Preliminary Assessment Report
M. Stephens Manufacturing, Inc.
Cudahy, Los Angeles County, California

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List of Acronyms

bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DCE	dichloroethylene
DNAPL	dense non-aqueous phase liquid
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
ft^2	square-feet
GENIL	General Inspection Laboratories site
GSWC	Golden State Water Company
HRS	Hazard Ranking System
LACSD	County Sanitation District of Los Angeles County
LADPW	Los Angeles County department of Public Works
MCL	Maximum Contaminant Level
M. Stephens	M. Stephens Manufacturing, Inc. (site)
NOV	Notice of Violation
NPL	National Priorities List
PA	Preliminary Assessment
PCE	tetrachloroethylene
RCRIS	Resource Conservation and Recovery Information System
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SEMS	Superfund Enterprise Management System
SSA	Site Screening Assessment
TCE	trichloroethylene
TRI	Toxics Release Inventory
UST	underground storage tank
VOC	volatile organic compound
WESTON	Weston Solutions, Inc.
µg/kg	microgram per kilogram

1.0 INTRODUCTION

1.1 Regulatory Background

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Weston Solutions, Inc. (WESTON®) has been tasked to conduct a Preliminary Assessment (PA) of the M. Stephens Manufacturing, Inc. (M. Stephens) site in Cudahy, Los Angeles County, California.

The purpose of a PA is to review existing information on a site with potential releases of a hazardous substance and its environs to assess the threats, if any, posed to public health, welfare, or the environment and to determine if further investigation under CERCLA is warranted. The scope of a PA generally includes review of existing information available from federal, state, and local agencies.

Using existing information sources, a site is then evaluated using the U.S. Environmental Protection Agency's (EPA) Hazard Ranking System (HRS) criteria to assess the relative threat associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous substance sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL is a list compiled by EPA of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response. This report summarizes the findings of these preliminary investigative activities.

The M. Stephens site was identified as a potential hazardous waste site and entered into the Superfund Enterprise Management System (SEMS) in approximately September 2013 (SEMS ID No.: CAN000909569). The SEMS information system is currently in the development phase and is expected to be fully implemented in April 2015 (DTSC, 2013).

More information about the Superfund program is available on the EPA web site at http://www.epa.gov/superfund/programs/npl_hrs/siteasmt.htm.

1.2 Apparent Problem

EPA determined that a PA was needed at the M. Stephens site because of the following apparent problems:

- The site has been used for metal fabrication, electric parts manufacturing, tool manufacturing, and die-cast electrical parts manufacturing from approximately the late 1940s through 2003. Specific on-site activities, hazardous substances, and hazardous substance management practices are not known. Tetrachloroethylene (PCE) -containing waste was generated at the site during at least the late 1980s and in 1999 (CC, 2005; DPW, 2007; DTSC, 2013; EDR, 2014a; EDR, 2014b; EDR, 2014c; EPA, 2014b; LACSD, 1992; TCN, 2014).

- Process wastewaters generated during on-site activities were historically treated using a sub-grade clarifier system until approximately 2003; it is not known when the clarifier system was installed (DPW, 2007; LACSD, 2003).

- A subsurface investigation conducted at the site in 2005 identified detectable concentrations of PCE in shallow soil beneath the site (CC, 2005).

- The site is situated upgradient with respect to the regional groundwater flow from several municipal supply wells that have been identified with elevated concentrations of volatile organic compounds (VOCs). The site is located approximately 0.17 mile north-northwest of the City of South Gate's Well 7, which was removed from service in approximately 2002 and destroyed in 2011 due primarily to elevated concentrations of contaminants, including trichloroethylene (TCE), arsenic, and chromium. The site is also located approximately 0.28 mile west-southwest of the Golden State Water Company (GSWC) - Bell/Bell Gardens system's Hoffman Well 02, which was removed from service in approximately late 2000 and destroyed in approximately October 2007 due primarily to elevated concentrations of chromium (DTSC, 2013; Google, 2014; RWQCB, 2015; Appendix C-2, C-3).

2.0 SITE DESCRIPTION

2.1 Location

The M. Stephens site is located at 8420 South Atlantic Avenue, Cudahy, California. Additional addresses associated with the site property include 8414 South Atlantic Avenue and 4727, 4805, 4817, 4831, and 4839 Patata Street. The geographic coordinates for the site are 33° 57' 22.4" North latitude and 118° 10' 59.5" West longitude (Appendix A). The location of the site is shown in Figure 1.

2.2 Site Description

The M. Stephens site occupies approximately 5.9 acres in an urban industrial area. The site is bordered to the north by a tractor trailer service station [Spirit (ITL Inc.) Truck Stop], a trucking company (R Espinoza Trucking), and a door/roof hatch/skylight manufacturing facility (Dur-Red). The site is bordered to the west across S. Atlantic Avenue by a commercial fueling station (Roche Fuel Stop), a non-destructive testing facility and commercial retail spaces [General Inspection Laboratories (GENIL) site - EPA ID No.: CAD027897164]. The site is bordered to the south by the Southern Pacific railroad easement with a freight distribution terminal (Performance Team Freight Systems) beyond. The site is bordered to the east by the Cudahy Industrial Center (various light industrial suites, fitness, etc.) (Google, 2014; LACA, 2014).

This site is composed of eight distinct Los Angeles County Assessor Parcels, which are identified as: 6224-034-010, -014, -032, -036, -037, -039, -040, and -041. As of April 2014, the only significant structure at the site was the former M. Stephens Manufacturing Building, which occupied approximately 19,400 square-feet (ft^2) at the southwestern portion of the site. A heavily-weathered asphalt-paved parking lot was located adjacent-south to the building and several utility poles were located throughout the property. With the exception of the parking lot, the surface of the site was covered in a mixture of weathered concrete, asphalt, and exposed soil. The parcel layout and site layout are shown in Figure 2 and Figure 3, respectively (DTSC, 2013; Google, 2014; LACA, 2014).

The site has been developed since at least 1923, at which time it was occupied by agricultural fields and single-family residential buildings. Between 1938 and approximately 1950, the northern and eastern portions of the site were redeveloped to accommodate several manufacturing, warehousing, and office buildings. Industrialization of the site continued through the 1950s and early 1960s, and by 1966 only a single residential building remained alongside at least 13 distinct industrial buildings. By 1972, the remaining residential building was removed and there were no significant changes in the configurations of the on-site buildings until approximately 1987, at which time the existing M. Stephens Manufacturing Building was constructed at the former location of a smaller warehouse building. With the exception of the existing building, all of the significant structures at the site were removed between July 2008 and June 2009. The historic site layout is shown in Figure 4 (EDR, 2014a, EDR, 2014b, Google, 2014; LACA, 2014).

At least three underground storage tanks (USTs) were historically located at the site. An approximately 1,500-gallon UST and a 500-gallon UST, as well as an oil-filled car-hoist, were located at the southeastern portion of the site adjacent south to the former Jackson Iron Works Building. These two USTs were removed in November 1989 and the car-hoist was removed in August 1995. An additional 10,000-gallon UST was historically located adjacent south of the southeastern corner of the existing M. Stephens Manufacturing Building. This tank was removed at an unidentified date prior to 1992. A subgrade clarifier was historically located approximately 115 feet northeast of the existing M. Stephens Manufacturing Building. The clarifier was removed in May 2007 (CoC, 2005; DPW, 2007; LACSD, 1992; RWQCB, 1995).

2.3 Operational History

The M. Stephens site is currently owned by three corporate entities that include: the Cudahy Economic Development Corporation, which owns the four southwestern parcels (6224-034-014, -032, -040, and -041); Tssay J and R LLC, which owns the two eastern parcels (6224-034-010 and -036); and Patata Investments LLC, which owns the two northern parcels (6224-034-037 and -039). Tssay J and R LLC and Patata Investments LLC are affiliated real estate investment corporations and may act as a single entity as they share a primary owner. The site has been owned by various real estate investment corporations since approximately 1997, which include, but may not be limited to: BBA Southwood LLC, Carmar LLC, Patata Streets LLC, and Agora Realty & Management. Between approximately December 1986 and December 1996, the site was owned by M. Stephens Manufacturing Inc./BWF Manufacturing. Ownership information prior to 1986 is not known (AR&M, 2006; BPA, 2014c; CoC, 2005; DTSC, 2013; App. C-1).

Historic operations at the site include residential and agricultural activities from approximately 1900 to the late 1940s; metal fabrication, electric parts manufacturing, and tool manufacturing from approximately the late 1940s through the mid-1980s; and die-cast electrical parts manufacturing from approximately 1986 through 2003. With the exception of some miscellaneous storage of tractor-trailers in late 2009, there have been no known operations conducted at the site since 2003 (EDR, 2014a; EDR, 2014b; EDR, 2014c; Google, 2014; TCN, 2014).

Table 1: Current and Historic On-site Operators

Location	Operator	Primary Operations	Date
East Site *(6224-034-010)*	Jackson Iron Works	Metal fabrication	~1948 ~ 1971
	Grating Pacific	Metal fabrication	~1981 - 1986
	Plasma Specialist	Metal fabrication	~1981 - 1986
Southeast Site *[6224-034-036 (south)]*	Patata Engineered Wire & Metal Mfg.	Metal fabrication	~1952
	Automatic Instrument Service	Instrument Control Device Repair	~1958 ~ 1965
Central Site *[6224-034-014 (north); 6224-034-036 (central)]*	Martin Electric Motors	Electric Parts Service and Sales	~1952 ~ 1965
	Jackson Iron Works	Metal fabrication	~1965
Southwest Site *[6224-034-032; 6224-034-041 (southern)]*	Martin Electric Motors	Electric equipment storage	~1955 ~ 1968
Northern and west-central Site *[6224-034-037, -039, -040; 6224-034-010, -036, -041 (northern)]*	Greer Machine Company	Machining and aluminum casting	~1955 ~ 1962
	Pratt & Whitney Tool Co.	Tool Manufacturing	~1962 ~ 1975
	Trico Superior	Metal Tank Manufacturing	~1965 - 1980
	Sierra Tank & Construction Co.	Metal Tank Manufacturing	1980 ~ 1985
Site-wide	*Unknown*	Residential and Agriculture	~1900 ~ 1948
	M. Stephens Manufacturing Co.	Metal electrical equipment mfg.	1986 - 2003
	Unknown	Tractor-trailer storage	2009

References: BPA, 2014b; EDR, 2014a; EDR, 2014b; EDR, 2014c; Google, 2014; ISN, 1959; TCN, 2014; TSD, 1980.

At the easternmost portion of the site, including the entirety of parcel 6224-034-010, the Jackson Iron Works metal fabrication facility operated from approximately the late 1940s to at least 1971. No additional significant information is known regarding specific on-site operations or hazardous substances associated with these metal fabrication activities. Grating Pacific, Inc. and Plasma Specialists, Inc. also conducted metalworking activities at this portion of the site between approximately 1981 and 1986. Jackson Iron Works, Grating Pacific, and Plasma Specialists were addressed at 4831 Patata Street (BPA, 2014a; EDR, 2014b; EDR, 2014c; ISN, 1959).

At the southeastern portion of the site, the southern portion of parcel 6224-034-036 was historically used by the Patata Engineered Wire & Metal Manufacturing Company for metal fabrication activities in the early 1950s and by the Automatic Instrument Service Company for the repair of instrument control devices in the late 1950s through mid-1960s. Both of these businesses were addressed at 4727 Patata Street (EDR, 2014b; EDR, 2014c).

At the central portion of the site, the northern portion of parcel 6224-034-014 and the central portion of 6224-034-036 were historically used by the Martin Electric Motors company to conduct electric parts service and sales operations during the early 1950s through mid-1960s. The adjacent Jackson Iron Works facility apparently expanded into this area during the mid-1960s and utilized at least two large overhead crane-ways. Martin Motors was addressed at 4817 Patata Street in at least 1951 (EDR, 2014b; EDR, 2014c).

At the southwestern portion of the site, the entirety of parcel 6224-034-032 and the southern half of parcel 6224-034-041 were used by the Martin Motors company for electrical equipment storage from the mid-1950s through at least the late 1960s. On-site electrical equipment appears to have included electrical transformers. Martin Motors was addressed at 4805 Patata Street from at least 1958 through 1967 (EDR, 2014b; EDR, 2014c).

At the west-central and northern portions of the site; which includes the entirety of parcels 6224-034-037, -039, and -040 as well as the northern sections of parcels 6224-034-010, -036, and -041; the property was used for machining, aluminum casting, and retail operations during the 1950s and into the early 1960s. From 1958 to at least 1962, machining operations were conducted by the Greer Machine Company, which was addressed at 8414 Atlantic Ave. From approximately 1962 to the mid-1970s, the area was used for tool manufacturing by the Pratt & Whitney Tool Division of Colt Industries. From approximately the mid-1960s to the mid-1980s, the area was used for tank manufacturing by Trico Superior (until 1980) and then by the Sierra Tank and Construction Company. Pratt & Whitney, Trico, and Sierra Tank were typically addressed at 8420 Atlantic Avenue (BPA, 2014b; EDR, 2014b; EDR, 2014c; TSD, 1980).

In 1986, operations across the entirety of the site were converted over to the manufacturing of metal electrical equipment; primarily die-cast, weatherproof, outlet boxes; by the M. Stephens Manufacturing Company. M. Stephens Manufacturing, along with their BWF product line, was acquired by Intermatic, Inc. in 1997. In 2003, on-site operations were discontinued and consolidated into Intermatic's facility in Tijuana, Mexico. M. Stephens/BWF was later acquired by the Teddico Electrical Company; however the specific details of this acquisition are not known. M. Stephens was typically addressed at 8420 Atlantic; however, 4839 Patata also appears to have

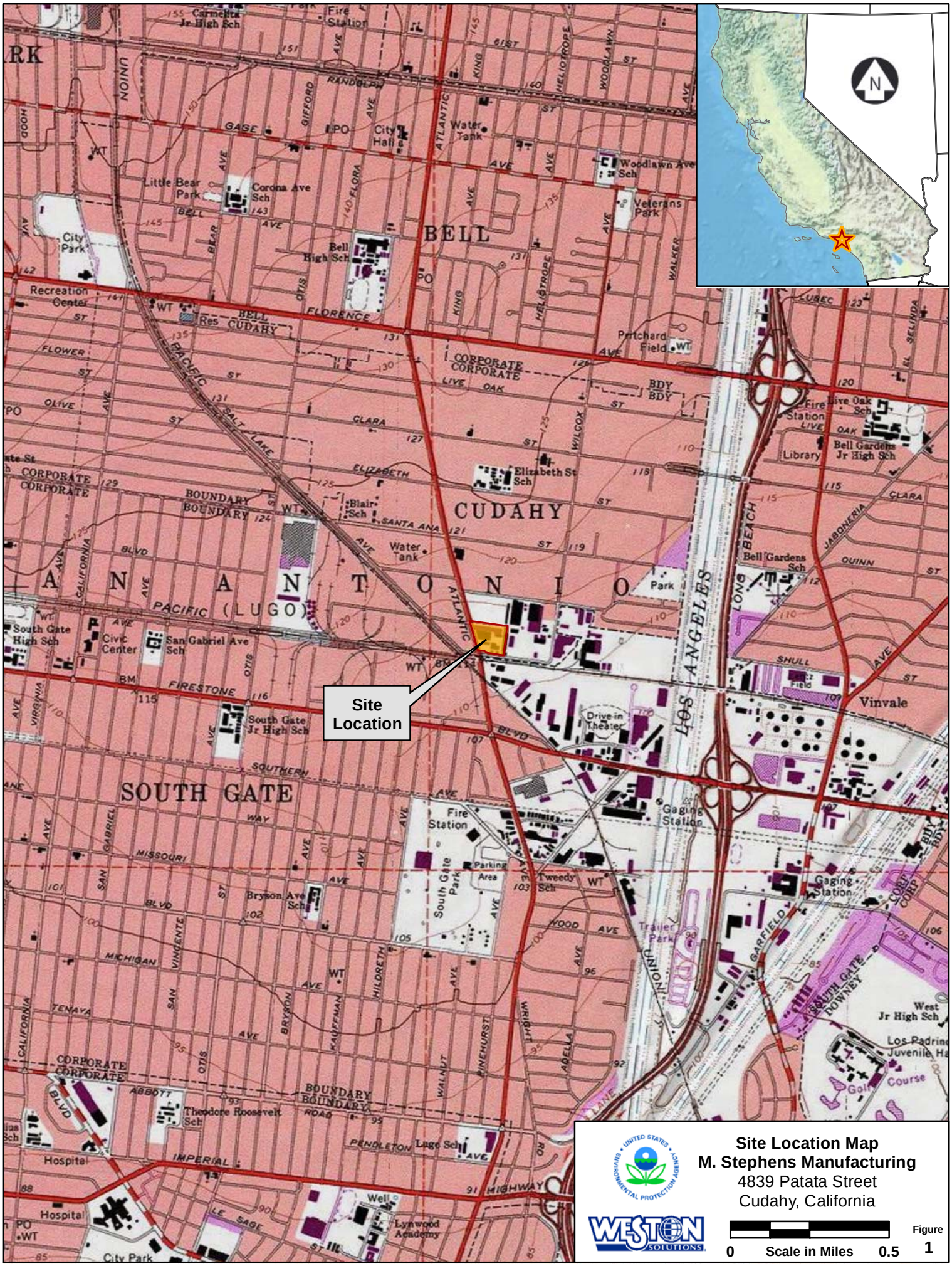
less frequently been used as the facility address. PCE-containing waste was generated at the site in at least the late 1980s and in 1999 (AN, 1997; DTSC, 2013; EDR, 2014b; EDR, 2014c; EPA, 2014b; TCN, 2014; TEP, 2014).

Three USTs were historically used to store gasoline and/or oil in association with on-site operations. In addition, an oil-filled car-hoist was used during operations as well as several overhead crane-ways that likely utilized some form of hydraulic oil. The USTs, car-hoist, and crane-ways appear to have been removed from regular service by 1986 when M. Stephens Manufacturing initiated on-site operations. No additional information is known regarding the specific use of on-site USTs. Unaltered petroleum products, as well as any substances that are purposefully added to the indigenous petroleum product during the refining process, are excluded from consideration under CERCLA (CC, 2005; DPW, 2007; EDR, 2014b; EDR, 2014c; LACSD, 1992; RWQCB, 1995).

A subgrade clarifier was historically used in on-site operations between at least 1978 and 2003. The clarifier received wastewater from the facility and, under permit, discharged effluent to the sanitary sewer system. The clarifier system was used by at least Trico Superior and M. Stephens Manufacturing. No additional information is known regarding the influent waste-streams associated with this clarifier (CC, 2005; LACSD, 2003; TSD, 1980).

In September 2005, a Limited Phase II Environmental Site Assessment (ESA) was conducted at the site by an outside company in association with a potential real estate transaction. This ESA included the collection of subsurface soil matrix samples at 11 locations across the site. Detectable concentrations of PCE were identified in a shallow soil sample collected from adjacent to the former clarifier and in a shallow soil sample collected from a location approximately 70 feet west of the clarifier. No additional elevated concentrations of VOCs or metals were reported during the investigation. Additional details on the 2005 ESA investigation are provided in Section 3.0 (CC, 2005).

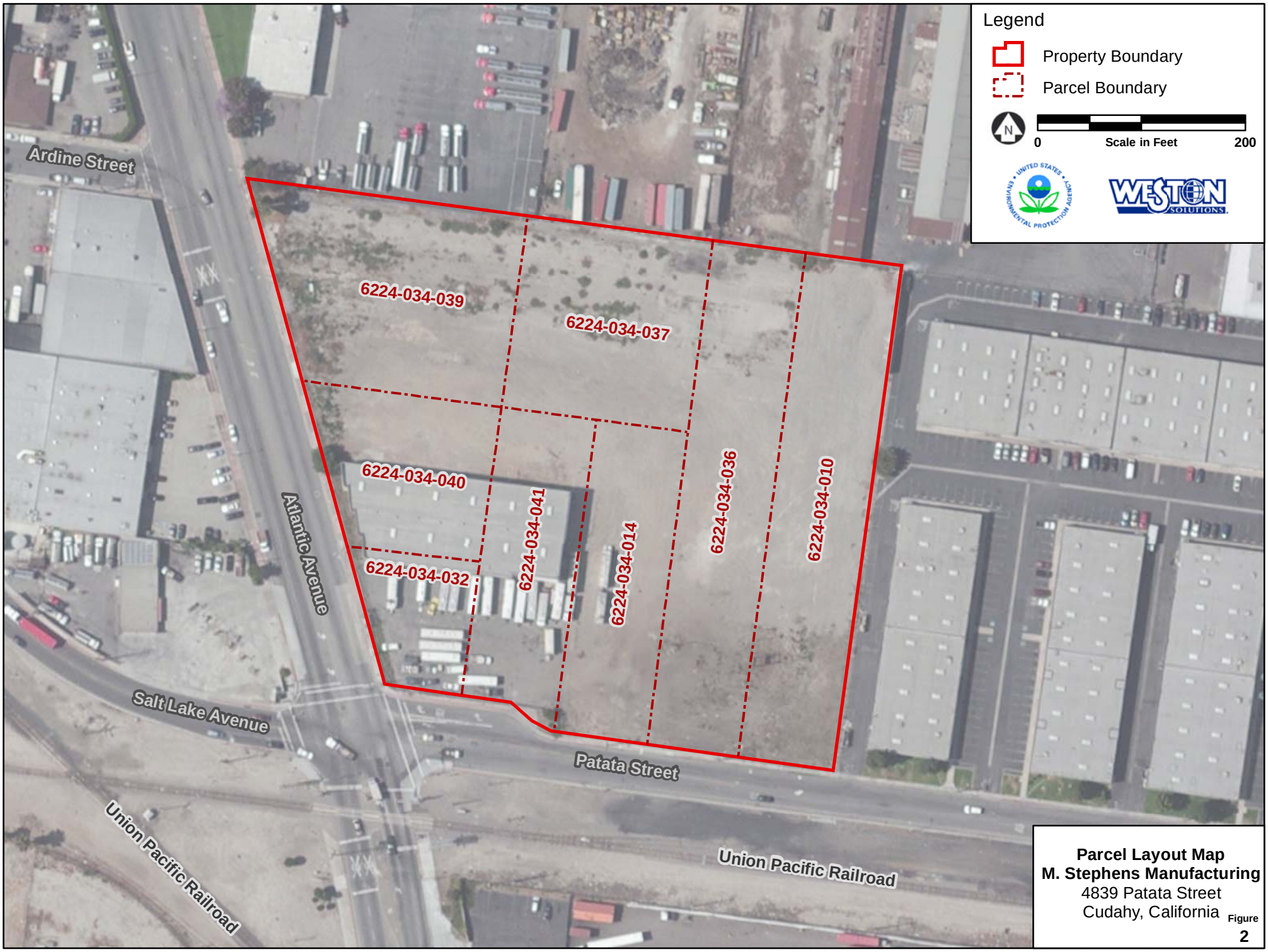
No additional information is known regarding specific on-site historic operations, hazardous substances, or hazardous substance management practices. With the exception of the 2005 ESA and the soil matrix sampling that occurred during UST removal activities, no known soil vapor, soil matrix, or groundwater sampling has been conducted at the site.



Site Location Map
M. Stephens Manufacturing
4839 Patata Street
Cudahy, California

0 Scale in Miles 0.5

Figure 1



Parcel Layout Map
M. Stephens Manufacturing
4839 Patata Street
Cudahy, California

Figure
2

Site Layout Map
M. Stephens Manufacturing
4839 Patata Street
Cudahy, California

Figure
3

Historical Site Layout Map
M. Stephens Manufacturing
4839 Patata Street
Cudahy, California

Figure
4

2.4 Regulatory Involvement

2.4.1 U. S. Environmental Protection Agency

The M. Stephens site was not listed in the Resource Conservation and Recovery Information System (RCRIS) database as of December 6, 2014 (EPA, 2014b).

The site is listed in the Toxics Release Inventory (TRI) database as 'M. Stephens Manufacturing Inc.' (TRI ID: 90201MSTPH8420S), addressed at 8420 S. Atlantic Avenue. The most recent release information provided in the database is from 1995 (EPA, 2014a).

2.4.2 California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)

The M. Stephens site is listed in the California Department of Toxic Substances Control's (DTSC) EnviroStor database as M Stephens Manufacturing (Envirostor ID: 60001790) at 4839 Patata Street. The site is listed as an 'Evaluation' site that was referred to EPA on September 17, 2013. DTSC completed a Site Screening Assessment (SSA) for the M. Stephens site in June 2013. The SSA was prepared for EPA and has a final sign-off date of September 30, 2013. DTSC has had no known additional involvement with the site (DTSC, 2013; DTSC, 2014b).

2.4.3 California Environmental Protection Agency, Regional Water Quality Control Board (RWQCB)

The M. Stephens site is listed in the California Regional Water Quality Control Board's (RWQCB) GeoTracker database as M Stephens Manufacturing (GeoTracker ID: T0603703809; Case No. 1-11513) at 4839 Patata St. The site is listed as a 'LUST Cleanup Site' with a cleanup status as 'Completed – Case Closed as of 9/27/1995.' The potential contaminant of concern is listed as 'gasoline' and the potential media affected is 'soil.' Between at least 1978 and 1980, the RWQCB, in conjunction with the County Sanitation District of Los Angeles County (LACSD), conducted oversight of the operation and monitoring of waste discharges to the on-site clarifier (RWQCB, 1995; RWQCB, 2014; TSD, 1980).

2.4.4 Los Angeles County Department of Public Works (LADPW)

In June 2007, the Los Angeles County department of Public Works (LADPW) issued a 'No Further Action' letter for the M Stephens site in regard to the closure and removal of the on-site clarifier (DPW, 2007).

2.4.5 County Sanitation District of Los Angeles County (LACSD)

Between at least 1978 and 2003, the LACSD, in conjunction with the RWQCB, conducted oversight of the operation and monitoring of waste discharges to the clarifier at the M. Stephens site. In 1992, LACSD conducted an inspection of the site to investigate discrepancies in the number and size of on-site USTs and determined that the three known USTs had all been removed. In June 1997, LACSD issued a Notice of Violation (NOV) (Violation Notice No. 14195) to M. Stephens

Manufacturing due to wastewater being discharged to the sanitary sewer system that contained concentrations of zinc in excess of federal regulations. In December 2003, LACSD voided the Industrial Wastewater Discharge Permit for the site (Permit No. 14831) due to the company having ceased all industrial wastewater producing activities (LACSD, 1992; LACSD, 1997; LACSD, 2003; TSD, 1980).

3.0 INVESTIGATIVE EFFORTS

In November 1989, the two USTs formerly located at the southeastern portion of the M. Stephens site were excavated and removed. Three confirmation soil samples were collected from the base of the excavation but a sample was not collected from the former dispenser area. In February 1994, at the direction of the RWQCB, soil samples were collected from the dispenser area, which exhibited elevated concentrations of petroleum hydrocarbons. In March 1995, an additional subsurface investigation was conducted to further delineate the extent of the hydrocarbon contamination, which included the advancement of three borings to a total depth of approximately 55 feet bgs. The former car-hoist was discovered during this investigation and in August 1995, the car-hoist and approximately 184 cubic yards of petroleum-impacted soil were excavated and removed. All confirmation samples exhibited petroleum hydrocarbon concentrations below project-specified action levels. Groundwater was not encountered during the UST investigations. Unaltered petroleum products, as well as any substances that are purposefully added to the indigenous petroleum product during the refining process, are excluded from consideration under CERCLA (AI, 1995).

In September 2005, a Limited Phase II ESA was conducted at the M. Stephens site by an outside company in association with a potential real estate transaction. This ESA included the collection of 39 subsurface soil matrix samples at 11 locations across the site. Of the 11 locations, two were located adjacent to the former clarifier, one was located approximately 70 feet west of the former clarifier, one was located in the south-central portion of the site, one was located at the southeastern portion of the site (southern portion of former Jackson Iron Works Building), and six were located in the vicinity of the northern site boundary. At each location, borings were advanced to 15 feet bgs and attempt was made to collect samples at 2, 5, 10, and 15 feet bgs. In total, 39 samples were collected, 12 of which were submitted to a laboratory and selectively analyzed for petroleum hydrocarbons, metals, VOCs, semi-volatile organic compounds, and pH. The remaining 27 samples were archived and were not analyzed. PCE was identified in the 5-foot bgs sample collected from adjacent north to the former clarifier at a concentration of 6.7 micrograms per kilogram (µg/kg). PCE was also identified in a sample collected from 2-foot bgs at a location approximately 70 feet west of the former clarifier at a concentration of 5.9 µg/kg. The residential Regional Screening Level (RSL) for PCE is 24,000 µg/kg. Elevated, but relatively low, concentrations of petroleum hydrocarbons were also identified in on-site soils. No additional elevated concentrations of VOCs or metals were reported during the investigation (CC, 2005).

No additional soil vapor, soil matrix, or groundwater sampling investigations have been identified in connection with the site.

Table 2: Summary of Selected On-Site Soil and Groundwater Investigations

Site Location	Investigation	Maximum Results	
		Soil	Groundwater
Site-wide	2005 Limited Phase II ESA	PCE = 6.7 µg/kg (5 ft-bgs adjacent north to former clarifier) PCE = 5.9 µg/kg (2 ft-bgs ~70 ft west of former clarifier)	--

ESA = Environmental Site Assessment
ft-bgs = feet below ground surface
PCE = tetrachloroethylene

µg/kg = micrograms per kilogram
-- = media not sampled

Note: PCE RSL is 24,000 µg/kg

References: CC, 2005

4.0 HAZARD RANKING SYSTEM FACTORS

4.1 Sources of Contamination

For HRS purposes, a source is defined as an area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance.

Potential hazardous substance sources associated with the M. Stephens site include, but may not be limited to:

- On-site soils contaminated with VOCs and metals as a result of historic on-site operations (EDR, 2014b; EDR, 2014c; CC, 2005; DTSC, 2013).

4.2 Groundwater Pathway

In determining a score for the groundwater migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within 4 miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering), because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

4.2.1 Hydrogeological Setting

The M. Stephens site lies within the Central Subbasin in the Coastal Plain of the Los Angeles Groundwater Basin. The Central Subbasin is generally bound to the north by the folded, uplifted and eroded Tertiary basement rocks of the La Brea High surface divide; to the northeast and east by the less permeable Tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills; to the southeast by the Coyote Creek flood control channel (approximate Los Angeles County/Orange County boundary); and to the southwest by the Newport Inglewood Uplift, a regional anticline associated with the Newport Inglewood fault system. The subbasin has historically been further divided into four areas; the Los Angeles Forebay at the northwest, the Montebello Forebay at the north, the Whittier Area at the northeast, and the Pressure Area at the central and southwest. The forebays are characterized by generally unconfined and relatively interconnected aquifer systems. The Montebello Forebay, as well as the Los Angeles Forebay to a lesser degree, serves as the primary groundwater recharge area for both shallow and deep aquifers across the entirety of the subbasin. The Central Basin Pressure Area is characterized by generally confined aquifer systems separated by relatively impermeable clay layers, although semipermeable zones within these layers allow aquifers to be interconnected in some areas. The Los Angeles and San Gabriel rivers pass across the surface of the Central Basin, primarily by way of engineered concrete channels, on their

way to the Pacific Ocean. The average net annual precipitation in the subbasin is approximately 12 inches (DWR, 1961; DWR, 2004).

The M. Stephens site is located within the northern portion of the Central Basin Pressure Area with the Los Angeles Forebay to the northwest and the Montebello Forebay to the northeast. Throughout the Pressure Area, groundwater occurs in Holocene alluvium, the upper Pleistocene Lakewood Formation, and the lower Pleistocene San Pedro Formation. The aquifers underlying the site are, in descending order: the Gaspur, Exposition, Gage/Gardena, Jefferson, Lynwood, Silverado, and Sunnyside. Underlying the Recent alluvium, which includes the Gaspur aquifer, sediments of the upper Pleistocene Lakewood Formation, which includes the Exposition and Gage/Gardena aquifers, are present to a depth of approximately 300 to 400 feet bgs. Sediments of the lower Pleistocene San Pedro Formation, which includes the Lynwood through Sunnyside aquifers, unconformably underlie the Lakewood Formation and extend to a depth of approximately 1,300 feet bgs. The regional groundwater flow direction within the subbasin, which was calculated using data from wells screened within the upper San Pedro Formation (Lynwood through Silverado aquifers), is generally to the southwest with local and temporal variations from approximately west to southeast. Based upon data collected between 2007 and 2013, flow within these deeper aquifers in the vicinity of the site trended towards the southwest with temporal variations from west to south-southwest (DWR, 1961; DWR, 2004; WRD, 2014).

Throughout much of the subbasin, the Pleistocene-age aquifers are under confined conditions due to the presence of fine-grained, low-permeability interbedded sediments. Although these fine-grained sediments, or aquicludes, generally restrict the downward migration of groundwater from overlying aquifers, semipermeable zones within the aquicludes allow aquifers to be interconnected in some areas. In addition, hydrogeologic modeling of multi-aquifer systems similar to that found in the Central Basin Pressure Area, have concluded that groundwater wells screened across multiple aquifers (or wells with improperly constructed annular seals that cross multiple aquifers) can act as a direct pathway for the migration of significant volumes of shallow groundwater into deep confined aquifers when vertical hydraulic head variations create a downward hydraulic gradient. The process of this downward migration is increased in areas where the deeper aquifers have periods of high-volume pumping such as seasonal demand. Furthermore, additional studies have shown that liquids that are denser than water [i.e., dense non-aqueous phase liquids (DNAPLs), such as TCE and PCE], can migrate downward through a multi-aquifer well even when vertical hydraulic head variations create an upward hydraulic gradient. As of the end of the 2012-2013 fiscal year, there were 537 known extraction wells (306 active and 231 inactive) within the subbasin (AwwaRF, 2006; DWR, 1961; DWR, 2013; Johnson et al., 2011).

Aquifer interconnection within two miles of the site has been documented between the Gaspur through Gage/Gardena and between the Jefferson through Silverado. Aquifer interconnection between the Gage/Gardena and Jefferson, and between the Silverado and Sunnyside, has not been documented within two miles of the site. However, due to the relatively large number of older and poorly documented groundwater wells within the subbasin, including numerous wells that are screened across multiple aquifers and may be acting as conduits between these aquifers, interconnection between the Gage/Gardena and Jefferson, and between the Silverado and Sunnyside, is projected for HRS purposes (DWR, 1961; DWR, 2004; DWR, 2013).

The shallow groundwater flow direction in the vicinity of the M. Stephens site is not known. At the adjacent GENIL site (EPA ID No.: CAD027897164), shallow groundwater flow directions calculated using existing monitoring wells have been conflicting with reported flow directions varying from north to south. During on-site subsurface investigations, groundwater was not encountered to the total explored depth of 55 feet bgs; however, during groundwater investigations at the adjacent GENIL site, the depth to first groundwater has been generally reported at approximately 50-55 feet bgs. Based on this information, the depth to groundwater at the M. Stephens site is estimated to be approximately 60 feet bgs. The geologic materials encountered during on-site investigations were reported to be primarily composed of poorly-graded fine sands with interbedded minor lenses of silt and clay (AEGI, 2010; AI, 1995; CC, 2005).

4.2.2 Groundwater Targets

The nearest active or maintained-standby drinking water well to the M. Stephens site is Well 03. This well is operated by the Tract 349 Mutual Water Company and is located approximately 0.26 mile northwest of the site. Routine water quality sampling of this well has not reported elevated concentrations of contaminants of concern including: TCE, PCE, arsenic, or chromium. Approximately 167 drinking water wells are located within 4 miles of the site. In addition, at least 85 former wells have been abandoned or destroyed within 4 miles of the site. Water purveyors operating within 4 miles of the site include, but are not limited to: Tract 349 Mutual Water Company, City of South Gate, Tract 180 Mutual Water Company, GSWC - Bell/Bell Gardens, City of Huntington Park, City of Lynwood, Maywood Mutual Water Company #3, Maywood Mutual Water Company #2, City of Vernon, and Walnut Park Mutual Water Company (DTSC, 2014a; DWR, 1961; Google, 2014; RWQCB, 2015).

The City of South Gate's Well 07 was a public supply well located approximately 0.17 mile south-southeast of the site, which was removed from service in approximately 2002 and destroyed in approximately 2011 due primarily to elevated concentrations of TCE, arsenic, and chromium (including hexavalent chromium). The maximum reported TCE concentration of 14 µg/L and PCE concentration of 3.8 µg/L were identified during the most recent recorded sampling in October 2001. The maximum reported arsenic concentration of 15.1 µg/L was identified in December 1997. The maximum reported chromium concentration (primarily of the hexavalent species) of 86 µg/L was identified in August 2000. The federal Maximum Contaminant Levels (MCL) for TCE, PCE, arsenic, and chromium are 5.0 µg/L, 5.0 µg/L, 10 µg/L, and 100 µg/L, respectively. This well reportedly had a single screening interval that extended from 500 feet bgs to 600 feet bgs, which generally correlates to the reported depths for the Lynwood Aquifer (DWR, 1961; Google, 2014; RWQCB, 2015; App. C-2).

The GSWC - Bell/Bell Gardens system's Hoffman Well 02 was a public supply well located approximately 0.28 mile east-northeast of the site, which was removed from service in approximately late 2000 and destroyed in approximately October 2007 due primarily to elevated concentrations of chromium. The maximum reported TCE concentration of 15.3 µg/L was identified in November 1996. The maximum reported PCE concentration of 5.7 µg/L was identified in November 2000. The maximum reported 1,1-DCE concentration of 3.9 µg/L was

identified in July 1997. The maximum reported chromium concentration of 333 µg/L was identified in November 2000. The federal MCLs for TCE, PCE, 1,1-DCE, and chromium are 5.0 µg/L, 5.0 µg/L, 7.0 µg/L, and 100 µg/L, respectively. This well reportedly had three screening intervals situated at 437-444 feet bgs, 454-476 feet bgs, and 477-494 feet bgs; which generally correlates to the reported depths of the upper portion of the Lynwood Aquifer (DWR, 1961; Google, 2014; RWQCB, 2015; App. C-3).

4.2.3 Groundwater Pathway Conclusion

Based on the historic operations conducted at the M. Stephens site, the known hazardous substances utilized during these operations, and the limited analytical data collected during on-site subsurface investigations, there is evidence to indicate that a release of hazardous substances may have occurred from one or more sources at the site to shallow groundwater. The depth to shallow groundwater at the site is estimated to be approximately 60 feet bgs. The shallow groundwater flow direction at the site has not been adequately determined. Based upon recently collected data, flow within the deeper regional aquifers in the vicinity of the site trended towards the southwest with temporal variations from west to south-southwest. The geologic materials in the unsaturated zone between ground surface and the top of the aquifer are estimated to be composed of fine sands with interbedded silts and clays. At least 10 distinct water purveyors operate up to 167 municipal drinking water wells within 4 miles of the site. The nearest of these wells, Well 03, is an active well maintained by the Tract 349 Mutual Water Company and is located approximately 0.26 mile northwest of the site. Routine water quality sampling of this well has not reported elevated concentrations of contaminants of concern. At least 85 former wells have been abandoned or destroyed within 4 miles of the site. The City of South Gate's Well 7 was located approximately 0.17 mile south-southeast of the site and was removed from service in approximately 2002 due to elevated concentrations of TCE, arsenic, and chromium. In addition, GSWC - Bell/Bell Gardens system's Hoffman Well 02 was located approximately 0.28 mile east-northeast of the site and was removed from service in approximately 2000 due to elevated concentrations of chromium (AEGI, 2010; AI, 1995; CC, 2005; DTSC, 2014a; Google, 2014; RWQCB, 2015; WRD, 2014; App. C-2, C-3).

4.3 Surface Water Pathway

To determine the score for the surface water pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumulation potential, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the site.

Surface water runoff from the M. Stephens site is expected to infiltrate into the unpaved surfaces of the site with the excess flowing into curbside municipal stormwater drains located on adjacent public roadways (i.e., Atlantic Ave. and/or Patata St.). The nearest surface water body to the site

is the Los Angeles River, which is located approximately 0.5 mile east. The Los Angeles River is highly modified, having been lined with concrete along a majority of its length by the U.S. Army Corps of Engineers in the 1950s. Flows in the river are dominated by urban runoff and tertiary-treated effluent from several municipal wastewater treatment plants. The river empties into the Pacific Ocean at San Pedro Bay approximately 13.5 miles downstream of the site. There are no surface water intakes, fisheries, or sensitive environments associated with the Los Angeles River downstream of the site; however, there is a potential for fisheries and/or recreational areas to exist within San Pedro Bay (Google, 2014; RWQCB, 1994).

4.4 Soil Exposure and Air Migration Pathways

In determining the score for the soil exposure pathway, the HRS evaluates: 1) the likelihood that there is surficial contamination associated with the site (e.g., contaminated soil that is not covered by pavement or at least 2 feet of clean soil); 2) the characteristics of the hazardous substances in the surficial contamination (i.e., toxicity and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, exposed to the contamination. For the targets component of the evaluation, the HRS focuses on populations that are regularly and currently present on or within 200 feet of surficial contamination. The four populations that receive the most weight are residents, students, daycare attendees, and terrestrial sensitive environments.

In determining the score for the air migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to ambient outdoor air; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on regularly occupied residences, schools, and workplaces within 4 miles of the site. Transient populations, such as customers and travelers passing through the area, are not counted.

As of April 2014, there were no residences, schools, or daycare facilities located on the M. Stephens site. The nearest residential property to the site was located approximately 0.18 mile north. No sensitive environments were located on the site and the majority of the surface of the site appeared to be either unpaved or heavily-weathered asphalt with minor amounts of vegetation. The site appeared entirely fenced and generally inaccessible to the public. There were no active operations at the site and the total number of employees working at the site was zero (DTSC, 2013; Google, 2014).

5.0 REMOVAL EVALUATION CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment. For the following reasons, a referral to Region 9's Emergency Response Office does/does not appear to be necessary:

- As of April 2014, there were no residences, schools, or daycare facilities located on the M. Stephens site. In addition, no sensitive environments were located on the site and the site appeared entirely fenced and generally inaccessible to the public (DTSC, 2013; Google, 2014).

6.0 SUMMARY

The M. Stephens Manufacturing, Inc. (M. Stephens) site is located at 8420 South Atlantic Avenue, Cudahy, California. Additional addresses associated with the site property include, but are not limited to: 4839 Patata Street. The site is composed of eight distinct county parcels and occupies approximately 5.9 acres in an urban industrial area. As of April 2014, the only significant structure at the site was the M. Stephens Manufacturing Building, which was located at the southwestern portion.

The site is currently owned by multiple entities including the Cudahy Economic Development Corporation and two related real-estate investment firms. Historic operations at the site include, but may not be limited to: metal fabrication, electric parts manufacturing, and tool manufacturing from approximately the late 1940s through the mid-1980s; and die-cast electrical parts manufacturing from approximately 1986 through 2003. There have been no known significant operations conducted at the site since 2003. Entities known to have operated at the site include: Jackson Iron Works; Grating Pacific, Inc.; Plasma Specialists, Inc.; Patata Engineered Wire & Metal Manufacturing Company; Automatic Instrument Service Company; Martin Electric Motors; Greer Machine Company; Pratt & Whitney Tool Division/Colt Industries; Trico Superior; Sierra Tank and Construction Company; and M. Stephens Manufacturing/BWF/Intermatic/Teddico.

A subgrade clarifier was historically used in on-site operations between at least 1978 and 2003. The clarifier received wastewater from the facility and discharged effluent under permit to the sanitary sewer system. No information is known regarding the influent waste-streams associated with this clarifier, which was used by at least Trico Superior and M. Stephens Manufacturing. In 1986, operations across the entirety of the site were converted over primarily to the manufacturing of die-cast metal electrical outlet boxes by the M. Stephens Manufacturing Company. In 2003, on-site operations were discontinued and consolidated with operations at a Tijuana, Mexico facility. PCE-containing waste was generated at the site in at least the late 1980s and in 1999. No additional information is known regarding specific on-site historic operations, hazardous substances, or hazardous substance management practices

The site is not listed in the RCRIS database. The site is listed in the TRI database (TRI ID: 90201MSTPH8420S). The most recent release information provided in the database is from 1995. With the exception of the 2013 SSA, DTSC has not had any significant involvement with the site. The RWQCB conducted oversight and direction over the removal and subsequent sampling of two leaking petroleum USTs that were historically located at the southeastern portion of the site. RWQCB issued a NFA letter for the UST case in September 1995. In addition, between at least 1978 and 1980, the RWQCB, in conjunction with the County Sanitation District of Los Angeles County (LACSD), conducted oversight of the operation and monitoring of waste discharges to the on-site clarifier. In June 1997, LACSD issued a NOV to M. Stephens Manufacturing due to wastewater being discharged to the sanitary sewer system that contained concentrations of zinc in excess of federal regulations. In June 2007, the Los Angeles County department of Public Works (LADPW) issued a NFA letter for the site in regard to the closure and removal of the on-site clarifier.

Between 1989 and 1995, several subsurface investigations were conducted at the southeastern portion of the site in connection with the removal of on-site USTs. In 2005, a Limited Phase II ESA was conducted at the site by an outside company in association with a potential real estate transaction. The ESA included the collection of subsurface soil matrix samples at 11 locations across the site, two of which were located adjacent to the former clarifier. PCE was identified in a shallow sample collected from adjacent to the former clarifier at a concentration of 6.7 µg/kg and in a shallow sample collected from a location approximately 70 feet west of the former clarifier at a concentration of 5.9 µg/kg. The residential RSL for PCE is 24,000 µg/kg. No additional elevated concentrations of VOCs or metals were reported during the investigation. No known soil vapor or groundwater sampling investigations have been identified in connection with the site.

The following pertinent Hazard Ranking System factors are associated with the site:

- Based on the historic operations conducted at the site, the known hazardous substances utilized during these operations, and the limited analytical data collected during on-site subsurface investigations, there is evidence to indicate that a release of hazardous substances may have occurred from one or more sources at the site to shallow groundwater.

- The depth to shallow groundwater is estimated to be approximately 60 feet bgs. The shallow groundwater flow direction at the site has not been adequately determined. The regional groundwater flow direction within the deeper aquifers in the vicinity of the site generally trends towards the southwest with temporal fluctuations from west to south-southwest. Geologic materials in the unsaturated zone between ground surface and the top of the aquifer are primarily composed of fine sands with interbedded silts and clays. The average net annual precipitation is approximately 12 inches.

- The nearest drinking water well is Tract 349 Mutual Water Company's Well 03, which is located approximately 0.26 mile northwest. Routine water quality sampling of this well has not reported elevated concentrations of contaminants of concern. At least 10 distinct water purveyors operate up to 167 municipal drinking water wells within 4 miles of the site. At least 85 former wells have been abandoned or destroyed within 4 miles of the site. The City of South Gate's Well 7 was located approximately 0.17 mile south-southeast of the site and was removed from service in approximately 2002 due to elevated concentrations of TCE, arsenic, and chromium. In addition, GSWC - Bell/Bell Gardens system's Hoffman Well 02 was located approximately 0.28 mile east-northeast of the site and was removed from service in approximately 2000 due to elevated concentrations chromium.

- Surface water runoff is expected to infiltrate into the unpaved surfaces of the site with the excess flowing into curbside municipal stormwater drains located on adjacent public roadways. The nearest surface water body to the site is the Los Angeles River, which is located approximately 0.5 mile east. No drinking water intakes are located within 15 miles downstream; however, there is the potential for fisheries and/or recreation areas to exist within this distance.

- As of April 2014, there were no residences, schools, or daycare facilities located on the site. No sensitive environments were located on the site and the majority of the surface of the site was either unpaved or covered with heavily-weathered asphalt and minor amounts of vegetation. The site appeared entirely fenced and generally inaccessible to the public. There were no active operations at the site and the total number of employees working at the site was zero.

