial Action Plan incorporated in Environmental Document	• July 2013
• Circulate Draft Environmental Document	• Late summer 2013
• Public Meeting	• Fall 2013
• Project Approval & Environmental Document Complete	• Late Fall 2013



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Human Health Risk Assessment Definitions

Source Assessment –

Identifying the characteristics of the site and chemicals present

Chemicals of Concern (COCs) –

Chemicals that are potentially related to the site

Toxicity Assessment –

Defining the toxicity of the COCs and the dose necessary to cause the toxic effect(s)

Dose –

Potential intake of a COC by a person/receptor upon exposure

Exposure Assessment –

Defining the magnitude, frequency, duration, and routes of exposure (ingestion, inhalation, dermal contact) to get an exposure dose

Risk Characterization –

Determining the level of cancer risk and the non-cancer hazard posed by the concentrations of COCs present

Risk –

Measure of the probability of getting cancer if exposed to a chemical that can cause cancer

Hazard –

Ratio of the exposure dose to a reference dose known not to cause a non-cancer adverse health effect



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Chemicals Tested From the Stockpiles Site

Over 500 stockpile soil samples have been tested to date.

The chemicals tested include:

Heavy Metals:

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Selenium
- Silver
- Strontium
- Thallium
- Vanadium
- Zinc

Inorganic Constituents:

- Nitrate
- Sulfate
- Sulfide

Organic Compounds:

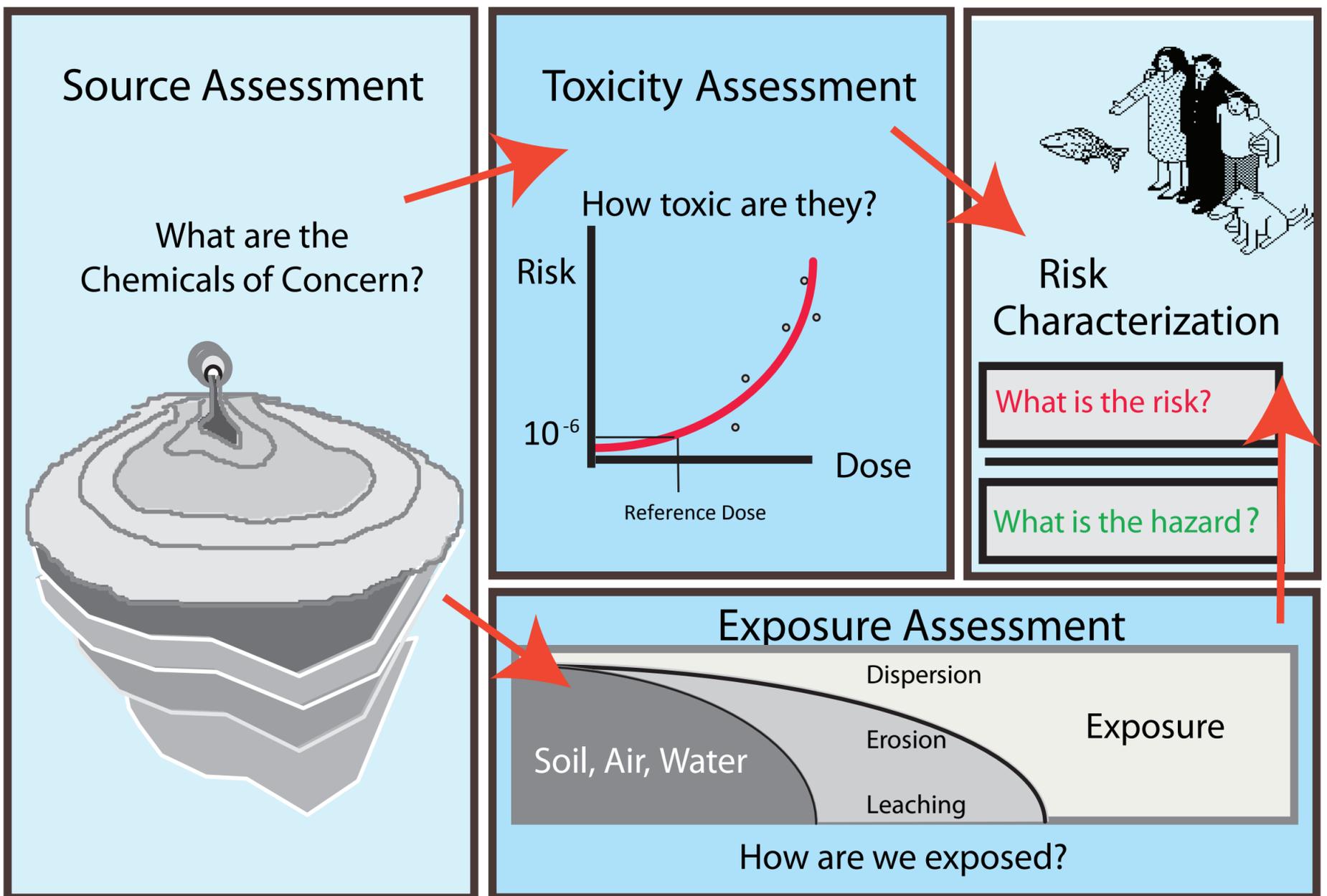
- Polynuclear Aromatic Hydrocarbons

Based upon the findings of the 2007 Human Health Risk Assessment (HHRA), the soil stockpiles do not present a risk to human health provided they are maintained in their present condition. This HHRA will be updated with additional soil analysis.