7.0 REFERENCES

AEGI, 2010 — Ardent Environmental Group, Inc.; *Groundwater Well Installation and Confirmation Soil Boring Report, 8411 South Atlantic Avenue*; 15 July 2010.

AI, 1995 — Anderson Industries Environmental Associates Group; *Request for Site Closure, Stephens Manufacturing, Inc. 4839 Patata Street*; 05 September 1995.

AN, 1997 — Antioch News; *Vol.122, No. 4*; https://archive.org/details/AntiochNews01241997; 24 January 1997.

AR&M, 2006 — Agora Realty & Management; *Agora Realty & Management to Develop Cudahy Retail Center*; 28 February 2006.

AwwaRF, 2006 — Awwa Research Foundation; *Contaminant Transport through Aquitards: Technical Guidance for Aquitard Assessment*; 2006.

BPA, 2014a — Bizapedia; *4839 Patata St Cudahy, CA 90201*; http://www.bizapedia.com/ca/PLASMA-SPECIALTIES-INC.html; data extracted 20 May 2014.

BPA, 2014b — Bizapedia; *8420 S. Atlantic Ave. Cudahy, CA 90201*; http://www.bizapedia.com/addresses/8420-S-ATLANTIC-AVE-CUDAHY-CA-90201.html; data extracted 20 May 2014.

BPA, 2014c — Bizapedia; *2900 N San Fernando Blvd Burbank, CA 91504*; http://www.bizapedia.com/addresses/2900-N-SAN-FERNANDO-BLV; data extracted 20 May 2014.

CC, 2005 — Converse Consultants; *Limited Phase II Environmental Site Assessment Report, Intermatic Complex*; 06 October 2005.

CoC, 2012 — City of Cudahy, Cudahy City Council; *Agenda, A Special Meeting to be Held in the City Council Chambers*; 16 October 2012.

DPW, 2007 — County of Los Angeles, Department of Public Works; *Letter addressed to Fred C. Wassan, Agoura Realty & Management, Re: Industrial Waste Pretreatment Facility, Closure Certification South Atlantic*; 21 June 2007.

DTSC, 2013 — Department of Toxic Substances Control; *Site Screening Assessment, M-Stephens Manufacturing, Inc.*; 30 September 2013.

DTSC, 2014a — Department of Toxic Substances Control; *Site Screening Assessment, Mistras Group, Inc.*; 20 August 2014.

DTSC, 2014b — Department of Toxic Substances Control; Envirostor Database, Search Results, *M Stephens manufacturing (60001790);* http://www.envirostor.dtsc.ca.gov/public/search.asp; data extracted 06 December 2014.

DWR, 1961 — Department of Water Resources, State of California; *Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology*; June 1961.

DWR, 2004 — Department of Water Resources, State of California; *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin*; 27 February 2004.

DWR, 2013 — Department of Water Resources, State of California; *Watermaster Service in the Central Basin, Los Angeles County, July 1, 2012 – June 30, 2013*; October 2013.

EDR, 2014a — Environmental Data Resources, Inc.; *The EDR Aerial Photo Decade Package, M. Stephens Manufacturing*; 30 September 2014.

EDR, 2014b — Environmental Data Resources, Inc.; *Certified Sanborn® Map Report, M. Stephens Manufacturing*; 30 September 2014.

EDR, 2014c — Environmental Data Resources, Inc.; *The EDR City Directory Abstract, M. Stephens Manufacturing*; 03 October 2014.

EPA, 2014a — U.S. Environmental Protection Agency; Envirofacts Warehouse, TRI query results; *M. Stephens Manufacturing Inc. (TRI ID: 90201MSTPH8420S)* http://www.epa.gov/enviro/facts/tri/search.html; data extracted 20 May 2014.

EPA, 2014b — U.S. Environmental Protection Agency; Envirofacts Warehouse, RCRAInfo query results; *8420 S. Atlantic.;* http://www.epa.gov/enviro/facts/rcrainfo/search.html; data extracted 06 December 2014.

Google, 2014 — Google Earth; *33°57'22.31"N, 118°10'59.74"W, 08 May 2003, 23 August 2005, 08 January 2008, 14 November 2009, 07 March 2011, 23 April 2014*; http://earth.google.com; data extracted 06 December 2014.

HA, 2014 — HistoricAerials.com; Aerial Photographs, *1972*; http://www.historicaerials.com; data extracted 30 September 2014.

ISN, 1959 — Independent Star-News; *Page 62* http://www.newspapers.com/newspage/31771699/; 28 June 1959.

Johnson et al., 2011 — Johnson, R.L., B.R. Clark, M.K. Landon, L.J. Kauffman, and S.M. Eberts; Journal of the American Water Resources Association; *Modeling the Potential Impact of Seasonal and Inactive Multi-Aquifer Wells on Contaminant Movement to Public Water Supply Wells*; 2011.

LACA, 2014 — County of Los Angeles, Department of the Assessor; *Property Information, Assessor's ID NO. 6224-034-040, , Parcel Map 6224 Sheet 34*; http://maps.assessor.lacounty.gov/mapping/viewer.asp; data extracted 06 December 2014.

LACSD, 1992 — County Sanitation Districts of Los Angeles County; *Investigation Report, I 09201734W*; 08 April 1992.

LACSD, 1997 — County Sanitation Districts of Los Angeles County; *Letter addressed to Dennis Barden, Plant Manager, M. Stephens Manufacturing, Re: Violation Notice No. 14195*; 25 June 1997.

LACSD, 2003 — County Sanitation Districts of Los Angeles County; *Letter addressed to Nardy Drew, Department of Public Works, Re: Industrial Wastewater Discharge Permit No. 14831*; 23 December 2003.

RWQCB, 1994 — Regional Water Quality Control Board; *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watershed of Los Angeles and Ventura Counties*; 13 June 1994.

RWQCB, 1995 — Regional Water Quality Control Board; *Letter addressed to Ellenmary Bryant, M. Stephens Manufacturing, Inc., Re: Underground Storage Tank Case Closure – M. Stephens Manufacturing, Inc., 4839 Patata* Street; 27 September 1995.

RWQCB, 2014 — Regional Water Quality Control Board; Geotracker Database, Search Results, *M Stephens Manufacturing (T0603703809)*; http://geotracker.swrcb.ca.gov/search.asp; data extracted 06 December 2014.

RWQCB, 2015 — Regional Water Quality Control Board; Geotracker Database – Regulator Access, DPH Public Supply Well Search Results; *Tract 349 Mutual Water Company Well 03, City of South Gate Water Department Well 07, GSWC-Bell/Bell Gardens Hoffman Well 02*; data extracted 08 January 2015 and 06 February 2015.

TCN, 2014 The CareerNetwork; *Thomas Tolleson* http://www.beyond.com/F308D7C8-84BE-4B74-9B19-E44A1CAD9FF3; data extracted 20 May 2014.

TEP, 2014 Teddico Electrical Products; *Weatherproof Electrical Products Catalog* http://www.teddico.com/flipbook/weatherproofcatalog/#p=1; data extracted 20 May 2014.

TSD, 1980 TRICO Industries, Inc., Superior Division; *Letter addressed to California Regional Water Quality Control Board – Los Angeles Region., Re: Technical Monitoring Report #6178* CA0057576; 29 December 1978, 09 May 1979, 25 July 1979, 15 January 1980, 13 February 1980.

WRD, 2014 Water Replenishment District of Southern California; *Engineering Survey and Report*; 06 March 2014.

Appendix A:
Latitude and Longitude Calculations Worksheet

Latitude and Longitude Calculation Worksheet (7.5' quads)
Using an Engineer's Scale (1/50)

Site Name M. Stephens Manufacturing, Inc. **CERCLIS #** C A N 0 0 0 9 0 9 5 6 9

AKA

Address 8420 South Atlantic Avenue and 4839 Patata Street

City Cudahy **State** C A **ZIP** 90201

Site Reference Point Aerial – geometric center of site

USGS Quad Name **Scale**

Township **Range** **Section** **3** **3** **3**

Map Datum **1927** **1983** **(Check one)** **Meridian**

Map coordinates at southeast corner of 7.5' quadrangle (attach photocopy)

Latitude E > **AN** **Longitude** E > **AW**

Map coordinates at southeast corner of 2.5' grid cell

Latitude E > **AN** **Longitude** E > **AW**

Calculations

LATITUDE(x)

A) Number of ruler graduations between 2.5' (150") grid lines **(a)**

B) Number of ruler graduations between south grid line and the site reference point **(b)**

C) Therefore, a/150 = b/x, where **x= Latitude in decimal seconds, north of the south grid line**

Expressed as minutes and seconds (1' = 60") = E > AN

Add to grid cell latitude = E > AN + E > AN

Site latitude = 3 3 º 5 7 ' 2 2 " N

LONGITUDE(y)

A) Number of ruler graduations between 2.5' (150") grid lines **(a)**

B) Number of ruler graduations between south grid line and the site reference point **(b)**

C) Therefore, a/150 = b/x, where **x= Longitude in decimal seconds, west of the east grid line**

Expressed as minutes and seconds (1" = 60") = E > AW

Add to grid cell longitude = E > AN + E > AN

Site longitude = 1 1 8 º 1 0 ' 6 0 " W

Appendix B:
Site Reconnaissance Interview and Observation Report/ Photographic Documentation

SITE RECONNAISSANCE INTERVIEW AND OBSERVATIONS REPORT/PHOTOGRAPHIC DOCUMENTATION

Date: **April 2015**
Site Name: **M. Stephens Manufacturing, Inc.**
EPA ID No.: **CAN000909569**

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Appendix C:
Contact Log
and
Contact Reports

CONTACT LOG

SITE: M. Stephens Manufacturing, Inc.
EPA ID: CAN000909569

NAME	AFFILIATION	PHONE	DATE	INFORMATION
Robert Collar	Golden State Water Company, Central District	(714) 535-7711 ext. 355	03/31/2015	See Contact Report 3
Ron Hernandez	City of South Gate, Public Works	(323) 563-5796	03/31/2015	See Contact Report 2
Susan	Los Angeles County, Office of the Assessor	(818) 901-3455	03/19/2014	See Contact Report 1

CONTACT REPORT 1

AGENCY/AFFILIATION: County of Los Angeles		
DEPARTMENT: Office of the Assessor		
ADDRESS/CITY: 14340 Sylvan Street, Van Nuys		
COUNTY/STATE/ZIP: Los Angeles, California, 91401		
CONTACT(S)	TITLE	PHONE
Susan	Assessment Clerk	(818) 901-3455
PERSON MAKING CONTACT: Brian P. Reilly		DATE: 28 October 2014
SUBJECT: Parcel Ownership Information		
SITE NAME: M. Stephens Manufacturing, Inc.		EPA ID#: CAN000909569

The current owner and recorded owner address of the eight parcels associated with the M. Stephens Manufacturing, Inc. site as indicated by the Assessor's Office are:

6224-034-010: TSSAY J AND R LLC
1128 HILLCREST RD BEVERLY HILLS CA 90210

6224-034-014: CUDAHY ECONOMIC DEVELOPMENT CORPORATION
5220 SANTA ANA ST CUDAHY CA 90201

6224-034-032: CUDAHY ECONOMIC DEVELOPMENT CORPORATION
5220 SANTA ANA ST CUDAHY CA 90201

6224-034-036: TSSAY J AND R LLC
1128 HILLCREST RD BEVERLY HILLS CA 90210

6224-034-037: PATATA INVESTMENTS LLC
2900 N SAN FERNANDO BLVD BURBANK CA 91504

6224-034-039: PATATA INVESTMENTS LLC
2900 N SAN FERNANDO BLVD BURBANK CA 91504

6224-034-040: CUDAHY ECONOMIC DEVELOPMENT CORPORATION
5220 SANTA ANA ST CUDAHY CA 90201

6224-034-041: CUDAHY ECONOMIC DEVELOPMENT CORPORATION
5220 SANTA ANA ST CUDAHY CA 90201

CONTACT REPORT 2

AGENCY/AFFILIATION: City of South Gate		
DEPARTMENT: Public Works		
ADDRESS/CITY: 4244 Santa Ana Street, South Gate		
COUNTY/STATE/ZIP: Los Angeles, California, 90280		
CONTACT(S)	TITLE	PHONE
Ron Hernandez	Water Operations Foreman	(323) 563-5796
PERSON MAKING CONTACT: Anitra B. Rice		DATE: 04 January 2011
PERSON MAKING CONTACT: Amanda K.C. Reilly		DATE: 22 June 2011
PERSON MAKING CONTACT: Brian P. Reilly		DATE: 31 March 2015
SUBJECT: Public Water Distribution System Information		
SITE NAME: M. Stephens Manufacturing, Inc.		EPA ID#: CAN000909569

Mr. Hernandez indicated that the City of South Gate operates a drinking water supply system that serves approximately 95,115 customers. The blended system consists of six active drinking water wells (Wells 14, 18, 19, 24, 26, and 28), four stand-by wells (Wells 13, 23, 25, and 27), one inactive well (Well 22-B), and seven destroyed wells (Wells 7, 8, 9, 12, 20, and 22-A). The six active groundwater wells provide 100 percent of the drinking water. No single well provides more than 40 percent of the total demand at any given time. The City of South Gate does not sell or purchase water to other water systems and/or water users.

Wells 13, 14, 18, and 19 are treated at the wellhead due to elevated concentrations of tetrachloroethylene (PCE). Well 25 was put into standby status due to high manganese concentrations.

Well 25 partially collapsed in June 2009 during the El Centro earthquake. The well was relined to a Total Depth of 395 feet in May 2010. The collapse was at about 415 feet below ground surface (ft-bgs). From that interval to about 385 ft-bgs, gravel was placed as a filtering media in the existing 16-inch casing. The liner that was placed to a depth of 395 ft-bgs is telescopic with the new wire wrap screen and casing.

Well 27 partially collapsed during rehabilitation work and was relined to a depth of 920’ with a stainless steel wired wrapped liner in August 2001.

Well 7 was destroyed by cementing via tremmie pipe and shooting the well with explosive charges with ball bearings in January 2011 due to the well age and multiple contaminants, specifically trichloroethylene (TCE) and hexavalent chromium.

Well 12 was destroyed in September 1984 by cementing in the well. The well was destroyed due to: the well having been 60 years old at that point; small rocks and casing materials had to be

bailed out and the casing was determined to have failed at 30 ft-bgs and 40 ft-bgs; the pump was operating at only 48% efficiency; perforations were found to have been enlarged at 540'; compression breaks were identified at 164 ft-bgs and 304' ft-bgs; well was out of round, egg-shaped, at 396, 416, 530 and 536 ft-bgs; sand covering one foot of the bottom perforations, so 18 feet of 19 feet of total perforations were deemed usable.

Mr. Hernandez also confirmed the accuracy of the information in the following table:

WELL NAME	WELL STATUS	YEAR DESTROYED	WELL DEPTH (feet)	SCREENING INTERVAL(S) (ft-bgs)
Well 7	Destroyed	2011	830	500 - 600
Well 8	Destroyed	?	?	?
Well 9	Destroyed	?	813	?
Well 12	Destroyed	1984	617	535-554
Well 13	Standby	--	810	600-628; 640-684; 706-762;
Well 14	Active	--	813	615-745; 767-775;
Well 18	Active	--	790	620-630; 640-690; 706-762;
Well 19	Active	--	794	610-620; 626-666; 678-746;
Well 20	Destroyed	?	?	?
Well 22-A	Destroyed	?	?	?
Well 22B	Inactive	--	578	495-545
Well 23	Standby	--	856	530-624; 662-692; 772-798;
Well 24	Active	--	1290	650-710; 730-860; 880-920; 930-940; 950-966; 980-1040; 1050-1110; 1126-1174; 1184-1210; 1220-1246
Well 25	Standby	--	1331	565-620; 640-660; 670-700; 720-850; 860-900; 915-1026; 1040-1160; 1120-1230; 1250-1280; 1290-1310
Well 26	Active	--	1350	634-638; 641-644; 660-689; 700-710; 734-744; 1150-1154; 1188-1192; 1204-1206
Well 27	Standby	--	1200	500-520; 674-701; 716-725; 840-1180
Well 28	Active	--	1277	610-650; 660-690; 730-750; 770-785; 825-890; 930-960; 1030-1075;

CONTACT REPORT 3

AGENCY/AFFILIATION: Golden State Water Company		
DEPARTMENT: Central District		
ADDRESS/CITY: 12035 Burke Street, Suite 1, Santa Fe Springs		
COUNTY/STATE/ZIP: Los Angeles, California, 91773		
CONTACT(S)	TITLE	PHONE
Ana Chavez Robert Collar	Sr. Water Resources Analyst Sr. Hydrogeologist	(714) 535-7711 ext. 219 (714) 535-7711 ext. 355
PERSON MAKING CONTACT: Brian P. Reilly		DATE: 31 March 2015
SUBJECT: Public Water Distribution System Information		
SITE NAME: M. Stephens Manufacturing, Inc.		EPA ID#: CAN000909569

Bell/Bell Gardens System

According to Mr. Robert Collar, as of December 2014, the Bell/Bell Gardens System operates 7,481 service connections. The system consists of five active wells (Bissell #3, Clara #2, Gage #2, Otis #3, and Watson #1), one active/offline well (Bissell #2), two standby/inactive wells (Gage 1 and Priory 2); which supply 99 percent of the water in the system. In addition, the system formerly included four now-destroyed wells (Otis #1, Otis #2, Chanslor #1, and Hoffman #2). Bissell #2 has been offline since June 2012 due to sand issues. Gage 1 and Priory 2 are both standby/inactive, since July 2003 and March 2008, respectively, also due to sand issues. The remaining one percent of the water within the system is provided by the Central Basin Municipal Water District (CBMWD), who obtains its imported water from the Metropolitan Water District of Southern California (MWD). No individual well supplies more than 40 percent of the total supply. Watson #1 water is being treated to remove TCE and PCE.

Otis #1 and #2 were old wells and past their useful life, so they were destroyed and replaced by Otis #3 in 2007.

Chanslor #1 was destroyed in 2007 primarily due to its condition and mechanical problems. Note that VOCs had been detected in groundwater produced from this well, but it's not clear at this point what role, if any, VOCs played in the decision to destroy the well.

Hoffman #2 was destroyed because the need to treat groundwater from this well to remove hexavalent chromium made continued operation of this well uneconomical. Note that VOCs had also been detected in groundwater produced from this well, but it's not clear at this point what role, if any, VOCs played in the decision to destroy the well.

Mr. Collar also confirmed the accuracy of the information in the following table (next page) and verified that all information provided in this contact report is permissible to be presented in a publically-available document.

GSWC – Bell/Bell Gardens System				
Well Name	**Well Address (CONFIDENTIAL)**	**Screen Depths (feet below ground surface)**	**Percent Contribute to Drinking Water [1]**	**Avg. Gallons Per Minute [2]**
Bissell #2		575-1,275	0%	0
Bissell #3		595-615, 680-690, 705-730, 805-820, 900-925, 955-970, 1,005-1,025, 1,050-1,110	100%	1,695
Otis #3		520-530, 570-590, 900-940, 1,220-1,270, 1,400-1,570,	100%	665
Watson #1		243-249, 330-348, 420-427, 442-456	100%	845
Gage #1		282-301, 312-320, 428-434, 488-514	0%	0
Gage #2		290-320, 434-436, 499-502, 555-564, 569-573	100%	640
Priory #2		368-376, 380-400, 422-426, 561-581, 593-613	0%	0
Clara #2		330-350, 360-410, 420-470, 520-560, 610-640, 770-830, 960-970	100%	945
Chanslor #1		415-425	(Destroyed 2007)	N/A
Hoffman #2		437-444, 454-476, 477-494	(Destroyed 2007)	N/A
Otis #1		556-568, 578-596, 910-970, 1,280-1,330	(Destroyed 2004)	N/A
Otis #2		204-272, 285-341, 364-577, 586-906	(Destroyed 2004)	N/A

[1]Zero percent (0%) indicates that this well did not contribute drinking water to the system in 2014, whereas 100% indicates that this well did supply drinking water. Because of the way the system is operated, a fixed percentage of drinking water contributed to the system be each well cannot be defined. In other words, each well may contribute anywhere from 0 to 100% of the water in the system at any time throughout the year.

[2]Pumping rate of each well is an average for calendar year 2014, based on daily average pumping rates.

Appendix D:
Transmittal List

TRANSMITTAL LIST

Date: **April 2015**
Site Name: **M. Stephens Manufacturing, Inc.**
EPA ID No.: **CAN000909569**

****

A copy of the Preliminary Assessment (PA) report for the above-referenced site should be sent to the following recipients:

Shyr-Jin Tsay, Agent
Site Owner Representative
Tssay J & R, LLC
1128 Hillcrest Road
Beverly Hills, CA 90210

Shyr-Jin Tsay, Agent
Site Owner Representative
Patata Investment, LLC
2900 N San Fernando Blvd
Burbank, CA 91504

Henry T. Garcia, Director
Site Owner Representative
Cudahy Economic Development Corporation
5220 Santa Ana Street
Cudahy, CA 90201

Patrick Movlay
California Environmental Protection Agency
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311-6505

U.S. Environmental Protection Agency, Superfund Records Center
c/o Matt Mitguard
USEPA - Superfund Division
75 Hawthorne Street, SFD-6-1
San Francisco, CA 94105

Appendix E: References

Reference:
AEGI, 2010

GROUNDWATER WELL INSTALLATION AND CONFIRMATION SOIL BORING REPORT
8411 SOUTH ATLANTIC AVENUE
CUDAHY, CALIFORNIA
SCP NO. 1148, SITE ID NO. 2040226

PREPARED FOR:
Regional Water Quality Control Board,
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

PREPARED BY:
Ardent Environmental Group, Inc.
1141 Pomona Road, Suite E
Corona, California 92882

July 15, 2010
Project No. 100011003

July 15, 2010
Project No. 100011003

Mr. Don Indermill
Regional Water Quality Control Board,
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: Groundwater Well Installation and Confirmation Soil Boring Report, 8411 South Atlantic Avenue Cudahy, California SCP No. 1148, Site ID No. 2040226

Dear Mr. Indermill:

Ardent Environmental Group, Inc. (Ardent) has completed the groundwater well installation and confirmation soil borings at the property located at 8411 South Atlantic Avenue in the city of Cudahy, California (site). Work was conducted in general accordance with the work plan prepared by Ninyo & Moore dated August 16, 2006 and the Regional Water Quality Control Board, Los Angeles Region (RWQCB) approval letter dated January 29, 2010. The purpose of this work was to further evaluate the lateral extent of volatile organic compounds (VOCs) in groundwater, direction of groundwater flow, and to assess the efficiency of a vapor extraction system (VES) that previously operated at the site. The attached report presents our methodology, findings, opinions, and conclusions regarding the environmental conditions at the site. If there are any questions, please feel free at call the undersigned at your convenience.

Sincerely,
Ardent Environmental Group, Inc.

PROFESSIONAL GEOLOGIST
PAUL A. ROBERTS
NO. 6897
EXP. 01-12
STATE OF CALIFORNIA

Connie Lizarraga
Staff Environmental Scientist

Paul A. Roberts, P.G., R.E.A. I/II
Principal Geologist

CCL/PAR/paw

Phone: (951) 736-5334
Fax: (951) 736-7560

1141 Pomona Road, Suite E
Corona, California 92882

Distribution: (1) Addressee (one hard and one e-copy)
(1) Mr. Mark S. Cousineau, Hazard Management Consulting, Inc. (e-copy)
(1) Mr. Paul Ohlmann, On Atlantic, LLC (e-copy)
(1) John J. Allen, Esq., Allen Matkins Leck Gamble Mallory & Natsis LLP (e-copy)

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3.2 Historical Land Use of the Surrounding Vicinity

The site vicinity has been used for small commercial and residential uses, or as vacant land from at least 1928 through 1938. In the 1940s and 1950s, an increase in larger commercial and industrial facilities took place on the surrounding properties.

Ardent has identified a number of properties in the site vicinity which may have used or have reportedly used chlorinated solvents. The closest of which is GIL, located immediately south of the site.

After vacating the site in 1970, GIL redeveloped the property immediately south of the site (which was formerly occupied by residences and stores) with the existing commercial building. GIL has used this property to continue their inspection laboratory business, although the current GIL business emerged out of bankruptcy proceedings. In 2004 and as discussed below, GIL completed a number of environmental investigations at the off-site GIL property. These investigations discovered VOC-impacted soil and groundwater beneath the off-site GIL property (see Section 3.3).

In addition and as discussed above, a number of municipal wells in the site vicinity have discovered TCE and other chemicals in groundwater. Most of these wells have been inactivated or equipped with well-head treatment systems; it appears that a regional groundwater issues is present.

3.3 Investigations Completed at General Inspection Laboratory

On Atlantic, LLC recently retained Ardent to complete a regulatory file review of the GIL property. This assessment included requesting file reviews from the RWQCB, the Department of Toxic Substances Control (DTSC) Cypress office, and the DTSC Chatsworth office. In addition, Ardent reviewed available information on the State Water Resources Control Board (SWRCB) GeoTracker website and interviewed regulatory case handlers. According to GeoTracker, the GIL property is an open case with the Site Cleanup Program Unit (formerly Spills, Leaks, Investigations and Cleanups [SLIC] 1). Very limited information was

provided on the GeoTracker website or at the DTSC Chatsworth office. The following presents our conclusions of the reviews.

- Phase I ESAs have been completed at the GIL property and have identified solid waste management units (SWMUs) and areas of concern (AOC) as defined by the DTSC Permit By Rule regulations. Soil, soil gas, and groundwater investigations have been completed to further assess these potential sources of contaminants. Based on the results, elevated concentrations of VOCs, namely TCE (up to 153 micrograms per kilogram [ug/kg]) and PCE, have been detected in sporadic soil samples collected within the vadose zone. TCE was reported at up to 214 ug/kg in the capillary fringe. Although elevated concentrations of TCE have also been detected in groundwater beneath the GIL property, the concentrations in groundwater were magnitudes higher than those reported in soil. No detectable concentrations of PCE were reported in the groundwater samples. In addition, a Human Health Risk Assessment (HHRA) has indicated that the remaining VOC concentrations in soil gas and groundwater would not pose a human health threat to occupants of the property.

- Groundwater flow has been reported on the GIL property to be in a southwesterly direction, while groundwater flow at the On Atlantic property has been reported in a northeasterly direction. Ardent representatives have completed nine quarterly sampling events from 2004 through 2007; all of which showed the groundwater flow direction to the northeast. To assess whether a possible survey or clerical error had occurred, Ardent requested that the survey locations be double checked. Data indicated that the survey information was accurate. GIL, on the other hand, has apparently completed two sampling events from the wells located on the GIL property. Based on data collected from agency files during previous investigations, groundwater flow has been reported in many different directions at other properties located in the site vicinity.

- Due to the sporadic concentrations of TCE detected throughout the vadose zone, a decrease in the concentrations of TCE in soil versus groundwater, no detectable concentrations of PCE in groundwater samples, and the direction of groundwater flow, Earth Tech (consultant for GIL) concluded that it was unlikely that the GIL property had contributed to the groundwater issues. According to Earth Tech, the impacted groundwater beneath the GIL property was due to an off-site source. As expressed to Ardent during this assessment, the DTSC appeared to concur with this conclusion.

- Based on our review, there is a high likelihood that a TCE release has taken place from a former clarifier located on the On Atlantic property and has impacted groundwater. A release of TCE and PCE has also occurred on the GIL property. Although lower concentrations of TCE have been reported in a limited number of soil samples collected beneath the GIL property compared to those in groundwater, there is a high likelihood, in our opinion, that these constituents have migrated to groundwater and are contributing to the local groundwater issues. It has been our experience that TCE and other chlorinated solvents migrate vertically through soils. Earth Tech only completed limited soil sam-

pling in an area of elevated TCE soil vapor concentrations identified on the GIL property. In addition, there has been no groundwater samples collected directly downgradient from either the TCE or PCE soil vapor plumes. Therefore, Ardent does not concur with Earth Tech or the DTSC that the GIL property has not contributed to the local groundwater issues.

3.4 On-Site Investigations and Remediation

A clarifier was previously installed, owned, maintained, and operated by GIL, prior to the acquisition of the property by On Atlantic, LLC. Prior to the removal of the clarifier and based on a Phase I ESA, a number of soil and soil gas investigations were completed throughout the site and in the locations of possible source areas. Based on the results, VOCs, namely TCE, were detected in soil. Laboratory results of the soil gas samples indicated that the concentrations of TCE diminished at distances away from the clarifier. Based on this information, the extent of the impacted soils appeared to be limited to the area in the vicinity of the clarifier. In November 2002, Ninyo & Moore supervised the removal of the clarifier under order from, and the direction of, the Los Angeles County Department of Public Works (LACDPW).

On April 1, 2003, the LACDPW referred the case to the RWQCB. Ninyo & Moore prepared a work plan dated October 15, 2003 to further characterize the impacted soil and to conduct a feasibility/pilot study using vapor extraction technology. Following approval of the work plan by the RWQCB, Ninyo & Moore implemented the work plan. On August 20, 2004, Ninyo & Moore installed a multi-purpose groundwater/vapor well (designated MW-1) in the approximate location of the former clarifier (Figure 2). A vapor extraction system (VES) was installed on MW-1 and an extended pilot study/interim measure was completed. Laboratory results of effluent samples indicated that the concentrations of TCE appeared to have reached asymptotic conditions. Based on this information, the system was turned off and removed from the site. Based on the results of the VES study, Ninyo & Moore concluded that the vapor extraction technology was a feasible remediation technique and had apparently mitigated the impacted soil at the site.

Reference:
AI, 1995

Request for Site Closure

Stephens Manufacturing,Inc.

4839 Patata Street

Cudahy, CA

ANDERSON INDUSTRIES
Environmental Associates Group

13039 Los Nietos Road, Santa Fe Spring
Ph: 310-806-8676, Fax: 310-806-8696

September 5, 1995

Attn: Al Novak/ Elijah Hill
LA County Regional Water Quality Control Board
101 Centre Plaza Drive
Monterey Park, CA 91754

Subject: Request for Site Closure
Stephens Manufacturing, Inc.
4839 Patata Street
Cudahy, CA

Dear Al Novak/Elijah Hill:

Anderson Industries presents the attached site remediation report for the above referenced site in conjunction with the removal of a car hoist which was believed to a be a 500-gallon waste oil tank as discovered by Amwest Environmental Engineering during their investigation in March 1995. The site soil was contaminated by Total Petroleum Hydrocarbon (TPH) at a concentration of 5,900 mg/Kg at a level of 14 feet below ground surface. The soil remedial investigation was undertaken as a result of Los Angeles County Department of Public Works (County) letter issued on April 12, 1995. The investigation was carried on according to the workplan submitted on May 23, 1995 as requested by County office.

This soil remediation investigation was conducted by Anderson Industries on a self-directed basis as proposed verbally by Regional Water Quality Control Board.

If you have any questions about any aspects of this report, please feel free to give us a call.

Sincerely yours,

William Anderson
Project Manager

Encl: Soil Remediation/Tank Removal Report
cc: Ms. Ellanmary Bryant, Stephens Manufacturing, Inc.

SOIL REMEDIATION/UST REMOVAL
Stephens Manufacturing, Inc.
4839 Patata Street
Cudahy, California

Prepared for:

Los Angeles County Regional Water Quality Control Board
101 Center Plaza Drive
Monterey Park, CA 91754

Prepared by:

ANDERSON INDUSTRIES
8024 E Telegraph Road
Downey, CA 90240

September 5, 1995

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ANDERSON INDUSTRIES
Environmental Associates Group
13039 Los Nietos Road, Santa Fe Spring
Ph: 310-806-8676, Fax: 310-806-8696

SOIL REMEDIATION/TANK REMOVAL
4839 Patata Street
Cudahy, CA 90201

1.0 SITE INFORMATION

1.1 Name and Address

M. Stephens Manufacturing
4839 Patata Street
Cudahy, CA. 90201

1.2 Responsible Party/ Contact Person

Ms. Ellenmary Bryant
8240 South Atlantic Avenue
Cudahy, CA. 90201

1.3 Background/Site History

Two underground storage tanks, fuel dispensers and associated piping accessories were removed from the subject site during a remedial operation on November 6, 1989 by ConservTech. During the excavation and tank removal operation, three soil samples were collected from tank invert but no sample was taken from the dispenser area. However, during a preliminary site assessment investigation conducted in February 1994, soil samples were collected from the dispenser area and was found to be contaminated at a concentration of 5,900 ppm of total petroleum hydrocarbon as gasoline (TPH-G) and 140 ppm of benzene at 14-feet below ground surface (bgs) as shown in Table 1. A more detail site assessment investigation was conducted by Amwest Envioronmental Engineering on March 1995, as a result of the request from the County to delineate the lateral & vertical migration of contamination. In Amwest's study, they drilled three boreholes extending a maximum of 55 feet bgs, near the dispenser and the former UST pit location. Results of the investigation indicated the presence of below action level concentration of suspect contaminants. The presence of an additional oil tank was also discovered during their investigation.

1.4 Site Map

The subject site is located in a mixed residential, commercial & industrial area and is situated on Patata Street at the north-eastern side of the intersection of Atlantic Avenue and Patata Street. Figures 1 and 2 show the location of the site.

2.0 OBJECTIVES

The main objective of this soil remedial investigation is to comply with the County's letter dated April 12, 1995 to remediate the hydrocarbon contaminated area found at a level of 14 feet bgs & to bring the additional oil tank into compliance. To perform the above objective, Anderson Industries recommended the impacted area around the contaminated soil be excavated and hauled to a treatment facility. Also, the oil tank that was discovered during the March 1995 investigation performed by Amwest Environmental Engineering, will be pulled out, cleaned, hauled and disposed properly in a legal manner.

After the excavation and removal operation, the exposed excavated areas will be backfilled with clean, imported soil and will be completed with a 4-inch asphalt surface on top.

3.0 SITE GEOLOGY AND HYDROLOGY

The site is located in the Los Angeles Coastal Plain. The major landform of the coastal plain includes highlands and foothills, older plains and hills, alluvium plains, rivers which collects surface runoff and offshore topography. The site is located in the Downey plain and west of Los Angeles river. The near surface deposits around the site is recent alluvium which is stream deposited gravel, sand, silt and clay mixture. Based on the geologic logs as obtained during several previous investigations, it was found that the site soil is a alluvium deposits, interbedded by fine sand with silt and clay. The majority of the site consists of poorly graded fine sand whereas the silt and clay layers are of limited horizontal and vertical extents.

According to the Hydrologic Record Information Section of the Department of Public Works, Los Angeles County, the closest monitoring well is well no. 1514A, which is within 2,000 feet from the site and is located at the intersection of Neviell Avenue and Firestone Boulevard. The well was last monitored on 05-30-94, recording the depth of water table at 92.3 feet below ground surface. The ground surface elevation for this well is approximately 113 feet above mean sea level.

4.0 FIELD INVESTIGATION

4.1 Tank Removal Operation

The area around the additional tank location was marked before the excavation and tank removal operation (see Figure 3). A backhoe excavator was used to excavate & remove the excavated soil. Excavation first started along the south side of the proposed tank location (see Figure 3). Excavation proceeded at this location until 5-feet bgs was reached and was shifted (since nothing was found during this time of excavation) towards the center of the proposed tank location where a steel cover similar to fill pipe housing cover was found. After excavating 2-3 feet bgs, it was found that the fill cover appeared to be like a deep neck pipe. As excavation preceded the deep neck pipe appeared to be a car hoist having it's bottom at approximately 7-feet bgs. The approximate dimension of the car hoist was 12 inch in diameter and 7 feet in length. The hoist was full of light yellow clear heavy oil with no indication of leakage. The surrounding soil around the car hoist was light brown silty sand having no sign of discoloration due to leakage. The content of the car hoist was pumped out to a vacuum truck and was sent to a recycler. The car hoist was also sent to a recycling facility.

Approximately 5 cu yds of soil was excavated during this removal operation. David Dolphin, Waste Control Engineering Inspector with DPW came out to inspect the UST removal operation and certified that there is no UST but a car hoist.

4.2 Soil Remediation/Excavation of Contaminated Plume

We recommended in our remedial action workplan dated May 23, 1995 that a minimum of 6 feet vertical and 4 feet lateral from the location of the "hot-spot" (located 14 feet bgs at boring HB-2 as shown in Figure 3) will be excavated. Therefore, excavation proceeded with a backhoe excavator for contaminated soil remediation until 20 feet bgs is reached A OVA was in continuous use during the time of excavation to monitor the released gas (see Table 5) for concentration of off-gas released). Approximately 8' by 8' lateral area was excavated. As proposed in the remedial action workplan, since the top 10 feet of this excavated materials was found to be free from contamination, therefore we put this top 10 feet of excavated materials in a separate stockpile in order to use later on as backfill material. Excavation was terminated at a level of 20 feet bgs and a bottom confirmatory sample was collected in order to conclude about the further processing of excavation down below 20 feet bgs. A same-day turnaround time was provided for chemical analysis for BTEX & TPH-G. Results of the analysis showed a TPH-G concentration close to the action level at the bottom of excavation at 20 feet bgs (see Table 3). Therefore, excavation continued next day to extend more beyond the 20 feet bgs and also extending further on the south-eastern side, since visual & analytical indications confirmed that this side contained contaminated soil.

Approximately 184 cu yds of soil was excavated & removed during this investigation. Excavated soil ranged from light brown to dark grey silty sand.

4.3 Verification Soil Sampling

On August 21, 1995 proposed minimum area of excavation was excavated and removed by backhoe excavator in order to remediate the suspect contaminant plume. At the end of this excavation, an attempt was made to terminate excavation based on the indication of color of the sidewall and bottom soils as well as OVA reading. Side samples looked clean and free of discoloration except samples from east and south walls. Bottom sample at 20 feet level was also noticed for discoloration and found to be of less VOC emitting category. At this point, a bottom sample was collected from the bottom of excavation before further excavating down below 20 feet bgs. Laboratory results indicated the presence of contaminant with a close to action level concentration which triggered necessity of further excavation down below 20 feet bgs. Excavation continued the next day (August 22, 1995) and terminated at a point where sidewall & bottom samples looked clean and were free of discoloration having no emission of VOC. A total area of 15' by 15 ' laterally and 22 feet vertically was excavated. Four soil samples were collected from excavation sidewalls and one bottom confirmatory sample was collected from excavation bottom.

Samples were collected using a clean brass cylinder (2"x6") to collect sample from the desired level and location as they were brought up by the backhoe tip. After the sample is collected, the ends of the sampling cylinder was covered with Teflon sheet, capped with plastic inert lids, labeled and stored in an ice-chilled cooler, until it is transported to the analytical laboratory for chemical analysis. A composite sample from the stockpile was also collected for profiling before it was used to a processor.

The excavated soil was also examined for logging and qualitative field screening. Field screening consisted of collecting soil samples in zip-lock bag and sealing the bag. The bag was then put under the sun for couple of minutes to promote volatilization. After the desired time, a small hole was punched into the zip-lock bag and the OVA probe is inserted to read the emission of volatile organics.

5.0 LABORATORY ANALYSIS RESULTS

Samples were delivered to a state-certified laboratory for chemical analysis. Chemical analysis was performed for detection of benzene, toluene, xylene and ethylbenzene (BTEX) utilizing Environmental Protection Agency (EPA) method 8020, and for petroleum hydrocarbon utilizing EPA method 8015 modified for gas. The stockpile sample was collected in order to analyze for total lead for profiling.

The side walls samples indicated non-detect concentration of suspect contaminants (see Table 3), whereas the excavation bottom sample indicated a below action level concentration (1.4 mg/Kg) at a level of 22' bgs.

After the confirmatory verification sampling, the pit area was covered with backfill material, compacted and completed with 4 inch of asphalt surface on top.

6.0 CONCLUSION & RECOMMENDATION

After the successful excavation & removal operation, it is concluded that the site soil is free of contaminants which may warrant any further investigation or remediation.

Therefore, we recommend the file of the remediated site be closed.

13039 Los Nietos Road, Santa Fe Spring
Ph: 310-806-8676, Fax: 310-806-8696

7.0 LIMITATION

This soil remediation report has been prepared for Stephens Manufacturing, Inc. located at 4839 Patata Street, Cudahy, California. This report is proprietory and confidential, to be believed to, and intended for the exclusive use of the above named client only. This soil remediation investigation was completed in accordance with generally accepted engineering practice and scientific judgement. Also we applied in performing our professional services, a level of effort consistent with the standard of practice for similar type of studies in the locale of the project site. Anderson Industries makes no warranty, express or implied, in fact or by law concerning any of the materials & services furnished to the client.

Should you have any question regarding any aspects of this report please do not hesitate to contact us.

Sincerely yours,

ANDERSON INDUSTRIES

Munshi Mohsin	William Anderson	Dr. Robert Gaal
Environmental Engineer	Project Manager	Registered Geologist

encl: List of Tables
List of Figures
List of Appendices

REGISTERED GEOLOGIST
ROBERT GAAL
No. 3039
STATE OF

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TABLE 1: LAB ANALYSIS DATA UNDER DISPENSER AREA
(FEBRUARY 1994 INVESTIGATION)

Sample #	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	TPH-G mg/Kg
HB-1 @ 5'4"	ND	ND	ND	ND	ND
HB-1 @ 10'	ND	ND	ND	ND	ND
HB-2 @ 5.5'	ND	ND	ND	ND	ND
HB-2 @ 14'	5,900	140	637	249	749

TABLE 2: SAMPLE COLLECTION DATA

Sample #	Location	Depth feet	OVA Reading, ppm
NSW 22	NORTH SIDE WALL	22	0
SSW 22	SOUTH SIDE WALL	22	0
WSW 22	WEST SIDE WALL	22	0
ESW 22	EAST SIDE WALL	22	0
BOTTOM 22	EXCAVATION BOTTOM	22	0
BS-1 @ 20'	EXCAVATION BOTTOM	20	0

TABLE 3: SAMPLE ANALYSES DATA

Sample #	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	TPH-G mg/Kg
NSW 22	ND	ND	ND	ND	ND
SSW 22	ND	ND	ND	ND	ND
WSW 22	ND	ND	ND	ND	0.16
ESW 22	ND	ND	ND	ND	ND
BOTTOM 22	ND	ND	ND	ND	1.4
BS-1 @ 20'	ND	0.006	0.013	0.086	93

TABLE 4: STOCKPILE ANALYSES DATA

Sample #	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	TPH-G mg/Kg	Total Lead mg/Kg
STOCKPILE	ND	0.02	0.013	0.42	510	17

ENVIRONMENTAL ASSOCIATES GROUP, INC.

Table 5: Organic Vapor Emission Log

Date	Time	OVA reading (ppm)	Comments
8/21/95	11:10	0	4'6"
	11:13	0	6'0"
	11:17	0	7'0"
	11:45	0	11'0"
	11:55	0	12'0"
	11:55	4	12'6"
12	12:00	200	14'0"
	12:05	20	14'0"
	12:07	70	14'3"
	12:09	300	14'6"
	12:10	110	15'0"
	12:11	180	15'3"
	12:15	200	16'0"
	12:18	100	16'3"
	1:45	100	12.5"
	1:50	100	13'0"
	1:53	70	13'3"
	1:53	100	13'5"
	1:56	100	13'8"
	1:58	100	19'5"
	1:59	70	19'8"
	2:04	50	16'0"
	2:30	0	20'0"

ENVIRONMENTAL ASSOCIATES GROUP, INC.

Table 5: Organic Vapor Emission Log

Date	Time	OVA Reading (ppm)	Comments
8/22/95	11:33	0	10.0"
	1136	20	14.0"
	1142	80	16.0"
	1146	60	18.5"
	1150	10	20.0"
	1200	0	21.0"
	1230	0	22.0"
	1245	0	22.0"

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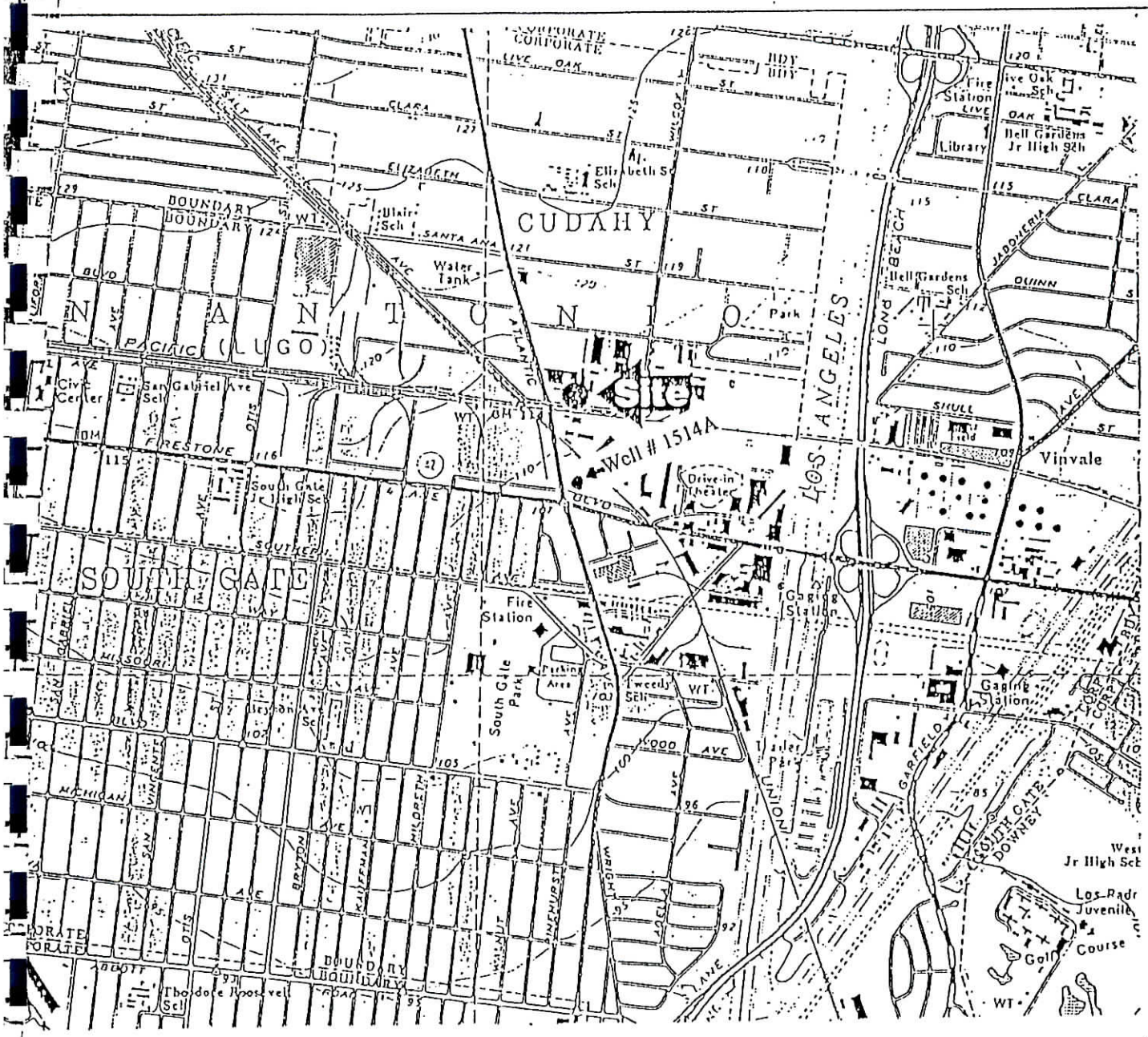


SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

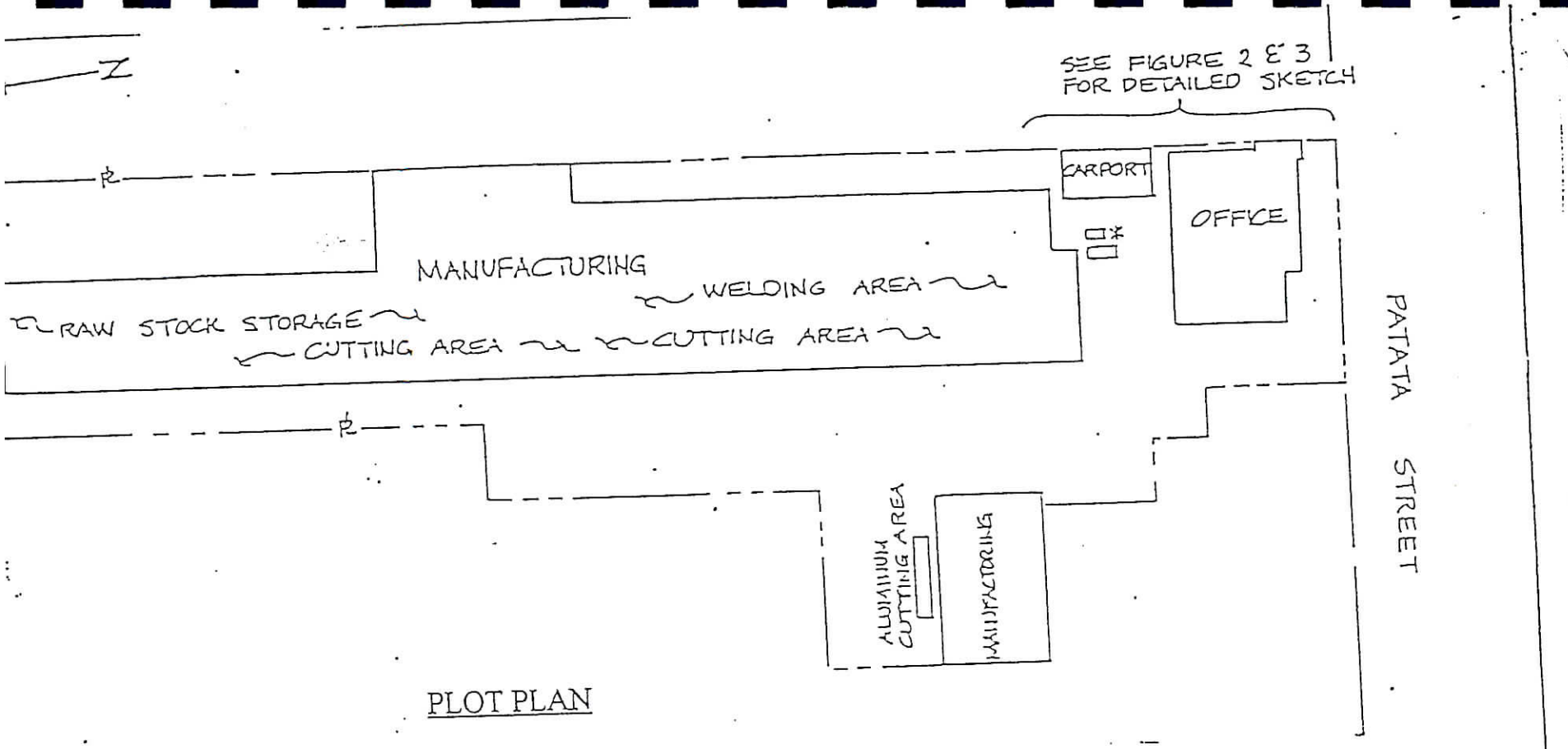
1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SITE LOCATION MAP

M. Stephens Manufacturing Inc.
4839 Patata Street
Cudahy, California 90201

ANDERSON INDUSTRIES
13039 Los Nietos Rd., Santa Fe Springs
California 90670

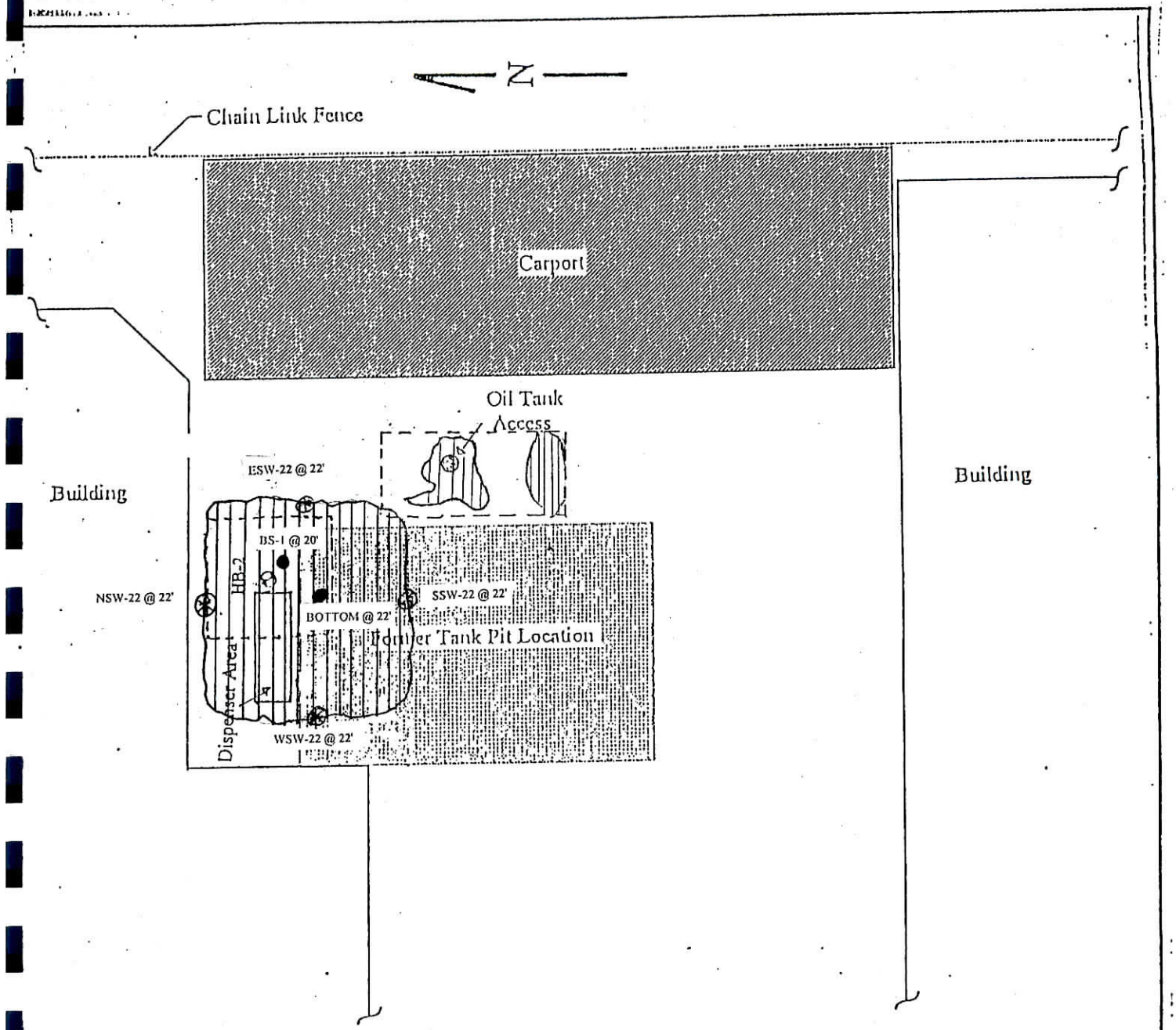


SITE LOCATION MAP

M. Stephens Manufacturing Inc.
4839 Patata Street
Cudahy, California 90201

ANDERSON INDUSTRIES
13039 Los Nietos Rd., Santa Fe Springs
California 90670

Figure No: 2	SCALE: 1 in. = 10 ft.



Legend:

- Borehole Locations, HB-2
- UST Access Fitting
- --- Proposed Area of Excavation
- Locations Sidewall Samples @ 22' bgs
- Locations of Bottom Samples
- Actual Area of Excavation

LOCATION OF AREA OF EXCAVATION

M. Stephens Manufacturing Inc.
4839 Patata Street
Cudahy, California 90201

ANDERSON INDUSTRIES
13039 Los Nietos Rd., Santa Fe Springs
California 90670

Figure No: 3	SCALE: 1 in. = 10 ft.

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AN, 1997

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VOL. 112 NO. 4

ANTIOCH JANUARY 24, 1 997

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1-94 and Route 176 on Ballard Road
just behind Lambs Farm in unin-
corporated Liberiyville Township.

According lo Tiny Town
President Julie LoCoco and coordi-
nator Pat Nindl, Tiny Town is com-
mitted to being a place "where
young minds are at work."

LoCoco said.

She also said computers are
coming with the appropriate pro-
grams and software.

The convenient location is easi-
ly accessible off the tollway. Parents
from Vernon Hills, Libertyville,
Gurnce and Lake Forest have chil-

LoCoco believes what separates dren enrolled in the program,
privately-owned Tiny Town from "Most of the kids' parents are

"franchise" childcare centers is the professionals," LoCoco s

personal, one-on-one care Tiny family has a parent working in

Town staffers provide. Chicago and the other 'working in

"We give them a lot of individ- Milwaukee, so we're right in

ual attention. They all leave with middle of their commutes."
hugs and kisses. You need to treat For more information about

them like they are one of your Tiny Town and its different sc

own," said LoCoco, who has a 2- uling programs, call 367-9766

'*•****__

At Tiny Town Childcare Learning Center in Lake Forest, certif
childcare instructors like Jenny Slobodzian document for pare
feeding times, diaper changes, sleep times and other exciting
events of infants.— Photo by Kevin Hanrahan

Intermatic acquires M. Stephens Mfg.

l_ 1.1 » -,f tUri OWE

Intermatic Inc. has acquired all of the stock of M. Stephens Mfg., Cudahy, Calif., including the company's BWF line of weatherproof electrical products. Terms of the transaction were not disclosed.

"For some lime, we have been considering an acquisition opportunity which would enlarge Intcrmatic's scope of products," said Don Ferguson, Intcrmatic's executive vice president of marketing and sales. "We believe die BWF producl line is just such an opportunity."

According to Ferguson, M. Stephens Mfg. will operate as a separate subsidiary with its offices and factory in Cudahy. Burt

Weintraub, president of the BWF product line, will continue in his current role and maintain his office at its present location in Boca

Raton, Fla.

"We are enthusiastic about this relationship with Intermatic," said Weintraub. "The access to increased financial resources and joint sales and marketing programs will enhance both companies."

Intennatic is the nation's leading manufacturer of timers and low voltage outdoor lighting. The company also produces surge protectors, surface power systems, weatherproof receptacle covers, photo controls, and pool and spa controls.

CLC course covers financial strategies

Money management, social security, medicare and health care are some of the topics covered in

Reference:
AR&M, 2006

For Immediate Release:

AGORA REALTY & MANAGEMENT TO DEVELOP CUDAHY RETAIL CENTER

Los Angeles (February 28, 2006) – Agora Realty and Management has announced the acquisition of nearly 6 acres of land in Cudahy, California, and plans convert the existing industrial manufacturing space into a new retail center.

Located at 8420 Atlantic Avenue, at Patata Avenue two blocks north of Firestone Blvd., the site consists of fourteen separate industrial buildings with over 133,000 square feet. The complex had operated for over 60 years as a metal fabricator and foundry for Intermatic Inc. and other firms, which have since relocated.

In fact, the Cudahy area possesses one of the higher population densities in the nation, with over 400,000 residents within a three-mile radius. "These residents are in significant need of a more expansive retail base," Agora's Cary Lefton explained. "They are presently forced to travel outside their own neighborhood for the diversity of retail services that most communities locally enjoy."

In addition, the new approximate 90,000 square feet of retail businesses will provide a broad employment base and substantially energize the Cudahy economy and image as a young family oriented community. The development will also feature extensive landscaped areas, community artwork and other amenities.

Cudahy is near Bell, South Gate, Hunnington Park, Downey, Bell Gardens and Maywood. Over 91% of the local population claim an Hispanic origin, and the median age is a notably young 25.9 years old.

Agora is one of the most respected builders and real estate management firms based in the San Fernando Valley. The firm recently redeveloped the highly successful Plaza Del Valle in Panorama City, a unique "outdoor marketplace" concept with over 100 distinctive retail shops. Agora also has various housing, industrial and retail projects in Hawaii and throughout Southern California.

- 30 –

Editors Note: For further information or to arrange an interview with Cary Lefton or other Agora spokespersons, please contact Scott Regberg at (310) 475-5735.

Reference:
AwwaRF, 2006

Contaminant Transport Through Aquitards: Technical Guidance for Aquitard Assessment

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CHAPTER 2
FACTORS IN AQUITARD VULNERABILITY

This chapter provides a brief overview of the geologic, hydraulic, and contaminant properties that affect flow and chemical transport between aquitards and aquifers. *Contaminant Transport Through Aquitards: A State-of-the-Science Review*, the companion report to this technical guidance, includes a detailed review of these topics and relevant examples from the scientific literature.

TYPES OF AQUITARDS

Aquitards typically consist of *unlithified*, fine-grained sediments such as clay and silt, or *lithified*, low-*permeability* rock formations, such as shale or mudstone. Unlithified aquitards are often the focus of hydrogeologic investigations at contamination sites, because they are usually encountered at shallow depths. Bedrock aquitards may be positioned deeper in the subsurface, where they are more likely to effect regional groundwater flow systems.

Very few aquitards are geologically *homogeneous*; most aquitards contain sediment or rock of various *lithologies.* For example, aquitards may be composed of layers of clay interbedded with sand and gravel lenses, or layers of shale or siltstone interbedded with sandstone layers. Although aquitards are often lithologically *heterogeneous*, they yield relatively small volumes of groundwater and impede groundwater flow to aquifers. Geologically heterogeneous aquitards may be treated as a single hydrogeologic unit in the analysis of the regional flow system or for the purposes of well design and construction. However, the specific effects of these heterogeneities must be evaluated when contaminant migration is of interest.

Another significant characteristic of aquitards is the occurrence of *fractures*. Fractures are critical to the risk of contaminant transport to a well because through-going fractures can act as a preferential pathway, providing rapid transport of contaminants through an otherwise low-permeability formation.

SUSCEPTIBILITY OF REGIONAL AQUIFERS AND WELLS

Aquitards generally restrict groundwater flow, but no geologic formations are completely impermeable; some groundwater flows across even the lowest conductivity aquitards. Aquitards decrease the susceptibility of aquifers and wells to contamination by increasing both the time of travel and the flow path length from a contaminant source. Long travel times to a well may be associated with increases in dilution, retardation and degradation of groundwater contaminants. An unfractured, clayey aquitard only tens of feet thick can cause delays of up to thousands of years, but the transport time scale may be reduced to years or less if substantial, through-going fractures exist.

When siting a new well, system managers are likely constrained by several very practical considerations, such as locating the well in proximity to the area of water demand, or the acquisition cost of a particular land parcel. The total and cased depth of a new well may be constrained by cost, or by the well yield necessary to meet demand. However, if the long-term preservation of high quality groundwater is of concern, the relationship of the site and well design to the hydrogeologic setting is of primary importance. Figure 1.1 illustrates the significance of well location and design relative to the groundwater flowpaths in a complex (but

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realistic) hydrogeologic setting. In Figure 1.1, well A receives some groundwater from the west, but also receives a portion of its flow directly from recharge from the near-by land surface. Because well A is completed in a surficial aquifer with no overlying aquitard, it is extremely susceptible to contamination. Well B is less susceptible because it is cased through a surficial aquitard, and the flow paths to the well (from the east) are longer, providing more distance (and therefore, more time) for contamination to dissipate along the flow path. Although located close to well B, well C is drilled and cased deeper in the flow system. Groundwater pumped from well C originates from a different source area than that pumped from well B, and may be of a very different quality.

Flowpaths can diverge around the edge of the aquitard, providing recharge to the underlying aquifer. The resulting flow path from the surface to the deeper system provides a route of contaminant migration around the edge of the aquitard to the deeper aquifer. As illustrated in Figure 1.1, although well D is cased into the bedrock formation, the upper, uncased portion of the well receives groundwater from the same region as well C, which is open to the unlithified aquifer only. Well D is also open to the deeper bedrock aquifer, resulting in a blend of waters from the upper unlithified formations and the very deep flow system. The water quality at wells C and D may be very different due to this blending. Wells D and E may cost significantly more money to drill and construct than wells A, B and C, but may have very different groundwater quality than the shallower wells. Wells D and E are less susceptible to contamination than wells A, B and C. Well E receives the maximum protection possible from overlying aquitards. It is significantly less susceptible to contamination than well D because the additional casing depth restricts flow from the upper portions of the system.

The time of travel through or around aquitards can range from less than a year to thousands of years, depending on the type of contaminant pathway present and the hydraulic properties of the system. The time of travel of groundwater to a pumping well is a function of the well's position in the flow field relative to an aquitard, as illustrated in Figure 2.1. In the absence of an overlying aquitard, there is a rapid time of travel from the ground surface to a pumping well completed in an unconfined aquifer and the well is very susceptible to contamination (Figure 2.1a).

Figure 2.1b illustrates a well completed below a fractured aquitard. In this case, only a small volume of water may travel through the aquitard along the preferential pathway (the fracture), but the time of travel to the well is very rapid. Several factors will determine if the aquitard, although fractured, provides adequate protection for the well. These include the contaminant concentration migrating through the fracture, the concentration of the contaminant that is of regulatory concern, and the degree of dilution provided from mixing with groundwater from other flow paths to the well.

Figure 2.1c illustrates a third case, wherein contaminated water reaches the well via a relatively long flow path around the edge of the aquitard. In this case, the longer time of groundwater travel to the well may favor attenuation of contaminant concentrations by processes such as *dilution*, and chemical or biological *degradation*.

Pumping from wells can reverse the direction of hydraulic gradients and flow within the groundwater system, and thereby decrease the natural protection afforded by an overlying aquitard. As illustrated in Figure 1.1 at wells F, G, H and I, vertical gradients near a regional discharge area will be upwards from an underlying aquifer to a surface water body. However, pumping from a deep aquifer can reverse the natural gradient across an aquitard, promoting contaminant migration through fractures or windows in the aquitard. Well F is located relatively

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far west of the eastern edge of the lower unlithified aquitard. Under natural conditions well F receives all of its flow from the west, and is more susceptible to contamination than well I. If the drawdown in groundwater levels is large due to pumping from well I, the natural upward direction of groundwater flow may be reversed near the well. In this case, well I may receive some groundwater from the east and is more susceptible than well F to surface contamination via flow around the eastern edge of the aquitard. Well H would be more expensive to construct but vulnerability to contamination would be minimized. The well yield of well H may be significantly different than wells F, G, and I, depending on the transmissivities of the aquifers.

TRANSPORT PATHWAYS

Discrete pathways for groundwater flow and contaminant transport across aquitards are common in many settings. These include fractures and *macropores,* or large openings, caused by tree roots or burrowing animals. Human-constructed pathways such as uncased or abandoned wells, or wells constructed with an ineffective seal between the well casing and borehole wall, also provide pathways across aquitards.

Windows

Geologic processes that occurred tens of thousands of years ago may result in high-permeability *windows* within an aquitard. For example, laterally extensive deposits of low permeability glacial till or lake sediments often contain discontinuous lenses of sand and gravel. Erosional processes may result in large-scale removal of, or incision through, an otherwise extensive aquitard. Understanding the geologic history of a region provides insight into the likelihood of windows or preferential flowpaths in the aquitard.

Fractures and sink holes

Here, we use the term “fracture” to refer to an open feature that allows water flow. Many other fractures may exist that are closed. Fractures form due to imposed stresses at some point in geologic time, and they may be open or closed at the present time depending on geologic conditions subsequent to their formation.

Several processes cause fractures in fine-grained unlithified aquitards. Unsaturated aquitards with lower clay content are particularly susceptible to extensive fracturing by geologic stresses or deformation. Where unlithified aquitards are subject to weathering, shrinking and drying of the sediments can cause fractures to form, particularly in the unsaturated zone above the water table. The density of fractures in these settings typically decreases significantly with depth below the weathered portion of the aquitard, but fractures can extend to depths on the order of 30 to 150 ft below the water table. Deposits with higher percentages of clay may be relatively plastic. The plasticity can promote fracture closure at depth, at some later time, if sand or silt has not been washed into the fracture.

In some near-surface settings, aquitards consisting of relatively soluble carbonate rock, such as limestone, are vulnerable to the formation of *karst* features. *Karst* terrain is characterized by fractures, caves and sinkholes that may breach the integrity of the aquitard.

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Multi-aquifer wells

Some relatively deep water supply wells and other subsurface borings are constructed with an open, un-cased borehole across more than one aquifer. This design may maximize well yield and minimize the cost of casing material, but it can create a pathway for contaminant transport across an aquitard. The borehole of these multi-aquifer wells provides a "short circuit" across an aquitard that would otherwise restrict the hydraulic connection between overlying and underlying aquifers. A borehole open to two aquifers is a transport pathway when the head in the upper aquifer is greater than the head in the lower aquifer, inducing flow from the upper to the lower aquifer (Figure 2.2).

Relatively few multi-aquifer wells are required to significantly increase the effective K_v of an aquitard. For example, Hart and Bradbury (2006) estimated the volume of flow through an open-borehole well in Wisconsin to be 2.6×10^5 gallons/day (1000 m^3/day). Very rapid transport of contaminants to the underlying aquifer can occur in these boreholes, across an otherwise protective aquitard. Similar to a poorly grouted well casing, this preferential pathway provides an opening that can facilitate transport of *particulate* and *aqueous* contaminants.

CONTAMINANT TYPES

Three general types of contaminants in groundwater include aqueous contaminants (those that are dissolved in water), non-aqueous phase liquid (NAPL, typically petroleum products or chlorinated solvents) and particulate matter (*colloidal* size particles that may be inert or biologically active). The fate and transport behaviour of each type of contaminant in a groundwater system depends on their respective chemical properties, such as their density, solubility, or reactivity. There is also considerable variability in the concentration at which various types of contaminants pose significant threats to human health (for example, the drinking water maximum concentration limit (MCL) for nitrate is 10 parts per million, while the MCL for carbon tetrachloride is 5 parts per billion).

Aqueous Contaminants

Aqueous contaminants include inorganic major ions (e.g. sulfate and chloride), nutrients (e.g. nitrate and phosphate), trace elements (e.g. chromium, arsenic, and lead) and dissolved portions of organic contaminants (e.g. trichloroethylene (TCE), benzene). Aqueous contaminants are transported along with the *advective* flow of groundwater, following groundwater flow paths governed by the hydrologic system. Some aqueous phase contaminants, such as chloride, are non-reactive, meaning that they do not degrade as they are transported in the groundwater system. As non-reactive contaminants migrate, their concentrations are influenced only by flow (*advection*) and *dilution* due to mixing (molecular diffusion and/or mechanical dispersion).

Some aqueous contaminants tend to sorb onto geologic sediments. *Sorption* does not reduce the total chemical mass in the hydrogeologic system, but it does delay ("*retard*") the transport of contaminant mass through the groundwater flow system. Examples of contaminants strongly influenced by sorption are lead and the soluble portion of polychlorinated biphenyls (PCBs).

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Some aqueous contaminants are subject to biological, chemical or radioactive *degradation* in the groundwater system. These processes result in chemical transformations that can reduce the overall contaminant mass in, and retard the rate of migration through, the flow system. A contaminant may degrade to a product that is also a contaminant, such as when TCE transforms to cis, 1,1 dichloroethylene or vinyl chloride. In this case, the degradation of TCE may, overall, cause an increase in the severity of the groundwater contamination.

NAPLs

NAPLs include liquids that are less dense than water (light non-aqueous phase liquids (LNAPLs), such as gasoline and fuel oil) and those that are denser than water (dense non-aqueous phase liquids (DNAPLs), such as chlorinated solvents, creosote and PCB liquids). NAPLs move through the subsurface under the influence of their density, which can lead to the migration of the liquid product in directions different from groundwater flow.

Due to their higher density, DNAPLs have the greatest propensity to migrate through fractured aquitards. Typical chlorinated solvent DNAPLs readily flow downward through small fractures, including fractures so small that they cause the K_{bv} to be only slightly (and often imperceptibly) larger than unfractured conditions. If aquitards have preferential pathways such as through-going networks of fractures, DNAPLs may migrate downward through the aquitard even where groundwater hydraulic gradients are upward.

In very low-permeability unfractured aquitards, aqueous contaminants can move by molecular diffusion downward even if the groundwater gradients are upward, but, the downward migration may be very limited. In an area of upward hydraulic gradients across an aquitard, these gradients would prevent particulate contaminants from being transported downward. In this case, the aquitard would have generally good integrity with respect to particulate and aqueous contaminants, but could have poor integrity for DNAPLs.

Within the class of NAPLS, there are extreme differences in subsurface behaviour due to differing degrees of solubility, sorption and reactivity. For example, TCE poses a much greater potential to cause widespread groundwater contamination than PCBs because TCE is moderately soluble in water and PCBs are nearly insoluble relative to their MCLs. Also, TCE is much less strongly sorbed to aquifer and aquitard solids than PCBs. Dissolved TCE can be transported large distances relatively quickly by groundwater flow, and this is the primary reason why TCE is commonly found in groundwater and PCBs are not.

NAPL contaminants are present in the aqueous phase, as well as the undissolved ("product") phase, because all NAPLs are soluble in water to some degree. Solubilized portions of NAPL contaminants behave similarly to other aqueous contamination in that they are transported by the flow of groundwater.

Particulates

Particulate contaminants include extremely small, *colloidal*-sized particles occurring in two categories. The first is comprised of mineral matter or organic matter typically derived from plants, wood or coal. These particles are usually not contaminants on their own, however, they may cause contaminant migration by carrying attached (sorbed) contaminants. For example, a mobile colloid composed of mineral matter may carry sorbed molecules of hazardous metals such as cadmium. A second category of particulate contaminants includes bacteria and viruses,

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which are biologically active. The potential for transport of bacteria and viruses across aquitards is reviewed in the companion report, *Contaminant Transport Through Aquitards: A State-of-the-Science Review*. We have included much of this review and specific references here, because this material is not widely disseminated amongst hydrogeologists and water supply engineers. Viruses have been detected in groundwater at depths up to 67 meters (Keswick and Gerba 1980), and they have been reported to move laterally as far as 408 m in glacial till and 1600 m in fractured limestone (Keswick and Gerba 1980; Robertson and Edberg 1997). Transport of viruses through aquifers is further evidenced by their widespread occurrence in drinking water wells (Gerba and Rose 1990). In one study of 448 groundwater sites in 35 states, 141 sites (31.5%) were positive for at least one virus type (Abbaszadegan et al. 2003).

Particulate contaminants are transported in the same general manner as aqueous contaminants, along with the advective flow of groundwater. However, transport of particulates may be limited by filtration at small pore sizes between mineral grains in rock or sediments, or by sorption to rock or sediments.

Some features in the subsurface, such as fractures and root holes in clayey aquitards, may be large enough to facilitate the transport of viruses into underlying aquifers. Viruses can pass through fractured clay till in openings as small as 3 to 5 microns. Preferential flow along fractures or other pathways results in colloids moving substantially faster than aqueous contaminants. Several studies have documented virus transport through clay fractures at velocities ranging from 2 to 360 meters/day (McKay et al. 1993, Hinsby et al. 1996). Poorly grouted well casings may also provide a preferential pathway for viruses to reach an aquifer.

In order for a well to become virus contaminated there must be a fecal source nearby. Leaking sanitary sewer lines, septic systems, landfills, field-applied sludge or septage, effluent holding ponds, wastewater infiltration or irrigation facilities, and surface waters that recharge groundwater, are potential sources of viruses to the groundwater system.

The greater the fecal loading onto or into the ground the greater the opportunity for the underlying groundwater to become virus contaminated. A well located in the middle of a large city underlain with leaking sanitary sewers stands a greater chance of becoming pathogen contaminated than a well adjacent to a few septic systems. Intuitively, the greater the level of fecal loading near the ground surface, the greater the level of viruses reaching the upper boundary of an aquitard, and the greater the opportunity for viral movement through the aquitard.

Preventing virus contamination of a confined aquifer begins with decreasing fecal loading above the aquifer and increasing the distance from a fecal source to a drinking water well. There are many uncertainties in predicting viral transport, so determining an effective distance between a fecal source and a well drawing from an unconfined aquifer is largely educated guesswork. Consideration of an aquitard, for which there is even less virus transport information, in determining the appropriate setback distance between fecal source and a well completed in a confined aquifer, is more uncertain. The presence of an aquitard should increase protection from viruses for properly constructed wells. Viruses were detected in samples collected from wells completed in a confined aquifer during field studies conducted as a part of this research project (Borchardt et al., in review; Chapter 9).

For people to become virally infected from drinking contaminated groundwater not only do the viruses need to be transported to the well, they must also survive the transport process and remain infectious. Treatment systems at the wellhead, such as disinfection, may inactivate viruses. The most important determinant of virus inactivation in groundwater is temperature, as temperature increases so does the inactivation rate (Hurst et al. 1980, Yates et al. 1985, Yates

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and Yates 1988). Therefore, confined aquifers in arid regions with warm groundwater temperatures (e.g. 20°C) may be less prone to contamination with infectious viruses. The travel time for a virus to reach a well is also an important factor. If the travel time is greater than the virus survival time, it is unlikely that a virus reaching the well would be infectious. Although the upper limit for survival time in groundwater has not been determined for many viruses, water that has a travel time to a pumping well on the order of a year would be more likely to transport an infectious virus than waters with travel times on the order of 10 to 100 years.

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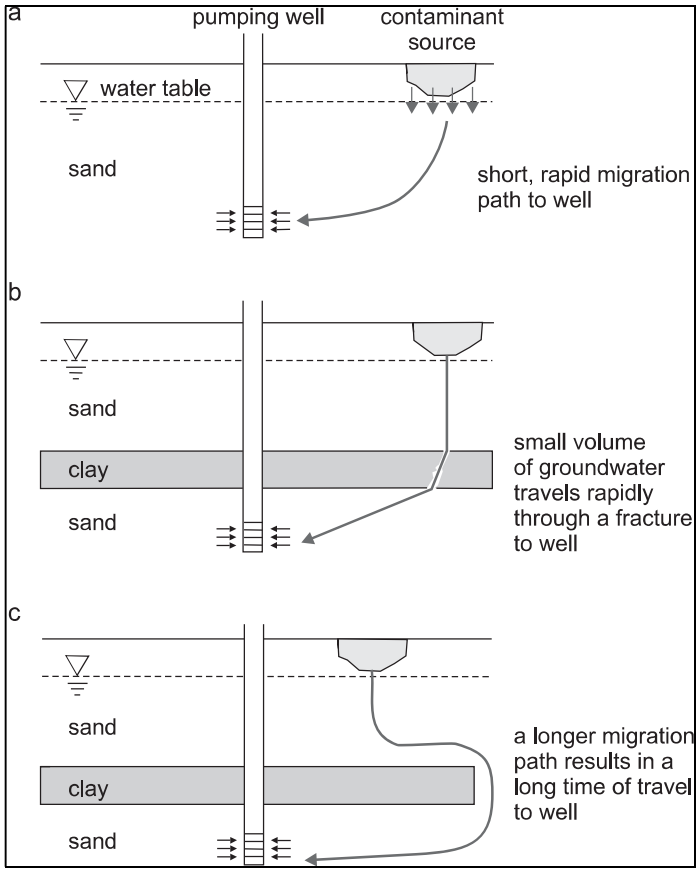

Figure 2.1. Travel times and flowpaths to a pumping well.

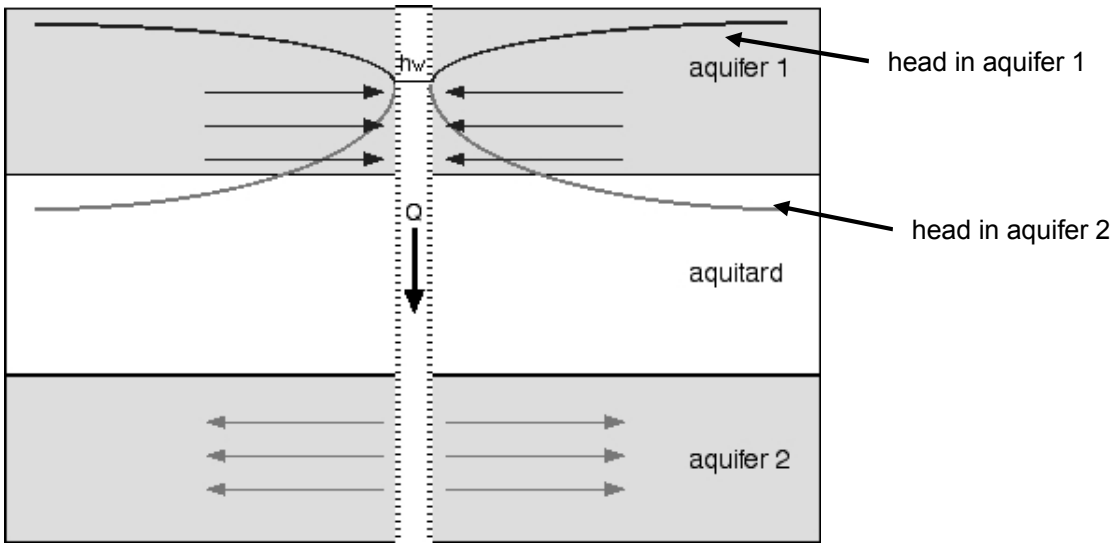

Figure 2.2 Flow across aquitard through a multi-aquifer well. Arrows show direction of groundwater flow to and from the well. h_w indicates the water level in the well, Q represents direction of flow within the borehole.

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File Number:	C1333106

SIERRA TANK AND CONSTRUCTION COMPANY, INC.
CALIFORNIA CORPORATION

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The companies are Ptt Entertainment Inc, American Eagle Car Truck Rental Inc, Roscoe Transportation Inc, Lkm Investments Inc, Potrero Inc, Patata Investment LLC, Tsay J R LLC, and Tyde Development Inc.

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CALIFORNIA CORPORATION

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Address Types:	Principal
Registered Agent:	Shyr Jin Tsay
Filing Date:	September 08, 2010
File Number:	C3318041

AMERICAN EAGLE CAR & TRUCK RENTAL, INC.
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File Number:	C2500799

LKM INVESTMENTS, INC.
CALIFORNIA CORPORATION

Address:	2900 N San Fernando Blvd Burbank, CA 91504
Address Types:	Principal
Registered Agent:	John Kim
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Address:	2900 N San Fernando Blvd Burbank, CA 91504
Address Types:	Principal
Registered Agent:	Shyr-Jin Tsay
Filing Date:	January 27, 1995
File Number:	C1757695

PATATA INVESTMENT, LLC
CALIFORNIA DOMESTIC LIMITED-LIABILITY COMPANY

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Registered Agent:	Shyr-Jin Tsay
Filing Date:	August 17, 2009
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TSAY J & R, LLC
CALIFORNIA DOMESTIC LIMITED-LIABILITY COMPANY

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Registered Agent:	Shyr-Jin Tsay
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LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

Intermatic Complex
8420 South Atlantic Avenue and
4819-4839 Patata Street
Cudahy, California

PREPARED FOR:

Elden Holding Group, LLC
15206 Ventura Boulevard, Suite 306
Sherman Oaks, California 91403

Converse Project No. 05-16-215-01
October 6, 2005

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October 6, 2005

Mr. Fred Wasson
Elden Holding Group, LCC
15206 Ventura Boulevard, Suite 306
Sherman Oaks, California 91403

Subject: **LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT**
Intermatic Complex
8420 South Atlantic Avenue and 4819-4839 Patata Street
Cudahy, California
Converse Project No. 05-16-215-01

Dear Mr. Wasson:

Converse Consultants (Converse) appreciates the opportunity to present this Limited Phase II Environmental Site Assessment Report for 8420 South Atlantic Avenue and 4819-4839 Patata Street, Cudahy, California (referenced Site). Converse understands that Elden Holding Group, LCC requested this assessment to evaluate the Site as part of the process of acquiring the Site. See Figure 1 – Site Location Map.

Background

The Site is located on the northeast corner of Atlantic Avenue and Patata Street, one mile west of the 710 Freeway in Cudahy, California. Intermatic Complex is in an area characterized by industrial and retail properties. See Figure 2 – Site Map.

Based on the information provided in the Phase I Environmental Site Assessment (ESA) dated August 25, 2003 by A/E West Consultants for the referenced Site, and a Site visit conducted on Tuesday, September 6, 2005, further assessment appeared warranted.

Objective

The objective of the proposed scope of work is to evaluate the potential presence of soil impacted by historical and current operations at the Site.

Scope of Work

Based on Elden Holding Group, LCC request and authorization, Converse completed the following scope of work to achieve the above objective:

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- Prepared a site specific Health and Safety Plan.

- Conducted a Site walk to observe the existing operating conditions at the facility, mark boring locations, and contact Underground Service Alert.

- Collected soil samples at eleven (11) locations, in the following areas;

  - **Exterior Areas:** Four (4) borings at various exterior locations in the parking lots

  - **Interior Areas:** Seven (7) borings are proposed in the interiors of the various buildings

- The borings were completed to a maximum depth of 15-feet bgs. Soil samples were collected at approximately 1-foot to 2-feet bgs, 5-feet bgs, and thereafter at 5-foot intervals to 15-feet bgs. All of the soil samples were screened in the field with a photo ionization detector (PID) and were submitted to a state certified laboratory for analysis.

- Selected soil samples were analyzed in accordance with the following EPA analytical Methods.

  - EPA Test Method 8015, Carbon Chain (cc)
  - EPA Test Method 8260B, Volatile Organic Compounds (VOCs) and Oxygenates
  - EPA Test Method 8270, Semi-volatile Organic Compounds (SVOCs)
  - EPA Test Method 8082, Polychlorinated Biphenyls (PCBs)
  - EPA 6010/7471A, Title 22 Metals
  - EPA Test Method 150.1, pH

The soil samples were selected for analysis based on observed field conditions (PID readings, visible discoloration or detectable odors).

Assessment Activities

The field activities were completed on September 21, 2005. See Figure 3 – Boring Location Map.

- Two (2) borings (GP-24 and GP-25) were completed at the Site near the existing clarifier. These borings were completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs in these borings.

- Two (2) borings (GP-4 and GP-5) were completed at the Site near the far northeast corner near an existing floor drain and stained asphalt. All of these borings were completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs.

- One (1) boring (GP-16) was completed at the Site within building 2 near an underground hydraulic system. The boring was completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs.

- One (1) boring (GP-18) was completed at the Site within building 7 near heavy etching on the concrete. The boring was completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs.

- One (1) boring (GP-19) was completed at the Site within building 12 near observed subsurface structures. The boring was completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs.

- Three (3) borings (GP-26, GP-27, and GP-32) were completed at the Site within building 1 near the machining area, drum storage area, and heavily stain floor areas, respectively. All of these borings were completed to a depth of 15 feet bgs. Samples were collected at 2, 5, 10, and 15 feet bgs.

- One (1) boring (GP-29) was attempted within building 1. Due to the concrete thickness (greater than 18-inches) the boring was abandoned after three attempts to penetrate the concrete slab. Consequently, no samples were collected in this area.

For a complete description of the soil encountered in the borings see Appendix A - Boring Logs.

Soil Sampling

To collect each soil sample during drilling, a steel rod was hydraulically advanced into the soil to the desired sample depth and a closed end sampler with an acetate liner was then advanced at the end of the rod. Upon reaching the intended sample depth, the sampler pin was unlocked to open the sampler, which was then driven additional 2-feet into the soil. The sampler was then raised to the ground surface to retrieve the soil sample. Upon retrieval, the soil samples were immediately removed and capped.

Before each use, the appropriate drilling and sampling equipment was cleaned, rinsed with tap water and final rinsed with distilled water.

Soil samples to be analyzed for Volatile Organic Compounds (VOCs) were prepared/collected from the acetate sleeves in accordance with U.S. EPA Method 5035 using disposable EnCore samplers. A total of two new Encore samplers were used to collect samples of soil weighing approximately 5 grams from each sample depth. A portion of the remaining soil was removed from the sleeve and placed into a plastic bag, screened in the field with a PID for VOCs, visually inspected, described, and logged on boring logs by a qualified professional.

The remaining soil in the acetate sleeve was sealed with Teflon film and plastic end caps, labeled, enclosed within a plastic bag with the Encore samples and placed on ice for and delivered to the State of California certified, under Chain of Custody documentation, for analysis.

Groundwater was not encountered during the completion of any of the soil borings to a maximum depth of fifteen (15) feet bgs.

The Site is located approximately 0.6 miles west of the Los Angeles River. The Site and vicinity appears to be a floodplain of the Los Angeles River which slopes gently to the southeast (U.S. Geological Survey Topographic Map, South Gate Quadrangle, 1964, photorevised 1972).

Groundwater elevation data provided on the State Water Resources Control Board (SWRCB) Geotracker database indicates that the depth to groundwater at a site located approximately 0.25 miles south of the subject Site averaged approximately 45.5 feet below the ground surface (bgs). Based on the Geotracker data and the surface elevation in the in the vicinity of the subject Site, Converse estimates the depth of groundwater to be approximately 45 to 55 feet beneath the Site.

Laboratory Analysis

Selected soil samples were analyzed in general accordance with following EPA test methods:

- EPA Method 8015M for TPH as Carbon Chain;
- EPA Method 6010B/7471A for Title 22 Metals;
- EPA Method 8260 for Volatile Organic Compounds (VOCs);
- EPA Method 8270 for Semi-Volatile organic Compounds (SVOCs); and
- EPA Method 150.1 for pH.

A total of 12 samples were submitted for analysis and 27 samples were archived for future analysis if needed. The soil samples were analyzed on a normal 5 to 7 day turnaround time by Associated Laboratories, a state certified laboratory located in Orange, California.

Summary of Findings

A summary of the analytical results are provided below. The laboratory report and Chain-of-Custody documentation are included in Appendix B.

TPHg

The analytical results indicated no petroleum hydrocarbons in the C6-C10 range were detected above the method detection limits in any of the samples analyzed.

TPHd

The analytical results indicated no petroleum hydrocarbons in the C10-C22 range were detected above the method detection limits in any of the samples analyzed.

Oil Range Hydrocarbons

Concentrations of TPH as heavy hydrocarbons (C22-C36) ranged from 19 and 78 milligrams per kilogram (mg/Kg) in the samples analyzed. The maximum concentration of 78 mg/Kg was detected in the GP-27 sample at 2-feet bgs. These reported concentrations are below the Maximum Soil Screening Level (MSSL) of 1,000 mg/Kg established by the Los Angeles Regional Water Quality Control Board (LARWQCB) for sites with groundwater located 20 to 150-feet bgs.

Sample ID	C6-10 (mg/Kg)	C10-C22 (mg/Kg)	C22-26 (mg/Kg)
GP27-2	ND	ND	78
GP26-2	ND	ND	48
GP32-2	ND	ND	19
MSSL	*N/A*	*N/A*	*1,000*

VOCs

The analytical results indicated no detectable concentration above the method detection limits for VOCs, in any of the borings except in Boring GP-24 at 5 feet bgs and Boring GP-19 at 2 feet bgs. Tetrachloroethene (PCE) was detected at 6.7 micrograms per kilogram (ug/Kg) and 5.9 ug/kg, respectively, in these borings. These concentrations are below the October 2004 EPA Preliminary Remediation Goals (PRGs) for PCE in residential soil, which is 480 ug/Kg.

Sample ID	Tetrachloroethene (PCE) (ug/Kg)	All Other Target Compounds
GP24-5	6.7	ND
GP19-2	5.9	ND
PRGs Residential	*480*	*N/A*

SVOCs

The analytical results indicated that no SVOCs were detected above the method detection limits in any of the samples analyzed.

METALS

The analytical results indicated that various metal concentrations were reported above the method detection limits. However, all of the reported metal concentrations were below their respective PRGs for residential soil.

pH

The analytical results indicated pH in both soil samples analyzed. The reported pH readings were 7.78 in Boring GP-18 at 2-feet bgs and 8.14 in Boring GP-18 at 5-feet bgs.

pH measures the acidity and basic in the sample matrix analyzed. pH ranges from 14.0 to 0, and a pH of 7.0 is considered neutral.

For complete results see Appendix B – Analytical Results

Conclusion

Based on the results of our current assessment activities, Converse concludes:

- Concentration of TPH as heavy hydrocarbons (C22-C36) ranged from 19 and 78 milligrams per kilogram (mg/Kg) in the samples analyzed. The maximum concentration of 78 mg/Kg was detected in the GP-27 sample at 2-feet bgs. This reported concentration is below the Maximum Soil Screening Level (MSSL) of 1,000 mg/Kg.

- The maximum concentration of 6.7 ug/Kg for PCE was detected in the GP-24 sample at 5-feet bgs. This reported concentration is below the EPA Preliminary Remediation Goals (PRGs) for residential.

- The analytical results indicated various metals concentrations were reported above the method detection limits. However, all the reported metal concentrations were below their respective PRGs for residential soil.

- Based on the Geotracker data and the surface elevation in the in the vicinity of the subject Site, Converse estimates the depth of groundwater to be approximately 45 to 55 feet beneath the Site.

Recommendations

Converse recommends the following:

- That 22 additional borings be completed at the locations indicated on Figure 3, to assess the potential for any other environmental impact to the property.

- Completion of a Phase I prior to the purchase of the Site.

Closure

This report has been prepared for the exclusive use of Elden Holding Group, LCC in accordance with the terms and conditions under which these services were provided. Any reliance on this report by third parties shall be at third party's sole risk. Our services have been performed in accordance with applicable state and local ordinances, and generally accepted practices in the geosciences. No other warranty, either expressed or implied, is made.

Converse Consultants is not responsible or liable for the accuracy or completeness of available information provided by others. Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken.

Data derived through sampling and analytical testing are extrapolated by geoscientists who then render an opinion about overall subsurface conditions. Actual conditions in the areas not sampled may differ from the predictions. This report should not be regarded as a guarantee that no further contamination, beyond that which was detected in our investigation, is present beneath the Site. In the event that changes to the Site occur, or additional, relevant information about the Site is brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the recommendations of this report are modified in writing.

If you have questions relative to the findings presented herein, please call William Ragsdale at (909) 796-0544 or Stanley White at (714) 444-9660.