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Elements of Risk Assessment



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Human Health Conceptual Site Exposure Model

Primary Source	Transport Mechanism	Exposure Media	Exposure Route	Potential Receptors		
				Off-site Resident	Trespasser	On-site Worker
Stockpiles	Wind dispersion	→ Soil	→ Dermal	→ PC	PC	PC
	Erosion	→ Soil	→ Ingestion	→ PC	PC	PC
	Wind dispersion	→ Dust in air	→ Inhalation	→ PC	PC	PC
	Leaching	→ Groundwater	→ Ingestion	→ IC	IC	IC
	Run off	→ Surface water	→ Dermal Ingestion	→ IC IC	IC IC	IC IC

Receptors: Current off-site resident/trespasser
 Future off-site resident
 Future construction worker

PC: Potentially complete

IC: Incomplete



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2005 - 2011

- **2005** - Caltrans executes Interagency Agreement for Department of Toxic Substances Control (DTSC) review of 2004 report. DTSC requests additional environmental investigation for preparation of a Preliminary Endangerment Assessment
- **2006** - Under direction of the DTSC, Caltrans conducted five separate studies:
 - Stockpile Soil Characterization;
 - Groundwater Assessment;
 - Human Health Risk Assessment;
 - Surface Water Sampling; and
 - Particulate Matter Test Report, Mowing Simulation
- **2007** - DTSC receives and reviews Caltrans' Human Health Risk Assessment and supporting documents. DTSC requests the development of additional data and information
- **2009** - Caltrans prepares Final Preliminary Endangerment Assessment with a Response to Comments document and submits them to DTSC. DTSC finds that the stockpiles do not pose a risk to human health as currently managed
- **2009 to 2011** - Management of State Route 132 West Freeway/Expressway project taken over by Stanislaus Council of Governments



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State Route 99 Modesto Ramp Rehab Project

Safety Improvements at Kansas Avenue North Bound Off-Ramp

- Safety project to rehabilitate and resurface nine highway on and off-ramps on State Route 99 in Modesto
- Construction of the ramps is completed except for the Kansas Avenue northbound offramp
- The accident rate at this ramp is higher than the statewide average
- Improvements to the ramp include re-aligning the curve radius and construction of a retaining wall requiring the excavation of material from Soil Stockpile #3
- Prior to construction of the ramps, Caltrans, made certain that:
 - The ramp improvements are needed,
 - Excavation of material could not be avoided,
 - Any excavated soil is managed appropriately.
- Additional soil samples were tested and do not fall within the classification of hazardous waste
 - Barium and other metals, except one lead concentration, are reported at concentrations below residential and commercial/industrial screening levels
 - Arsenic concentration in samples is within the range of the site-specific background levels
- All testing and activities were coordinated with the Department of Toxic Substance Control and the Central Valley Regional Water Quality Control Board
- Construction on the ramp is scheduled to begin September 4, 2012



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Studies Done to Date

Technical Studies Performed by Caltrans

1. Heavy Metal Contamination, Preliminary Site Investigation Report, State Route 132 (SR-132) at State Route 99 (SR-99), Stanislaus County, California, June 2004
2. Remedial Action Options Report, SR-99/132 Stockpiles, Modesto, California, July 2004
3. Surface Water Sampling Report, SR-99/132 Project, Modesto, California, June 2006
4. Site Investigation Report, Characterization of Soil Stockpiles, Caltrans Modesto Soil Stockpiles, SR-99/132 Project, Stanislaus County, California, May 2007
5. Site Investigation Report for Groundwater Assessment, Caltrans Modesto Soil Stockpiles, SR-99/132 Project, Stanislaus County, California, May 2007
6. Human Health Risk Assessment, Caltrans Modesto Soil Stockpiles, SR-99/132 Project, Stanislaus County, California, May 2007
7. Particulate Matter Test Report, Mowing Simulation, SR-99/132 Project, Modesto, California, June 2007
8. Final Preliminary Endangerment Assessment, Caltrans Modesto Soil Stockpiles, State Route 132/99 Interchange, Stanislaus County, California, June 2009
9. Groundwater Monitoring Report, March 2012, Modesto Stockpiles, SR-99/132, Stanislaus County, California, June 2012
10. Site Investigation Data, Modesto Ramp Rehabilitation Project, SR-99 Kansas Avenue Northbound Off-Ramp, Modesto, California, April 2012