CONVERSE CONSULTANTS

William Ragsdale, REA
Senior Staff Environmental Scientist

Registered Environmental Assessor I
WILLIAM RAGSDALE
REA I - 08046
Expires 6/07
STATE OF CALIFORNIA

Stanley G. White P.G.
Senior Geologist

PROFESSIONAL GEOLOGIST
STANLEY G. WHITE
No. 7342
Expires:
October 31 2007
STATE OF CALIFORNIA

Norman S. Eke
Managing Officer

Encl: Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Boring Location Map

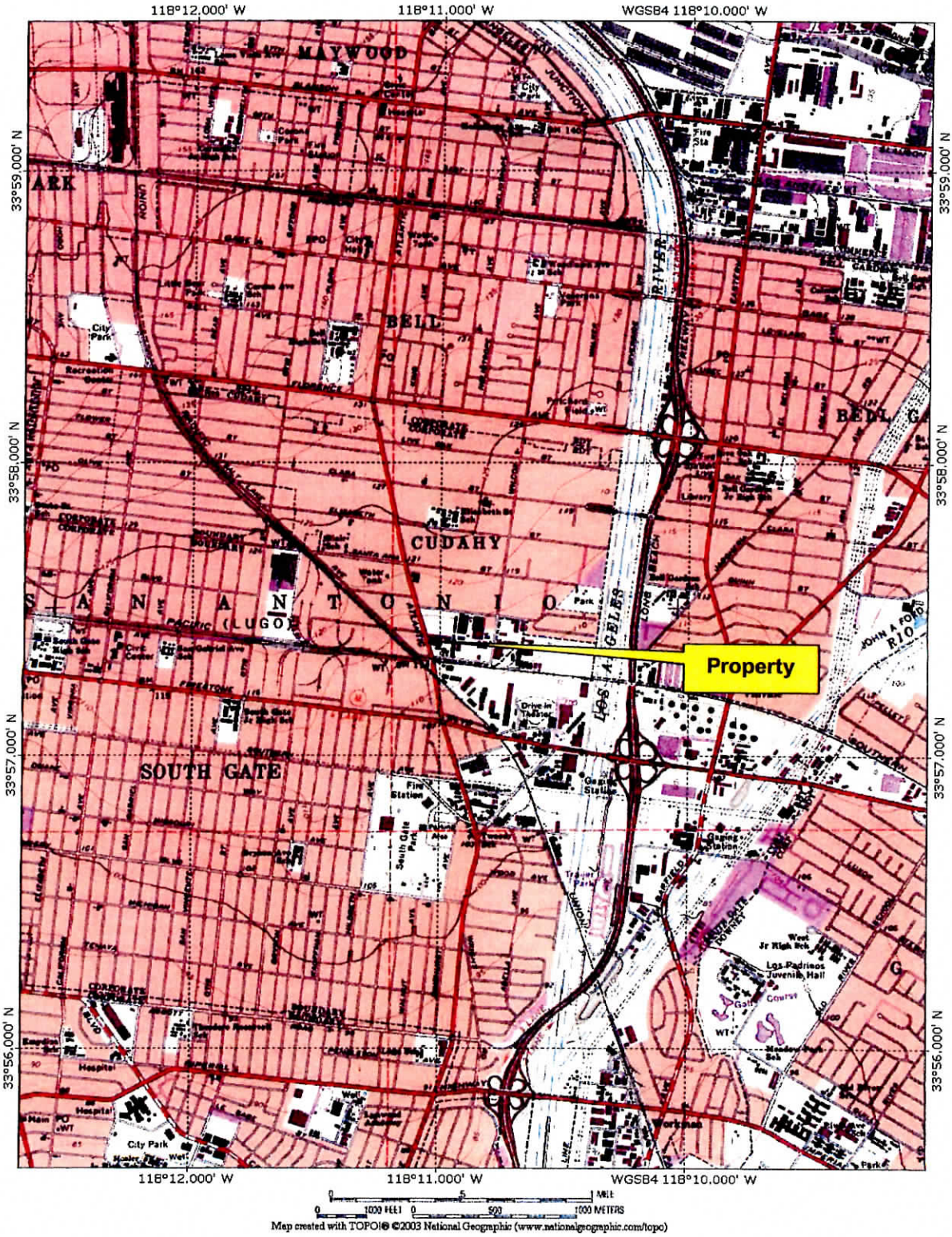
Appendix A – Boring Logs
Appendix B – Analytical Report and Change of Custody Documentation

Dist: 4/Addressee

WR/SGW/NSE/mjr

Site Location Map, Site Map, and Boring Location Map

Figures



Site Location Map

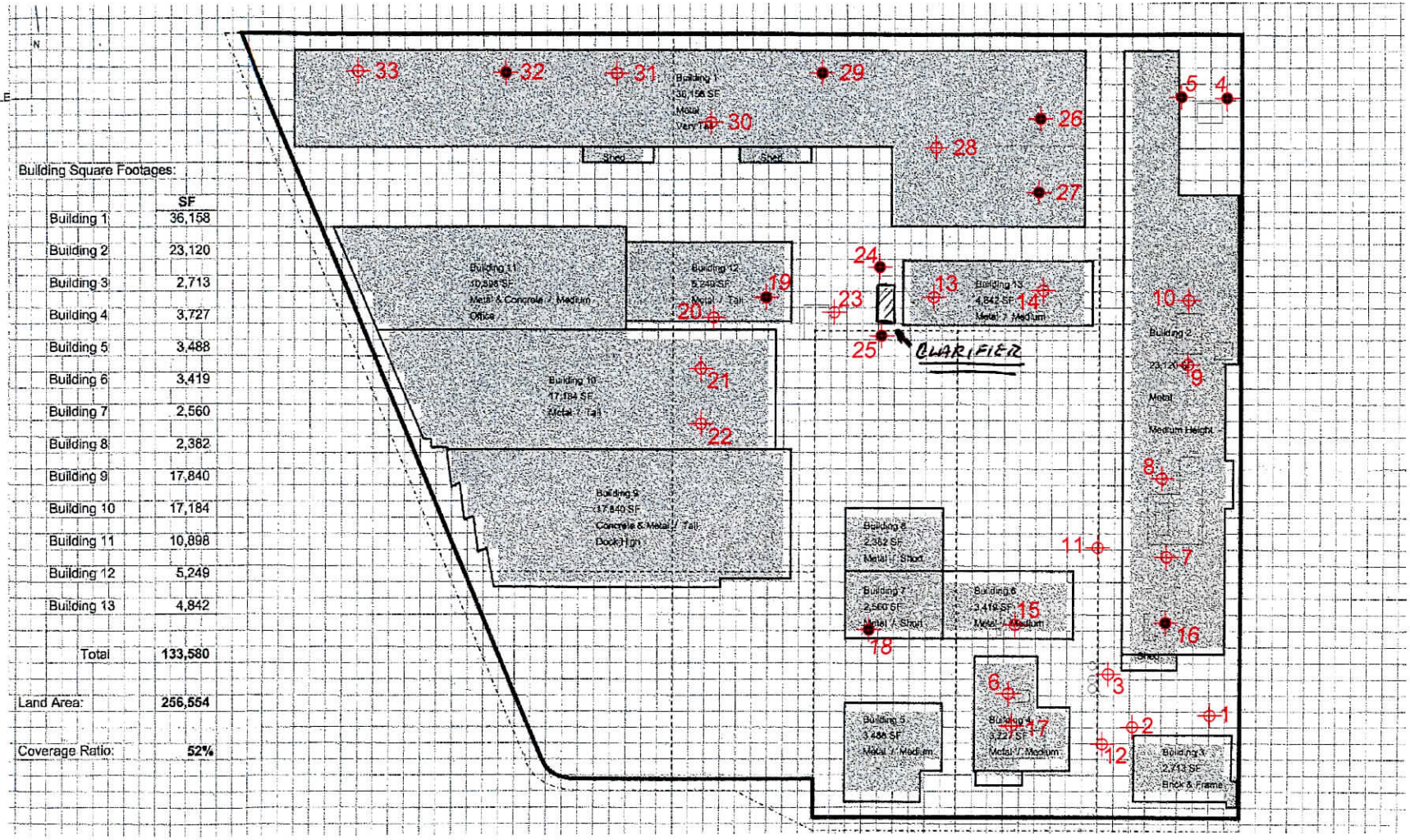
8420 S. Atlantic Boulevard, Cudahy, California

Project No:
05-16-215-01

Converse Consultants

FIGURE 1

NOT TO SCALE



Building Square Footages:

	SF
Building 1	36,158
Building 2	23,120
Building 3	2,713
Building 4	3,727
Building 5	3,488
Building 6	3,419
Building 7	2,560
Building 8	2,382
Building 9	17,840
Building 10	17,184
Building 11	10,898
Building 12	5,249
Building 13	4,842
Total	133,580
Land Area:	256,554
Coverage Ratio:	52%

BORING LOCATION MAP

Converse Consultants

8420 S. ATLANTIC BOULEVARD
CUDAHY, CALIFORNIA

Project No. 05-16-215-01

Figure No. 3

~~CLARIFI~~ * { CLARIFIER BETWEEN SAMPLE POINTS 24 & 25. AS PER HQ SAMPLES TAKEN FOR pH. BORINGS AT INLET & OUTLET OF DEVICE } *

Appendix A

Boring Logs

Log of Boring No. GP-16

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SANDY SILT (ML): olive-brown, dry to moist, loose, fine-grained sand.	X					0.0
5		**SILTY SAND (SM):** olive-brown, dry to moist, loose, fine-grained sand.	X					0.0
10		-dark olive-brown	X					0.0
15		**SANDY CLAY (CL):** dark olive-brown, dry to moist, soft, fine-grained sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-16

Log of Boring No. GP-18

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SANDY SILT (ML): olive-brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		**SILTY SAND (SM):** olive-brown, dry to moist, loose, fine-grained sand.	X					0.0
10		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained sand.	X					0.0
15		**CLAYEY SAND (SC):** dark olive-brown, dry to moist, loose, fine-grained sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-18

Log of Boring No. GP-19

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILT (ML): dark olive-brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		**SAND (SP):** olive-brown, dry to moist, loose, fine-grained.	X					0.0
10		grey-brown	X					0.0
15		**SANDY CLAY (CL):** dark grey-brown, dry to moist, soft, fine-grained.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name: **Agora Real Estate/Intermatic Complex**

Project No.: ***05-16-215-01***

Drawing No.: **GP-19**

Log of Boring No. GP-24

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS. This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILT (ML): dark olive-brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained sand.	X					0.0
10			X					0.0
15		**CLAY (CL):** dark olive-brown, dry to moist, soft, with silt and trace of fine-grained micaceous sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-24

Log of Boring No. GP-25

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILT (ML): dark brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		no sample recovered						
10		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained.	X					0.0
15			X					0.0
		End of boring at 15.5 feet. Groundwater not encountered at the time of drilling. Boring backfilled with hydrated bentonite.						

Converse Consultants

Project Name: **Agora Real Estate/Intermatic Complex**

Project No.: **05-16-215-01**

Drawing No.: **GP-25**

Log of Boring No. GP-26

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		18" CONCRETE						
		SILT (ML): black-brown, dry to moist, soft, trace of fine-grained micaceous sand.	X					0.0
5		**SILTY SAND (SM):** olive-brown, dry to moist, loose, fine-grained sand.	X					0.0
10			X					0.0
15		**CLAYEY SAND (SC):** grey-brown, dry to moist, loose, fine-grained sand.	X					0.0
		End of boring at 15.5 feet. Groundwater not encountered at the time of drilling. Boring backfilled with hydrated bentonite.						

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-26

Log of Boring No. GP-27

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SANDY SILT (ML): olive-brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		**SILTY SAND (SM):** olive-brown, dry to moist, loose, fine-grained sand.	X					0.0
10		**SANDY SILT (ML):** dark olive-brown, dry to moist, soft, fine-grained sand, with a trace of clay.	X					0.0
15		**SILTY SAND (SM):** grey-brown, dry to moist, soft, fine-grained sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-27

Log of Boring No. GP-32

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILTY SAND (SM): olive-brown, dry to moist, loose, fine-grained sand, with 1" angular rock fragments.	X					0.0
5		-grey-brown, no rock fragments	X					0.0
10		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained sand.	X					0.0
15		**SANDY CLAY (CL):** dark olive-brown, dry to moist, loose, fine-grained sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-32

Log of Boring No. GP-4

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILTY SAND (SM): yellow-brown, dry to moist, loose, fine to coarse-grained, 1/2" angular rock fragments.	X					0.0
5		**SANDY CLAY/CLAYEY SAND (SC/CL):** olive-brown, dry to moist, soft/loose, fine grained sand, 1" rock fragments.	X					0.0
10		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained.	X					0.0
15		**SANDY CLAY (CL):** dark olive-brown, dry to moist, soft, fine-grained sand.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name
Agora Real Estate/Intermatic Complex

Project No.
05-16-215-01

Drawing No.
GP-4

Log of Boring No. GP-5

Dates Drilled: 9/21/2005 Logged by: WLR Checked By: SGW

Equipment: GEOPROBE Driving Weight and Drop: N/A

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT	MOISTURE (%)	DRY UNIT WT. (pcf)	PID (ppm)
		SILT (ML): dark olive-brown, dry to moist, loose, trace of fine-grained micaceous sand.	X					0.0
5		**SILTY SAND (SM):** olive-brown, dry to moist, loose, fine-grained.	X					0.0
10		**SAND (SP):** grey-brown, dry to moist, loose, fine-grained.	X					0.0
15		**CLAYEY SAND (SC):** dark grey-brown, dry to moist, loose, fine-grained.	X					0.0

End of boring at 15.5 feet.
Groundwater not encountered at the time of drilling.
Boring backfilled with hydrated bentonite.

Converse Consultants

Project Name: **Agora Real Estate/Intermatic Complex**

Project No.: ***05-16-215-01***

Drawing No.: **GP-5**

ASSOCIATED LABORATORIES
806 N. Batavia • Orange, CA 92868
(714) 771-6900 • Fax: (714) 538-1209

CHAIN OF CUSTODY RECORD

Date 9/21/05 Page 1 of 3

157206

CLIENT Converse Consultants
ADDRESS 10391 Corporate Dr.
Redlands, CA 92374

PROJECT MANAGER William Aquilola
PHONE NUMBER 909-796-0544
SAMPLERS: (Signature)

PROJECT NAME
05-16205-01 Interstate Center

Lab Use Only:
Samples Intact Yes ✓ No ____
County Seals Intact Yes ____ No ____
Sample Ambient ___ Cooled ✓ Frozen ___
Same Day ____ 24 Hr. ____
Regular ✓ 48 Hr. ____

SAMPLE NUMBER	LOCATION DESCRIPTION	~~DATE~~ TIME	~~TIME~~ DATE	SAMPLE TYPE WATER	AIR	SOLID	NO OF CNTNRS	SUSP. CONTAM.	TESTS REQUIRED
GP18-2	8420 S. Archibald	8:30	9/21/05			X	2 Glass / Scoop		8015, 8260, 8270, 1A
5		8:32				X			↓ ↓ ↓ ↓
10		8:35				X			Archive
15		8:40				X			↓
GP16-2		9:25				X			8015, 6010, 8260
5		9:28				X			↓ ↓ ↓
10		9:30				X			Archive
15		9:38				X			↓
GP4-2		9:53				X			8015, 6010 8260 8270
5		9:55				X			Archive
10		10:00				X			8015, 6010, 8260 8270
15		10:05				X			Archive
GP32-25		3:20				X			Archive

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9/21/05 17:[illegible]
Relinquished by: (Signature)	Received by Laboratory for analysis: (Signature)	Date/Time

I hereby authorize the performance of the above indicated work.

Special Instructions: Need Results By Wednesday 12:00 Noon

DISTRIBUTION: White with report. Yellow to AL, Pink to Courier

ASSOCIATED LABORATORIES
806 N. Batavia • Orange, CA 92868
(714) 771-6900 • Fax: (714) 538-1209

CHAIN OF CUSTODY RECORD

Date 9/21/05 Page 2 of 3

157206

CLIENT Converse Consultant
ADDRESS 10391 Corporate Dr
Redlands, CA 92374

PROJECT MANAGER William Raysdale
PHONE NUMBER 909-796-0544

PROJECT NAME 0576-215-01 Intermodal Complex

SAMPLERS: (Signature)

Lab Use Only:
Samples Intact Yes ____ No ____
County Seals Intact Yes ____ No ____
Sample Ambient ___ Cooled x Frozen ___
Same Day ____ 24 Hr. ____
Regular x 48 Hr. ____

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE WATER	AIR	SOLID	NO OF CNTNRS	SUSP. CONTAM.	TESTS REQUIRED
6P5 2	8920 S. Athalie	9/21/05	10:18			x	2 jar 1 sleeve		8015cc 6010 8260, 8270
5			10:20			x			Archive
10			10:25			x			8015cc, 6010, 8260, 8270
15			10:33			x			Archive
6P4 2			10:55			x			Archive
5			10:58			x			8015cc, 6010 8260 8270
10			11:00			x			↓ ↓ ↓ ↓
15			11:08			x			Archive
6P3 2			11:25			x			Archive
10			11:30			x			8015cc 6010, 8260 8270
15			11:40			x			↓ ↓ ↓ ↓
6P1 2			12:25			x			8015cc 8260 6010
5			12:28			x			↓ ↓ ↓

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9/21/05 17:00
Relinquished by: (Signature)	Received by Laboratory for analysis: (Signature)	Date/Time

Special Instructions:
NEED Results by Monday 10:00 AM

I hereby authorize the performance of the above indicated work.

DISTRIBUTION: White with report. Yellow to AL. Pink to Courier

ASSOCIATED LABORATORIES
806 N. Batavia • Orange, CA 92868
(714) 771-6900 • Fax: (714) 538-1209

CHAIN OF CUSTODY RECORD

Date 9/21/05 Page 3 of 3

157206

CLIENT Converse Consultants
ADDRESS 10391 Corporate Dr
Redlands, CA 92374

PROJECT NAME
01-16-215-01 Intermodal Complex

PROJECT MANAGER William Ragsdale
PHONE NUMBER 909-796-0544
SAMPLERS: (Signature)

Lab Use Only:
Samples Intact Yes ✓ No ____
County Seals Intact Yes ____ No ____
Sample Ambient ___ Cooled ___ Frozen ___
Same Day ____ 24 Hr. ____
Regular x 48 Hr. ____

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE: WATER	AIR	SOLID	NO OF CNTNRS	SUSP. CONTAM.	TESTS REQUIRED
GP19-10	8470 S Atlantic	9/21/05	12:30			X	2 Brass Rings		Archive
15			12:37			X			Archive
GP27-2			1:00			X			8015cu, 8260, 6010
5			1:03			X			
10			1:05			X			Archive
15			1:10			X			Archive
GP26-2			1:50			X			8015cu, 8260, 8270, 6010
5			1:54			X			
10			1:56			X			Archive
15			2:00			X			Archive
GP32-2			2:55			X			8015cu, 8260, 6010
5			3:10			X			
10			3:15			X			Archive

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		9/21/05 17:00
Relinquished by: (Signature)	Received by Laboratory for analysis: (Signature)	Date/Time

Special Instructions:
Need Results by Wednesday 12:00 noon

I hereby authorize the performance of the above indicated work.

DISTRIBUTION: White with report. Yellow to AL. Pink to Courier

Reference:
CoC, 2012

AGENDA
CUDAHY CITY COUNCIL
A Special Meeting to be held in the City Council Chambers,
5240 Santa Ana Street, Cudahy, California
Tuesday – October 16, 2012 - 6:00 P.M.

1. CALL TO ORDER

2. ROLL CALL

Councilmember Barrios
Councilmember Guerrero
Councilmember Romo
Vice Mayor Gurule

Pledge of Allegiance:

Invocation:

Presentations:

3. PUBLIC COMMENT

Vice Mayor Gurule: This is the time set aside for citizens to address the City Council on matters relating to City. Anyone wishing to speak, please fill out the form located at the Council Chambers entrance and submit it to the City Clerk when approaching the podium. **Each person will be allowed to speak only once and will be limited to five (5) minutes**. When addressing the Council please speak into the microphone and voluntarily state your name and address. The proceedings for this meeting are recorded on tape.

4. PUBLIC HEARING

4A. Public Hearing to consider approval and authorization of the sale of properties (the "Properties") by the Cudahy Economic Development Corporation located at: (i) 7630 and 7638 Atlantic Avenue, Cudahy, CA. (Mixed-Use Commercial and Multi-Family Residential); (ii) 8221 Atlantic Avenue, Cudahy, CA. (Mixed-Use and Multi-Family Residential); (iii) 8100 and 8110 Atlantic Avenue and 4720 and 4734 Santa Ana Street, Cudahy, CA. (Mixed-Use Commercial and Multi-Family Residential); and, (iv) 8420 Atlantic Avenue, Cudahy, CA. (Commercial).
(Staff report and Resolutions 12-38 through 12-41 attached)

Recommendation: *Motion to* NOT ADOPT Resolution No. 12-38 (Attachment 1) approving the disposition by the Cudahy Economic Development Corporation of the property located at 8221 Atlantic Avenue within the City of Cudahy to BlueGreen Development, LLC;NOT ADOPT Resolution No. 12-39 (Attachment 2) approving the disposition by the Cudahy Economic Development Corporation of the properties located at 7630 and 7638 Atlantic Avenue within the

City of Cudahy to Blue Green Development, LLC;NOT ADOPT Resolution No. 12-40 (Attachment 3) approving the disposition by the Cudahy Economic Development Corporation of the properties located at 8100 and 8110 Atlantic Avenue and 4720 and 4734 Santa Ana Street within the City of Cudahy to Grapevine Advisors, LLC; and NOT ADOPT Resolution No. 12-41(Attachment 4) approving the disposition by the Cudahy Economic Development Corporation of the property located at 8420 Atlantic Avenue within the City of Cudahy to Grapevine Advisors, LLC.

5. BUSINESS SESSION

5A. Consideration of Resolution No. 12-49, A Resolution of the City of Council of the City of Cudahy authorizing the deletion and addition of a signatory to the Local Agency Investment Fund Account.
(Staff Report and Resolution No.12-49 attached)

Recommendation*: Motion to approve Resolution No. 12-49.*

5B. Consideration of Resolution No. 12-50, A Resolution of the City of Council of the City of Cudahy authorizing the deletion and addition of agents to the Wells Fargo Bank Fund Account.
(Resolution No. 12-50 attached)

Recommendation: *Motion to approve Resolution No. 12-50.*

5C. Consideration of Resolution No. 12-51, A Resolution of the City of Council of the City of Cudahy recommending the designation of applicants agent for the Legislative Hazard Mitigation Grant program.
(Resolution No. 12-51 and Application attached)

Recommendation: *Motion to approve Resolution No. 12-51.*

6. COUNCIL BUSINESS

7. ADJOURNMENT

All public meetings conducted by the City of Cudahy are held in sites accessible to persons with disabilities. Requests for accommodations may be made by calling the Office of the City Clerk at least 72 hours in advance of the meeting. SB343 Note: Any writings or documents provided to a majority of the City Council regarding any item on this agenda will be made available for public inspection at the Reception Counter at City Hall located at 5220 Santa Ana Street, Cudahy, CA. 90201. THIS AGENDA POSTED ACCORDING TO GOVERNMENT CODE REQUIREMENTS OF THE STATE OF CALIFORNIA BY THE DEPUTY CITY CLERK OF THE CITY OF CUDAHY: ANGELA BUSTAMANTE

Reference:
DPW, 2007

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

DONALD L. WOLFE, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE REFER TO FILE: EP-1
000839-049420

June 21, 2007

Mr. Fred C. Wassan
Agoura Realty & Management
15206 Ventura Boulevard, Suite 306
Sherman Oaks, CA 91403-5362

Dear Mr. Wassan:

INDUSTRIAL WASTE PRETREATMENT FACILITY
CLOSURE CERTIFICATION
CLOSURE APPLICATION NO. 522219
FACILITY LOCATED AT 8420 SOUTH ATLANTIC BOULEVARD (2Y)

This office has reviewed the final closure report dated October 6, 2005, prepared by Converse Consultants, required as a part of the subject application for closure. Based on the information submitted, we find that all closure requirements have been completed. With the provision that the information provided to this agency was accurate and representative of existing conditions, it is our position that no further action is required at this time.

Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or Water Code for past, present, or future operations at this facility. Nor does it relieve you of the responsibility to cleanup existing, additional, or previously unidentified conditions at the facility which cause or threaten to cause pollution or nuisance or otherwise pose a threat to water quality or public health.

Additionally, be advised that changes in the present or proposed use of the site may require further site characterization and mitigation activity. It is the property owner's responsibility to notify this agency of any changes in report content, future contamination findings, or site usage.

If you have any questions, please contact Mr. Rogelio Gamino of this office at (626) 458- 3571, Monday through Thursday, 7 a.m. to 5:30 p.m.

Very truly yours,

DONALD L. WOLFE
Director of Public Works

TIM SMITH
Senior Civil Engineer
Environmental Programs Division

RG:my
P:\sec\Wassan C526394

TRANS: INSP HMS INSPECTION DISPLAY/UPDATE OPER: E515180
PROG: PWC160 06/05/07 09:23:59

ACTION: _ (A)DD (C)HANGE (D)ELETE (B)ROWSE A(S)SC # BROWSE
FILE #: 000839 049420 NAME: AGORA REALTY & MANAGEMENT SEC? N STAT: PERM
STREET #: 8420 FR: DR: S NAME: ATLANTIC SF: AVE UN:
CITY: CUDAHY ZIP: 90201 AREA: 2Y TEL:
INSP #: I 000522321 INSP TYPE: I CLOS INSP DT: 050707 INSP DISP: COMP
ASSC #: A 000522219 ASSC # TYPE: I CLOS ASSC # DT: 050307 ASSC # DISP:

INSP PROC: _____ SAMP REQ? _ SELF MONT? _

INSP INFO: CLOSURE_AUTHORIZATION:CLARIFIER_TO_BE_REMOVED_ON_5/10/07_BY_CONVERSE CONSULTANTS,REMOVAL_BY_2:00PM._CONTACT:_ALEX_FERNANDEZ951-264-4145__

RESULTS: DEVICE_REMOVED_PRIOR_TO_INSP;AS_PER_HQ,_SAMPLES_TAKEN_FOR_PH;SAMPLES TAKEN_@_INLET_&_OUTLET_OF_CLARIFIER;REMOVAL_BY_CONVERSE_CONSULTANTS_

ASSIGN DT: 050707 DUE DT: 051007 ASSIGN TO: 479130 AREA2_
START DT: _____ COMP DT: 5/10/07 COMP BY: 479130 JMDF
LAST TRAN/DATE/OPER: INSP 060507 E515180

UPDATE COMPLETED

HMS UPDATE
BY _____
DATE _____
APP# _____

-HQ USE ONLY-

FOR HMS UPDATE ONLY
Cancellation Worksheet For
Industrial Waste Disposal Permit

Site/File No.: 839- 49420 Date: 5/10/07

Name: AGORA REALTY & MANAGEMENT

Street No.: 8420 S. ATLANTIC AVE CUDAHY 90201

Permit No.: 522218 Insp. No.: 522321 App. No.: 522219

	Yes	No	Other
Requested Closure Authorization conditions and limitations Items A, B, C, D & E completed	[X]	[ ]	[ ]
All industrial waste producing operations have ceased	[X]	[ ]	[ ]
All industrial waste treatment facilities have been rendered inoperable to prevent further use	[X]	[ ]	[ ]
All industrial wastes remaining on the premises have been removed to a legal point of disposal	[X]	[ ]	[ ]
All fees required up to this date of request for cancellation have been paid	[X]	[ ]	[ ]

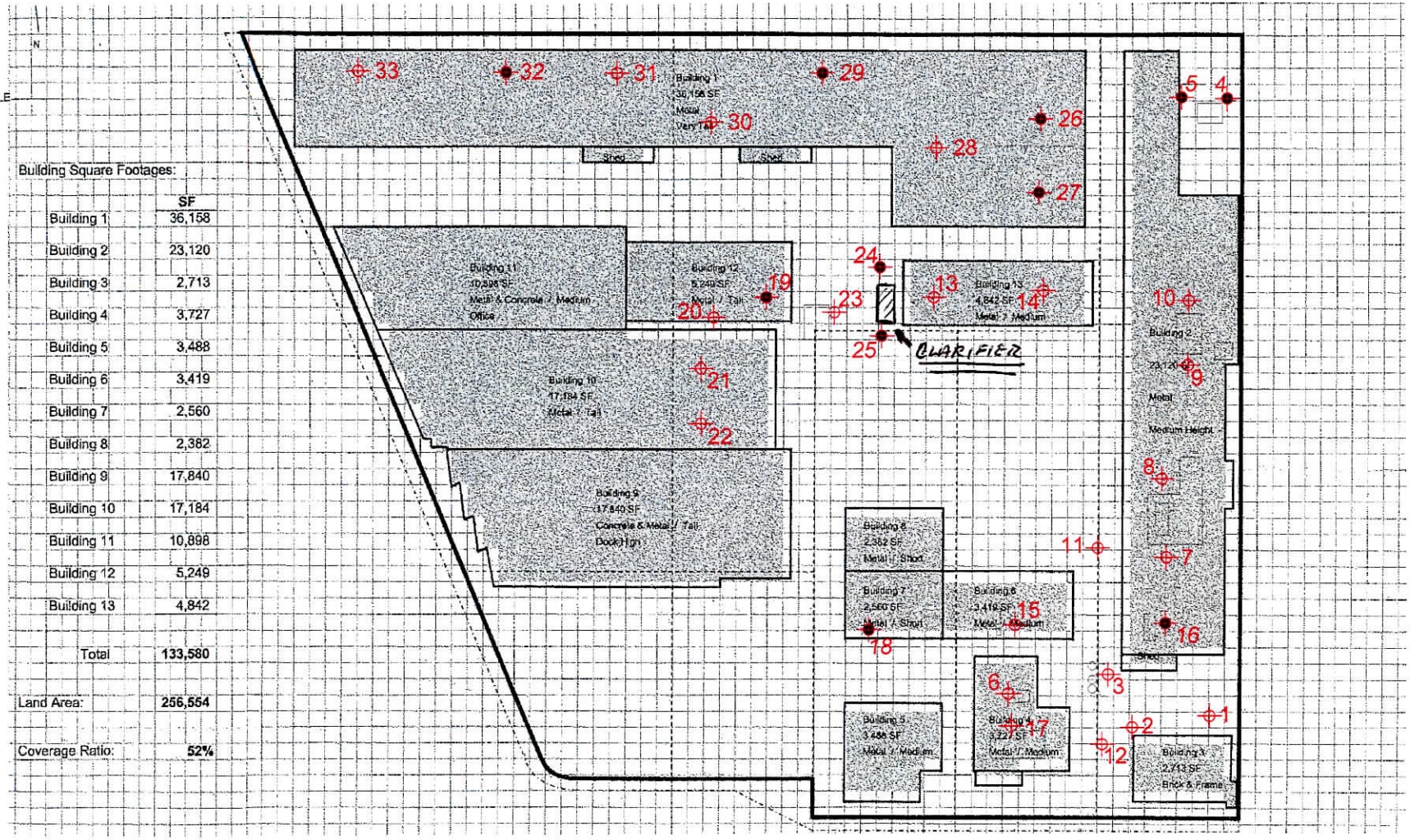
Closure Date: 5/10/07 Last Used Date: ——— Removal Date: 5/10/07

Comments: CLARIFIER REMOVED PRIOR TO ~~INSPECTION~~ INSPECTION; SAMPLES TAKEN AT INLET & OUTLET; AS PER HQ, SAMPLES TAKEN TO TEST FOR pH; REMOVAL OF DEVICE & SAMPLES TAKEN BY CONVERSE CONSULTANTS; ESCORTED BY WILLIAM RAGSDALE & ALEX FERNANDEZ

By JASON MONOD DE FROIDEVILLE Date 5/10/07
Inspector, Environmental Programs Division

NH2\CANCEL

NOT TO SCALE



Building Square Footages:

	SF
Building 1	36,158
Building 2	23,120
Building 3	2,713
Building 4	3,727
Building 5	3,488
Building 6	3,419
Building 7	2,560
Building 8	2,382
Building 9	17,840
Building 10	17,184
Building 11	10,898
Building 12	5,249
Building 13	4,842
Total	133,580
Land Area:	256,554
Coverage Ratio:	52%

BORING LOCATION MAP

Converse Consultants

8420 S. ATLANTIC BOULEVARD
CUDAHY, CALIFORNIA

Project No. 05-16-215-01

Figure No. 3

~~CLARIFI~~ * { CLARIFIER BETWEEN SAMPLE POINTS 24 & 25. AS PER HQ SAMPLES TAKEN FOR pH. BORINGS AT INLET & OUTLET OF DEVICE } *

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL PROGRAMS DIVISION

FOR HMS UPDATE ONLY

VIOLATION CORRECTION WORKSHEET

File 839-49420

Industry: AGORA REALTY & MANAGEMENT

Location: 8420 S. ATLANTIC AVE. CUDAHY 90201

Permit Number 522218 Day of Notice 4/11/07

Violation Number V 519450

Notice Type: [X] Notice [ ] Notice of Non-Compliance

[ ] Notice of Violation and Order to Comply

[ ] Other _____

CORRECTIONS HAVE BEEN MADE FOLLOWING ISSUANCE OF THE SUBJECT NOTICE.

Comments: CHANGE OF OWNERSHIP RECD (P522218); CLOSURE APP RECD (A522219); CLOS INSP VERIFIED DEVICE NO LONGER PRESENT (I522321); REMOVAL BY CONVERSE CONSULTANTS

Inspector: JASON MONOD DE FROIDEVILLE Date 5/10/07

Disp: COMP

Revised 11/08/04

Reference:
DTSC, 2013

SITE SCREENING ASSESSMENT

Prepared by: California Department of Toxic Substances Control (DTSC)
Cooperative Agreement Number: V-00T62401-1
DTSC Fiscal Year: 2012-2013

Prepared for: United States Environmental Protection Agency Region 9
Superfund Division, Site Assessment Section
San Francisco, California

Date: 6/30/13

Site Name:	**M-Stephens Manufacturing, Inc.**				
City:	**Cudahy**			**County:**	**Los Angeles**
DTSC Regional Office:	Chatsworth				
CERCLIS ID:	*	**EPA ID:**	**CAC000697736**	**Envirostor ID:**	**60001790**

* CAN000909569

EXECUTIVE SUMMARY

Narrative summary of site history and recommended action:

Former manufacturing facility located during drive-by surveillance conducted jointly with USEPA. A large transformer in an empty lot is the only indication that there may have been some sort of manufacturing conducted here in the past. No regulatory history was available, however the Regional Water Quality Control Board (RWQCB) files indicate a gasoline underground storage tank was located at this facility and removed. The facility name is based on RWQCB records. A cursory internet search of the name M-Stephens, identified the company manufactured outdoor weatherproof electrical products. M-Stephens Manufacturing, Inc. is now identified by its parent company Teddico/BWF.

DTSC Recommendation:				
Refer to:				
☒ EPA	☐ CADTSC	☐ CARWQCB	☐ Local Agency	☐ No Further Action
EPA Decision:				
Refer to:				
☒ EPA	☐ CADTSC	☐ CARWQCB	☐ Local Agency	☐ No Further Action

Final Signatures and Concurrence

DTSC Screener:	Signature	Manjul Bose *Type Name*	6/30/2013
DTSC Approval:	Signature	Javier Hinojosa *Type Name*	6/30/13 *Date: (MM/DD/YYYY)*
EPA Concurrence:	Signature	Matthew Mitguard *Type Name*	9/30/13 *Date: (MM/DD/YYYY)*

EPA Comments:

EPA ONLY				
CERCLIS CODING:	☐ Not Valid Site	☐ Not valid Site – State Lead	☐ Preliminary Assessment Needed	☒ Other: Watch List

Section 1: Site Information

1.1 CERCLIS Site Name: M-Stephens Manufacturing, Inc.
Aliases:

1.2 Origin of Site: Driveby's with USEPA identifying facilities located in proximate distance to impacted drinking water production wells.
Note discovery project, referral, complaint, etc.

1.3 Site Location Information

Street Address: 4839 Patata Street / 8420 Atlantic Avenue
City: Cudahy **County:** Los Angeles
State: CA **Zip Code:** 90201
Latitude: + 33 . 955576
Longitude: - 118 . 183094

1.4 Regulatory Information

CERCLIS ID: No
RCRA ID: none
Envirostor ID: 60001790
Geotracker ID: T0603703809

Section 2: Operational History

Reference all factual information and attach complete and legible copies of all cited references.

2.1 Current Operation

☐ Operational facility
☒ Nonoperational
☐ Current Operators do not use CERCLA hazardous constituents

Current owner: TSSAY J & R LLC **Current operator:** none
Hazardous materials used: Perchloroethylene, Corrosives, Ignitable materials, Waste Oil.
Hazardous materials manifested or disposed (HWTS): Perchloroethylene, Corrosives, Ignitable materials, Waste Oil.
Dates of operation: 1992*-2006 (* May have operated prior to 1992 based on HWTS)
Reference(s): Attachment C2 - HWTS

2.2 Historical owners/operators that may have used Contaminants of Concern onsite:

Owner: N/A **Operator:** N/A
Hazardous materials used:
Hazardous materials suspected:
Dates of operation:
Reference(s):

Owner: **Operator:**
Hazardous materials used:
Hazardous materials suspected:
Dates of operation:
Reference(s):

Section 3: Site Impact Information

Reference all factual information and attach complete and legible copies of all cited references.

3.1 Land Use/Site Setting:

Check all that apply

☒ Industrial area
☐ Residential area
☐ Schools/day care centers within 200 feet
☐ Surface water within 2 miles of the site
☐ Sensitive environments or wetlands within 2 miles of site
☒ Potential source of contamination to surface water

Details, description and references: One-third of the property is paved, two-thirds of the property is unpaved. The unpaved portion of the site has a pole mounted transformer located in the middle. There was once a building to which the transformer fed its power into, however today it is a unpaved dirt lot. Cursory search of the internet identified an outdoor electrical products manufacturer by the name of M-Stephens Manufacturing, Inc.

3.2 Surface Water

☐ Surface water used for drinking water within 15 miles of the site

☐ Public / commercial supply
☐ Private supply
Approximate number of people served by the surface water:
Details/additional information:

☐ Health advisory for consuming fish
☐ Surface water within 15 miles of the site is used for recreational or commercial fishing
☐ Surface water within 15 miles of the site provides habitat for sensitive species
☐ Site is a suspected source of surface water contamination

Details, description and references: Surface Water in LA County is not used for drinking water purposes.

3.3 Groundwater

☒ Groundwater used for drinking water within 4 miles of site

☒ Public / commercial supply (approximate number of people served: 250,000)
☒ Private supply (approximate number of people served: 2,000)
☒ Groundwater within 4 miles of the site known to be contaminated with hazardous substances

List hazardous substances: Perchloroethylene (PCE), Trichloroethylene (TCE), Hexavalent Chromium

List substances that exceed drinking water standards: Groundwater monitoring wells (first water) within 4 miles have TCE & PCE exceeding MCL's. Production wells located within 4 miles that show PCE and TCE below MCL's. There is production well (Hoffman Well 02 – Destroyed 10/26/2007) located 1500 feet north-east of this site that is listed as destroyed. The reason for its destruction is not listed on the DHS well finder tool, however this well belongs to the Golden State Water Company which serves Bell and Bell Gardens with connections to 24,500 people. Other water companies that operate in the area include Southgate Mutual Water Company serving 98,000 people, City of Cudahy Water Company serving 39,000 people DTSC is unable to determine the direction of groundwater flow at this Site based on neighboring properties. Groundwater flows to the southerly direction for NPL site Cooper Drum located ½ mile to the south of this Site. Groundwater at an active DTSC site; Los Angeles Chemical Company, located 1/4 mile to the west of the site, has the groundwater flowing to due west of its property (*Groundwater Monitoring Report Arcadis, 2007*).

☒ Site is a suspected source of groundwater contamination

SPGIT Quartile(s): 179
Details, description and references: M-Stephens Manufacturing, Inc. is within Quartile 179. This quartile also includes NPL sites such as Cooper Drum, Seam Masters and Jervis Webb. This quartile also includes DTSC sites Los Angeles Chemical Co. and South Region HS #9 in South Gate.

3.4 Community Interest

☐ High level of community interest
☐ Some community interest
☒ Low/no community interest

Details, description and references:

Section 4: Site Reconnaissance

4.1 Method of Site Reconnaissance (See Attachment B):

☐ Onsite Visit (Date:)
☒ Drive-by/offsite visit (Date:January 20, 2013)
☐ Records/aerial photo review

4.2 Adjacent properties:

North Industrial Warehouse
South Railroad, Additional indusrial warehouses beyond
East Commericial / Industrial Complex
West Atlantic Blvd, and Industrial Warehouses

4.3 Structures onsite (e.g. office building, paint booth, repair shop, etc.): One large building, property is fenced.

4.4 Site surface description (e.g., visual staining, cracked pavement, etc.): The property does not appear to be maintained. One-third portion of the property is paved, the remaining two-third of the property is unpaved.

4.5 Hazardous materials observed onsite

Materials stored: none

Materials in use: none

☒ N/A (records review only; see Section 2 for hazardous materials manifested/disposed)

4.6 Waste Storage and potential hazardous materials

Specify numbers, volume, and content

a) **Drums:** none
b) **Aboveground Storage Tanks:** none
c) **Underground Storage Tanks:** none - Former gasoline UST was removed by RWQCB.
d) **Clarifiers:** unknown
e) **Transformers potentially containing PCBs** Transformer in middle of unpaved area
f) **Other:**

Section 5: Summary and Recommendations/Conclusions

Use multiple pages if needed. Include parenthetical references for all statements, and attach complete copies of references used.

5.1 Summary of Site History, Historical Releases, and Potential Releases

Describe site history, historical releases, and potential for release. Include summary of relevant sampling history detailed in Attachment E.

In November 2011, USEPA & DTSC conducted joint drive by looking for potential sites that may be impacting groundwater in the area. M-Stephen's Manufacturing, Inc. was identified as a fenced property with a lone transformer on a pole, in a middle of an unpaved lot with weeds growing around it. The property was not completely fenced; the on-site security staff were interviewed but were unable to provide DTSC with any additional information. DTSC contacted the supervisor of the security company, they were unable to provide us with any further information.

DTSC is unsure of the exact nature of the activities M-Stephen's manufacturing conducted at this facility. There is no information on the company's operation and a lone transformer on a pole is the only remaining artifact that gives clues to some sort of heavy industrial manufacturing took place on the property. DTSC believes this site may have included a machine shop based on the HWTS results for an alternate address for this property. The alternate address shows the company manifested Perchloroethylene, corrosives, ignitable materials and waste oil.

A cursory search of the internet for the company name identified M-Stephens to be an outdoor electrical products manufacturer. They are a subsidiary of Teddico/BWF. It is unclear to DTSC when M-Stephens stopped operations at this location and when it was acquired by Teddico/BWF. HWTS indicates that the company was in operation between 1992-2006.

5.2 Regulatory Involvement

Provide detailed description of historical and/or ongoing regulatory involvement. Identify current lead agency.

The Los Angeles Regional Water Quality Control Board has a Leaking Underground Fuel Tank file for this site. There are two addresses associated with this site. The addresses listed with the regional board are different from the addresses that are listed on the HWTS system. There is no other regulatory oversight associated with this site. The site is up gradient to NPL sites Cooper Drum, Jervis Webb, Seam Masters.

5.3 Recommendation/conclusion

Describe proposed follow-up actions and recommended lead agency. If no further action is recommended, describe reasons.

DTSC recommends further investigation be conducted by USEPA. The rationale for further investigation is based on the site was formerly an electrical products manufacturer; its proximity to groundwater wells that are contaminated down gradient from the site.

ATTACHMENT A: Site Screening Contact Report

Provide detailed description of conversations. Attach complete copies of any documents provided by the contact. Use as many pages as necessary to report all contacts.

Contact Name:	**Yvette Caldero**
Affiliation:	**LA County FD**
Telephone Number:	**323-890-7806**
Date(s) of contact:	**December 2012**

Discussion:

No files found

Contact Name:	**Cindy Flores**
Affiliation:	**LA RWQCB**
Telephone Number:	**(213) 576-6633**
Date(s) of contact:	**January 2013**

Discussion:

LUST file found. Not copied.

Contact Name:	
Affiliation:	
Telephone Number:	
Date(s) of contact:	

Discussion:

<u>ATTACHMENT B</u>: Site Reconnaissance Report

Include photos and a site layout map showing features described in Sections 4.2-4.5.

ATTACHMENT C: ATTACHMENT INDEX

Attachment #	Document Title	Date
1	Airphoto	
2	HWTS Manifest System output	
3	Choicepoint Ownership	

ATTACHMENT D: SITE TYPE – PRIMARY/SECONDARY ACTIVITY FORM

Fed Fac Indicator: ☐ Federal Facility ☐ Not A Federal Facility ☐ Status Undetermined

RCRA Status: ☒ Generator ☐ TSDF ☐ Transporter ☐ Not listed in RCRIS

SITE TYPES **(Designate one dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.) Site type designations for both primary & secondary should pertain to the operation(s) on site of environmental consequence.**

PC	*SS*	**Manufacturing/Processing/Maintenance** (Subcategory)
☐	☐	Chemicals and allied products
☐	☐	Coal gasification
☐	☐	Coke production
☐	☐	Electric power generation and distribution
☒	☒	Electronic/electrical equipment
☐	☐	Fabrics/textiles
☐	☐	Lumber and wood products/pulp and paper
☐	☐	Lumber and wood products/wood preserving/treatment
☐	☐	Metal fabrication/finishing/coating and allied industries
☐	☐	Oil and gas
☐	☐	Ordnance production
☐	☐	Plastics and rubber products
☐	☐	Primary metals/minerals processing
☐	☐	Radioactive products
☐	☐	Tanneries
☐	☐	Trucks/ships/trains/aircraft and related components

PC	SS	**Waste Management** (Subcategory)
☐	☐	Radioactive waste treatment, storage, disposal
☐	☐	Municipal solid waste landfill
☐	☐	Mine tailings disposal
☐	☐	Industrial waste landfill
☐	☐	Industrial waste facility (non generator)
☐	☐	Illegal disposal/open dump
☐	☐	Co-disposal landfill (municipal and industrial)

PC	*SS*	**Other** (Subcategory)
☐	☐	Agricultural
☐	☐	Contaminated sediment site with no identifiable source
☐	☐	Dust control
☐	☐	Ground water plume site with no identifiable source
☐	☐	Military/other ordinance
☐	☐	Product storage/distribution
☐	☐	Research, development, and testing facility
☐	☐	Retail/commercial
☐	☐	Spill or other one time event
☐	☐	Transportation (e.g. railroad yards, airports, barge docking site
☐	☐	Treatment works/septic tanks/other sewage treatment

PC	*SS*	**Mining** (Subcategory)
☐	☐	Coal
☐	☐	Metals
☐	☐	Non-metals minerals
☐	☐	Oil and gas

PC	SS	**Recycling** (Subcategory)
☐	☐	Automobiles/tires
☐	☐	Batteries/scrap metals/secondary smelting/precious metal recovery
☐	☐	Chemicals/chemicals waste (e.g. solvent recovery)
☐	☐	Drums/tanks
☐	☐	Waste/used oil

SITE TYPES **(Designate one dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.)**

ATTACHMENT E: SITE SCREENING ASSESSMENT SAMPLING EVENT SUMMARY TABLE					
Date	**Event**	**Lead Agency**	**Main Contaminants Detected** (include only CERCLA-eligible hazardous substances)	**Notes/Description**	**Reference**

Acronym List

(Modify as needed)

µg/L	micrograms per liter
bgs	below ground surface
AST	Aboveground Storage Tank
CADTSC	California Environmental Protection Agency, Department of Toxic Substances Control
CARWQCB	California Environmental Protection Agency, Regional Water Quality Control Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CUPA	Certified Unified Program Agency
EPA	U. S. Environmental Protection Agency
LUST	Leaking Underground Storage Tank
NPL	National Priorities List
PA	Preliminary Assessment
RCRA	Resource Conservation and Recovery Act
RCRAInfo	Resource Conservation and Recovery Information System
SI	Site Investigation
UST	Underground Storage Tank
PCE	Tetrachloroethylene
TCE	Trichloroethylene

Attachment 1

Ardine St
Atlantic Ave
Salt Lake Ave
Patata St
Transformer
on Pole
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2013 Google
©2008 Google
lat 33.956122° lon -118.183098°
Mar 8, 2011
Eye alt 983 ft

Attachment 2

DTSCNet

Department of Toxic Substances Control

Database Search Site Summary

HWTS EPA ID Profile

EPA ID: CAC000697736 **Name:** 1X M. STEPHENS MANUFACTURING INC
Status: INACTIVE **Inactive Date:** 2000-10-25 **Contact:** KENDALL WICKS/CONSULTANT
County: LOS ANGELES **NAICS:** **Record Entered:** 1992-11-19 **Last updated:** 2000-10-25

MAAPS of this site Google Map and Satellite View EnviroMapper of this site

	Name	Address	City	State	ZIP	Phone
Location	1X M. STEPHENS MANUFACTURING INC	4839 PATATA ST	CUDAHY	CA	902010000	
Mailing		8420 SOUTH ATLANTIC AVE	CUDAHY	CA	902010000	
Owner	M. STEPHENS MANUFACTURING INC	--	--	99	--	0000000000
Oper/Contact	KENDALL WICKS/CONSULTANT	--	--	99	--	2135836897

Based ONLY upon EPA ID: CAC000697736:

Calif. Manifests?	Out-of-State Manifests?	Transporter Registration?	Toxic Release Inventory Data?	Envirostor Data?
NO	NO	NO	NO	NO

End of Report

DTSCNet

Department of Toxic Substances Control

Database Search Site Summary

HWTS EPA ID Profile

EPA ID: CAL000152580 **Name:** M STEPHENS MFG, INC
Status: INACTIVE **Inactive Date:** 2006-06-30 **Contact:** MARTY M. MORISKY - ENV/SAFETY
County: LOS ANGELES **NAICS:** 331521 **Record Entered:** 1996-05-17 **Last updated:** 2007-10-25

MAAPS of this site Google Map and Satellite View EnviroMapper of this site

	Name	Address	City	State	ZIP	Phone
Location	M STEPHENS MFG, INC	8420 ATLANTIC AVE	CUDAHY	CA	902015810	
Mailing		8420 ATLANTIC AVE # S	CUDAHY	CA	902015810	
Owner	M STEPHENS MFG	8420 ATLANTIC AVE # S	CUDAHY	CA	902010000	0000000000
Oper/Contact	MARTY M. MORISKY - ENV/SAFETY	8420 ATLANTIC AVE	CUDAHY	CA	902015810	3235608301

Based ONLY upon EPA ID: CAL000152580:

Calif. Manifests?	Out-of-State Manifests?	Transporter Registration?	Toxic Release Inventory Data?	Envirostor Data?
YES	NO	NO	NO	NO

Calif. Manifest Counts and Total Tonnage

m = Manifest Count t=Total Tonnage

Ship Year	Generator	Trans. 1	Trans. 2	TSDF	Alt. TSDF
1997	6 (m) 52.08500 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
1998	8 (m) 48.12500 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
1999	8 (m) 37.06820 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2000	9 (m) 50.48000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2001	8 (m) 38.16900 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2002	10 (m) 52.22429 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2003	8 (m) 49.51500 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2005	4 (m) 4.74640 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)
2006	1 (m) 16.85600 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)	0 (m) 0.00000 (t)

Waste Code By Year Matrix Report					
Calif.	Generator	Trans. 1	Trans. 2	TSDF	Alt. TSDF
RCRA	Generator	Trans. 1	Trans. 2	TSDF	Alt. TSDF

End of Report

DTSCNet

Department of Toxic Substances Control

HWTS - Calif. Waste Code By Year Matrix

EPA ID: CAL000152580 **Name:** M STEPHENS MFG, INC
Entity: Generator

Calif. Code	*Description*	*Weight (in Tons)*								
		1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2005**	**2006**
123	UNSPECIFIED ALKALINE SOLUTION								0.16680	
134	AQ SOL (2 < PH< 12.5) W ORG RESIDUES < 10%			0.29820		8.40000				
135	UNSPECIFIED AQUEOUS SOLUTION (2 < PH < 12.5)				10.08000				0.07500	
181	OTHER INORGANIC SOLID WASTE	8.57500								
221	WASTE OIL AND MIXED OIL	43.51000	47.31000	34.77000	30.40000	13.30000		37.24000		
223	UNSPECIFIED OIL-CONTAINING WASTE					11.25900	46.02429	10.42500		
331	OFF-SPEC, AGED, OR SURPLUS ORGANICS								1.69460	
343	UNSPECIFIED ORGANIC LIQUID MIXTURE								2.21000	
352	OTHER ORGANIC SOLIDS		0.81500	2.00000	10.00000	5.21000	6.20000	1.85000	0.60000	16.85600
	TOTALS	**52.08500**	**48.12500**	**37.06820**	**50.48000**	**38.16900**	**52.22429**	**49.51500**	**4.74640**	**16.85600**

DTSCNet

Department of Toxic Substances Control

HWTS - RCRA Waste Code By Year Matrix

EPA ID: CAL000152580 **Name:** M STEPHENS MFG, INC
Entity: Generator

RCRA Code	*Description*	*Weight (in Tons)*								
		1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2005**	**2006**
	Blank/Unknown	52.08500	47.68500	36.77000	50.48000	38.16900	52.22429	49.51500	2.81000	16.85600
D001	Ignitable		0.44000						1.69460	
D002	Corrosives								0.24180	
D039	Tetrachloroethylene			0.29820						
	TOTALS	**52.08500**	**48.12500**	**37.06820**	**50.48000**	**38.16900**	**52.22429**	**49.51500**	**4.74640**	**16.85600**

Attachment 3

Search Type: Real Property
Reference: 4 MBOSE PASI

CUDAHY ECONOMIC DEV CORP
6 records aggregated.

Record 1 out of 6 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Owner: CUDAHY ECONOMIC DEV CORP,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: CUDAHY ECONOMIC DEV CORP

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034014
		Formatted APN:	6224-034-014
County:	LOS ANGELES	**Orginal APN:**	6224034014
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date: 01/06/2012
Recording Date: 01/17/2012
Document Number: 69011
Document Type: GRANT DEED

Seller Name: BBA SOUTHWOOD LLC
Consideration: SALE PRICE (FULL)
Deed Type: GRANT DEED
Type of Transaction: NOMINAL

Construction Type: SALE IS A RE-SALE
Purchase Payment: CASH
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 2 out of 6 (Tax roll)

OWNER INFORMATION

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201
Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201

Owner: CUDAHY ECONOMIC DEV CORP
Additional Name: CUDAHY ECONOMIC DEV CORP
Owner Corporate Indicator: CORPORATE OWNER
Owner Ownership Rights Code: CORPORATION
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)

PROPERTY INFORMATION

FIPS Code: LOS ANGELES
FIPS Sub Code: 000
FIPS State Code: CALIFORNIA
APN Sequence Number: 1
Unformatted APN: 6224034014
Formatted APN: 6224-034-014
Original APN: 6224 034 014
Property Indicator: VACANT
Land Use: INDUSTRIAL LOT
Zoning: CUM2*
Land Square Footage: 27416
Acres: 0.6294

Subdivision Name: 180
Subdivision Plat Book: 13
Subdivision Plat Page: 198
Legal Description: TRACT # 180 S 304.63 FT OF LOT 243
Subdivision Tract Number: 180
Lot Number: 243

TAX ASSESSOR INFORMATION

Tax Year:	2011	**Total Value Calculated Indicator:**	ASSESSED
Tax Amount:	$8,158.50		
Tax Code Area:	631		
Calculated Land Value:	$652,796.00		
Calculated Total Value:	$652,796.00		
Assessed Land Value:	$652,796.00		
Assessed Total Value:	$652,796.00		

BUILDING/IMPROVEMENT CHARACTERISTICS

Lot Area: 4000027416

LAST FULL MARKET SALE INFORMATION

Sale Date:	11/03/2009
Seller Name:	BBA SOUTHWOOD LLC
Sale Price:	$1,700,000.00
Sale Code:	FULL
Deed Type:	GRANT DEED
Type of Sale:	RESALE
Mortgage Amount:	$700,000.00
Mortgage Loan Type:	PRIVATE PARTY LENDER
Mortgage Deed Type:	DEED OF TRUST

Lender Name:	PRIVATE INDIVIDUAL
Multiple Parcel Sale:	MULTI - DETAIL PARCEL SALE
Recording Date:	11/25/2009
Document Number:	1791096
Title Company:	CHICAGO TITLE CO.

PREVIOUS TRANSFER INFORMATION

Document Number:	201968
Sale Date:	01/04/2006
Sale Price:	$5,850,000.00
Sale Code:	STAMPS ON BACK/NON-DISCLOSED SALE PRICE
Deed Type:	DEED OF TRUST

Mortgage Amount: $3,750,000.00
Multiple Parcel Sale: MULTI - DETAIL PARCEL SALE
Recording Date: 01/27/2006

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201
Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Unformatted APN: 6224034014
Formatted APN: 6224-034-014
Original APN: 6224 034 014
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)
Owner: CUDAHY ECONOMIC DEV CORP
Calculated Land Value: $652,796.00
Calculated Total Value: $652,796.00
Assessed Total Value: $652,796.00

2010 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201
Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN: 6224034014
Formatted APN: 6224-034-014
Original APN: 6224 034 014
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)
Owner: BBA SOUTHWOOD LLC
Co-Owner: CARMAR LLC
Calculated Land Value: $639,997.00
Calculated Total Value: $639,997.00
Assessed Total Value: $639,997.00

2009 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 15206 VENTURA BLVD
306
BURBANK, CA
91504-2522

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	SITUS FROM SALE (ABSENTEE)
Owner:	PATATA INVESTMENT LLC
Calculated Land Value:	$635,214.00
Calculated Total Value:	$635,214.00
Assessed Total Value:	$635,214.00

2009 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 2900 N SAN FERNANDO BLVD
BURBANK, CA 91504-2522

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	SITUS FROM SALE (ABSENTEE)
Owner:	PATATA INVESTMENT LLC
Calculated Land Value:	$636,724.00
Calculated Improvement Value:	$10,612.00
Calculated Total Value:	$647,336.00
Assessed Total Value:	$647,336.00

2008 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 2900 N SAN FERNANDO BLVD
BURBANK, CA 91504-2522

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	SITUS FROM SALE (ABSENTEE)
Owner:	PATATA INVESTMENT LLC
Calculated Land Value:	$636,724.00
Calculated Improvement Value:	$10,612.00
Calculated Total Value:	$647,336.00
Assessed Total Value:	$647,336.00

2008 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$636,724.00
Calculated Improvement Value:	$10,612.00
Calculated Total Value:	$647,336.00
Assessed Total Value:	$647,336.00

2007 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$624,240.00
Calculated Improvement Value:	$10,404.00
Calculated Total Value:	$634,644.00
Assessed Total Value:	$634,644.00

2006 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$612,000.00
Calculated Improvement Value:	$10,200.00
Calculated Total Value:	$622,200.00
Assessed Total Value:	$622,200.00

2005 TAX YEAR

Situs Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224 034 014
Absentee Owner:	SITUS FROM SALE (OCCUPIED)
Owner:	BBA SOUTHWOOD LLC
Calculated Land Value:	$309,867.00
Calculated Improvement Value:	$23,832.00
Calculated Total Value:	$333,699.00
Assessed Total Value:	$333,699.00

2003 TAX YEAR

Situs Address:	4819 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224034014
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	PATATA STREET LLC
Calculated Land Value:	$292,378.00
Calculated Improvement Value:	$22,488.00
Calculated Total Value:	$314,866.00
Assessed Total Value:	$314,866.00

2001 TAX YEAR

Situs Address:	4819 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224034014
Absentee Owner:	YES
Owner:	PATATA STREET LLC
Calculated Land Value:	$281,026.00
Calculated Improvement Value:	$21,616.00
Calculated Total Value:	$302,642.00
Assessed Total Value:	$302,642.00

2001 TAX YEAR

Situs Address:	4819 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224034014
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	PATATA STREET LLC
Calculated Land Value:	$281,026.00
Calculated Improvement Value:	$21,616.00
Calculated Total Value:	$302,642.00
Assessed Total Value:	$302,642.00

1999 TAX YEAR

Situs Address:	4819 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034014
Formatted APN:	6224-034-014
Original APN:	6224034014
Owner:	PATATA STREET LLC
Calculated Land Value:	$275,516.00
Calculated Improvement Value:	$21,193.00
Calculated Total Value:	$296,709.00
Assessed Total Value:	$296,709.00

Record 3 out of 6 (Deed)

OWNER INFORMATION

Property Address:	4819 PATATA ST CUDAHY, CA 90201
Mailing Address:	2900 N SAN FERNANDO BLVD BURBANK, CA 91504-2522

Owner:	PATATA INVESTMENT LLC,
Owner Relationship:	COMPANY / CORPORATION
Corporate Owner:	CORPORATE OWNER
Additional Owner 1:	PATATA INVESTMENT LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034014
		Formatted APN:	6224-034-014
County:	LOS ANGELES	**Orginal APN:**	6224034014
		Property Type:	INDUSTRIAL LIGHT
		Land Use:	LIGHT INDUSTRIAL
		Building Square Feet:	8234

TRANSACTION INFORMATION

Transaction Date:	11/03/2009
Recording Date:	11/25/2009
Document Number:	1791096

Document Type: GRANT DEED

Seller Name: BBA SOUTHWOOD LLC
Sale Price: $1,700,000.00
Consideration: SALE PRICE (FULL)
Deed Type: GRANT DEED
Type of Transaction: RESALE

Mortgage Amount: $700,000.00
Mortgage Type: PRIVATE PARTY LENDER
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 11/24/2009

Lender Name: MCB SOUTHWOOD LLC PRIVATE INDIVIDUAL
Lender Address: 15206 VENTURA BLVD # 306
SHERMAN OAKS, CA
91403

Title Company: CHICAGO TITLE CO.
Private Party Lender: YES
Construction Type: SALE IS A RE-SALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 4 out of 6 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: CORPORATION

Corporate Owner: YES

Additional Owner 1: BBA SOUTHWOOD LLC
Ownership 1 Rights: CORPORATION

Additional Owner 2: CJPB SOUTHWOOD LLC
Ownership 2 Rights: CORPORATION

Additional Owner 3: EAPB SOUTHWOOD LLC
Ownership 3 Rights: CORPORATION

Additional Owner 4: JEB SOUTHWOOD LLC
Ownership 4 Rights: CORPORATION

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034014
		Formatted APN:	6224-034-014
County:	LOS ANGELES	**Orginal APN:**	6224034014
		Property Type:	INDUSTRIAL LIGHT
		Land Use:	LIGHT INDUSTRIAL
		Building Square Feet:	8234

TRANSACTION INFORMATION

Transaction Date: 01/04/2006
Recording Date: 01/27/2006
Document Number: 201968
Document Type: MULTI CNTY-ST OR OPEN-END MORTGAGE

Seller Name: PATATA STREET LLC
Consideration: NOT OF PUBLIC RECORD
Type of Transaction: RESALE

Mortgage Amount: $3,750,000.00
Mortgage Type: CONVENTIONAL
Mortgage Deed Type: DEED OF TRUST

Interest Rate: ADJUSTABLE
Lender Name: FIRST COMMERCE BK
Lender Address: 16861 VENTURA BLVD STE 100
ENCINO, CA
91436

Title Company: CHICAGO TITLE CO.
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTI - DETAIL PARCEL SALE

Record 5 out of 6 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Additional Owner 1: PATATA STREET LLC

Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: PATATA STREET LLC,

Corporate Owner: YES

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034014
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	8234

TRANSACTION INFORMATION

Recording Date: 12/30/1996
Document Number: 2093873
Document Type: GRANT DEED

Seller Name: M STEPHENS MANUFACTURING I
Sale Price: $290,000.00
Type of Transaction: RESALE

Mortgage Amount: $790,000.00
Mortgage Type: PRIVATE PARTY LENDER

Title Company: NORTH AMERICAN TITLE
Private Party Lender: YES
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTI - DETAIL PARCEL SALE

Record 6 out of 6 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: M STEPHENS MANUFACTURING INC,

Corporate Owner: YES

Additional Owner 1: M STEPHENS MANUFACTURING INC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034014
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	8234

TRANSACTION INFORMATION

Transaction Date: 12/1986
Recording Date: 12/31/1986
Document Number: 1845850
Document Type: GRANT DEED

Seller Name: R & R ASSOCIATES

Sale Price: $1,250,000.00
Type of Transaction: RESALE

Mortgage Amount: $750,000.00
Mortgage Type: PRIVATE PARTY LENDER

2nd Mortgage Amount: $350,000.00
2nd Mortgage Type: PRIVATE PARTY LENDER

Interest Rate: ADJUSTABLE
Private Party Lender: YES
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTI - DETAIL PARCEL SALE

Search Type: Real Property
Reference: 4 MBOSE PASI

TSSAY J & R LLC
11 records aggregated.

Record 1 out of 11 (Tax roll)

OWNER INFORMATION

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201

Mailing Address: 1128 N N HILLCREST RD
BEVERLY HILLS, CA 90210

Owner:	TSSAY J & R LLC
Additional Name:	TSSAY J & R LLC
Owner Corporate Indicator:	CORPORATE OWNER
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES
FIPS Sub Code:	000
FIPS State Code:	CALIFORNIA
APN Sequence Number:	1
Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224 034 010
Property Indicator:	VACANT
Land Use:	INDUSTRIAL ACREAGE
Zoning:	CUM2*
Land Square Footage:	43923
Acres:	1.0083

Subdivision Name:	180
Subdivision Plat Book:	13
Subdivision Plat Page:	198
Legal Description:	TRACT # 180 LOT 241
Subdivision Tract Number:	180
Lot Number:	241

TAX ASSESSOR INFORMATION

Tax Year:	2011	**Total Value Calculated Indicator:**	ASSESSED
Tax Amount:	$23,345.59		
Tax Code Area:	631		
Calculated Land Value:	$1,899,778.00		
Calculated Total Value:	$1,899,778.00		
Assessed Land Value:	$1,899,778.00		
Assessed Total Value:	$1,899,778.00		

BUILDING/IMPROVEMENT CHARACTERISTICS

Lot Area: 3000043923

LAST FULL MARKET SALE INFORMATION

Sale Date:	02/19/2009	**Multiple Parcel Sale:**	MULTIPLE PARCEL SALE
Seller Name:	BBA SOUTHWOOD LLC	**Recording Date:**	02/25/2009
Sale Price:	$2,550,000.00	**Document Number:**	263851
Sale Code:	FULL	**Title Company:**	SPL INC
Deed Type:	GRANT DEED		
Type of Sale:	RESALE		

PREVIOUS TRANSFER INFORMATION

Document Number:	201968
Sale Date:	01/04/2006
Sale Code:	STAMPS ON BACK/NON-DISCLOSED SALE PRICE
Deed Type:	DEED OF TRUST

Mortgage Amount:	$3,750,000.00
Multiple Parcel Sale:	MULTIPLE PARCEL SALE
Recording Date:	01/27/2006

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address:	4839 PATATA ST CUDAHY, CA 90201
Mailing Address:	1128 N HILLCREST RD BEVERLY HILLS, CA 90210-2615

Unformatted APN: 6224034010
Formatted APN: 6224-034-010
Original APN: 6224 034 010
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)
Owner: TSSAY J & R LLC
Calculated Land Value: $1,899,778.00
Calculated Total Value: $1,899,778.00
Assessed Total Value: $1,899,778.00

2010 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201
Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN: 6224034010
Formatted APN: 6224-034-010
Original APN: 6224 034 010
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)
Owner: TSSAY J & R LLC
Calculated Land Value: $1,862,528.00
Calculated Total Value: $1,862,528.00
Assessed Total Value: $1,862,528.00

2009 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN: 6224034010
Formatted APN: 6224-034-010
Original APN: 6224 034 010
Absentee Owner: SITUS FROM SALE (ABSENTEE)
Owner: TSAY J & R LLC
Calculated Land Value: $1,848,608.00
Calculated Total Value: $1,848,608.00
Assessed Total Value: $1,848,608.00

2008 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224 034 010
Absentee Owner:	SITUS FROM SALE (ABSENTEE)
Owner:	TSAY J & R LLC
Calculated Land Value:	$1,024,065.00
Calculated Improvement Value:	$42,448.00
Calculated Total Value:	$1,066,513.00
Assessed Total Value:	$1,066,513.00

2007 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224 034 010
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$1,003,986.00
Calculated Improvement Value:	$41,616.00
Calculated Total Value:	$1,045,602.00
Assessed Total Value:	$1,045,602.00

2006 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224 034 010
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$984,300.00
Calculated Improvement Value:	$40,800.00
Calculated Total Value:	$1,025,100.00
Assessed Total Value:	$1,025,100.00

2005 TAX YEAR

Situs Address:	4839 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	4819 PATATA ST CUDAHY, CA 90201-5917

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224 034 010
Absentee Owner:	SITUS FROM SALE (OCCUPIED)
Owner:	BBA SOUTHWOOD LLC
Calculated Land Value:	$452,886.00
Calculated Improvement Value:	$59,586.00
Calculated Total Value:	$512,472.00
Assessed Total Value:	$512,472.00

2003 TAX YEAR

Situs Address:	4839 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224034010
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	PATATA STREET LLC
Calculated Land Value:	$427,322.00
Calculated Improvement Value:	$56,224.00
Calculated Total Value:	$483,546.00
Assessed Total Value:	$483,546.00

2001 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224034010
Absentee Owner:	YES
Owner:	PATATA STREET LLC
Calculated Land Value:	$410,730.00
Calculated Improvement Value:	$54,042.00
Calculated Total Value:	$464,772.00
Assessed Total Value:	$464,772.00

2001 TAX YEAR

Situs Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224034010
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	PATATA STREET LLC
Calculated Land Value:	$410,730.00
Calculated Improvement Value:	$54,042.00
Calculated Total Value:	$464,772.00
Assessed Total Value:	$464,772.00

1999 TAX YEAR

Situs Address:	4839 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	3773 ORANGE LN BOULDER, CO 80304-0777

Unformatted APN:	6224034010
Formatted APN:	6224-034-010
Original APN:	6224034010
Owner:	PATATA STREET LLC
Calculated Land Value:	$402,677.00
Calculated Improvement Value:	$52,983.00
Calculated Total Value:	$455,660.00
Assessed Total Value:	$455,660.00

Record 2 out of 11 (Deed)

OWNER INFORMATION

Property Address:	4839 PATATA ST CUDAHY, CA 90201-5917
Mailing Address:	1128 N HILLCREST RD BEVERLY HILLS, CA 90210-2615

Owner:	TSAY J & R LLC,
Owner Relationship:	COMPANY / CORPORATION

Corporate Owner:	CORPORATE OWNER

Additional Owner 1: TSAY J & R LLC
Ownership 1 Rights: COMPANY / CORPORATION

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Formatted APN:	6224-034-010
County:	LOS ANGELES	**Orginal APN:**	6224034010
		Formatted APN - IRIS:	6224-034-010
		Property Type:	INDUSTRIAL LIGHT
		Land Use:	LIGHT INDUSTRIAL
		Building Square Feet:	2732

TRANSACTION INFORMATION

Transaction Date:	02/19/2009		
Recording Date:	02/25/2009	**Title Company:**	SPL INC
Document Number:	263851	**Construction Type:**	SALE IS A RE-SALE
Document Type:	GRANT DEED	**Purchase Payment:**	CASH
		Mulitple Parcel Sale:	MULTIPLE PARCEL SALE
Seller Name:	BBA SOUTHWOOD LLC		
Sale Price:	$2,550,000.00		
Consideration:	SALE PRICE (FULL)		
Deed Type:	GRANT DEED		
Type of Transaction:	RESALE		

Record 3 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST CUDAHY, CA 90201

Mailing Address: 4819 PATATA ST CUDAHY, CA 90201

Owner: BBA SOUTHWOOD LLC,

Owner Relationship: TENANTS IN COMMON

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC

Ownership 1 Rights: TENANTS IN COMMON

Additional Owner 2: CJPB SOUTHWOOD LLC

Ownership 2 Rights: TENANTS IN COMMON

Additional Owner 3: EAPB SOUTHWOOD LLC

Ownership 3 Rights: TENANTS IN COMMON

Additional Owner 4: JEB SOUTHWOOD LLC

Ownership 4 Rights: TENANTS IN COMMON

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Formatted APN:	6224-034-010
County:	LOS ANGELES	**Orginal APN:**	6224034010
		Formatted APN - IRIS:	6224-034-010
		Property Type:	INDUSTRIAL LIGHT
		Land Use:	LIGHT INDUSTRIAL
		Building Square Feet:	2732

TRANSACTION INFORMATION

Transaction Date: 07/23/2008

Recording Date: 08/07/2008

Document Number: 1417026

Document Type: TRUST DEED/MORTGAGE

Deed Type: DEED OF TRUST

Type of Transaction: REFINANCE

Mortgage Amount: $76,000.00

Mortgage Type: CONVENTIONAL

Mortgage Deed Type: DEED OF TRUST

Mortgage Date: 07/23/2008

Interest Rate: ADJUSTABLE INT RATE LOAN
Lender Name: FIRST COMMERCE BK
ENCINO, CA
91436

Title Company: CHICAGO TITLE CO.
Refinance Loan: LOAN TO VALUE IS LESS THAN 50%

Record 4 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201
Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: TENANTS IN COMMON

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC
Ownership 1 Rights: TENANTS IN COMMON

Additional Owner 2: CJPB SOUTHWOOD LLC
Ownership 2 Rights: TENANTS IN COMMON

Additional Owner 3: EAPB SOUTHWOOD LLC
Ownership 3 Rights: TENANTS IN COMMON

Additional Owner 4: JEB SOUTHWOOD LLC
Ownership 4 Rights: TENANTS IN COMMON

PROPERTY INFORMATION

FIPS Code: LOS ANGELES
FIPS State Code: CALIFORNIA

County: LOS ANGELES

APN: 001
Unformatted APN: 6224034010
Formatted APN: 6224-034-010
Orginal APN: 6224034010
Formatted APN - IRIS: 6224-034-010
Property Type: INDUSTRIAL LIGHT
Land Use: LIGHT INDUSTRIAL
Building Square Feet: 2732

TRANSACTION INFORMATION

Transaction Date: 02/26/2008
Recording Date: 03/07/2008
Document Number: 398241

Document Type: TRUST DEED/MORTGAGE
Deed Type: DEED OF TRUST
Type of Transaction: REFINANCE

Mortgage Amount: $250,000.00
Mortgage Type: CONVENTIONAL
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 02/26/2008

Interest Rate: ADJUSTABLE INT RATE LOAN
Lender Name: FIRST COMMERCE BK
ENCINO, CA
91436

Title Company: CHICAGO TITLE CO.
Refinance Loan: LOAN TO VALUE IS LESS THAN 50%
Mulitple Parcel Sale: MULTIPLE PARCEL SALE

Record 5 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: CORPORATION

Corporate Owner: YES

Additional Owner 1: BBA SOUTHWOOD LLC
Ownership 1 Rights: CORPORATION

Additional Owner 2: CJPB SOUTHWOOD LLC
Ownership 2 Rights: CORPORATION

Additional Owner 3: EAPB SOUTHWOOD LLC
Ownership 3 Rights: CORPORATION

Additional Owner 4: JEB SOUTHWOOD LLC
Ownership 4 Rights: CORPORATION

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Formatted APN:	6224-034-010
County:	LOS ANGELES	**Orginal APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
		Land Use:	LIGHT INDUSTRIAL
		Building Square Feet:	2732

TRANSACTION INFORMATION

Transaction Date: 01/04/2006
Recording Date: 01/27/2006
Document Number: 201968
Document Type: GRANT DEED

Seller Name: PATATA STREET LLC
Consideration: NOT OF PUBLIC RECORD
Type of Transaction: RESALE

Mortgage Amount: $3,750,000.00
Mortgage Type: CONVENTIONAL
Mortgage Deed Type: DEED OF TRUST

Interest Rate: ADJUSTABLE
Lender Name: FIRST COMMERCE BK
Lender Address: 16861 VENTURA BLVD STE 100
ENCINO, CA
91436

Title Company: CHICAGO TITLE CO.
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTIPLE PARCEL SALE

Record 6 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Additional Owner 1: PATATA STREET LLC
Ownership 1 Rights: CORPORATION

Owner: PATATA STREET LLC,
Owner Relationship: CORPORATION

Corporate Owner: YES

PROPERTY INFORMATION

FIPS Code: LOS ANGELES
FIPS State Code: CALIFORNIA
County: LOS ANGELES

APN: 001
Unformatted APN: 6224034010
Formatted APN: 6224-034-010
Orginal APN: 6224034010
Property Type: INDUSTRIAL LIGHT
Land Use: LIGHT INDUSTRIAL
Building Square Feet: 2732

TRANSACTION INFORMATION

Transaction Date: 05/17/2004
Recording Date: 05/20/2004
Document Number: 1285753
Document Type: DEED OF TRUST

Type of Transaction: REFINANCE

Mortgage Amount: $500,000.00
Mortgage Type: CONVENTIONAL
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 05/17/2004

Interest Rate: FIXED
Lender Name: CA STRATEGY FUND LLC * OTHER INSTITUTIONAL LENDERS
BOULDER, CO
80302

Title Company: FIRST AMERICAN TITLE INSURANCE
Refinance Loan: LOAN TO VALUE IS MORE THAN 50%

Record 7 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Additional Owner 1: PATATA STREET LLC

Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: PATATA STREET LLC,

Corporate Owner: YES

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	2642

TRANSACTION INFORMATION

Recording Date: 12/30/1996
Document Number: 2093873
Document Type: GRANT DEED

Seller Name: M STEPHENS MANUFACTURING I
Sale Price: $290,000.00
Type of Transaction: RESALE

Mortgage Amount: $790,000.00
Mortgage Type: PRIVATE PARTY LENDER

Title Company: NORTH AMERICAN TITLE
Private Party Lender: YES
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTIPLE PARCEL SALE

Record 8 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Additional Owner 1: PATATA STREET LLC

Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: PATATA STREET LLC,
Co-Owner Name: M STEPHENS MFG INC

Corporate Owner: YES

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	2732

TRANSACTION INFORMATION

Recording Date: 12/30/1996
Document Number: 2093874
Document Type: DEED OF TRUST

Seller Name: M STEPHENS MANUFACTURING INC
Sale Price: $290,000.00
Consideration: COMMITTED
Type of Transaction: REFINANCE

Mortgage Amount: $790,000.00
Mortgage Type: PRIVATE PARTY LENDER

Lender Name: M STEPHENS MFG INC
Private Party Lender: YES
Refinance Loan: YES

Record 9 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 8420 ATLANTIC AVE
BELL, CA 90201-5810

Owner: M STEPHENS MANUFACTURING INC,

Corporate Owner: YES

Additional Owner 1: M STEPHENS MANUFACTURING INC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	2732

TRANSACTION INFORMATION

Recording Date: 10/31/1994
Document Number: 1961893
Document Type: DEED OF TRUST
Type of Transaction: REFINANCE

Mortgage Amount: $500,000.00
Mortgage Type: PRIVATE PARTY LENDER

Lender Name: HIGH YIELD INVMTS LTD TELLONE
ANAHEIM, CA
92807
Private Party Lender: YES
Refinance Loan: YES

Record 10 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: M STEPHENS MANUFACTURING INC,

Corporate Owner: YES

Additional Owner 1: M STEPHENS MANUFACTURING INC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	2732

TRANSACTION INFORMATION

Recording Date: 07/30/1993
Document Number: 1475726
Document Type: DEED OF TRUST
Type of Transaction: REFINANCE

Mortgage Amount: $250,000.00

Mortgage Type: PRIVATE PARTY LENDER

Lender Name: HIGH YIELD INVESTMENT LTD +
ANAHEIM, CA
92807

Private Party Lender: YES

Refinance Loan: YES

Record 11 out of 11 (Deed)

OWNER INFORMATION

Property Address: 4839 PATATA ST
CUDAHY, CA 90201-5917

Mailing Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Owner: M STEPHENS MANUFACTURING INC,

Corporate Owner: YES

Additional Owner 1: M STEPHENS MANUFACTURING INC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034010
		Property Type:	INDUSTRIAL LIGHT
County:	LOS ANGELES	**Building Square Feet:**	2642

TRANSACTION INFORMATION

Transaction Date: 12/1986

Recording Date: 12/31/1986

Document Number: 1845850

Document Type: GRANT DEED

Seller Name: R & R ASSOCIATES

Sale Price: $1,250,000.00

Type of Transaction: RESALE

Mortgage Amount: $750,000.00
Mortgage Type: PRIVATE PARTY LENDER

2nd Mortgage Amount: $350,000.00
2nd Mortgage Type: PRIVATE PARTY LENDER

Interest Rate: ADJUSTABLE
Private Party Lender: YES
Construction Type: RESALE
Purchase Payment: MORTGAGE
Mulitple Parcel Sale: MULTIPLE PARCEL SALE

Search Type: Real Property
Reference: 4 MBOSE PASI

CUDAHY ECONOMIC DEV CORP
8 records aggregated.

Record 1 out of 8 (Deed)

OWNER INFORMATION

Property Address:	8420 ATLANTIC AVE CUDAHY, CA 90201-5810
Mailing Address:	5220 SANTA ANA ST CUDAHY, CA 90201-6024

Owner:	CUDAHY ECONOMIC DEV CORP,
Owner Relationship:	COMPANY / CORPORATION
Corporate Owner:	CORPORATE OWNER
Additional Owner 1:	CUDAHY ECONOMIC DEV CORP

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date:	01/06/2012	**Construction Type:**	SALE IS A RE-SALE
Recording Date:	01/17/2012	**Purchase Payment:**	CASH
Document Number:	69011	**Mulitple Parcel Sale:**	MULTIPLE PARCEL SALE
Document Type:	GRANT DEED		

Seller Name:	BBA SOUTHWOOD LLC
Consideration:	SALE PRICE (FULL)
Deed Type:	GRANT DEED
Type of Transaction:	NOMINAL

Record 2 out of 8 (Deed)

OWNER INFORMATION

Property Address:
CUDAHY, CA 90201

Mailing Address: 15206 VENTURA BLVD
SHERMAN OAKS, CA 91403-5362

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date: 06/17/2011
Recording Date: 08/02/2011
Document Number: 1030542
Document Type: TRUST DEED/MORTGAGE
Deed Type: DEED OF TRUST
Type of Transaction: REFINANCE

Mortgage Amount: $117,000.00
Mortgage Type: PRIVATE PARTY LENDER
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 06/17/2011

Lender Name: ELDEN HOLDING GROUP LLC PRIVATE INDIVIDUAL
Lender Address: *

Title Company: OLD REPUBLIC TITLE
Private Party Lender: YES
Refinance Loan: LOAN TO VALUE IS LESS THAN 50%
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 3 out of 8 (Deed)

OWNER INFORMATION

Property Address:
CUDAHY, CA 90201
Mailing Address: 15206 VENTURA BLVD
SHERMAN OAKS, CA 91403-5362

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date: 06/17/2011
Recording Date: 08/02/2011
Document Number: 1030541
Document Type: TRUST DEED/MORTGAGE
Deed Type: DEED OF TRUST

Type of Transaction: REFINANCE

Mortgage Amount: $71,500.00
Mortgage Type: PRIVATE PARTY LENDER
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 06/17/2011

Lender Name: AGORA REALTY & MANAGEMENT INC PRIVATE INDIVIDUAL
Lender Address: *

Title Company: OLD REPUBLIC TITLE
Private Party Lender: YES
Refinance Loan: LOAN TO VALUE IS LESS THAN 50%
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 4 out of 8 (Deed)

OWNER INFORMATION

Property Address:
CUDAHY, CA 90201
Mailing Address: 15206 VENTURA BLVD
SHERMAN OAKS, CA 91403-5362

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date: 06/17/2011
Recording Date: 08/02/2011
Document Number: 1030543
Document Type: TRUST DEED/MORTGAGE
Deed Type: DEED OF TRUST
Type of Transaction: REFINANCE

Mortgage Amount: $389,000.00
Mortgage Type: PRIVATE PARTY LENDER
Mortgage Deed Type: DEED OF TRUST
Mortgage Date: 06/17/2011

Lender Name: BOLLENBACHER FAMILY TRUST PRIVATE INDIVIDUAL
Lender Address: *

Title Company: OLD REPUBLIC TITLE
Private Party Lender: YES
Refinance Loan: LOAN TO VALUE IS LESS THAN 50%
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 5 out of 8 (Deed)

OWNER INFORMATION

Property Address:
CUDAHY, CA 90201
Mailing Address: 15206 VENTURA BLVD
SHERMAN OAKS, CA 91403-5362

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: BBA SOUTHWOOD LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date:	06/17/2011
Recording Date:	08/02/2011
Document Number:	1030540
Document Type:	TRUST DEED/MORTGAGE
Deed Type:	DEED OF TRUST
Type of Transaction:	REFINANCE
Mortgage Amount:	$32,500.00
Mortgage Type:	PRIVATE PARTY LENDER
Mortgage Deed Type:	DEED OF TRUST
Mortgage Date:	06/17/2011
Lender Name:	LEFTON CARY & MARLA FAM TRUST PRIVATE INDIVIDUAL
Lender Address:	*
Title Company:	OLD REPUBLIC TITLE
Private Party Lender:	YES
Refinance Loan:	LOAN TO VALUE IS LESS THAN 50%
Mulitple Parcel Sale:	MULTI / DETAIL PARCEL SALE

Record 6 out of 8 (Tax roll)

OWNER INFORMATION

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201

Owner:	CUDAHY ECONOMIC DEV CORP
Additional Name:	CUDAHY ECONOMIC DEV CORP
Owner Corporate Indicator:	CORPORATE OWNER
Owner Ownership Rights Code:	CORPORATION

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES
FIPS Sub Code:	000
FIPS State Code:	CALIFORNIA
APN Sequence Number:	1
Unformatted APN:	6224034032
Formatted APN:	6224-034-032
Original APN:	6224 034 032
Property Indicator:	VACANT
Land Use:	INDUSTRIAL LOT
Zoning:	CUM2*
Land Square Footage:	13744
Acres:	0.3155

Subdivision Name:	180
Subdivision Plat Book:	13
Subdivision Plat Page:	198
Legal Description:	TR=180 S 154.63 FT MEASURED ON E LINE (EX OF STS) OF LOT 246
Subdivision Tract Number:	180
Lot Number:	246

TAX ASSESSOR INFORMATION

Tax Year:	2011	**Total Value Calculated Indicator:**	ASSESSED
Tax Amount:	$4,433.37		
Tax Code Area:	631		
Calculated Land Value:	$348,158.00		
Calculated Total Value:	$348,158.00		
Assessed Land Value:	$348,158.00		
Assessed Total Value:	$348,158.00		

BUILDING/IMPROVEMENT CHARACTERISTICS

Lot Area: 5000013744

LAST FULL MARKET SALE INFORMATION

Sale Date:	01/04/2006
Seller Name:	PATATA STREET LLC
Sale Code:	STAMPS ON BACK/NON-DISCLOSED SALE PRICE
Deed Type:	GRANT DEED

Type of Sale: RESALE
Mortgage Amount: $3,750,000.00
Mortgage Loan Type: CONVENTIONAL
Mortgage Deed Type: DEED OF TRUST

Lender Name: FIRST COMMERCE BK
Multiple Parcel Sale: MULTI - DETAIL PARCEL SALE
Recording Date: 01/27/2006
Document Number: 201968
Title Company: CHICAGO TITLE CO.

PREVIOUS TRANSFER INFORMATION

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address:
CA
Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224 034 032
Owner: CUDAHY ECONOMIC DEV CORP
Calculated Land Value: $348,158.00
Calculated Total Value: $348,158.00
Assessed Total Value: $348,158.00

2010 TAX YEAR

Situs Address:
CA
Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224 034 032
Owner: BBA SOUTHWOOD LLC
Co-Owner: CARMAR LLC
Calculated Land Value: $341,332.00
Calculated Total Value: $341,332.00
Assessed Total Value: $341,332.00

2009 TAX YEAR

Situs Address:
CA
Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224 034 032
Owner: BBA SOUTHWOOD LLC
Co-Owner: CARMAR LLC
Calculated Land Value: $338,781.00
Calculated Total Value: $338,781.00
Assessed Total Value: $338,781.00

2008 TAX YEAR

Situs Address:
CA
Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224 034 032
Owner: BBA SOUTHWOOD LLC
Co-Owner: CARMAR LLC
Calculated Land Value: $339,586.00
Calculated Total Value: $339,586.00
Assessed Total Value: $339,586.00

2007 TAX YEAR

Situs Address:
CA

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034032
Formatted APN:	6224-034-032
Original APN:	6224 034 032
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$332,928.00
Calculated Total Value:	$332,928.00
Assessed Total Value:	$332,928.00

2006 TAX YEAR

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034032
Formatted APN:	6224-034-032
Original APN:	6224 034 032
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$326,400.00
Calculated Total Value:	$326,400.00
Assessed Total Value:	$326,400.00

2005 TAX YEAR

Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224 034 032
Absentee Owner: SITUS FROM SALE (OCCUPIED)
Owner: BBA SOUTHWOOD LLC
Calculated Land Value: $83,423.00
Calculated Total Value: $83,423.00
Assessed Total Value: $83,423.00

2003 TAX YEAR

Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224034032
Owner: ATLANTIC AVENUE LLC
Calculated Land Value: $78,716.00
Calculated Total Value: $78,716.00
Assessed Total Value: $78,716.00

2001 TAX YEAR

Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224034032
Owner: ATLANTIC AVENUE LLC
Calculated Land Value: $75,660.00
Calculated Total Value: $75,660.00
Assessed Total Value: $75,660.00

1999 TAX YEAR

Mailing Address: 3773 ORANGE LN
BOULDER, CO 80304-0777

Unformatted APN: 6224034032
Formatted APN: 6224-034-032
Original APN: 6224034032
Owner: ATLANTIC AVENUE LLC
Calculated Land Value: $74,177.00
Calculated Total Value: $74,177.00
Assessed Total Value: $74,177.00

Record 7 out of 8 (Deed)

OWNER INFORMATION

Property Address: 4819 PATATA ST
CUDAHY, CA 90201-5917
Mailing Address: 4819 PATATA ST
CUDAHY, CA 90201-5917

Owner: BBA SOUTHWOOD LLC,
Owner Relationship: CORPORATION

Corporate Owner: YES

Additional Owner 1: BBA SOUTHWOOD LLC
Ownership 1 Rights: CORPORATION

Additional Owner 2: CJPB SOUTHWOOD LLC
Ownership 2 Rights: CORPORATION

Additional Owner 3: EAPB SOUTHWOOD LLC
Ownership 3 Rights: CORPORATION

Additional Owner 4: JEB SOUTHWOOD LLC
Ownership 4 Rights: CORPORATION

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Formatted APN:	6224-034-032
County:	LOS ANGELES	**Orginal APN:**	6224034032
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date:	01/04/2006
Recording Date:	01/27/2006
Document Number:	201968
Document Type:	MULTI CNTY-ST OR OPEN-END MORTGAGE
Seller Name:	PATATA STREET LLC
Consideration:	NOT OF PUBLIC RECORD
Type of Transaction:	RESALE
Mortgage Amount:	$3,750,000.00
Mortgage Type:	CONVENTIONAL
Mortgage Deed Type:	DEED OF TRUST
Interest Rate:	ADJUSTABLE
Lender Name:	FIRST COMMERCE BK
Lender Address:	16861 VENTURA BLVD STE 100 ENCINO, CA 91436
Title Company:	CHICAGO TITLE CO.
Construction Type:	RESALE
Purchase Payment:	MORTGAGE
Mulitple Parcel Sale:	MULTI - DETAIL PARCEL SALE

Record 8 out of 8 (Deed)

OWNER INFORMATION

Property Address:
90201

Mailing Address: 915 RAIN LILLY LN
BOULDER, CO 80304-0792

Owner: ATLANTIC AVENUE LLC,

Corporate Owner: YES

Additional Owner 1: ATLANTIC AVENUE LLC

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034032
		Property Type:	VACANT
County:	LOS ANGELES		

TRANSACTION INFORMATION

Recording Date: 01/03/1997
Document Number: 6652
Document Type: GRANT DEED

Seller Name: FRIEDMAN SAMUEL W
Sale Price: $355,000.00
Type of Transaction: RESALE

Title Company: NORTH AMERICAN TITLE
Construction Type: RESALE
Purchase Payment: CASH
Mulitple Parcel Sale: MULTI - DETAIL PARCEL SALE

Search Type: Real Property
Reference: 4 MBOSE PASI

TSSAY J & R LLC
1 record aggregated.

Record 1 out of 1 (Tax roll)

OWNER INFORMATION

Mailing Address: 1128 N N HILLCREST RD
BEVERLY HILLS, CA 90210

Owner:	TSSAY J & R LLC
Additional Name:	TSSAY J & R LLC
Owner Corporate Indicator:	CORPORATE OWNER

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES
FIPS Sub Code:	000
FIPS State Code:	CALIFORNIA
APN Sequence Number:	1
Unformatted APN:	6224034036
Formatted APN:	6224-034-036
Property Indicator:	VACANT
Land Use:	INDUSTRIAL ACREAGE
Zoning:	CUM2*
Land Square Footage:	43969
Acres:	1.0094

Subdivision Name:	180
Subdivision Plat Book:	13
Subdivision Plat Page:	198
Legal Description:	TR=180 LOT 242
Subdivision Tract Number:	180
Lot Number:	242

TAX ASSESSOR INFORMATION

Tax Year:	2011
Tax Amount:	$16,362.86
Tax Code Area:	631
Calculated Land Value:	$1,367,392.00
Calculated Total Value:	$1,367,392.00
Assessed Land Value:	$1,367,392.00
Assessed Total Value:	$1,367,392.00

Total Value Calculated Indicator: ASSESSED

BUILDING/IMPROVEMENT CHARACTERISTICS

Lot Area: 4000043969

LAST FULL MARKET SALE INFORMATION

PREVIOUS TRANSFER INFORMATION

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address:
CA

Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN:	6224034036
Formatted APN:	6224-034-036
Owner:	TSSAY J & R LLC
Calculated Land Value:	$1,367,392.00
Calculated Total Value:	$1,367,392.00
Assessed Total Value:	$1,367,392.00

2010 TAX YEAR

Situs Address:
CA

Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN:	6224034036
Formatted APN:	6224-034-036
Owner:	TSSAY J & R LLC
Calculated Land Value:	$1,340,581.00
Calculated Total Value:	$1,340,581.00
Assessed Total Value:	$1,340,581.00

TAX YEAR

Situs Address:
CA

Mailing Address: 1128 N HILLCREST RD
BEVERLY HILLS, CA 90210-2615

Unformatted APN:	6224034036
Formatted APN:	6224-034-036
Owner:	TSSAY J & R LLC
Calculated Land Value:	$1,330,562.00
Calculated Total Value:	$1,330,562.00
Assessed Total Value:	$1,330,562.00

Search Type: Real Property
Reference: 4 MBOSE PASI

PATATA INVESTMENT LLC
1 record aggregated.

Record 1 out of 1 (Tax roll)

OWNER INFORMATION

Mailing Address: 2900 N N SAN FERNANDO BLVD
BURBANK, CA 91504

Owner:	PATATA INVESTMENT LLC
Additional Name:	PATATA INVESTMENT LLC
Owner Corporate Indicator:	CORPORATE OWNER

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES
FIPS Sub Code:	000
FIPS State Code:	CALIFORNIA
APN Sequence Number:	1
Unformatted APN:	6224034039
Formatted APN:	6224-034-039
Property Indicator:	VACANT
Land Use:	INDUSTRIAL ACREAGE
Zoning:	CUM2*
Land Square Footage:	43577
Acres:	1.0004

Subdivision Name:	180
Subdivision Plat Book:	13
Subdivision Plat Page:	198
Legal Description:	TR=180 EX OF ST LOT 245
Subdivision Tract Number:	180
Lot Number:	245

TAX ASSESSOR INFORMATION

Tax Year:	2011	**Total Value Calculated Indicator:**	ASSESSED
Tax Amount:	$18,666.32		
Tax Code Area:	639		

Calculated Land Value: $1,166,416.00
Calculated Total Value: $1,166,416.00
Assessed Land Value: $1,166,416.00
Assessed Total Value: $1,166,416.00

BUILDING/IMPROVEMENT CHARACTERISTICS

Lot Area: 4000043577

LAST FULL MARKET SALE INFORMATION

PREVIOUS TRANSFER INFORMATION

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address:
CA
Mailing Address: 2900 N SAN FERNANDO BLVD
BURBANK, CA 91504-2522

Unformatted APN: 6224034039
Formatted APN: 6224-034-039
Owner: PATATA INVESTMENT LLC
Calculated Land Value: $1,166,416.00
Calculated Total Value: $1,166,416.00
Assessed Total Value: $1,166,416.00

TAX YEAR

Situs Address:
CA
Mailing Address: 2900 N SAN FERNANDO BLVD
BURBANK, CA 91504-2522

Unformatted APN: 6224034039
Formatted APN: 6224-034-039
Owner: PATATA INVESTMENT LLC
Calculated Land Value: $1,531,445.00
Calculated Total Value: $1,531,445.00
Assessed Total Value: $1,531,445.00

TAX YEAR

Situs Address:
CA
Mailing Address: 2900 N SAN FERNANDO BLVD
BURBANK, CA 91504-2522

Unformatted APN: 6224034039
Formatted APN: 6224-034-039
Owner: PATATA INVESTMENT LLC

Search Type: Real Property
Reference: 4 MBOSE PASI

CUDAHY ECONOMIC DEV CORP
2 records aggregated.

Record 1 out of 2 (Deed)

OWNER INFORMATION

Property Address: CUDAHY, CA 90201

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Owner: CUDAHY ECONOMIC DEV CORP,

Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: CUDAHY ECONOMIC DEV CORP

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034041
		Formatted APN:	6224-034-041
County:	LOS ANGELES	**Orginal APN:**	6224034041
		Property Type:	VACANT
		Land Use:	INDUSTRIAL LOT

TRANSACTION INFORMATION

Transaction Date: 01/06/2012
Recording Date: 01/17/2012
Document Number: 69011
Document Type: GRANT DEED

Seller Name: BBA SOUTHWOOD LLC
Consideration: SALE PRICE (FULL)
Deed Type: GRANT DEED
Type of Transaction: NOMINAL

Construction Type: SALE IS A RE-SALE
Purchase Payment: CASH
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 2 out of 2 (Tax roll)

OWNER INFORMATION

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201

Owner: CUDAHY ECONOMIC DEV CORP
Additional Name: CUDAHY ECONOMIC DEV CORP
Owner Corporate Indicator: CORPORATE OWNER
Owner Ownership Rights Code: CORPORATION

PROPERTY INFORMATION

FIPS Code: LOS ANGELES
FIPS Sub Code: 000
FIPS State Code: CALIFORNIA
APN Sequence Number: 1
Unformatted APN: 6224034041
Formatted APN: 6224-034-041
Property Indicator: VACANT
Land Use: INDUSTRIAL LOT
Zoning: CUM2*

Subdivision Name: 180
Legal Description: TR=180 S 304.06 FT EX OF ST OF LOT 244
Subdivision Tract Number: 180
Lot Number: 244

TAX ASSESSOR INFORMATION

Tax Year: 2011
Total Value Calculated Indicator: ASSESSED
Tax Amount: $7,336.81
Tax Code Area: 631
Calculated Land Value: $606,290.00
Calculated Total Value: $606,290.00
Assessed Land Value: $606,290.00

Assessed Total Value: $606,290.00

BUILDING/IMPROVEMENT CHARACTERISTICS

LAST FULL MARKET SALE INFORMATION

PREVIOUS TRANSFER INFORMATION

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address:
CA

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Unformatted APN: 6224034041
Formatted APN: 6224-034-041
Owner: CUDAHY ECONOMIC DEV CORP
Calculated Land Value: $606,290.00
Calculated Total Value: $606,290.00
Assessed Total Value: $606,290.00

TAX YEAR

Situs Address:
CA

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN: 6224034041
Formatted APN: 6224-034-041
Owner: BBA SOUTHWOOD LLC
Co-Owner: CARMAR LLC
Calculated Land Value: $594,402.00
Calculated Total Value: $594,402.00
Assessed Total Value: $594,402.00

Search Type: Real Property
Reference: 4 MBOSE PASI

CUDAHY ECONOMIC DEV CORP
2 records aggregated.

Record 1 out of 2 (Deed)

OWNER INFORMATION

Property Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Owner: CUDAHY ECONOMIC DEV CORP,
Owner Relationship: COMPANY / CORPORATION

Corporate Owner: CORPORATE OWNER

Additional Owner 1: CUDAHY ECONOMIC DEV CORP

PROPERTY INFORMATION

FIPS Code:	LOS ANGELES	**APN:**	001
FIPS State Code:	CALIFORNIA	**Unformatted APN:**	6224034040
		Formatted APN:	6224-034-040
County:	LOS ANGELES	**Orginal APN:**	6224034040
		Property Type:	WAREHOUSE
		Land Use:	WAREHOUSE
		Building Square Feet:	19401

TRANSACTION INFORMATION

Transaction Date: 01/06/2012
Recording Date: 01/17/2012
Document Number: 69011
Document Type: GRANT DEED

Seller Name: BBA SOUTHWOOD LLC
Consideration: SALE PRICE (FULL)
Deed Type: GRANT DEED

Type of Transaction: NOMINAL

Construction Type: SALE IS A RE-SALE
Purchase Payment: CASH
Mulitple Parcel Sale: MULTI / DETAIL PARCEL SALE

Record 2 out of 2 (Tax roll)

OWNER INFORMATION

Situs Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810
Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201

Owner: CUDAHY ECONOMIC DEV CORP
Additional Name: CUDAHY ECONOMIC DEV CORP
Owner Corporate Indicator: CORPORATE OWNER
Owner Ownership Rights Code: CORPORATION
Absentee Owner: ABSENTEE (MAIL AND SITUS NOT=)

PROPERTY INFORMATION

FIPS Code: LOS ANGELES
FIPS Sub Code: 000
FIPS State Code: CALIFORNIA
APN Sequence Number: 1
Unformatted APN: 6224034040
Formatted APN: 6224-034-040
Property Indicator: WAREHOUSE
Land Use: WAREHOUSE
Zoning: CUM2*

Subdivision Name: 180
Legal Description: TR=180 N 150 FT MEASURED AT R/A TO N LINE EX OF ST OF LOT 246
Subdivision Tract Number: 180
Lot Number: 246

TAX ASSESSOR INFORMATION

Tax Year:	2011	**Total Value Calculated Indicator:**	ASSESSED
Tax Amount:	$10,363.24		
Tax Code Area:	639		
Calculated Land Value:	$604,851.00		
Calculated Improvement Value:	$49,977.00		
Calculated Total Value:	$654,828.00		
Assessed Land Value:	$604,851.00		
Assessed Improvement Value:	$49,977.00		
Assessed Total Value:	$654,828.00		

BUILDING/IMPROVEMENT CHARACTERISTICS

Number of Buildings: 1
Year Built: 1987

LAST FULL MARKET SALE INFORMATION

PREVIOUS TRANSFER INFORMATION

HISTORICAL TAX ASSESSOR INFORMATION

2011 TAX YEAR

Situs Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810
Mailing Address: 5220 SANTA ANA ST
CUDAHY, CA 90201-6024

Unformatted APN:	6224034040
Formatted APN:	6224-034-040
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	CUDAHY ECONOMIC DEV CORP
Calculated Land Value:	$604,851.00
Calculated Improvement Value:	$49,977.00
Calculated Total Value:	$654,828.00
Assessed Total Value:	$654,828.00

TAX YEAR

Situs Address: 8420 ATLANTIC AVE
CUDAHY, CA 90201-5810

Mailing Address: 15206 VENTURA BLVD 306
SHERMAN OAKS, CA 91403-5362

Unformatted APN:	6224034040
Formatted APN:	6224-034-040
Absentee Owner:	ABSENTEE (MAIL AND SITUS NOT=)
Owner:	BBA SOUTHWOOD LLC
Co-Owner:	CARMAR LLC
Calculated Land Value:	$592,992.00
Calculated Improvement Value:	$48,998.00
Calculated Total Value:	$641,990.00
Assessed Total Value:	$641,990.00

Reference:
DTSC, 2014a

SITE SCREENING ASSESSMENT

Prepared by: California Department of Toxic Substances Control (DTSC)
Cooperative Agreement Number: V - 00T14601 – 0
DTSC Fiscal Year: 2013-2014

Prepared for: United States Environmental Protection Agency Region 9
Superfund Division, Site Assessment Section
San Francisco, California

Date: 6/19/14

Site Name:	**Mistras Group Inc.**				
City:	**Cudahy**		**County:**	**Los Angeles**	
DTSC Regional Office:	**Chatsworth**				
CERCLIS ID:	**CAD027897164**	**EPA ID:**	**CAD027897164**	**Envirostor ID:**	**71002336**

EXECUTIVE SUMMARY

Narrative summary of site history and recommended action:

The Mistras Group Inc. (The Site) is located at 8427 Atlantic Avenue, city of Cudahy in Los Angeles County in a predominantly commercial and industrial area. The Site was developed and founded in 1970 to provide non-destructive testing services for aerospace and automotive companies as well as foundries and forging facilities in the greater Los Angeles area. Prior to 1970, the Site was used for residential purposes.

The Site has been characterized and the soil and groundwater is contaminated with metals such as hexavalent chromium, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Impacted concrete at the Etch Room (inside the building) and the slag containing soil outside of the building were excavated and properly disposed of at offsite facilities. Confirmation samples were collected upon the completion of the excavation activities and analyzed for metals but not for VOCs. There are evidences that the facility used VOCs before, the soil is contaminated with VOCs at the Site and the groundwater is impacted with VOCs in the area. The Site may not be the only source but they may be a contributor to the groundwater contamination in the area. DTSC recommends further investigation for the Site.

DTSC Recommendation:
Refer to: ☒ EPA ☐ CADTSC ☐ CARWQCB ☐ Local Agency ☐ No Further Action
EPA Decision:
Refer to: ☒ EPA ☐ CADTSC ☐ CARWQCB ☐ Local Agency ☐ No Further Action

Final Signatures and Concurrence

DTSC Screener:		Narine Aghakiant *Type Name*	7/17/2014
DTSC Approval:	*Signature*	Javier Hinojosa *Type Name*	7/22/14 *Date: (MM/DD/YYYY)*
EPA Concurrence:	*Signature*	Matt Mitguard *Type Name*	8/20/14 *Date: (MM/DD/YYYY)*
EPA Comments:			

EPA ONLY				
CERCLIS CODING:	☐ Not Valid Site	☐ Not valid Site – State Lead	☐ Preliminary Assessment Needed	☐ Other:

Section 1: Site Information

1.1 CERCLIS Site Name: Mistras Group Inc.
Aliases: General Inspection Laboratories, General Testing

1.2 Origin of Site: North-East 710 Corridor Study
Note discovery project, referral, complaint, etc.

1.3 Site Location Information

Street Address: 8427 Atlantic Avenue
City: Cudahy **County:** Los Angeles
State: California **Zip Code:** 90201
Latitude: + 33 . 9563566
Longitude: - 118 . 1843854

1.4 Regulatory Information

CERCLIS ID: Yes
RCRA ID: CAD027897164
Envirostor ID: 71002336
Geotracker ID: SL0603749673

Section 2: Operational History

Reference all factual information and attach complete and legible copies of all cited references.

2.1 Current Operation

☒ Operational facility
☐ Nonoperational
☐ Current Operators do not use CERCLA hazardous constituents

Current owner: Julie A Dykstra **Current operator:** Mistras Group Inc.
Hazardous materials used:
Hazardous materials manifested or disposed (HWTS): Alkaline Solution, Unspecified Aqueous Solution, Other Inorganic Solid Waste, Unspecified Solvent Mixture, Waste Oil and Mixed Oil, Unspecified Oil-containing Waste, Other Organic Solids, Liquids, Chromium
Dates of operation: 2009-present
Reference(s): Appendix C7-Chice Point, Appendix C5-HWTS Manifest Records

2.2 Historical owners/operators that may have used Contaminants of Concern onsite:

Owner: Julie A Dykstra **Operator:** General Testing and Inspection Laboratories
Hazardous materials used: Nitric acid, Hydrofluoric acid
Hazardous materials suspected: VOCs
Dates of operation: 2004-2009
Reference(s): Interview during site visit,Appendix C7-Choice Point

Owner: Julie A Dykstra **Operator:** GNEIL, Inc.
Hazardous materials used: Unknown
Hazardous materials suspected: Vocs
Dates of operation: 1970-2004
Reference(s): Appendix C7-Choice Point

Section 3: Site Impact Information

Reference all factual information and attach complete and legible copies of all cited references.

3.1 Land Use/Site Setting:

Check all that apply

☒ Industrial area
☒ Residential area
☐ Schools/day care centers within 200 feet
☒ Surface water within 2 miles of the site
☐ Sensitive environments or wetlands within 2 miles of site
☐ Potential source of contamination to surface water

Details, description and references: The Site is located in an industrial corridor, surrounded by residences. The Los Angeles River is located 1 mile to the east of the Site.

3.2 Surface Water

☐ Surface water used for drinking water within 15 miles of the site

☐ Public / commercial supply
☐ Private supply
Approximate number of people served by the surface water:
Details/additional information:

☐ Health advisory for consuming fish
☐ Surface water within 15 miles of the site is used for recreational or commercial fishing
☐ Surface water within 15 miles of the site provides habitat for sensitive species
☐ Site is a suspected source of surface water contamination

Details, description and references: The Los Angeles River is located within 1 mile Southwest of the Site. Surface Water in Los Angeles County is not used for drinking water purposes.

3.3 Groundwater

☒ Groundwater used for drinking water within 4 miles of site

☒ Public / commercial supply (approximate number of people served:)
☐ Private supply (approximate number of people served:)
☒ Groundwater within 4 miles of the site known to be contaminated with hazardous substances
List hazardous substances:
List substances that exceed drinking water standards:
☒ Site is a suspected source of groundwater contamination

SPGIT Quartile(s): Not in a SPGIT Priorty Area, adjacent to 179 area
Details, description and references: One hundred sixty seven known existing drinking water wells are located within 4 miles of the site. An additional 85 wells have been abandoned or destroyed within 4 miles for unknown reasons. DPH well histograms are provided for a nearby cross/down gradient well displaying arsenic, total chromium, hexavalent chromium, PCE and TCE impacts.
See Appendix C3 Data Package

3.4 Community Interest

☐ High level of community interest
☐ Some community interest
☒ Low/no community interest

Details, description and references:

Section 4: Site Reconnaissance

4.1 Method of Site Reconnaissance (See Attachment B):

☒ Onsite Visit (Date: 03/12/2014)
☐ Drive-by/offsite visit (Date:)
☒ Records/aerial photo review

4.2 Adjacent properties:

North On Atlantic LLC
South Mike Roche Inc. Petroleum Products
East Vacant lot/abandoned building
West Titan Terminal & Transport

4.3 Structures onsite (e.g. office building, paint booth, repair shop, etc.): Offices, warehouse, parking lots

4.4 Site surface description (e.g., visual staining, cracked pavement, etc.): Surface is paved and in good condition

4.5 Hazardous materials observed onsite
Materials stored:

Materials in use:

☐ N/A (records review only; see Section 2 for hazardous materials manifested/disposed)

4.6 Waste Storage and potential hazardous materials
Specify numbers, volume, and content

a) **Drums:** No Site Walk conducted, only interview.
b) **Aboveground Storage Tanks:** No Site Walk conducted, only interview.
c) **Underground Storage Tanks:** No Site Walk conducted, only interview.
d) **Clarifiers:** yes, though location unknown.
e) **Transformers potentially containing PCBs** Transformers inside facility
f) **Other:**

Section 5: Summary and Recommendations/Conclusions

Use multiple pages if needed. Include parenthetical references for all statements, and attach complete copies of references used.

5.1 Summary of Site History, Historical Releases, and Potential Releases

Describe site history, historical releases, and potential for release. Include summary of relevant sampling history detailed in Attachment E.

The Site was developed and founded in 1970 to provide non-destructive testing services for aerospace and automotive companies as well as foundries and forging facilities in the greater Los Angeles area. Prior to 1970, the Site was used for residential purposes (*Human Health Risk Assessment Report GENIL, INC. - June 2007*).

From 1970 to December 2004, the GNEIL, Inc. operated a non-destructive metal testing and treatment laboratory at the Site, testing metal parts for the aerospace, automotive, and other industries. Site operations included x-ray and photographic processing, magnetic particle inspection, ultrasonic testing, pressure testing, dye-penetrant testing, vapor degreasing, grinding, metal treatment, and wastewater treatment. In December 2004, the assets of the former GNEIL, Inc. were sold to a new operator, General Testing & Inspection (GTI). GTI operated the Site as a non-destructive testing business until October 2010. From October 2010 Mistras Group Inc. operates on the Site as testing facility.

The Site has been investigated by Earth Tech (October 2006, May 2007), and other consultants (*Dames & Moore, 1996; ENVIRON, 2001; Atkins Environmental, 2002; ENV America, 2004, 2005; and Kleinfelder, 2004*).

Based on these investigations, metals such as hexavalent chromium, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) were detected in groundwater and soil at the Site. As a follow-up to the recommendations included in the Earth Tech report (*October 2006*), impacted concrete at the Etch Room (inside the building) and the slag containing soil outside of the building were excavated and properly disposed of at offsite facilities.

Confirmation samples were collected upon the completion of the excavation activities and analyzed for metals. The concentrations of metals in the confirmation samples were similar to the background levels.

The current operator still conducts non-destructive testing and operations have not changed.

On Atlantic LLC located north of the Site also has an issue with VOCs in groundwater and notifying RWQCB by letter that considering the groundwater flow direction, Mistras Group Inc. is the reason for the groundwater contamination in the area.

5.2 Regulatory Involvement

Provide detailed description of historical and/or ongoing regulatory involvement. Identify current lead agency.

The Site has been investigated by several consultants in the past (*Dames & Moore, 1996; ENVIRON, 2001; Atkins Environmental, 2002; ENV America, 2004 and 2005; and Kleinfelder, 2004*).

The Site was first authorized in 1993 by DTSC to treat its hazardous waste under a Permit-By-Rule authorization. A Tiered Permit Phase I Environmental

Assessment Checklist (Phase I Checklist) was submitted on December 27, 1996 to DTSC. The Phase I Checklist indicated No Further Investigation necessary at that time. On February 27, 2004, DTSC conducted a Phase I verification site inspection and concluded that further investigation was necessary at the site. Prior soil and groundwater investigation from 1996 to 2004 at the site revealed that the subsurface soil and the groundwater at the site are contaminated with VOCs. On September 20, 2004, DTSC issued a Corrective Action Consent Agreement to oversee the further investigation at the site.

On October 22, 2008 DTSC sent a letter to the Site mentioning that DTSC accepts the findings and conclusion of the Human Health Risk Assessment report prepared on October 2008. According to the report there is no risk associated to human health and the environment at the Site as long as the Site is used for commercial/industrial purposes. However, a Land Use Covenant (LUC) restricting the Site to industrial/commercial use will be required.
DTSC approved the corrective measures proposal presented to the department on November 2008. According to the proposal, Institutional Control has been recommended for the Site. LUC has been prepared by DTSC but the responsible party refused to sign it.

5.3 Recommendation/conclusion

Describe proposed follow-up actions and recommended lead agency. If no further action is recommended, describe reasons.

The Site has been characterized and the soil and groundwater is contaminated with metals such as hexavalent chromium, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Impacted concrete at the Etch Room (inside the building) and the slag containing soil outside of the building were excavated and properly disposed of at offsite facilities. Confirmation samples were collected upon the completion of the excavation activities and analyzed for metals but not for VOCs. There are evidences that the facility used VOCs before, the soil is contaminated with VOCs at the Site and the groundwater is impacted with VOCs in the area. The Site may not be the only source but they may be a contributor to the groundwater contamination in the area. DTSC recommends further investigation for the Site.

ATTACHMENT A: Site Screening Contact Report

Provide detailed description of conversations. Attach complete copies of any documents provided by the contact. Use as many pages as necessary to report all contacts.

Contact Name:	**William Byrd**
Affiliation:	**Maintenance Manager**
Telephone Number:	**(323)583-1653**
Date(s) of contact:	**3/10/2014**
Discussion:	

Contact Name:	**Yvette Caldero**
Affiliation:	**Los Angeles County Fire Department**
Telephone Number:	**(323)890-7806**
Date(s) of contact:	**4/9/2014**
Discussion:	

Contact Name:	
Affiliation:	
Telephone Number:	
Date(s) of contact:	
Discussion:	

ATTACHMENT B: Site Reconnaissance Report

Include photos and a site layout map showing features described in Sections 4.2-4.5.

ATACHMENT C: ATTACHMENT INDEX

Attachment #	Document Title	Date
Appendix C1	Air Photograph	
Appendix C2	Site Map	
Appendix C3	Data Package	
Appendix C4	Well Histograms	
Appendix C5	HWTS Manifest Records	
Appendix C6	Los Angeles County Fire Department	
Appendix C7	Choice Point	
Appendix C8	Revised Supplemental Health Risk Assessment-October 2008	
Appendix C9	Corrective Measures Proposal November 2008	
Appendix C10	Phase 1 Environmental Site Assessment Inspection for Textron Fastening Systems February 27, 2004	

ATTACHMENT D: SITE TYPE – PRIMARY/SECONDARY ACTIVITY FORM

Fed Fac Indicator: ☐ Federal Facility ☒ Not A Federal Facility ☐ Status Undetermined

RCRA Status: ☐ Generator ☐ TSDF ☐ Transporter ☐ Not listed in RCRIS

SITE TYPES **(Designate one dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.) Site type designations for both primary & secondary should pertain to the operation(s) on site of environmental consequence.**

		Manufacturing/Processing/Maintenance
		(Subcategory)
☐	☐	Chemicals and allied products
☐	☐	Coal gasification
☐	☐	Coke production
☐	☐	Electric power generation and distribution
☐	☐	Electronic/electrical equipment
☐	☐	Fabrics/textiles
☐	☐	Lumber and wood products/pulp and paper
☐	☐	Lumber and wood products/wood preserving/treatment
☐	☐	Metal fabrication/finishing/coating and allied industries
☐	☐	Oil and gas
☐	☐	Ordnance production
☐	☐	Plastics and rubber products
☐	☐	Primary metals/minerals processing
☐	☐	Radioactive products
☐	☐	Tanneries
☐	☐	Trucks/ships/trains/aircraft and related components

		Waste Management
		(Subcategory)
☐	☐	Radioactive waste treatment, storage, disposal
☐	☐	Municipal solid waste landfill
☐	☐	Mine tailings disposal
☐	☐	Industrial waste landfill
☐	☐	Industrial waste facility (non generator)
☐	☐	Illegal disposal/open dump
☐	☐	Co-disposal landfill (municipal and industrial)

		Other
		(Subcategory)
☐	☐	Agricultural
☐	☐	Contaminated sediment site with no identifiable source
☐	☐	Dust control
☐	☐	Ground water plume site with no identifiable source
☐	☐	Military/other ordinance
☐	☐	Product storage/distribution
☒	☐	Research, development, and testing facility
☐	☐	Retail/commercial
☐	☐	Spill or other one time event
☐	☐	Transportation (e.g. railroad yards, airports, barge docking site
☐	☐	Treatment works/septic tanks/other sewage treatment

PC	*SS*	**Mining**
		(Subcategory)
☐	☐	Coal
☐	☐	Metals
☐	☐	Non-metals minerals
☐	☐	Oil and gas

		Recycling
		(Subcategory)
☐	☐	Automobiles/tires
☐	☐	Batteries/scrap metals/secondary smelting/precious metal recovery
☐	☐	Chemicals/chemicals waste (e.g. solvent recovery)
☐	☐	Drums/tanks
☐	☐	Waste/used oil

SITE TYPES **(Designate one dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.)**

ATTACHMENT E: SITE SCREENING ASSESSMENT SAMPLING EVENT SUMMARY TABLE					
Date	**Event**	**Lead Agency**	**Main Contaminants Detected** (include only CERCLA-eligible hazardous substances)	**Notes/Description**	**Reference**

Acronym List
(Modify as needed)

µg/L	micrograms per liter
bgs	below ground surface
AST	Aboveground Storage Tank
CADTSC	California Environmental Protection Agency, Department of Toxic Substances Control
CARWQCB	California Environmental Protection Agency, Regional Water Quality Control Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CUPA	Certified Unified Program Agency
EPA	U. S. Environmental Protection Agency
LUST	Leaking Underground Storage Tank
NPL	National Priorities List
PA	Preliminary Assessment
RCRA	Resource Conservation and Recovery Act
RCRAInfo	Resource Conservation and Recovery Information System
SI	Site Investigation
UST	Underground Storage Tank

Reference:
DTSC, 2014b

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIROSTOR

M STEPHENS MANUFACTURING (60001790)

SIGN UP FOR EMAIL ALERTS

4839 PATATA STREET
CUDAHY, CA 90201
LOS ANGELES COUNTY
SITE TYPE: EVALUATION

OFFICE: CLEANUP CHATSWORTH

Site Information

CLEANUP STATUS
REFER: EPA AS OF 9/17/2013

SITE TYPE: EVALUATION
NATIONAL PRIORITIES LIST: NO
ACRES: 2 ACRES
APN: 6224-034-010 , 6224-034-014, 6224-034-032, 6224-034-036 , 6224-034-039 , 6224-034-040, 6224-034-041, 6224-034-37, 6224034010, 6224034014, 6224034032, 6224034036, 6224034039, 6224034040, 6224034041, 622403437
CLEANUP OVERSIGHT AGENCIES:
DTSC - SITE CLEANUP PROGRAM - LEAD
ASSOCIATED GEOTRACKER PROJECTS

ENVIROSTOR ID: 60001790
SITE CODE: 301576
SPECIAL PROGRAM: EPA - PASI
FUNDING: EPA GRANT
ASSEMBLY DISTRICT: 63
SENATE DISTRICT: 33

Regulatory Profile

PAST USE(S) THAT CAUSED CONTAMINATION
UNKNOWN

POTENTIAL CONTAMINANTS OF CONCERN
NONE SPECIFIED

POTENTIAL MEDIA AFFECTED
NONE SPECIFIED

Site History

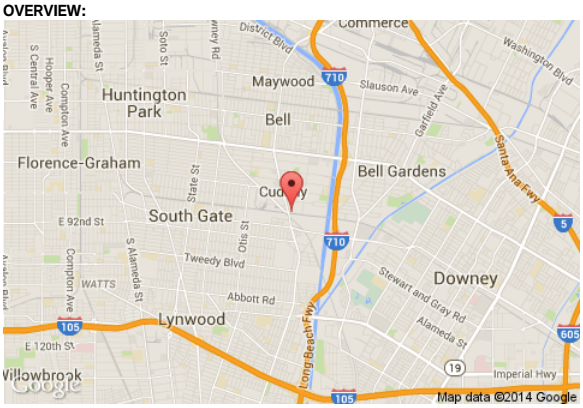
Site discovered during the drive by investigation for the South Gate NPL plume discovery. Site Screen will be conducted in FY 2012-13. USEPA approved Site Screen on 9/30/2013. USEPA Status: EPA Lead.

Completed Activities

	DOCUMENT TYPE	DATE COMPLETED	COMMENTS
[VIEW DOCS]	PA/SI Site Screening	9/12/2013	

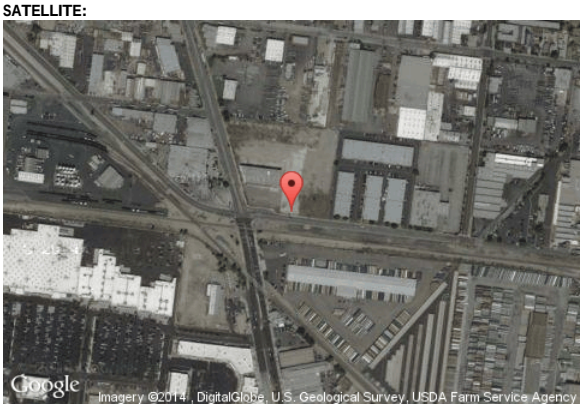
FOR AN INTERACTIVE MAP, CLICK ON AN IMAGE BELOW

OVERVIEW:

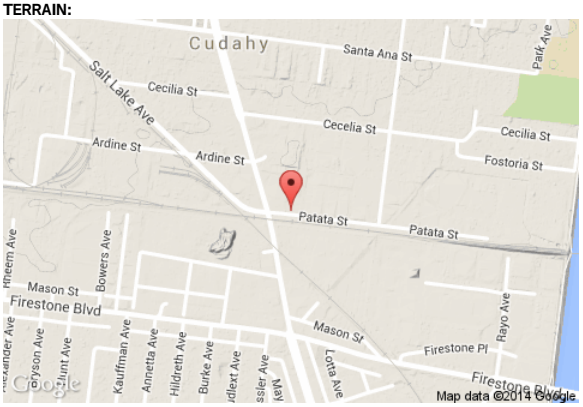


MAP VIEW:

SATELLITE:



TERRAIN:



GEOTRACKER CASES ASSOCIATED WITH THIS ENVIROSTOR PROJECT

GEOTRACKER PROJECT NAME	STATUS	ADDRESS	CITY
M STEPHENS MANUFACTURING	Completed - Case Closed	PATATA ST	CUDAHY

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Reference:
DWR, 1961

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT

BULLETIN NO. 104

PLANNED UTILIZATION OF THE GROUND WATER BASINS OF THE COASTAL PLAIN OF LOS ANGELES COUNTY

APPENDIX A
GROUND WATER GEOLOGY

EDMUND G. BROWN
Governor

WILLIAM E. WARNE
Director

JUNE 1961

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(Bound at end of report)

Attachment No.

1 Bibliography

2 Specific Yield Values and Transmissibility Tests

3 Well Numbering System and Definitions

CHAPTER IV STRATIGRAPHY

This chapter describes the stratigraphy, or the physical characteristics of the natural groupings of the rocks and sediments, in the Coastal Plain of Los Angeles County, including the age of rocks and sediments, their order in relationship to each other, and their position in the area. In order to simplify the discussion of stratigraphy, the rocks and sediments in the coastal plain are divided into water-bearing deposits and nonwater-bearing rocks.

The water-bearing deposits include the unconsolidated and semi-consolidated marine and nonmarine alluvial sediments of Recent, Pleistocene, and Pliocene age which form ground water basins. These materials absorb, transmit, and yield water readily to wells. Sizes of individual particles may grade from coarse gravel and boulders to clay. Coarse sands and gravels form the conduits for transmission of ground water and are called aquifers, while the finer sands, silts and clays, which also transmit ground water, but very slowly, are known as aquicludes.

The types of materials encountered by surface and subsurface geologic exploration and water well drilling, as reported by various individuals and agencies, are summarized on Table 1, which is bound at the end in this report. Based upon this information, the areal extent, thickness, and depths of the various aquifers and aquicludes underlying the coastal plain were estimated. The aquifers were named and their stratigraphic positions are illustrated schematically on Plate 5, entitled "Generalized Stratigraphic Column, Coastal Plain of Los Angeles County". Since the aquicludes which separate aquifers are generally of secondary interest, and because of additional complications of nomenclature, only the surface aquiclude is named. An attempt has been made to bring together and clarify the nomenclature

used by many individuals and agencies. Therefore Plate 5 also relates the nomenclature system utilized in this report with that employed by others in the past.

The term "nonwater-bearing rocks" used in this report should not be construed to mean rocks which contain no water, but rather materials from which wells produce relatively limited quantities of water. Nonwater-bearing rocks are the parent rocks from which alluvium is derived. These rocks flank, underlie, and sometimes form the limits of the ground water basins and provide watersheds for runoff or drainage to valley-fill areas. Nonwater-bearing rocks include granitic, metamorphic, volcanic, and consolidated sedimentary types. Locally, the sedimentary rocks may yield a small amount of brackish, saline, or other poor quality waters. Water which drains from these rocks may also affect the quality of water in the sediments of valley-fill areas. Even within the crystalline basement rocks, some extractable water is contained within the joints, fractures, and solution cavities. In the highland areas, wells in volcanic flows and breccias yield limited quantities of water. The yield of wells in the volcanics, however, is usually restricted either because there is a lack of connected interstices or because they are so situated topographically or structurally that cementation, folding and faulting interferes with the vertical and lateral flow of ground water.

The following sections describe the water-bearing deposits and nonwater-bearing rocks in detail beginning with the geologically most recent, and working backward in time to the oldest strata. The surface outcroppings of the various formations are delineated on Plate 3. The conclusions of this study relating to the depth and thickness of the various aquifers and aquicludes in the coastal plain are illustrated by a series of idealized

geologic sections cutting the area in east-west and north-south directions. These sections are shown on Plates 6A through 6G, entitled "Idealized Geologic Sections"; and the geographic locations of the sections are indicated on Plate 3, together with the locations of wells and test holes from which the geologic sections were derived. In addition to the wells and test holes shown on these plates, there were two to three times as many wells and test holes that were studied. These data were used to assist in delineating the boundaries of the aquifers and aquicludes.

In constructing the geologic sections, it was much easier to correlate aquifers from well log to well log in the marine sediments found southwest of the Newport-Inglewood uplift than it was in the area to the northeast. Consequently, the correlations in the continental sediments, especially those adjacent to the high lands are more definitive than are those in the marine sediments closer to the ocean. Also, the geologic sections in the West Coast Basin (this basin is described in Chapter 6) were mainly based on data taken from the Report of Referee (Calif. D.W.R. 1952a), modified slightly by unpublished data obtained from the Los Angeles County Flood Control District.

Subsurface structure and positions of aquifers in the area downstream from Whittier Narrows are illustrated by a series of cut-away diagrams shown on Plate 7, entitled "Cut-Away Diagrams of Aquifers in Vicinity of Whittier Narrows". These diagrams are of assistance in following the discussion of stratigraphic relationships but are discussed in detail in Chapter V. Detailed discussions of structural features referred to in the following sections are also contained in Chapter V.

Quaternary System

Sediments of Quaternary and late Pliocene age comprise the water-bearing formations in the coastal plain. The Quaternary deposits are divided into the Recent and Pleistocene series.

Alluvial materials and rocks of Recent and Pleistocene age usually are unconsolidated and have suffered deformation to a lesser degree than the older underlying rocks. These younger alluvial materials are generally more heterogeneous than the older sediments although this may be more apparent than real, since more detailed information is usually available for younger sediments than for those older in age. In the detailed studies of oil fields, by contrast, the heterogeneity of older sediments is apparent.

Ground water extracted from wells is obtained primarily from aquifers of Recent and Pleistocene age, with the exception of a few wells in the Lakewood and North Long Beach areas which are perforated in sediments of late Pliocene age.

Deposition of Quaternary sediments has been controlled by tectonic activity, geomorphic processes, changes in climate, and world-wide changes in sea level, as previously discussed. The physical characteristics of those water-bearing series that favor high production of ground water are: their unconsolidated and permeable nature, their relatively undeformed state, their low topographic position, which permits infiltration of drainage from higher surrounding areas, their freedom from obstructions to flow in most areas, the ease with which their materials may be dewatered, or drained, and the ease with which in certain areas they may be naturally or artificially recharged.

Recent Series

Reade (1872) first defined the Recent epoch as that time which has elapsed since the beginning of the last major rise in sea level, and this definition has been adopted for use in this report. An approximate age of 15,000 years has been assigned to the Recent epoch by Shepard (1956) and Hopkins (1959).

Recent materials were laid down upon the erosional surface that existed toward the end of the last glacial stage. In most of the Coastal Plain of Los Angeles County these sediments are stream deposits but near the ocean they include tidal, marine, and wind-deposited materials.

Recent deposits are recognizable by:their generally coarse, unconsolidated or uncemented nature (however, on Recent flood plains, alluvial fans, and certain marine deposits, fine-grained silts and clays are common), their unconformable relationship with the underlying late Pleistocene and older deposits, their relationship to the present drainage system including numerous gaps along the coast and other physiographic features, and the youthful or poorly developed soil normally found on the surface. Little deformation of the Recent sediments has occurred except where they cross tectonically active areas, as in Dominguez and Ballona Gaps. Two major members of the Recent series are shown in the areal geology presented on Plate 3 namely, alluvium, represented by the symbol Qal and active dune sand represented by Qsr.

Alluvium. Recent Alluvium is primarily stream deposited gravel, sand, silt and clay with some interbedded littoral and estuary or bay deposits near the ocean. Geologic members found within the alluvial deposits include the Semiperched aquifer, Bellflower aquiclude, Gaspur aquifer, and

Ballona aquifer. Portions of the Semiperched aquifer and Bellflower aquiclude are of late Pleistocene age, placing them in the Lakewood formation. They are described here, however, together with the deposits of Recent age.

Semiperched Aquifer. Coarse sands and gravels, called the Semiperched aquifer, are found on or near the surface of much of the Coastal Plain of Los Angeles County. These materials vary in thickness from 0 to 60 feet and may contain significant amounts of unconfined water where they are more than 20 feet thick. The most important areas where this aquifer appears are in the Los Angeles and Montebello Forebay Areas, and irregular patches occur throughout the rest of the coastal plain.

Where the underlying aquifers are confined, the Semiperched aquifer is generally separated from them by silts and clays or other material of relatively low permeability, called the Bellflower aquiclude. These materials inhibit the free percolation of water from the Semiperched aquifer to the underlying aquifers.

Permeable sediments of both Recent and late Pleistocene age are included within the Semiperched aquifer. Most of the sediments are probably remnants of abandoned stream channels, although marine deposits previously known as the Palos Verdes Sand are a part of the aquifer underlying portions of the Torrance Plain.

Little beneficial use is made of water in the Semiperched aquifer since wells perforated in it yield very small quantities of water. Furthermore, the poor quality of the water in some areas makes it undesirable for widespread use.

Bellflower Aquiclude. Lying directly beneath the Semiperched aquifer are sediments of lesser permeability which restrict vertical movement of ground water. These relatively impermeable materials, referred to in numerous reports in generalized terms, have been designated the Bellflower aquiclude. Physical features and dimensions of this aquiclude are delineated on Plate 8, entitled "Lines of Equal Elevation on the Base of the Bellflower Aquiclude", and on Plate 9, entitled "Lines of Equal Thickness of the Bellflower Aquiclude". The Bellflower aquiclude comprises all of the fine grained sediments that extend from the ground surface, or from the base of the Semiperched aquifer, down to the first aquifer below. Other names that have been used to refer to these materials are: "Upper Division of the Alluvial Deposits of Recent Age" (Poland, et al 1956); "Upper Fine Grained Phase" in California D.W.R. 1952b; and "clay cap" in California D.W.R., 1952c, 1957a, and 1958b. The flood plain deposits referred to by Poland, (1959b) which are found in many portions of the Downey Plain may be equivalent, at least in part, to the Bellflower aquiclude as here defined. Although other reports refer to these sediments as Recent in geologic age, the Bellflower aquiclude, as defined in this report, is composed of both Recent sediments in some areas, and late Pleistocene deposits in others.

The Bellflower aquiclude extends throughout most of the Coastal Plain of Los Angeles County, except for the Los Angeles and Montebello Forebay Areas. According to drillers logs and from visual observation of exposed formations in excavations, this aquiclude is a heterogeneous mixture of fine grained continental, marine, and wind-blown sediments. In about a third of the coastal plain, the aquiclude consists only of clays and silty clays, but extensive lenses and pockets of sandy or gravelly clays occur in the remainder of the area, as shown on Plate 9. These predominantly

sandy and gravelly clays may permit waters to percolate slowly to the underlying aquifer or aquifers, or ground water in these latter areas may move upward if pressure levels in the underlying aquifer are sufficiently high. Classification of materials from the descriptions usually found in well logs is difficult; however, in logs where descriptions of materials are more precise and presumably of greater reliability, the sand content is greater than has been generally assumed. Consequently, the aquiclude is believed to have a somewhat greater, though still restricted, permeability than has been supposed in the past.

That portion of the aquiclude of Recent age has not been appreciably faulted or folded; however, the portion of late Pleistocene age has been affected to some extent by tectonic movements.

The thickness of the Bellflower aquiclude, as shown on Plate 9, varies from zero to 200 feet. The areas of greatest thickness occur along the center and east flank of the Gardena Syncline in the West Coast Basin. Other areas of considerable thickness, ranging up to 140 feet, are generally aligned with the South Gate-Santa Ana Depression.

Gaspur Aquifer. The basal coarse phase of the Recent series has been referred to in previous reports as the Gaspur water-bearing zone. These sediments were described by Poland, et al (1956) and in California D.W.R. 1952a and 1952b. The term "aquifer" is used in this report rather than "water-bearing zone", the expression previously employed, as being more descriptive of the function of the deposits. According to Poland, et al (1956) the name of the aquifer is derived from the identification of a typical section in the log of a well near Gaspur Station at the coastal end of Dominguez Gap.

The extent of the Gaspur aquifer is shown on Plate 10, entitled "Lines of Equal Elevation on the Base of the Gaspur, Ballona, Artesia, and Exposition Aquifers". Its westerly arm, extending southerly from the Los Angeles Narrows, joins the easterly arm extending southwesterly from the Whittier Narrows near Downey and continues southwesterly through Dominguez Gap to the ocean. Throughout the 23 mile length of the aquifer the width varies from one to five and a half miles.

The type cobbles and pebbles in the Gaspur aquifer indicate that they are derived from the San Gabriel Mountains and other highland areas surrounding the San Gabriel and San Fernando Valleys.

The continental stream deposits found in the Gaspur aquifer range in size from boulder gravel to silt and clay. In vertical section, the upper part is medium to coarse-textured sand while the lower part consists of sand, gravel, and cobbles as large as four or five inches in diameter. There is also a lateral variation in lithology. Well logs north of Rosecrans Boulevard generally show 80 to 90 percent coarse sands and gravels with 10 to 20 percent finer-grained materials. South of Rosecrans Boulevard, about 40 to 50 percent of the sediments comprising the Gaspur aquifer are fine-grained. The fine-grained patches are discontinuous within the Whittier Narrows, and occur as stringers, or elongated lenses. Variations in the thickness and width of the Gaspur aquifer seem to indicate that the stream or streams responsible for original deposition were meandering, braiding, eroding and aggrading. The absence of fine deposits in the lower portion suggests that they were removed by erosion during flood stages. Thickness of the Gaspur aquifer ranging up to about 120 feet, is delineated on Plate 11 entitled, "Lines of Equal Thickness of the Gaspur, Ballona, Artesia, and Exposition Aquifers".

The Gaspur aquifer is merged with surface deposits in the Montebello Forebay between the Rio Hondo and San Gabriel River, extending as far south as Slauson Avenue. It also crops out in the Los Angeles Narrows in an area bounded by the Los Angeles River and the Harbor Freeway, and extends from the Narrows as far south as Firestone Boulevard. These two outcrops areas are shown on Plate 10A.

The gradient of the base of the westerly arm of the Gaspur aquifer is 44.5 feet per mile (a 300-foot drop in elevation in 6.75 miles). The gradient of the base of the Gaspur aquifer along the easterly arm is about 19 feet per mile (a drop of 200 feet in 10.5 miles). Between San Pedro Bay and the point where the two arms of the Gaspur aquifer join, the gradient is 10 feet per mile (a 60-foot drop in elevation in 6.0 miles). The steepness of the westerly arm may indicate uplift to the north and west, although greater rock hardness in Los Angeles Narrows and/or a difference in stream flow regimen caused by changing debris loads also may have caused this steep gradient. Minor warping of both the aquifer and overlying Recent deposits has probably occurred within the Whittier Narrows and Dominguez Gap. The Gaspur aquifer has apparently not been affected by faulting.

Water levels and well histories indicate that the Gaspur aquifer has been partially dewatered. The majority of new wells drilled in the area under which this aquifer lies do not depend solely on this aquifer but are usually drilled into and perforated in deeper aquifers as well. Many existing wells, however, depend only on this aquifer for their supply, and in these wells the yields are usually high. Permeabilities in this aquifer range up to 6000 gallons per day per square foot. (See Table D in Attachment 2 for general values of permeabilities used in the coastal plain).

The Gaspur aquifer is merged with the deeper aquifers in the area immediately south of Los Angeles Narrows, which at one time served as a recharge area. However, this area is now completely covered by buildings and paved streets. Little, if any, direct percolation of water is possible; even the channel of the Los Angeles River is now lined where it passes through this area.

In the vicinity of Whittier Narrows, the deeper aquifers are also merged with the Gaspur aquifer and receive their natural recharge waters through it. Because percolation in the Los Angeles Narrows has been rendered infeasible, the Whittier Narrows is the most suitable remaining location for artificial recharge of the underlying aquifers. Consequently, the principal recharge basins and projects for recharging local surface flood waters and imported waters are located in this area, from whence natural percolation processes carry this water into the deeper aquifers.

Ballona Aquifer. The other principal aquifer of Recent age is the Ballona aquifer, which has previously been termed the "50-foot gravel". Poland, et al (1959a) originally assigned the name "50-foot gravel" to the lower divisions of the Recent series in Ballona Gap, because these occurred at an average depth of 50 feet below the surface. Although this aquifer is included within the Recent series it is believed that at least part of it may be of late Pleistocene age.

The Ballona aquifer lies north of the Ballona escarpment and extends inland to a point east of the Overland Avenue fault. The extent of this aquifer is shown on Plate 10. It is composed of coarse sand, rounded to subrounded gravel, and cobbles up to five inches in diameter that are of both granitic and metamorphic origin. Slate pebbles in this aquifer suggest

that the Santa Monica Mountains were a possible source of material; on the other hand, granitic rocks and pebbles appear to come from the San Gabriel Mountains. The Los Angeles River has flowed north of the Baldwin Hills and along Ballona Creek channel in historic time, but no attempt has been made to determine the relative contribution to the Ballona aquifer from the two drainage systems.

The Ballona aquifer varies in thickness from less than 10 feet at the coast to 40 feet near Beverly Hills. Thickness of the Ballona aquifer is delineated on Plate 11.

The base of the Ballona aquifer drops from more than 100 feet above sea level beneath the Sawtelle Plain to 60 feet below sea level near the Ballona Escarpment, a gradient of about 40 feet per mile. There is a southward tilt to the base, which corresponds to the southerly dip into West Coast Basin of the San Pedro formation, and may be due to either erosion and depositional processes or to tilting, or possibly both.

Well yields from the Ballona aquifer are highly variable, ranging from 100 to 800 gpm (Poland, et al 1959a). This may be due to the irregularity and discontinuity of its composition and thickness.

Miscellaneous Alluvial Deposits. Other Recent alluvial deposits include beach deposits, playa lake deposits and lagoonal marshland deposits. These have been described more elaborately (Poland, et al 1959a), and are treated only briefly in this report.

Narrow strips of beach deposits, with materials ranging in size from fine sand to cobbles, are found adjacent to wave-cut cliffs along the coastline. They also exist as barrier beaches across the various gaps along the coast. The beach deposits act as a source for wind-blown material

for the coastal-dune belt and may also serve as a permeable conduit for sea-water intrusion into aquifers near the surface along the coast.

Playa lake deposits found near the intersection of the Coast Highway and Vermont Avenue, about one mile west of Wilmington, have been deposited in shallow closed depressions. Standing water accumulates in these closed drainage areas after heavy rains. These deposits are usually fine-grained sands, silts, and clays.

Lagoonal marshlands extend along the coastal reaches of the Los Angeles and San Gabriel Rivers and Ballona Creek for a distance of one-half to three miles inland. Deposits in these areas appear to be heterogeneous in nature, lenticular, and mostly fine-grained. These sediments may also include medium sand, silty sand, clay and peat deposits.

Active Dune Sand. Wind-blown sands occur in a narrow strip 0.2 to 0.5 miles inland and parallel to the coast and continue from Ballona Escarpment southward to Redondo Beach for a distance of about nine miles. These deposits are known as the Active Dune Sands. Plate 3B shows the extent of these deposits which are identified by the symbol Qsr. These eolian deposits are lenticular, and composed of fine to medium, white or grayish sand, usually well sorted. These sediments may also include medium sand, silty sand, clay and peat deposits. The Active Dune Sands range up to 70 feet in thickness. Being above the zone of saturation, the sands do not yield water to wells. However, they are relatively permeable and water held in closed depressions after heavy rains does percolate vertically downward and laterally. The dune sands may therefore serve as recharge media to any water bodies that underlie this area.

Pleistocene Series

The Pleistocene series is divided into upper Pleistocene and lower Pleistocene in most of coastal California, primarily because they are separated by an angular unconformity in many uplift areas. Fossils are used as an additional index to separation of the Pleistocene series. The boundary between deposits of Pliocene and Pleistocene age is difficult to determine and consequently is somewhat arbitrary in many areas.

In the coastal plain the upper Pleistocene is represented by the Older Dune Sands and the Lakewood formation, while the lower Pleistocene consists of the San Pedro formation (Poland, et al, 1956). Where they appear on the surface the Older Dune Sands, Lakewood formation, and the San Pedro formation are identified by the symbols Qso, Qlw, and Qsp, respectively. on Plate 3. A small zone of transitional material, cropping out between the San Pedro formation and the underlying Pico formation of Pliocene age is also shown on Plate 3 and identified by the symbol Qsp-Pp.

Older Dune Sand. Dune deposits occur in West Coast Basin which are older than those described under the Recent Series. These wind-blown materials are sufficiently significant in manner of deposition, lithology and topography, to be considered in this report as a separate unit. The term "Older Sand Dunes" has been previously used to designate these wind-blown deposits; however, in this report, the more descriptive term "Older Dune Sand" is used to identify these deposits.

The Older Dune Sand has been described by Poland, (1956, 1959b) and in Calif. D.W.R. 1952a and 1957c. Although these sediments have been previously classed as Recent materials, they are now considered to be of late Pleistocene age.

The Older Dune Sand covers an area three to four miles wide and about 13 miles long extending along the Santa Monica Bay Coast line south of Ballona Escarpment. Surface exposures and well logs indicate that the dune sediments cover the Ocean Park Plain as well as a portion of the West Coast Basin. In the Ballona Creek area the older dunes have been removed. In the West Coast Basin the Older Dune Sand together with the Active Dune Sand form the El Segundo Sand Hills.

The Older Dune Sand consists of fine to medium sand with minor sandy silt, clay, and gravel lenses. Within the weathered zone the materials are yellow to brown in color although the unweathered formation in place is white, gray and black in color. The Older Dune Sand generally consists of three divisions: a deeply weathered surface, an intermediate horizon of clean sands and basal beach sands and gravels, and a lowermost horizon which apparently includes a zone of transition to the underlying Bellflower aquiclude.

Cross-bedding, and fossils in exposures near the Hyperion Sewage Treatment Plant at El Segundo and elsewhere, indicate that the sands were originally beach deposits with associated coarse gravels. These beach deposits were exposed to the wind by lowering of the sea level, resulting in formation of the present Older Dune Sand. Deep weathering has oxidized the iron minerals which, through cementation and leaching processes, have partially filled the interstices between individual grains, thus reducing the permeability of the weathered Older Dune Sand to some extent. Uplifting may have gently tilted these dunes toward the southwest.

Deep percolation of surface water occurs in most of the Older Dune Sand area, especially where closed depressions occur. Directly beneath these older dunes in part of the El Segundo Sand Hills, the fine sediments

of the Bellflower aquiclude restrict downward movement of ground water. However, the aquiclude is missing along the ocean and ground water can move laterally into an area where downward percolation can again occur.

Lakewood formation. The Lakewood formation includes all upper Pleistocene deposits other than the Older Dune Sand. It includes what has previously been termed "terrace deposits", "Palos Verdes sand", and "unnamed upper Pleistocene deposits". Other names which have been used for upper Pleistocene deposits or parts of these deposits include the Sunny Hill formation (Hoskins, 1954,), and San Dimas formation (Eckis, 1928). These names, however, are awkward for use in the entire coastal plain since the named formations have been described as existing only in the limited associated area. The present designation was selected from a typical section indicated in the log of a well at Lakewood where this formation reaches a maximum thickness of approximately 340 feet.

In the upper part of the Lakewood formation lithologic changes are rapid, with discontinuous permeable zones and considerable variation in particle size. No shell zones have been found in the upper part of this formation. These features represent typical stream type alluviation with flood plain fine-grained sediments comprising from 40 to 80 percent of the total deposits. In the lower horizons the gravels and coarse sands are confined to a narrow belt extending over the Newport-Inglewood uplift. Gravels range from pea-size to cobbles, three to four inches in diameter. Over the balance of the coastal plain, coarse basal deposits of sand and gravel are fairly continuous with discontinuous lenses of sandy silt and clay. The basal part of the Lakewood formation in the Cheviot Hills area of Beverly Hills has been called the Medill sand by Rodda (1957)..

The Lakewood formation extends beneath most of the coastal plain. In portions of the Baldwin Hills, Signal Hill, Palos Verdes Hills, and Coyote Hills, it has been eroded, exposing the underlying San Pedro and older formations. In the La Brea, Santa Monica, and Montebello Plains, and on the flanks of the Palos Verdes Hills and Puente Hills, the Lakewood formation unconformably overlies the lower Pleistocene San Pedro formation, the Pliocene Pico and Repetto formations, and the Miocene Puente formation.

The Lakewood formation is divided into the Artesia-Exposition aquifers, the Gage-Gardena aquifers, and the unnamed aquicludes between the aquifers. In some areas, portions of the Semiperched aquifer and the Bellflower aquiclude, described under Recent alluvium, are included. The base of the Lakewood formation generally coincides with the base of the Gage and Gardena aquifers. The aquifers of the Lakewood formation are discussed in the following paragraphs.

Artesia-Exposition Aquifers. The Artesia and Exposition aquifers, although located in separate geographical areas, are similar in composition and mode of deposition; this leads to the conclusion that they are contemporaneous. They are, therefore, jointly discussed in this section. The Artesia aquifer appears to be related to the San Gabriel River, Coyote Creek, and Santa Ana River systems, and the Exposition aquifer is related to the Los Angeles River drainage system. As shown on geologic section C-C'-C", Plate 6B, these aquifers extend beneath the Gaspur aquifer at which point they merge with each other and with the overlying Gaspur aquifer. On Plates 10 and 11, the contours on the base of the Artesia-Exposition aquifers and lines of equal thickness are not extended beneath the Gaspur aquifer since it is difficult to distinguish the separate aquifers.

The Artesia aquifer extends from the middle of the Santa Fe Springs Plain southward, where it underlies the northern portions of the Bouton Plain, Signal Hill, and Bixby Ranch Hill. It follows the general trend of the present San Gabriel-Coyote Creek drainage as shown on Plate 10. The Artesia aquifer extends southeasterly from the Gaspur aquifer to and beyond the Los Angeles-Orange County line. However, since no study has been made of the extension of this or any other aquifer outside the area of investigation, it is terminated at the county line.

The Artesia aquifer is composed of coarse gravel, coarse to fine sand and interbedded silts and clays. In some areas, individual gravel members within the aquifer can be identified in drillers logs for considerable distances. The Artesia aquifer has a general southwesterly dip, and varies in thickness (Plate 11) and bottom configuration (Plate 10).

The ancestral San Gabriel and Santa Ana Rivers, and Coyote Creek, appear to have been the main source of the sediments comprising this aquifer. The Santa Ana River may have contributed sediments to the southern portion of the area since this river once flowed directly west and joined the San Gabriel River near its present confluence with Coyote Creek.

The geographical extent of the Exposition aquifer is shown on Plate 10. This aquifer consists of one to four discontinuous coarse members. Materials range in size from coarse gravels to clay, with the fine deposits separating the lenticular sandy and gravelly beds. Changes in lithology are frequent as evidenced by the many lenses of silt and clay encountered in the drillers logs.

Deposition of this material appears to have been controlled by the ancestral Los Angeles River, which may have flowed through the Silver Lake

area (Riveroll, 1957) in the geologic past, as well as by tributary streams from the Santa Monica Mountains, Elysian Hills, and Repetto Hills. The configuration of the base of the Exposition aquifer, as well as the Artesia aquifer, is highly irregular and it appears that both were deposited on an erosional surface. A study of well logs indicates that the upper coarse members of the Exposition aquifer were either eroded and backfilled by Gaspur deposits or that some of the upper members were deposited contemporaneously with the formation of the Gaspur aquifer. Highway excavations in the vicinity of Boyle Heights and other areas along the south slope of the Repetto Hills and along the east bank of the Los Angeles River have exposed clean sands and gravels which are apparently an upper member of the Exposition aquifer.

The maximum thickness of the Exposition aquifer is 100 feet. Lines of equal thickness of the aquifer, including interbedded fine materials as well as the permeable zones, are shown on Plate 11.

Stratigraphically, the Artesia and Exposition aquifers lie above the Gage aquifer, described subsequently, and are generally deeper than the Gaspur aquifer, although some of the upper coarse members abut directly into the Gaspur aquifer and may be of the same age. At Boyle Heights and other places, the Artesia and Exposition aquifer have been uplifted and are now higher in elevation than the adjacent Gaspur aquifer. Lower members of the Exposition continue beneath the Gaspur aquifer and merge laterally with the Artesia aquifer. The Exposition aquifer merges with the underlying Gage aquifer approximately three miles northwest of downtown Los Angeles and also in the triangular area between the easterly and westerly arms of the Gaspur aquifer on the Montebello Plain, as shown on Plate 12, "Lines of Equal Elevation on the Base of the Gage and Gardena Aquifers".

The Potrero fault is the only known structure that displaces the Exposition aquifer. However, both the Artesia and Exposition aquifers have been affected by folding and show slight warping near the Newport-Inglewood uplift and in the downwarped area of the Central Basin.

Gage Aquifer. The basal or lowest member of the Lakewood formation is termed the Gage aquifer. The name "200-foot sand" was applied to this aquifer by Poland, et al (1948 and 1959a), later by Richter (1950) and in the "Report of Referee", (Calif. D.W.R. 1952a). Originally the designation of the "200-foot sand" was used because the aquifer occurred about 200 feet below land surface in the syncline extending from Inglewood southeasterly through Gardena. In the Central Basin the base of the aquifer varies from 100 to over 350 feet below the surface; consequently the term "200-foot sand" is inapplicable. The lowest elevation this aquifer attains is in the vicinity of Lynwood, where an elevation of 350 feet below sea level occurs. The Gage aquifer extends over most of the Coastal Plain of Los Angeles County, although insufficient data is available to verify its extension beneath the Santa Monica Plain. Contours on the base of the aquifer are shown on Plate 12.

The composition of the Gage aquifer varies from a fine to medium sand with variable amounts of gravel, sandy silt, and clay in the West Coast Basin, to a coarse yellow sand and minor gravel (two to four inches in diameter) in the center of the Central Basin, and to a fine yellow sand and gravel toward the Whittier Narrows region. The thickness varies from 10 feet to a maximum of 160 feet in the Torrance area. The thickness of the aquifer is shown on Plate 13, "Lines of Equal Thickness of the Gage and Gardena Aquifers".

Deposits that comprise this aquifer are of both marine and continental origin. Along the northerly boundary of the Central Basin, that is, along the base of the Santa Monica Mountains and the Elysian and Repetto Hills, the deposits appear to be continental in origin. In the southeastern half of the coastal plain the aquifer consists mainly of mixed continental and marine, or in some areas, solely marine sediments.

Subsurface structures which either cut the aquifer or against which the aquifer terminates are shown on Plate 12. Areas where the aquifer is merged with overlying aquifers are also shown on this plate.

While this aquifer generally consists of sand, wells have been perforated in it only in areas where coarser materials exist. Approximately 200 wells have been drilled into the Gage aquifer in the West Coast Basin in the vicinity of Gardena but it is unimportant as a producing aquifer in other areas.

Gardena Aquifer. In 1950 Richter described the coarse deposits comprising this aquifer within the West Coast Basin under the term "Gardena Water-bearing Zone". In "Report of Referee" (Calif. D.W.R. 1952a) the description of the Gardena Water-bearing Zone was further elaborated. In the present investigation the extent of the Gardena water-bearing zone in the Central Basin was determined and these deposits have been designated the "Gardena aquifer". This term now applies to all of the coarse deposits that are contemporaneous with the Gage aquifer (fine grained deposits) in both the Central and West Coast Basins.

The Gardena aquifer extends inland from Redondo Beach beneath the City of Gardena, across the Newport-Inglewood uplift and into the Central Basin, where it loses its identity near Lynwood. Further inland, identical

coarse deposits are again discernible underlying the Montebello Plain and within the Whittier Narrows. These two areas, however, are separated by the Gage aquifer which underlies that part of the Central Basin where the water-bearing deposits are deepest. In the western part of the coastal plain, the deposits form a strip one to four and one-half miles wide extending from Lynwood to the coast. Other coarse deposits, believed to be at the same stratigraphic horizon, extend southwesterly from the Whittier Narrows and then form two southeasterly trending lobes. One lobe reaches the area south of downtown Los Angeles and the Elysian Hills, and the other extends along the south side of the Santa Fe Springs Plain to the vicinity of Norwalk. The extent of these deposits is shown on Plate 12.

The lithology of the Gardena aquifer in the West Coast Basin is given by Richter (1950) as coarse sand and gravel with discontinuous lenses of sandy silt and yellow to blue clay, with the gravel sizes ranging from pea-size to cobbles three to four inches in diameter and the sand ranging from fine to coarse. Deposits in the Central Basin also contain coarse sands and gravels, with minor lenses of sand, silty clay, and clay. The deposits are similar in thickness and elevation to those of the Gage aquifer and are in direct continuity with the Gage materials. According to Richter (1950), the thickness within the West Coast Basin varies from 50 to 75 feet between the Avalon-Compton fault and the City of Gardena; from 75 to 100 feet west of Gardena, and is over 100 feet where it overlaps the merged Lynwood and Silverado aquifers near the coast. The present study indicates that the Gardena aquifer varies in thickness from 40 feet near Lynwood to 100 feet near Gardena and increases to 160 feet northwest of Torrance. Lines of equal thickness are shown on Plate 13.

As shown on Plate 12, the lowest elevation of the base of this aquifer is 350 feet below sea level in the Central Basin and 200 feet below sea level in the West Coast Basin. On the Newport-Inglewood uplift, as well as in the merged area near the coast, the elevation of the base is 100 feet below sea level.

Richter (1950) indicated that this aquifer was one of fluvial origin since the alignment over the Newport-Inglewood uplift was narrow and perpendicular to probable ancient shore lines; furthermore, these deposits are similar to other Recent alluvial deposits in Dominguez and other Gaps. However, Poland (1959a) suggested that this coarse deposit may have been laid down beyond a shore line fringing the Newport-Inglewood uplift. Work in conjunction with this investigation, however, leads to the same conclusion outlined by Richter.

Some ancestral river flowing southwesterly incised a channel across the Newport-Inglewood uplift and eroded away most of the sediments comprising the Gage aquifer ("200-foot sand"). In this channel coarse fluvial deposits were laid down during a subsequent rise of sea level. Coastward from the uplift some shells have been found in wells drilled in this aquifer suggesting that fluvial action may have been affected by shallow lagoons or estuaries. From further study conducted during this investigation, it appears that the Rio Hondo-San Gabriel River systems have been the principal transporting agencies for sediments comprising the Gardena aquifer. However, because the two inland lobes of the Gardena aquifer extend parallel to the inland foothills there is a possibility that the Los Angeles River may have deposited portions of it.

In the Whittier Narrows, the Gardena aquifer is cut by the Rio Hondo fault shown on Plate 7, and it has been folded up to 11 degrees along

the edge of the area near Boyle Heights. Recent uplift along the crest of the Rosecrans anticline has arched the Gardena aquifer, and this is shown on Plate 12 by contours plotted of the base of the aquifer.

The Gardena aquifer has yielded large quantities of water to wells. Because of its coarse texture and continuity, it is an important aquifer in the coastal plain. It is in hydraulic continuity with the Gage aquifer throughout most of its extent and for this reason the isopachs (lines of equal thickness) and elevation contours are plotted on the same maps as the Gage aquifer.

San Pedro Formation. The San Pedro formation has previously been defined to Poland, et al (1945, 1948, 1956, 1959a), as "that stratigraphic unit underlying the unnamed upper Pleistocene deposits and overlying the Pico formation of the late Pliocene age..... Essentially, the San Pedro formation embraces all strata of lower Pleistocene age." Richter (1950) defined the San Pedro formation as "all of the deposits of lower Pleistocene age which underlie West Basin." The original type section of the San Pedro formation contained San Pedro sand, Timms Point silt, and Lomita marl; however, Poland has stated that the San Pedro formation "includes some strata that are younger and may include some that are older than any exposed in the type section cited."

Eckis, (Calif. D.W.R., 1934) used the term "Fernando Group" for the lower Pleistocene and upper Pliocene strata that occurs along the inland foothills of the coastal plain. Since this term included the upper Pliocene deposits, not considered important fresh-water-bearing sediments, the designation "San Pedro formation" is used in this report for the heterogeneous materials comprising the lower Pleistocene horizons.

The San Pedro formation underlies most, if not all, of the Coastal Plain of Los Angeles County as well as portions of the Santa Monica and San Pedro shelves offshore. In the type section along the north flank of the Palos Verdes Hills the San Pedro formation is composed of stratified sand with some beds of fine gravel, silty sand, and silt. Crossbedding occurs frequently in the outcrop. Some pebbles of limestone, siliceous Miocene shales and schist are also found. Away from the Palos Verdes Hills the percentage of granitic fragments increase. In 1950, Richter described the lithology of the San Pedro formation as it occurs in West Coast Basin as "gray sand, which weathers brown or reddish brown on exposure, and interbeds of small gravel are characteristic. Sand and gravel fragments are mainly granitic, indicating a common source area, probably the San Gabriel Mountains". Fine-grained members are generally marine type, blue to black clays, sea muds, or quicksand with abundant shells. The Anchor silt found in the Cheviot Hills (Rodda, 1957) is one of these members. It is correlative with the Timms Point silt, of lower Pleistocene age, and to the lower part of the San Pedro formation. The Coyote silt found in the Coyote Hills (Hoskins, 1954) is also of lower Pleistocene age and resembles the Anchor silt.

The thickness of the San Pedro formation is about 1050 feet beneath the Downey Plain along the South Gate-Santa Ana Depression, and increases to a maximum of 1350 feet in the area about two miles east and southeast of Norwalk along the Norwalk synclinal axis. Where section C-C'-C" (Plate 6b) crosses the Rosecrans anticline, the thickness is 570 feet. Within the West Coast Basin the thickness is greatest along the Gardena syncline, varying from 400 feet about 1 1/2 miles west of Inglewood to 500 feet 1 mile north of Hawthorne, 700 feet at Gardena, and to as much as 1050 feet near the intersection of Carson and Alameda Streets.

The San Pedro formation crops out along the south side of the Repetto, Merced, and Puente Hills; on the Coyote Hills, Baldwin Hills, and Beverly Hills; along the north side of the Palos Verdes Hills; and on Signal Hill. Around the margins of the coastal plain, the San Pedro formation is upturned, and in some local areas is beveled and capped by younger strata.

Most of the structures encountered within the area of study affect at least part of the San Pedro formation. Elevation contour maps on the bases of the aquifers that comprise this formation indicate which fault or faults displace the aquifers. Much folding and warping, along with erosion, also has affected many of the aquifers. The structures affecting the San Pedro formation will be discussed in the descriptions of individual aquifers to follow.

On Plate 3 the San Pedro formation, where it appears at the ground surface, is represented by the symbol "Qsp". Although the formation is shown as one unit for convenience, it has been divided into various stratigraphic units or members. Only those members capable of storing or conveying ground water in suitable quantities have been named as aquifers, while the intervening finer-grained zones were not named. In downward succession, excluding the fine-grained interbedded layers, the aquifers are: The Hollydale aquifer, the Jefferson aquifer, the Lynwood aquifer ("400-foot gravel"), the Silverado aquifer, and the Sunnyside aquifer. Since most of the important aquifers used for production within the coastal plain are contained within the San Pedro formation, their complex water-bearing characteristics are discussed in Chapter VI rather than in the following description.

Hollydale Aquifer. The uppermost aquifer within the San Pedro formation is named the Hollydale aquifer. Although discontinuous in extent, it reaches from the Newport-Inglewood uplift north and northeastward to the south line of the Elysian, Repetto, Merced, and Puente Hills, and eastward and southeastward to and beyond the Los Angeles-Orange County line. Plate 14, entitled "Lines of Equal Elevation on the Base of the Hollydale Aquifer", shows the sinuous irregular courses of this aquifer.

The lithology of this aquifer is variable and consists of yellow sands and gravels (pea-size to two inches) in the northeastern portion of the area, while grey, blue, and black sands, with muds, clays, and marine shells become more predominant toward the Newport-Inglewood uplift. Well log reports are the only means of determining the lithology for this aquifer because it does not crop out on the surface. The well logs indicate that some of the marine sands are mushy, while others are cemented and hard.

The irregular, sinuous, and meander-like courses of the aquifer suggests a stream deposition, but the lithology of the aquifer over three-fourths of the area indicates shallow marine deposition. Because the two main lobes of the aquifer open toward the Los Angeles and Whittier Narrows, it is assumed that streams flowing through these two narrows have controlled the deposition of those parts, while a part of the sediments were laid down beneath shallow water in lagoons or estuaries.

Lines of equal thickness of this aquifer are shown on Plate 15, "Lines of Equal Thickness of the Hollydale Aquifer". The thickness varies from less than 10 feet to a maximum of 100 feet near Lakewood.

In stratigraphic position the Hollydale aquifer is the first important aquifer beneath the Gage-Gardena aquifers. The Hollydale aquifer is overlain and underlain, in most areas, by fine-grained members or aquicludes

of the San Pedro formation. Elevation contours on the base of the Hollydale aquifer and areas of mergence with overlying aquifers are shown on Plate 14. The aquifer attains its greatest depth at an elevation of 500 feet below sea level about two miles east of Compton. In the area between the towns of Norwalk and Bellflower, the depth is about 450 feet below sea level. The slope of the base of the Hollydale aquifer is generally toward these two areas of greatest depth.

Upfolding along the Newport-Inglewood uplift has apparently limited the depositional area of the Hollydale aquifer to the Central Basin. Within the Central Basin the aquifer does not exist in upfolded areas. Downfolding along the axis of the Paramount and Norwalk synclines has, however, placed the base of the aquifer at an elevation of 500 feet below sea level.

This aquifer apparently does not yield large quantities of water to wells, therefore few wells are perforated in this interval and even then only when producing horizons above and below are also perforated. Low productivity of the Hollydale aquifer may be due to the fineness of the materials of which it is composed and the lack of continuity in its extent.

Recharge of the Hollydale aquifer can be accomplished only where it merges with the overlying Gage or younger aquifers (Plate 14) because of the absence of outcrop areas.

Jefferson aquifer. Within the Central Basin, the second aquifer in downward succession within the San Pedro formation is designated the Jefferson aquifer. This aquifer extends over most of the Central Basin, although it is not known to reach the surface. Lobes of this aquifer extend into the Whittier Narrows, into the La Brea Plain, and south of the Coyote Hills through Buena Park into Orange County. Within the boundaries of

the aquifer, some irregular areas exist where the aquifer has not been identified, as indicated on Plate 16, "Lines of Equal Elevation on the Base of the Jefferson Aquifer". This aquifer has not been located in the West Coast Basin. The Jefferson aquifer occurs in sinous courses extending from both the Los Angeles and Whittier Narrows into Orange County.

The lithology of the Jefferson aquifer is known only from drillers logs of water wells. The sediments comprising this aquifer are, for the greater part, fine-grained. Gravels are most extensive in the Whittier Narrows but also occur in scattered patches through the rest of the Central Basin. The remainder of the aquifer consists primarily of sand with some gravelly and clayey lenses.

From the pattern of distribution of sediments comprising this aquifer, source areas are assumed to have been the San Fernando and San Gabriel Valleys and their surrounding highlands. The Los Angeles and San Gabriel Rivers appear to have transported the material through the Los Angeles and Whittier Narrows into or through three possible areas: the La Habra Piedmont slope, the Buena Park area, and southward toward Seal Beach. Extensions of these areas into Orange County have not been determined.

The thickness of the Jefferson aquifer is shown on Plate 17, "Lines of Equal Thickness of the Jefferson Aquifer", and varies from a few feet to a maximum of 140 feet along the Los Alamitos fault. At Norwalk the Jefferson aquifer is 120 feet thick. The Jefferson aquifer has been considerably folded and its base varies in elevation from 700 feet below sea level to 50 feet above sea level.

Structures that affect the Jefferson aquifer are the Los Alamitos, Rio Hondo, Pico, and Cherry Hill faults, and possibly the Seal Beach fault.

It is believed that the general upwarped area along the Newport-Inglewood uplift has controlled or confined to the Central Basin the deposition of sediments comprising this aquifer.

Although it does not crop out on the surface, the Jefferson aquifer does merge with the overlying Hollydale aquifer and also with the Gage aquifer along the Elysian Hills, Repetto Hills, and within the Whittier Narrows. These areas of mergence are shown on Plate 16.

Artificial recharge within the Whittier Narrows would have some effect on this aquifer. Since less than 10 percent of the wells in the Central Basin are perforated in this horizon, and then only in areas where coarse sandy and gravelly zones are found, it is not considered an important water producing aquifer.

Lynwood Aquifer. The Lynwood aquifer is the term used for the third aquifer in stratigraphic sequence within the San Pedro formation. The term "400-foot gravel" has been applied to this aquifer in the West Coast Basin. This latter term was first used by Poland (1948) and defined as "a distinct water-bearing zone in the upper part of the San Pedro formation .... its base is about 400 feet below land surface along the axis of the syncline" (southwest of the Newport-Inglewood uplift). Plate 18, "Lines of Equal Elevation on the Base of the Lynwood Aquifer", and Plate 19, "Lines of Equal Thickness of the Lynwood Aquifer" show the extent, elevation of the base, and thickness of this aquifer.

The Lynwood aquifer extends throughout the Central and West Coast Basins and its existence has been verified in the Hollywood Basin. There is no evidence to show that it exists in the Santa Monica Basin, nor has it been identified in the Baldwin Hills.

Materials of which the Lynwood aquifer is composed appear to be both continental and marine in origin. Continental deposits, of yellow, brown, and red coarse gravels, sands, silts, and clays, are found in the vicinity of the Montebello Forebay Area. A line bounding this area extends from the Whittier Narrows to Bellflower, thence to Compton, South Gate, Huntington Park, and back to the Whittier Narrows. One arm of continental sediments extends from the area just described toward Hawthorne. Sediments of the Lynwood aquifer surrounding the Montebello Forebay Area are mostly marine deposits and are characterized by sand and gravel and blue, grey, and black silts and clays. Some of the sands and gravels have been cemented. The several areas where the marine deposits consist predominantly of fine-grained materials vary from less than 100 acres to about six or seven square miles in extent, and are shown on Plate 19.

From the study of well logs and the materials from wells drilled into this aquifer, it appears that the Rio Hondo and San Gabriel River systems have been the major contributing source for the continental sediments. Marine-type deposits appear to have been laid down when the area was covered by shallow seas.

The Lynwood aquifer ranges from less than 50 feet to about 200 feet in thickness near Wilmington, as shown on Plate 19. Near Lakewood, Torrance, Inglewood, and Montebello it is about 150 feet in thickness. The base contours and lines of equal thickness are not shown west of the Gardena syncline because of mergence with the Silverado aquifer.

In stratigraphic sequence the Lynwood aquifer is overlain and underlain in most of the area by fine-grained materials such as clays, silts, and sandy and silty clays. It is beneath the Jefferson aquifer and above the Silverado aquifer. Known areas of mergence with the overlying aquifers

are shown on Plate 18, while the areas of mergence with the Silverado aquifer are shown on Plate 20, "Lines of Equal Elevation on the Base of the Silverado Aquifer".

Folding has been the primary structural factor affecting the Lynwood aquifer. Upfolding or upwarping has occurred along the coast in the West Coast Basin, over the Newport-Inglewood uplift, in the Artesia area over the Santa Fe Springs uplift, along the edge of the Elysian, Repetto, and Puente Hills, and within the Whittier Narrows. Downwarping has affected the aquifer in the Hawthorne-Long Beach depression extending to San Pedro, within the South Gate-Santa Ana depression (includes Paramount and Norwalk synclines), and within the La Habra syncline. Within the West Coast Basin the Charnock fault has offset the Lynwood aquifer. Along the Newport-Inglewood uplift, the Inglewood, Potrero, Avalon-Compton, Cherry Hill, Northeast Flank, and other associated transverse faults cut the aquifer. Within the Central Basin the Los Alamitos fault offsets the Lynwood aquifer as does the Rio Hondo and Pico faults within and south of Whittier Narrows.

The Lynwood aquifer is an important producer of ground water and is discussed in more detail in the descriptions of the ground water basins in Chapter VI. Most wells in the coastal plain drilled to or below this aquifer are perforated in it. Yields of wells perforated only in the Lynwood aquifer vary from 200 to 2100 gallons per minute.

Surface and subsurface flow of water through the Whittier Narrows moves downward through the shallow aquifers into the Lynwood aquifer. Water is also artificially spread in shallow pits below the Whittier Narrows where the Lynwood aquifer is in contact with the permeable materials extending upward into the pits, thus permitting this water to reach the Lynwood aquifer. This artificial method of recharging is not generally

applicable in other areas where the Lynwood aquifer is merged with the overlying aquifers because of the greater depth of those aquifers as well as the Lynwood aquifer below the surface, the lack of continuous permeable materials to conduct water vertically downward, and the lack of available space for large surface pits. In these areas, therefore, other methods of recharge would be necessary, such as injection wells drilled into and perforated in this aquifer.

Silverado Aquifer. The Silverado aquifer is the name applied in this report to those water-bearing materials which are stratigraphic equivalents of the "Silverado Water-Bearing Zone" in the West Coast Basin. Originally named by Poland, et al (1956), from its typical occurrence in a well in Silverado Park, Long Beach, the Silverado Water-Bearing Zone has been found throughout the rest of the Coastal Plain of Los Angeles County and extends across the Los Angeles County line into Orange County. For the purpose of this report the term, "Silverado aquifer", will apply to these materials throughout the Coastal Plain of Los Angeles County. Areas of Pleistocene deposits occurring in the Santa Monica and San Pedro shelves offshore may be continuations of the Silverado and underlying Sunnywide aquifers. Plate 20 shows the known extent and elevation contours of the base of the Silverado aquifer.

Sediments comprising the Silverado aquifer are both continental and marine. Where continental deposits predominate, yellow to brown, coarse to fine sands and gravels are interbedded with yellow to brown silts and clays. Marine deposits which comprise the Silverado aquifer over the remainder of the basin are primarily blue to grey sand, gravel, silt, and clay. Some black sands, quicksand, marine shells, peat, and wood fragments

are also shown on drillers logs of wells located in the area of marine sediments. In the West Coast Basin, Richter (1950) describes the lithology as fine to coarse, blue-black arkosic sand with the larger grains composed of granite, granodiorite, and diorite. Along the flanks of the Palos Verdes Hills, limestone and schist pebbles are abundant, while in the Ballona Gap area slate, schist, and volcanic pebbles are commonly found.

The ancestral Rio Hondo and San Gabriel River systems have been the major transporting agent for materials comprising the continental portion of the Silverado aquifer in Central Basin, although some contributions may have been added by the Santa Ana River flowing in one of its earlier courses. The regional evidence indicates that the Los Angeles River did not flow into the coastal plain during much of the lower Pleistocene time and probably did not contribute sediment to the Silverado aquifer. However, streams flowing from the Santa Monica Mountains, Elysian Hills, and Palos Verdes Hills have added debris from these areas. Much of this material was deposited beneath the shallow ocean that covered the coastal plain at this time. The continental deposits appear to have been laid down when the sea was retreating from the coastal plain.

The varying thickness of the Silverado aquifer is depicted on Plate 21, "Lines of Equal Thickness of the Silverado Aquifer". This aquifer reaches a maximum thickness of 500 feet between the Wilmington anticline and the Cherry Hill fault. One mile west of Lakewood, along Carson Street, the Silverado aquifer is 450 feet thick. Along the south side of the Santa Fe Springs Plain and also two miles southeast of Huntington Park it is 300 feet thick.

The maximum depth reached by the base of the Silverado aquifer, 1200 feet below sea level, is found southwest of the Cherry Hill fault

within Dominguez Gap, along the north side of the Los Alamitos fault, and about three miles southeast of Norwalk. A depth of 1100 feet below sea level occurs near Long Beach Harbor.

The Silverado aquifer crops out along the northeast flank of the Palos Verdes Hills, possibly on the continental shelf beneath Santa Monica Bay, along the southern margin of the Baldwin Hills, in the Repetto and Merced Hills, along the south slope of the Puente Hills, and possibly in the Coyote Hills. Outcrops in the areas named are shown as the San Pedro formation, Qsp on Plate 3, because insufficient data are available to definitely identify the aquifer involved.

Areas where the Silverado aquifer merges with overlying aquifers are shown on Plate 20. In the Montebello Forebay Area and Whittier Narrows the Silverado aquifer is directly overlain by and merges with aquifers younger than the Lynwood aquifer. Merged areas are irregular in extent but are generally found along the Newport-Inglewood uplift, in the area from Huntington Park to Santa Fe Springs, and also within the Whittier Narrows. In the West Coast Basin the Silverado is merged with the overlying Lynwood aquifer everywhere except beneath the Gardena syncline and the Wilmington anticline. Near Santa Monica Bay the Silverado aquifer is in hydraulic continuity with the Gardena and Gage, as well as the Lynwood aquifers. In the Montebello Forebay Area the Silverado aquifer merges with the overlying Lynwood, Jefferson, Hollydale and Gardena aquifers, as delineated on Plate 20A.

The Silverado aquifer has suffered a greater degree of folding than the overlying Lynwood aquifer. It has been deformed by all of the major anticlinal and synclinal folds. All the major faults shown on Plate 3 seem to have affected this aquifer. After faulting occurred, the aquifer

may be found at either different or the same elevation but separated by a region of altered permeability. Sufficient data is lacking to determine whether the geologic structure just south of Santa Fe Springs is a fault or downfold. On the basis of the data available it is believed that the postulation of a sharp downfold would explain the existing structure in a more adequate manner than the assumption of a fault.

This aquifer is one of the most important ground water producers in the coastal plain. Specific capacities of wells perforated in it range up to a maximum of 159 gallons per minute per foot of drawdown and yields range up to 4700 gallons per minute.

In the Whittier Narrows the Silverado aquifer is merged with many overlying aquifers and recharging the shallow aquifers in that area would cause additional water to reach the Silverado aquifer. Recharge from the surface in the Los Angeles Forebay Area may also reach the Silverado aquifer where it is truncated by the Gaspur. Other possible recharge areas for the Silverado aquifer are in the outcrop along the Coyote and Baldwin Hills, or in the Ballona Gap, where the Silverado aquifer is directly beneath the Ballona aquifer and close to the surface. Natural recharge takes place in those areas shown on Plate 3 where the San Pedro formation crops out on the surface.

Sunnyside Aquifer. The water-bearing materials occurring within the Central Basin beneath the Silverado aquifer but above the Pico formation have been termed the "Sunnyside aquifer" after a typical occurrence illustrated by the log of a well located in Sunnyside Cemetery in North Long Beach.

The Sunnywide aquifer extends throughout the Central Basin. Its extent and elevation of its base are shown on Plate 22, "Lines of Equal

Elevation on the Base of the Sunnyside Aquifer". Recent drilling along the coastal region from Palos Verdes Hills to Ballona Escarpment has revealed a zone of coarse deposits approximately 500 feet thick occurring beneath the Silverado aquifer, but separated from it by silts and clays. These coarse materials are similar to the Sunnyside aquifer in the Central Basin and may be the extension of the Sunnyside aquifer in the West Coast Basin.

The materials comprising this aquifer are coarse-grained sands and gravels separated by fine-grained interbeds of sandy clay and clay. The lithology shown on a typical well log near the intersection of Del Amo and Cherry Streets is compacted blue sand, coarse blue gravel (up to four inches in diameter), hard blue sandy clay, and clay. Toward the Los Angeles-Orange County line, mushy blue sands and coarse gravels with greater amounts of blue clay are found. At Spring Street and Bloomfield Avenue, well logs indicated that instead of clay, fine blue sand with minor clay streaks was present. Along the center of the coastal plain, about one mile north of Manchester and near Alameda Avenue, fine to medium gravel (one quarter to one inch in diameter), and partly cemented blue clay, and grey to brown shale are typical materials. In Whittier Narrows hard grey sands and gravels, boulders, and blue sandy shale are present.

From drillers descriptions of materials, it is believed that the aquifer is of marine origin and has been affected very little by weathering. Many well logs show marine shells included with the sediments in addition to the interbedded marine-type clays and shales.

The Sunnyside aquifer attains its maximum known thickness of about 300 feet about one to one and a half miles southeast of Maywood in the vicinity of Slauson Avenue and the Long Beach Freeway. Plate 23, "Lines of Equal Thickness of the Sunnyside Aquifer", gives the thickness of the

Sunnyside aquifer. No data is available to determine thickness in the central downfolded area because none of the water wells have reached the aquifer in this area.

It is not definitely known whether the Sunnyside aquifer crops out in any particular location within the Central Basin; however, it is assumed that some of the outcrop areas shown as the San Pedro formation on Plate 3 include the Sunnyside aquifer also. The most likely areas for this to occur are along the south slope of the Repetto, Merced, and Puente Hills, and especially on the top of the Coyote Hills.

In stratigraphic position the Sunnyside aquifer is overlain by the fine-grained Timms Point silt and Lomita marl and underlain by the Pico formation. It may be correlated in age with the unit mapped by Hoskins (1954) as the Coyote silt, the Anchor silt of Rodda (1957), and the La Habra conglomerate of Eckis (Calif. D.W.R., 1934).

Structurally, the Sunnyside aquifer is offset by most, if not all, of the faults within the Central Basin. Some of the faults appear to act as boundaries for the aquifer. Northeast of the Los Alamitos fault the base of the Sunnyside aquifer occurs at a maximum depth of about 1500 feet below sea level.

The Sunnyside merges with the Silverado and other overlying aquifers in many areas delineated on Plate 22, "Lines of Equal Elevation on the Base of the Sunnyside Aquifer". In these merged areas hydraulic continuity is possible through a series of aquifers to the surface. The only known areas where this aquifer may be recharged are limited to outcrops of the San Pedro formation and merged areas where folds have lifted the Sunnyside aquifer near the surface of the ground.

Yields of wells perforated in this aquifer range up to 1500 gallons per minute. Specific capacities of known wells using only this aquifer for production are only fair, ranging from 6 to 25 gallons per minute per foot of drawdown.

Undifferentiated Plio-Pleistocene Sediments

An area of sediments of either Pliocene or Pleistocene age, or possibly both, is shown on Plate 3 in the Repetto Hills southeasterly of Monterey Park. In the geologic literature these sediments have been classified variously as both Pliocene and Pleistocene. Although various fossils are present, age designation based upon them is uncertain. While these sediments are somewhat permeable they have relatively little significance as far as ground water in the coastal plain is concerned; therefore, no attempt was made to determine their age.

These undifferentiated sediments consist of thin bedded to massive silts, sands, and gravels that are locally well indurated and contain limited marine fossil remains. The sediments have been folded and many minor faults and fractures are seen in outcrops.

Although these sediments are considered to be relatively unimportant as far as ground water is concerned, a drainage well constructed in 1959 reportedly yields fair quantities of good quality water. Firm conclusions, however, cannot be drawn from this limited experience.

Tertiary System

Aquifers have not been differentiated in sediments and rocks older than Pleistocene age because of limited well log data. Few wells extend into these materials and little ground water of suitable quality is extracted from them. Some fresh water is now being extracted from the upper member

of the Pico formation, discussed first in this section. For pre-Pleistocene materials in general, the sediments and rocks are described by formations or broad age classification.

Pliocene Series

The Pliocene series is divided into two formations, the Pico formation and the Repetto formation. In addition, the Pico formation is divided into upper, middle, and lower divisions.

Pico Formation. The Pico formation is shown, where it outcrops at the surface, on Plate 3 by the symbol "P_p". The upper division or upper member of the Pico formation is a potential source of ground water. It has not been exploited to date, though wells along Carson Street near Lakewood do obtain water from upper Pico aquifers. This member is thickest in the synclinal areas, and it outcrops on the hills surrounding the coastal plain.

The upper Pico formation is generally composed of sand, silt, and clay of marine origin interbedded with marine gravels. Beds of gravels and sands range in thickness from 20 to 100 feet and are separated by beds of micaceous siltstone and clays.

Unconformably beneath this upper member are the middle and lower members of the Pico formation, or in some areas, the Repetto formation. The middle and lower divisions of the Pico formation are differentiated from upper Pico sediments by the contained foraminiferal faunas. Lithologically, the middle and lower divisions are composed of greenish-grey micaceous siltstone and fine to coarse light grey feldspathic sandstone interbedded with claystone and shale. The thickness of these lower division materials ranges from 400 to more than 2,000 feet. Throughout most of the coastal plain these rocks are far below the depths reached by the deepest

water wells. Oil well data indicate that, although portions of these sediments may be sufficiently permeable to transmit water in usable quantities, the water is of poor quality and unsuitable for general use.

Repetto Formation. The Repetto formation, of early Pliocene age, is exposed in several areas adjacent to the coastal plain. The outcrops of this formation are identified by the symbol "Pr" on Plate 3. These deposits are composed mostly of siltstone with layers of sandstone and conglomerate, containing fragmental marine shells locally. The Repetto formation is about 5,000 feet in thickness. Wissler (1943) states that the maximum thickness occurs in the Montebello-Santa Fe Springs area. Conrey (1958) and Slosson (1958) confirm this and discuss the distribution and thickness of the Repetto rocks in some detail.

Miocene Series

Rocks of Miocene age are shown on Plate 3 by the symbols "Ms" for sedimentary rocks and "Mv" for volcanic rocks. Nomenclature of the sediments of Miocene age is somewhat complicated; however, the relationship between the various names and brief descriptions of the various formations are presented in Table 1.

Sedimentary Rocks. Sedimentary rocks of middle and late Miocene age have been called the Monterey formation in the Palos Verdes Hills, the Modelo formation in the Santa Monica Mountains, and the Puente formation beneath the coastal plain and in the Repetto and Puente Hills. These formations, up to 11,000 feet thick, consist predominantly of clay shales but siliceous shales, sandstones, and conglomerates are common.

The Topanga formation is of middle and possibly early Miocene age. It is interbedded with and lies below the Miocene volcanic rocks. The formation attains a thickness of 7,500 feet and consists of shale, sandstone, and conglomerate.

No wells are known to produce fresh water from these formations in the immediate area of the coastal plain. However, water wells in other parts of Southern California do obtain limited supplies from hard fractured shales and poorly consolidated sandstones and conglomerates of these formations.

Volcanic Rocks. Calcic andesite flows, tuffs, and breccias underlie at least parts of the coastal plain, and usually contain interbedded marine sand, conglomerate, and shale. Where these materials outcrop on the surface they are identified by the symbol "Mv" on Plate 3. Available data indicate that the fractured sills, dikes, and flows, along with interbedded sand and gravels, yield water to wells, while the conglomerates and agglomerates are relatively nonwater-bearing.

Older Tertiary Sedimentary Rocks

Rocks of Eocene and Oligocene age are missing beneath West Coast Basin, though they may underlie the Central Basin. Hoots (1931) gives some evidence for the presence of the Sespe and Vaqueros formations of Oligocene(?) or early Miocene age in the Santa Monica Mountains. Paleocene rocks crop out in the Santa Monica Mountains and may underlie a part of the coastal plain. Hoots (1931) termed these rocks the Martinez formation. Other exposures of Martinez sandstone and conglomerate were found in the Santa Monica Mountains by Durrell (1954) and others. Outcrops of Eocene and Oligocene rocks are shown on Plate 3 by the symbols "E" and "Ø", respectively, while outcrops of Paleocene rocks are marked by the symbol "E-K".

Cretaceous System

A sequence of Upper Cretaceous sediments within the Santa Monica Mountains are differentiated and have been called the Chico formation by Hoots (1931). Durrell (1954) however, appears to have divided the same sequence into the Chico and Trabuco formations. The symbol "K_s" represents the areas of outcrops of these rocks on Plate 3.

Quartz dioritic intrusive rocks, shown by the symbol "K_g" on Plate 3 have previously been assumed to be Jurassic by comparison with similar rocks in the Sierra Nevada (Durrell, 1954). On the basis of dating by lead-alpha activity ratios of intrusive rocks in Southern California, Larsen, et al (1958) suggests that these rocks are of an early Late Cretaceous age rather than Jurassic.

Jurassic System

Rocks, called the Catalina schist, crop out on the Palos Verdes Hills and are identified on Plate 3 by the symbol "J". These have been also referred to as the Western bedrock complex because they underlie Miocene rocks of the West Coast Basin. The age of these schistose rocks is questionable and, according to Woodford, et al (1954), may be either Mesozoic (when compared to the Jurassic Franciscan formation of the coast ranges) or Precambrian (when compared with the Pelona schist of the San Gabriel Mountains). In this report they are mapped as Jurassic.

Triassic System

Metamorphosed black shale and sandstone crops out in the Santa Monica Mountains and have been called the Santa Monica slate (Hoots, 1931) and the Santa Monica formation (Durrell, 1954). Intrusion of these rocks

by the quartz dioritic magma was responsible for changing these rocks into grey to black slates, mica schists, and spotted slates. These rocks are dated as Triassic by comparison with similar rocks of Triassic age in the Santa Ana Mountains. In the coastal plain, these are presumably the oldest rocks known, although the Cataline schist mentioned under the Jurassic System may possibly be older. These Triassic rocks are identified on Plate 3 by the symbol "T_R".

CHAPTER VI. DESCRIPTION OF GROUND WATER BASINS

This chapter describes the ground water basins in the Coastal Plain of Los Angeles County and discusses the occurrence and movement of ground water within each basin. Information regarding geologic features presented in earlier chapters is summarized here for each ground water basin to show what effect these features have on ground water flow into, through, and out of each basin. The relationships between the geologic features and the occurrence and movement of ground water as discussed in this chapter are intended to clarify the geologic setting of the area for future studies of hydrology, water quality, and problems involving the use of ground water.

Basin Boundaries

The ground water basin as herein used is defined as the area underlain by one or more permeable formations capable of furnishing a substantial water supply. It does not necessarily coincide with the surface drainage basins and is usually smaller in size because the essentially nonwater-bearing hills and mountains of the surface drainage basin (watershed) are excluded. Ground water basins are separated from adjacent basins by geologic features such as nonwater-bearing rock, faults, or other geologic structures which impede ground water movement, and by natural or artificial mounds or divides in the water table or piezometric surface. Geologic features generally establish well defined, fixed boundaries while ground water mounds are subject to change in time, particularly with changes in the development and use of ground water. However, both of these types of boundaries do define limits of ground water movement.

Central Basin

The Central Basin extends over most of the Coastal Plain of Los Angeles County east and northeast of the Newport-Inglewood uplift (Plate 2). It is bounded on the north by the Hollywood Basin and a series of low hills extending from the Elysian Hills on the northwest to the Puente Hills on the southeast. Where the Los Angeles and Whittier Narrows break the otherwise continuous line of hills, the Central Basin is separated from the ground water basins to its north by arbitrary lines. The Central Basin is bounded on the west and south by the Newport-Inglewood uplift and on the southeast by the Los Angeles-Orange County line. All of these boundaries do not coincide with the ones defined in earlier reports. In Bulletin No. 8 (Calif. D.W.R. 1952c) the Central Basin included the area referred to in this report as the Hollywood Basin. The present Central Basin includes part of the area formerly known as the Los Angeles Narrows Basin, and the Whittier Area which was formerly the western part of the La Habra Basin.

The Central Basin was historically divided internally into three areas (Calif. D.W.R. 1934): the Los Angeles and Montebello Forebay Areas and the Central Basin Pressure Area. This division is shown on Plate 2. The forebay areas have been described as intake areas (areas of free or unconfined ground water) where substantial infiltration of surface water could occur. In the pressure area, the aquifers were pictured as being confined between relatively impervious layers of considerable lateral extent that restricted percolation of water from the ground surface downward to the underlying aquifers. This investigation has shown that such a simplified division is not possible because aquicludes were found to extend into the so-called forebay areas and the pressure area aquicludes were found locally

to contain large amounts of sandy and gravelly clay and silts where considerable deep percolation could occur. The area of essentially unrestricted percolation of surface waters to the underlying ground water is limited to small areas in the vicinity of the Los Angeles and Whittier Narrows (Plate 9A). These areas are considerably smaller in extent than the historically defined Los Angeles and Montebello Forebay Areas. However, in large portions of the remainder of the basin, including the pressure area, the upper aquiclude is only partly effective in restricting downward percolation. Because of the heterogeneous pattern of these relatively permeable areas in and around the more impermeable aquicludes and the general gradation from one to the other, an attempt to divide the basin into pressure and forebay areas along a definite line for purposes of hydrologic analysis would not only be difficult but would have to be completely arbitrary. Nevertheless, the old delineation of forebay and pressure areas are used in the discussion of the geology of the Central Basin to follow because of their historical significance and descriptive usefulness.

The Central Basin is divided into four parts for descriptive purposes: the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area, and the Central Basin Pressure Area. The Los Angeles and Montebello Forebay Areas are located in the northern part of the Central Basin immediately south of the two breaks in the line of low hills bordering the basin. Through these breaks the Los Angeles River and the Rio Hondo-San Gabriel River systems flow from the valleys to the north into the coastal plain (Plate 2). These forebay areas spread southward from the two narrows in irregular semicircles. The southern boundary of the two forebay areas roughly coincides with the northernmost limit of the line of flowing

artesian wells delineated by Mendenhall in 1903. As explained above, these forebay areas are not true forebays in the academic sense of the word but are used herein for descriptive purposes.

The Whittier Area is located in the northeastern part of the Central Basin east of the Montebello Forebay Area, south of the Puente Hills and west of the Orange County line. The Whittier Area was described as part of the La Habra Basin in Bulletin 45 (Calif. D. W. R. 1934). However, since the aquifers present in this area, especially the deeper ones, are interconnected to varying degrees with the aquifers in the Central Basin, the area was renamed and treated as part of the Central Basin.

The Central Basin Pressure Area is the largest of the four divisions of the Central Basin. It encompasses all of the area east and northeast of the Newport-Inglewood uplift and northwest of the Orange County line that is not included in the other three areas. It is called a "pressure area" because the aquifers within it are confined by aquicludes or relatively impermeable layers of clay and silt over most of the area. One of the most important aquicludes is at or near the surface. As noted previously, this near surface aquiclude is missing in local areas and contains zones of relatively more permeable material in many places where water could move into or out of the underlying aquifer. Accordingly, completely confined conditions do not exist in the pressure area.

It should also be noted in this discussion of basin divisions that the pressure area could be further divided on the basis of a ground water mound which has existed in the northwestern portion of the basin since the early 1930's. This mound effectively divides the ground water movement in that portion of the basin into two parts; that which moves northward

toward the Hollywood Basin and that which moves southeasterly toward the center of the old pressure area and the Los Angeles Forebay Area. This ground water mound was used in the formulation of a portion of the northern boundary of the Central and West Basin Water Replenishment District organized in 1959 (Calif. D.W.R. 1959).

In the sections which follow, the geologic features of the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area and finally the Central Basin Pressure Area are summarized. For each area these summaries include information about the aquifers present, the areas where these aquifers merge, and barriers to ground water movement. The flow of water into and out of the Central Basin as a whole, replenishment of the aquifers, and areas of free ground water and storage change are described in a separate section under the heading of "Occurrence of Ground Water in the Central Basin".

Geologic Features of the Los Angeles Forebay Area

The Los Angeles Forebay Area, located in the northern part of the Central Basin, is shown on Plate 2. In general it is a free ground water area; however, in the course of this investigation it became evident that the Bellflower aquiclude extends into the southerly portion of the forebay area. The aquiclude in this area contains a high percentage of sand, and vertical percolation of water is apparently more rapid here than in other portions of the basin covered by it. Where the Bellflower aquiclude is missing within the forebay area (see Plate 8A), the aquifers are in direct hydraulic continuity with the surface.

The Los Angeles Forebay Area is overlain by parts of the La Brea, Downey, and Montebello Plains. The known water-bearing sediments extend to

The Sunnyside aquifer also has been identified throughout the Whittier Area. It consists of 200 to 300 feet of sand and gravel with some interbedded clay (Plate 23). It is the lowest of the aquifers identified, reaching a maximum depth of about 1,000 feet (700 feet below sea level, Plate 22). The gravels exposed in the Coyote Hills and along the north side of the area are believed to be surface outcrops of the Sunnyside aquifer.

The Pliocene and Miocene sediments below the San Pedro formation generally contain saline water in this area, but may locally contain fresh water. Plate 24A shows the approximate elevation of the base of fresh water-bearing sediments.

The available data suggest that some of the water-bearing sediments in the Whittier Area may have been faulted. However, the location of such faulting and its effect on ground water has not been determined.

The water-bearing sediments of the Whittier Area comprise part of the generally east-west trending La Habra syncline. The Recent deposits are essentially undisturbed. The Lakewood formation underlying the Recent alluvium is also generally flat-lying, though in some areas it is slightly tilted. The San Pedro formation, however, which unconformably underlies the Lakewood formation, has been folded sharply and its flanks are exposed in the Coyote Hills and on the south side of the Puente Hills. The effects of this unconformity and the outcrops of the moderately dipping San Pedro formation upon the occurrence and movement of ground water will be discussed later.

Geologic Features of the Central Basin Pressure Area

The Central Basin Pressure Area, previously known as the Central Coastal Plain Pressure Area, is overlain by the Downey Plain and parts of

the Santa Fe Springs, Montebello, La Brea, and Bouton Plains. The area is generally flat and slopes gently to the south. Water-bearing sediments in the Central Basin Pressure Area range in age from Recent to Pliocene and extend to a probable maximum depth of 2,200 feet northeast of the City of Lakewood. Aquifers have been defined in the Recent alluvium and the Lakewood and San Pedro formations.

In this pressure area the aquifers are confined by many aquicludes, only one of which has been named. This is the near surface Bellflower aquiclude which restricts vertical percolation into the Gaspur and other underlying aquifers. Water levels in the confined area form a piezometric or pressure surface rather than a free ground water surface. As pressures change from aquifer to aquifer, the corresponding piezometric water levels in wells tend to vary according to which aquifer or aquifers are used for production. Also, as the aquicludes vary in extent, configuration, permeability, and thickness, their effectiveness as confining members also changes from place to place and with this change an exchange of water between aquifers may take place, depending on the direction of the pressure gradient.

The Recent alluvium covers most of the Central Basin Pressure Area, and attains a probable maximum depth of 200 feet near the City of Bellflower. It contains the Semiperched aquifer, the Bellflower aquiclude, and the Gaspur aquifer. The Semiperched aquifer consists of sands and gravels 20 to 60 feet thick overlying the Bellflower aquiclude.

The Bellflower aquiclude is found throughout the pressure area and is composed mainly of clay and silt; however, there are numerous areas where it consists mainly of clayey sands and gravels and where its effectiveness as an aquiclude is limited. It ranges from a few feet to 160 feet in

thickness (Plate 9A). It extends downward to about 200 feet (140 feet below sea level) southwest of the City of Bellflower (Plate 8A). The Bellflower aquiclude is also present in the Lakewood formation but no effort has been made to define separately the areas where the aquiclude is identified with each age. The Gaspur aquifer extends south from the forebay areas in two separate arms which merge in the vicinity of the City of Lynwood and then extend south along the course of the Los Angeles River to the ocean. The Gaspur aquifer consists of coarse sand and gravel and ranges in thickness from 40 to 100 feet (Plate 11A). The maximum depth of about 190 feet (170 feet below sea level) occurs in the vicinity of Terminal Island in San Pedro Bay (Plate 10B).

The Lakewood formation, of late Pleistocene age, extends over all of the Central Basin Pressure Area. It contains part of the Bellflower aquiclude and the Artesia, Exposition, Gage, and Gardena aquifers. The water-bearing materials immediately underlying the Bellflower aquiclude west of the easterly arm of the Gaspur aquifer are called the Exposition aquifer. The water-bearing materials immediately underlying the Bellflower aquiclude east of this arm of the Gaspur aquifer are called the Artesia aquifer and are believed to be contemporary both in age and mode of deposition with the materials in the Exposition aquifer. The boundary between the Artesia and Exposition aquifers is somewhere in the center of the basin under the Gaspur aquifer. All three aquifers are in hydraulic continuity. Both the Artesia and Exposition aquifers consist of sand and gravel with local areas of interbedded clay. The Exposition aquifer ranges from 20 to over 100 feet in thickness (Plate 11A) and reaches a maximum depth of about 230 feet (120 feet below sea level) southeast of Huntington Park (Plate 10A).

The Artesia aquifer consists of 10 to 140 feet of sand and gravel with some interbedded clays (Plate 11A). It extends down to a maximum depth of 230 feet (220 feet below sea level) southeast of the City of Lakewood (Plate 10A).

The Gage and Gardena aquifers of the Lakewood formation are also considered to be the same age. Their relationship was discussed in this chapter in the section on the West Coast Basin. The Gage aquifer consists of fine-grained sand and silty sand ranging from 5 to 120 feet in thickness (Plate 13A). The maximum depth attained is 380 feet (350 feet below sea level) west of the City of Lakewood (Plate 12A). The Gardena aquifer consists of coarse-grained sand and gravel from 10 to 60 feet in thickness. It extends down to a depth of about 390 feet (350 feet below sea level) near the City of Lynwood. The Gage and Gardena aquifers mark the base of the Lakewood formation and along this base they abut the underlying San Pedro formation unconformably.

The San Pedro formation, present throughout the Central Basin Pressure Area, contains some of the most important aquifers in the area. In all, five aquifers, the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside, have been delineated.

Two relatively minor aquifers, the Hollydale and Jefferson aquifers, are present in the upper part of the San Pedro formation in the Central Basin Pressure Area. The Hollydale aquifer, uppermost of the two, (Plates 14 and 15) extends over approximately 60 percent of the area. It is mostly sand and silty sand with interbedded clays, though some gravel is found locally. It ranges from approximately 10 to 100 feet in thickness, and the maximum depth of about 570 feet (500 feet below sea level) is reached a few miles east of the City of Compton. The Jefferson aquifer (Plates 16 and 17)

is present over only 40 to 50 percent of the pressure area. It is mostly fine-grained sand with scattered lenses of gravel, and ranges in thickness from about 10 feet to over 140 feet. The maximum depth of approximately 720 feet (650 feet below sea level) is found near the Orange County line southeast of the City of Norwalk. Although these two aquifers are not continuous over the entire Central Basin Pressure Area, they are important sources of water in some localities.

Both the Lynwood and Silverado aquifers yield considerable water to wells in the Central Basin Pressure Area. The Lynwood aquifer (Plates 18A and 19A) is composed mainly of coarse-grained sands and gravels, ranging in thickness from less than 50 feet to over 150 feet. The maximum depth of about 1,030 feet (950 feet below sea level) occurs southeast of the City of Norwalk. The Silverado aquifer (Plates 20A and 21A) is composed largely of sands and gravels, ranging in thickness from about fifty feet to over 450 feet. The greatest depth is found north of the City of Lakewood, where its base is about 1,240 feet below the ground surface (1,200 feet below sea level). The base of the Silverado aquifer was thought to correspond to the base of the Pleistocene deposits and of fresh water in the West Coast Basin, where it was first named. In the Central Basin, however, the Sunnyside aquifer has been differentiated below the Silverado aquifer.

The Sunnyside aquifer (Plates 22 and 23) marks the base of the San Pedro formation in most parts of the Central Basin Pressure Area. It varies from about 70 feet to over 500 feet in thickness and consists of sand, and sand and gravel. The maximum depth of about 1,700 feet (1,660 feet below sea level) occurs east of the City of Lakewood.

Below the Sunnyside aquifer is a thick section of Pliocene deposits, the coarse zones of which contain fresh water, as indicated by electric logs of oil wells. Around the margins of the Central Basin Pressure Area, where many oil fields exist and more data are available, it is apparent that the fresh water was introduced into the Pliocene sediments by flushing the saline water toward the ocean. Much of the pressure area is in the South Gate-Santa Ana depression where only widely scattered exploratory type oil well data are available. No contours depicting the base of fresh water could be drawn through this area; however, the replacement of saline waters with fresh water appears to have occurred here as well.

The structural features which control or influence the occurrence and movement of ground water in the Central Basin Pressure Area are the South Gate-Santa Ana depression and the Newport-Inglewood uplift. The South Gate-Santa Ana depression extends from south of Beverly Hills into Orange County. It is bounded by transitional structures adjacent to the Puente and Repetto Hills on the northeast and the Newport-Inglewood uplift on the southwest. The Recent sediments in this depression are generally flat-lying as are the underlying deposits of the Lakewood formation. The San Pedro formation, however, is moderately folded and unconformably underlies the younger formations in most of the Central Basin.

The major structural features in the South Gate-Santa Ana depression are the Paramount syncline and Los Alamitos fault, and the Norwalk syncline. These structures appear to be developed only in the San Pedro formation, and they do not affect the overlying younger sediments. The Paramount syncline underlies the City of Paramount and extends northwesterly to the Inglewood fault north of the Baldwin Hills. The Los Alamitos fault

appears as an extension of the axis of the Paramount syncline southeast of the City of Paramount. The Norwalk syncline extends from the City of Norwalk southeasterly to the Orange County line. It is separated from the Los Alamitos fault by an unnamed anticlinal fold which extends into Orange County. None of these structural features appear to materially affect ground water movement in the Central Basin Pressure Area.

The faults and anticlinal folds of the Newport-Inglewood uplift mark the west and southwest boundary of the Central Basin Pressure Area and are partial barriers to movement of ground water from the Central Basin to the West Coast Basin, as has been previously discussed.

Occurrence of Ground Water in the Central Basin

In all four areas of the Central Basin ground water is found in the Recent alluvium, the Lakewood and San Pedro formations, and sometimes in the older sediments. The aquifers in these formations have been discussed above under separate headings for each area of the Central Basin. The paragraphs that follow will take up the movement of ground water into and through the Central Basin as a whole, rather than by separate areas.

Ground water enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water. The main surface and subsurface flow into the basin is through the Los Angeles and Whittier Narrows from the ground water basins in the interior valleys. However, minor subsurface flow probably enters the area from the bordering relatively impermeable formations, and some subsurface flow can take place from the other surrounding ground water basins.

Replenishment of the aquifers by percolation of precipitation, stream flow, and applied water occurs in the forebay areas where permeable sediments are exposed at ground surface. In addition, some water also moves into the aquifers where they crop out on the surface against the surrounding highlands and in those portions of the pressure area where the Bellflower aquiclude is missing or contains considerable sand and gravel.

In the Los Angeles and Montebello Forebay Areas the aquifers are in hydraulic continuity in varying degrees, with each other and with the ground surface. In some instances this hydraulic continuity results from the aquifers being superposed one on another with no intervening clay members. Areas where each aquifer is merged with the overlying one are shown on the plates depicting lines of equal elevation on the base of each aquifer

(Plates 10A, 12A, 14, 16, 18A, 20A, and 22). In other portions of the forebay areas aquicludes present between the aquifers restrict direct movement of ground water between aquifers. However, these aquicludes are not continuous over the entire area; consequently, the hydraulic gradient controls the lateral movement of ground water to points where the aquifers are merged.

The areas of contact between aquifers and areas of contact with the ground surface are important because it is only through these areas that surface water can be introduced by spreading into the aquifers in major quantity. The most important area in this regard in the Coastal Plain of Los Angeles County is in the vicinity of the Whittier Narrows in the Montebello Forebay Area because of the interconnection of the deeper aquifers through the shallower ones to the ground surface. This condition also exists in the vicinity of the Los Angeles Narrows in the Los Angeles Forebay Area, but the paving of this area has essentially eliminated surface recharge to the aquifers below.

Plate 25, entitled "Areas Where Aquifers are Merged with Permeable Surface Deposits or Overlying Aquifers in Vicinity of Whittier Narrows" shows the generalized interconnections in and near the Whittier Narrows in the Montebello Forebay Area and the areas of essentially direct connection between the aquifers and the ground surface. This plate was derived from the detailed delineation of the areas of mergence shown on the plates depicting lines of equal elevation on the base of each aquifer.

Water applied on the surface can move directly into the Gaspur aquifer within the area shown on Plate 25. The Gage and Gardena aquifers immediately underlie the Gaspur aquifer and they are in hydraulic continuity. Below the Gage and Gardena aquifers are the Hollydale and Jefferson

aquifers which are generally merged with the Gage and Gardena aquifers. This relationship is shown on Plates 12A, 14, 16, and Plate 25. These interconnections provide essentially complete continuity with the surface through the Gaspur aquifer. The areas of mergence of the deeper aquifers with the overlying ones are much more restricted and these limited areas are shown on Plate 25 as well as on Plates 18A, 20A, and 22. It will be noted from Plate 25 that the area of direct vertical recharge from the ground surface to the Lynwood aquifer is about one-third of the area of the Gaspur in contact with the ground surface. The area of direct vertical recharge to the Silverado and Sunnyside aquifers is even more restricted and is limited to a very small area in the immediate vicinity of Whittier Narrows Dam. These limited areas of interconnection severely restrict the amount of recharge that can directly reach the deeper aquifers from the ground surface. Fortunately, the areas of mergence through which water can reach the lower aquifers by devious paths is considerably larger than shown on Plate 25 (see Plates 12A, 14, 16, 18A, 20A, and 22). Therefore, even though the direct downward infiltration may be restricted or entirely impeded by an intervening aquiclude, water can move laterally in one aquifer to a point where the aquifer is merged with a lower one, permitting water applied at the surface to reach and replenish the deeper aquifers.

The areas of mergence between aquifers in the Los Angeles Forebay also are shown on the plates depicting lines of equal elevation on the base of each aquifer. It is evident that considerable opportunity existed for infiltration of water from the ground surface into the Gaspur aquifer and on into the deeper aquifers of the basin. However, as noted before, this area now is essentially covered with impervious material and the opportunity for surface recharge of the aquifers is practically nonexistent.

This is unfortunate from the standpoint of ground water basin utilization since the available storage capacity in the Los Angeles Forebay is large.

Under present conditions, ground water in the Montebello Forebay Area moves into the Los Angeles Forebay Area, the Whittier Area, and the Central Basin Pressure Area. Ground water from the Los Angeles Forebay Area also moves into the Central Basin Pressure Area. In the northern portion of the pressure area a ground water mound exists which separates ground water movement into two parts. North of this mound ground water moves northward into the Hollywood Basin while south of this mound ground water moves southwesterly toward the West Coast Basin.

Ground water movement in the Whittier Area in July 1958 was to the west and southwest in both the deep and shallow aquifers. The Santa Fe Springs-Coyote Hills uplift, the axis of which serves as the southern boundary of the Whittier Area, appears to restrict ground water movement to the south into the Central Basin Pressure Area in the aquifers of the Lakewood formation. The aquifers of the San Pedro formation are continuous across the uplift and it is reasonable to assume that ground water movement to the south could take place if the hydraulic gradient sloped in that direction.

Historically, subsurface flow took place from the Central Basin across the Newport-Inglewood uplift into the West Coast Basin. However, pumping has lowered the water level in the Central Basin and at present water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift. Further lowering of water levels on either side of the uplift could result in a hydraulic gradient being established which would slope toward the point of the lower water level with a consequent flow of water in that direction. A relatively small amount of subsurface flow occurs out of the Central Basin Pressure Area because most of the ground

water moves to a series of pumping holes developed along the Newport-Inglewood uplift north of Dominguez Hill, along the Cherry Hill fault, north of Signal Hill and in the Lakewood area. From these areas the water is removed by pumping for industrial, irrigation, and domestic uses.

The movement of ground water across the Los Angeles-Orange County line, which forms the eastern boundary of the Central Basin, is entirely dependent on the hydraulic gradient in that area, as no physical barrier to ground water movement exists except for the Coyote Hills.

Transmissibility rates of aquifers in Central Basin as shown on Plates 26A through 26I are extremely variable, ranging up to 400,000 gallons per day per foot of width, although most of the aquifers have transmissibility rates of less than 100,000.

The Gaspur aquifer (Plate 26A) generally has a transmissibility rate of less than 200,000 gallons per day per foot, but has a maximum of 400,000 in a small area in Whittier Narrows. Transmissibility rates in the Artesia-Exposition aquifer average about 30,000 with a maximum transmissibility rate of about 70,000 in several small areas (see Plate 26B, "Lines of Equal Transmissibility of the Artesia-Exposition Aquifers"). The Gage and Gardena aquifers (Plate 26C) also have average rates of about 30,000 but reach a maximum value of about 100,000 near Long Beach and in the Whittier Narrows. The transmissibility rates of the Hollydale and Jefferson aquifers, shown on Plates 26D and 26E entitled, "Lines of Equal Transmissibility of the Hollydale Aquifer" and "Lines of Equal Transmissibility of the Jefferson Aquifer", respectively, have average values of about 20,000 gallons per day per foot of width. The Lynwood aquifer rates (Plate 26F) average about 40,000 but attain a maximum transmissibility rate of about 100,000 gallons per day per foot of width in several areas.

The Silverado aquifer (Plate 26G) averages about 60,000 but reaches a maximum of 400,000 near the intersection of Carson and Atlantic Boulevards. Data on the Sunnyside aquifer in the middle, deeper portion of Central Basin is not very complete, but it appears to have an average transmissibility rate of about 100,000 with a maximum of 300,000 in several areas as shown on Plate 26H, "Lines of Equal Transmissibility of the Sunnyside Aquifer".

The overall transmissibility of all aquifers in the Central Basin is of considerable importance. It may be noted on Plate 26I that high transmissibility rates exist from Whittier Narrows toward Long Beach and Compton, but that an area of low transmissibility separates the Montebello and Los Angeles Forebays. This low transmissibility partly explains the existence of the large pumping depression around Huntington Park and Vernon, where pumping rates are generally not much higher than in the Downey area but there no pumping depression exists.

While the Central Basin Pressure Area is, as its name signifies, essentially an area of confined aquifers, free ground water conditions exist in the Semiperched aquifer overlying the Bellflower aquiclude, and probably in the vicinity of Baldwin Hills where the San Pedro formation is exposed at the surface. In addition, changes in ground water storage have occurred immediately south of the two forebay areas in the upper aquifers directly underlying the Bellflower aquiclude.

In past ground water studies of the Central Basin, it was believed that the clay layer or cap covered all of the basin south of the forebay areas and effectively prevented any percolation of surface water into the aquifers below. Plate 9 shows places where this clay cap, the Bellflower aquiclude, contains considerable amounts of sand and gravel. In

these areas, water applied on the surface could percolate down into the underlying aquifers and it is possible that free ground water conditions may exist from the surface down through one or more of the upper aquifers. These areas increase the total area of the Central Basin where changes in ground water storage can occur with changing water levels and where replenishment by deep percolation can occur. In addition, changes in storage in the Bellflower aquiclude itself is believed to occur as water levels are lowered. These changes in storage are relatively small however, because of the relatively low specific yield assigned to much of these sediments.

Total capacity to store ground water in the Central Basin above the base of the Sunnyside aquifer, or the Silverado aquifer where the Sunnyside is missing, is about 13,800,000 acre-feet. Historically utilized storage since 1904 amounts to about 780,000 acre-feet. As noted before, this change in storage has occurred primarily in the Montebello and Los Angeles Forebay Areas; however, some of the change in storage occurred in the pressure area immediately south of these areas where water levels were lowered below the base of the Bellflower aquiclude and near the Repetto and Whittier Hills where the San Pedro formation crops out at the surface. The storage capacity between high water levels, which occurred in 1904, and sea level amounts to about 1,340,000 acre-feet.

The storage and storage change for the Central Basin listed above may be broken down between the generalized areas delineated on Plate 2 as follows:

	Total storage to base of deepest aquifer	Storage between high water and sea level	Historically utilized storage
Los Angeles Forebay Area	1,800,000	430,000	190,000
Montebello Forebay Area	1,800,000	410,000	230,000
Whittier Area	600,000	60,000	20,000
Central Basin Pressure Area	9,600,000	440,000	340,000
Total	13,800,000	1,340,000	780,000

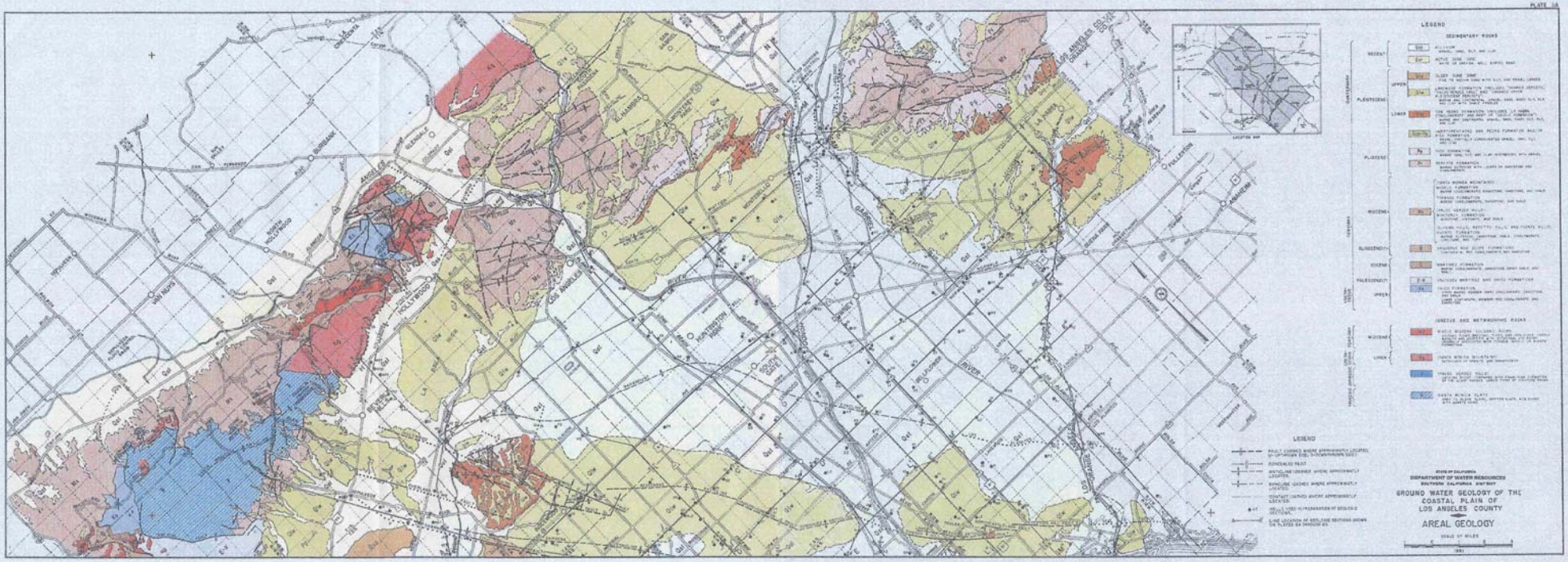
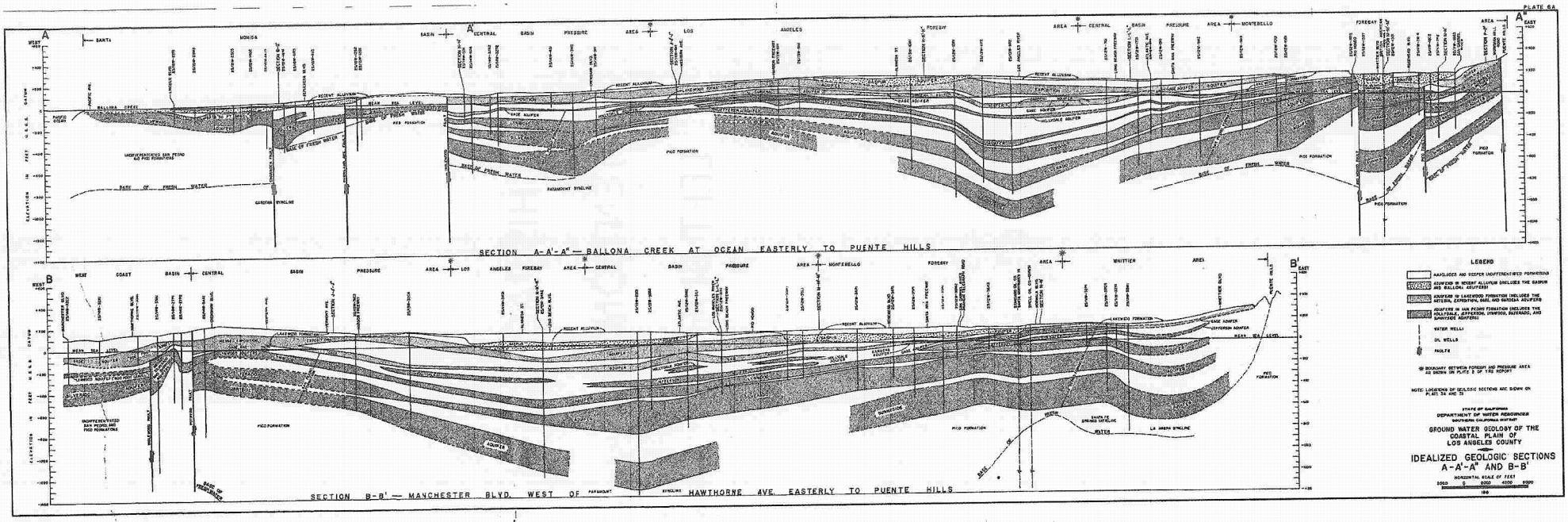


PLATE 1A
LEGEND
SEDIMENTARY ROCKS
LEGEND
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE
COASTAL PLAIN OF
LOS ANGELES COUNTY
AREAL GEOLOGY
SCALE OF MILES

PLATE 6A


SECTION A-A'-A" — BALLONA CREEK AT OCEAN EASTERLY TO PUENTE HILLS
SECTION B-B' — MANCHESTER BLVD. WEST OF HAWTHORNE AVE. EASTERLY TO PUENTE HILLS
LEGEND
WATER WELLS
OIL WELLS
FAULTS
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE COASTAL PLAIN OF LOS ANGELES COUNTY
IDEALIZED GEOLOGIC SECTIONS A-A'-A" AND B-B'
HORIZONTAL SCALE OF FEET

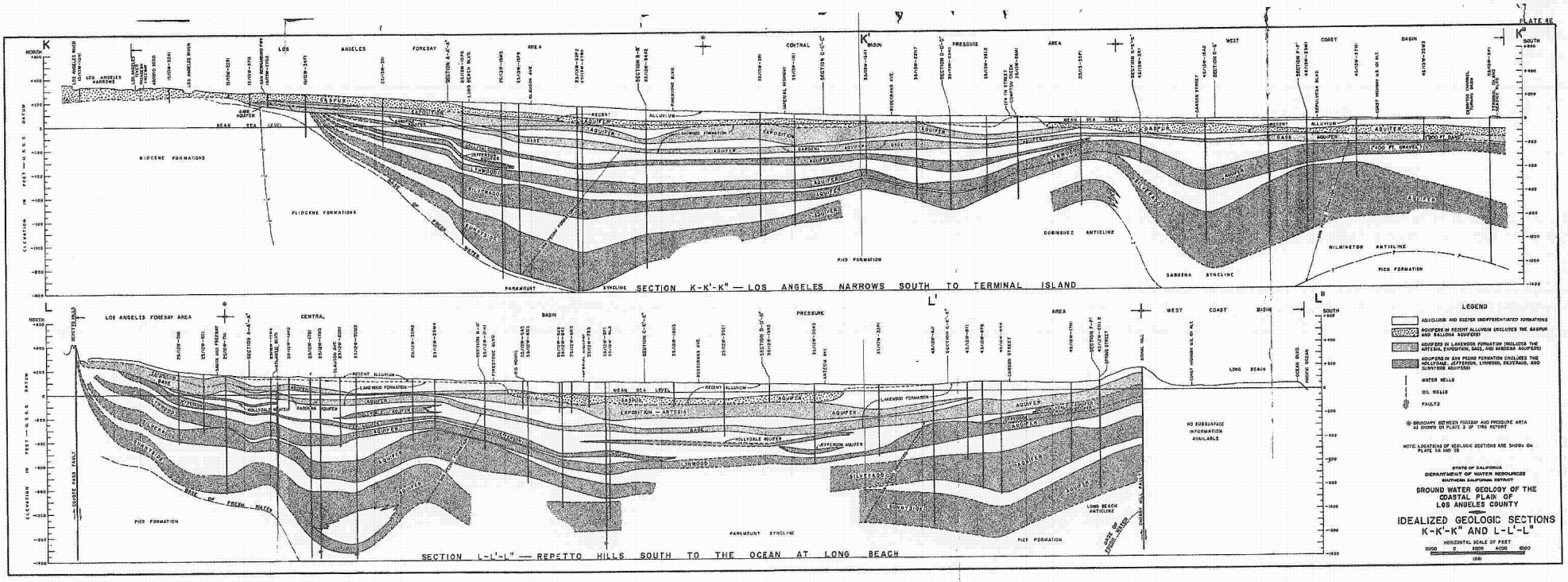


PLATE 8B
SECTION K-K'-K" — LOS ANGELES NARROWS SOUTH TO TERMINAL ISLAND
SECTION L-L'-L" — REPETTO HILLS SOUTH TO THE OCEAN AT LONG BEACH
LEGEND
AQUICLUDE AND DEEPER UNDIFFERENTIATED FORMATIONS
AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GAGPUR AND GALLINE AQUIFERS)
AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND MADERA AQUIFERS)
AQUIFERS IN SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO, AND SUNNYSIDE AQUIFERS)
WATER WELLS
OIL WELLS
FAULTS
BOUNDARY BETWEEN FOREBAY AND PRESSURE AREA AS SHOWN ON PLATE 2 OF 1961 REPORT
NOTE: LOCATIONS OF GEOLOGIC SECTIONS ARE SHOWN ON PLATE 5A AND 5B
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE COASTAL PLAIN OF LOS ANGELES COUNTY
IDEALIZED GEOLOGIC SECTIONS K-K'-K" AND L-L'-L"
HORIZONTAL SCALE OF FEET
2000 0 2000 4000 6000
1961

Reference:
DWR, 2004

Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin

- Groundwater Basin Number: 4-11.04
- County: Los Angeles
- Surface Area: 177,000 acres (277 square miles)

Basin Boundaries and Hydrology

The Central Subbasin occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is commonly referred to as the "Central Basin" and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. Average precipitation throughout the subbasin ranges from 11 to 13 inches with an average of around 12 inches.

Hydrogeologic Information

Water Bearing Formations

Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths. The Central Basin is historically divided into forebay and pressure areas. The Los Angeles forebay is located in the northern part of the Central Basin where the Los Angeles River enters the Central Basin through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Montebello forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin and is the most important area of recharge in the subbasin. Both forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide recharge to the aquifer system of this subbasin (DWR 1961). The Whittier area extends from the Puente Hills south and southwest to the axis of the Santa Fe Springs-Coyote Hills uplift and contains up to 1,000 feet of freshwater-bearing sediments. The Central Basin pressure area is the largest of the four divisions, and contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay, that extend to about 2,200 feet below the surface (DWR 1961). The estimated average specific yield of these sediments is around 18 percent. Throughout much of the subbasin, the aquifers are confined, but areas with semi-permeable aquicludes allow some interaction between the aquifers (DWR 1961).

The main productive freshwater-bearing sediments are contained within Holocene alluvium and the Pleistocene Lakewood and San Pedro Formations (DWR 1961). Throughout most of the subbasin, the near surface Bellflower aquiclude restricts vertical percolation into the Holocene age Gaspur aquifer and other underlying aquifers, and creates local semi-perched groundwater

conditions. The main additional productive aquifers in the subbasin are the Gardena and Gage aquifers within the Lakewood Formation and the Silverado, Lynwood and Sunnyside aquifers within the San Pedro Formation (DWR 1961). Specific yield of deposits in this subbasin range up to 23 percent in the Montebello forebay, 29 percent in the Los Angeles forebay, and 37 percent in the Central Basin pressure area (DWR 1961). Historically, groundwater flow in the Central Basin has been from recharge areas in the northeast part of the subbasin, toward the Pacific Ocean on the southwest. However, pumping has lowered the water level in the Central Basin and water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift, decreasing subsurface outflow to the West Coast Subbasin (DWR 1961).

There are several principal aquifers/aquicludes present in this subbasin.

Aquifers/ Aquiclude	Age	Formation	Lithology	Maximum Thickness (feet)
Gaspur	Holocene		Coarse sand, gravel	120
Semiperched	Holocene		Sand, gravel	60
Bellflower	Pleistocene	Lakewood Formation	Clay, sandy clay	140
Gardena	Pleistocene	Lakewood Formation	Sand, gravel	160
Gage			Sand	120
Silverado	Lower Pleistocene	San Pedro Formation	Sandy gravel	300
Lynwood			Coarse sand and gravel	150
Sunnyside				350

Restrictive Structures

Many faults, folds and uplifted basement areas affect the water-bearing rocks in the Central Basin. Most of these structures form minor restrictions to groundwater flow in the subbasin. The strongest effect on groundwater occurs along the southwest boundary to the Central Subbasin. The faults and folds of the Newport – Inglewood uplift are partial barriers to movement of groundwater from the Central Basin to the West Coast Basin (DWR 1961). The La Brea high is a system of folded, uplifted and eroded Tertiary basement rocks. Because the San Pedro Formation is eroded from this area, subsurface flow southward from the Hollywood Basin is restricted to the Lakewood formation (DWR 1961). The Whittier Narrows is an eroded gap through the Merced and Puente Hills that provides both surface and subsurface inflow to the Central Basin (DWR 1961). The Rio Hondo, Pico, and Cemetery faults are northeast-trending faults that project into the gap and displace aquifers. The trend of these faults parallels the local groundwater flow and do not act as significant barriers to groundwater flow (DWR 1961).

Recharge Areas

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water; and replenishes the aquifers dominantly in the forebay areas where permeable sediments are exposed at ground surface (DWR 1961). Natural replenishment of the subbasin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Percolation into the Los Angeles Forebay Area is restricted due to paving and development of the surface of the forebay. Imported water purchased from Metropolitan Water District and recycled water from Whittier and San Jose Treatment Plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds (DWR 1999). Saltwater intrusion is a problem in areas where recent or active river systems have eroded through the Newport Inglewood uplift. A mound of water to form a barrier is formed by injection of water in wells along the Alamitos Gap (DWR 1999).

Groundwater Level Trends

Water levels varied over a range of about 25 feet between 1961 and 1977 and have varied through a range of about 5 to 10 feet since 1996. Most water wells show levels in 1999 that are in the upper portion of their recent historical range.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity of the Central Basin is 13,800,000 (DWR 1961).

Groundwater in Storage.

Groundwater Budget (Type A)

A complete water budget could not be constructed due to the lack of data available. Recharge to the subbasin is accomplished through both natural and artificial recharge. The Watermaster reported natural recharge for the subbasin to be 31,950 af and artificial recharge to be 63,688 af for 1998 (DWR 1999). Additionally, the subbasin receives 27,000 af/yr of water through the Whittier Narrows from the San Gabriel Valley Basin in the form of subsurface flow (SWRB 1952). Urban extractions for the subbasin were 204,335 af in 1998 (DWR 1999).

Groundwater Quality

Characterization. TDS content in the subbasin ranges from 200 to 2,500 mg/l according to data from 293 public supply wells. The average for these 293 wells is 453 mg/l.

I

Impairments.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	316	15
Radiological	315	1
Nitrates	315	2
Pesticides	322	0
VOCs and SVOCs	344	43
Inorganics – Secondary	316	113

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)
Municipal/Irrigation	
	Total depths (ft)
Domestic	
Municipal/Irrigation	

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	90
DWR	Groundwater levels	87
Los Angeles County Public Works	Groundwater levels	212 / Bi-monthly
USGS	Miscellaneous water quality	64
Department of Health Services and cooperators	Title 22 water quality	294

Basin Management

Groundwater management:	Central Basin was adjudicated in 1965, and the Department of Water Resources was appointed Watermaster. Every month extractions are reported to the Watermaster by each individual pumper. This allows the Watermaster to regulate the water rights of the subbasin. (DWR 1999)
Water agencies	
Public	City of Bellflower, Bellflower-Somerset MWC, City of Compton, City of Huntington Park, City of Long Beach, City of Los Angeles DWP, City of Montebello, City of Paramount, City of Pico Rivera, City of Santa Fe Springs, Sativa LA County WD, City of Signal Hill, South Montebello ID, City of South Gate, City of Vernon, City of Whittier. (DWR 1999)
Private	California-American Water Company, Montebello Land and Water Company, Bellflower Home Garden Water Co., California Water Service, Lynwood Park MWC, Maywood MWC, Park Water Company, Pearless Water Company, San Gabriel Valley Water Company, Southern California Water Company, Tract No. 180 Water Company, Tract 349 MWC, Western Water Company.(DWR 1999)

References Cited

California Department of Water Resources (DWR). 1961. Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County. Bulletin No. 104.

____, Southern District. 1999. Watermaster Service in the Central Basin, Los Angeles County, July 1, 1998 – June 30, 1999.

California State Water Resources Board (SWRB). 1952. Central Basin Investigation. Bulletin No. 8.

Additional References

United States Geological Survey (USGS). 2000. *Analysis of the Geohydrology and Water-management Issues of the Central and West Basins, Los Angeles County, California.* Internet Web Site: http://water.wr.usgs.gov/projects00/ca512.html.

Water Replenishment District of Southern California. 2000. *Annual Report on Results of Water Quality Monitoring Water Year 1998-1999.*

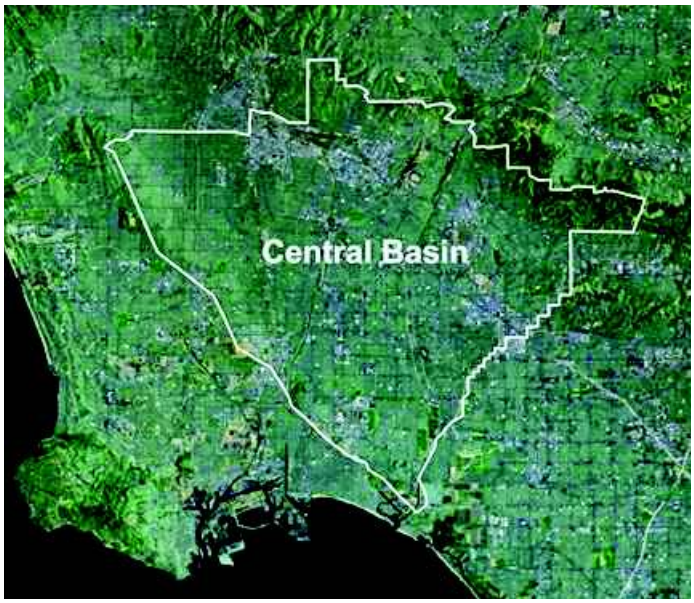
____. 2000. *Engineering Survey and Report.*

Errata

Changes made to the basin description will be noted here.

Reference:
DWR, 2013

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
SOUTHERN REGION OFFICE



WATERMASTER SERVICE
in the
CENTRAL BASIN
Los Angeles County

July 1, 2012 - June 30, 2013

October 2013

Edmund G. Brown Jr.	**John Laird**	**Mark W. Cowin**
Governor	Secretary for Natural Resources	Director
State of California	California Natural Resources Agency	Department of Water Resources

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Summary of Pertinent Data

Item	Fiscal year 2011-2012	Fiscal year 2012-2013
Parties to Judgment	132	132
Active pumpers	67	67
Active nonparties	4	3
Allowed Pumping Allocation (acre-feet)	217,367	217,367
Rainfall (inches)	7.51	5.55
Injection at the Alamitos Barrier Project (acre-feet)	4,335	5,490[1]
Spreading operations (acre-feet)[1]	105,165	66,389
Watermaster expenses, total	$503,367	$403,293
Watermaster expenses, per APA	$2.32	$1.86
Extractions (acre-feet)[2]	185,914	196,262
Recycled water use by parties (acre-feet)	13,112	13,622
Imported water use by parties (acre-feet)[3]	128,465	117,983
Exported water by parties (acre-feet)	-2,527	-2,506
Total water use by parties (acre-feet)	324,964	325,361

Introduction

The Central Basin Watermaster Service Area overlies about 227 square miles of the Central Basin (Basin) in southeastern Los Angeles County. Figure 1 shows the location and boundaries of the Central Basin Watermaster Service Area. The Watermaster Service Area is bounded by the Newport-Inglewood Uplift on the southwest, the Los Angeles-Orange County line on the southeast, and an irregular line that approximately follows Stocker Street, Martin Luther King Boulevard, Alameda Street, Olympic Boulevard, the boundary between the City of Los Angeles and unincorporated East Los Angeles, and the foot of the Merced Hills and Puente Hills on the north. Twenty-three incorporated cities and several unincorporated communities are found within the Watermaster Service Area. Groundwater from the Basin provides a substantial portion of the water supply needed by the residents, businesses, and industries in the area overlying the Basin.

More than 60 years ago, groundwater overdraft and declining water levels in the Basin threatened the area's groundwater supply and caused the intrusion of sea water into the southern part of the Basin. However, timely legal action and adjudication of the water rights halted the overdraft and helped to prevent further damage to the Basin. Since that

[1] Provisional information from Los Angeles County Department of Public Works.
[2] Excludes extractions by parties with non-consumptive water use permits and by nonparties.
[3] Excludes groundwater imported from the San Gabriel Basin.

time, groundwater extraction from the Basin is limited to the amounts set by a Superior Court Judgment[4] and is monitored by a Court-appointed Watermaster.[5]

The Watermaster assists the Court in the administration and enforcement of the provisions of the Judgment.[6] Among other duties, the Watermaster monitors extractions and reports significant water-related events in the Basin to the Court and to the parties to the Judgment. The activities of the Watermaster are key components for the effective management of the groundwater resources of the Basin.

This report, which is required by the Judgment,[7] summarizes the activities of the Watermaster, the conditions of the groundwater supply, and the quantities of water used in the area overlying the Basin and for the replenishment of the Basin; it also includes a financial report for the 2012-2013 fiscal year.[8]

Water Use

Water used in the area overlying the Basin includes groundwater extracted from the Basin, imported water, and recycled water. Figure 2 shows the water use since 1953.

Extractions by Parties. The Judgment limits the amount of groundwater each party may extract annually from the Basin.[9] This limit, referred to as the Allowed Pumping Allocation (APA), is shown in Table 1 for each party. A recipient of Exchange Pool water may pump the amount released to it in addition to its APA. The volume of water extracted from most wells is reported monthly.[10] Table 2 lists, by party, the volume of groundwater extracted each month from each active well in the Basin. Figure 3 shows the pattern of groundwater extractions during 2012-2013.

To provide flexibility in the control of groundwater extractions, the Judgment contains provisions allowing each party to carry over into the succeeding administrative year[11] a portion of its unused APA and in some cases to over extract.[12] This flexibility was necessary to meet unforeseen water demand.

One provision allows each party to carry over from one administrative year to another any unused APA not to exceed 20 percent of its APA or 20 acre-feet, whichever is

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[4] *Central and West Basin Water Replenishment District, etc., vs. Charles E. Adams, et al.,* Los Angeles County Superior Court Case No. 786,656, Second Amended Judgment, May 6, 1991.
[5] Judgment Part II.
[6] Judgment Part II. 1.
[7] Judgment Part II. 1. (d)
[8] July 1 through June 30
[9] Judgment Part I. 2.
[10] Parties extracting small volumes of water report extractions quarterly.
[11] July 1 through June 30
[12] Judgment Part III. Subpart B.

greater.[13] In addition, any unused Exchange Pool water can be carried over into the following fiscal year.

Overextractions. The Judgment provides for overextractions under certain conditions.[14] A party may over extract by 20 percent of its APA or 20 acre-feet, whichever is greater.[15] When a party overextracts in violation of the Judgment, Watermaster notifies the party to resolve the overextraction issue. Under certain circumstances, a party may overextract in a greater amount; however, prior approval must be obtained from the Watermaster.[16] The overextraction must be made up in the following administrative year unless Watermaster concludes that to require the party to make up the overextraction would create an unreasonable hardship for the party. In such cases, Watermaster may grant relief from the requirement that the party must make up the overextraction in the following year, such as prorating the reduction in the party's APA over a period of up to five years.[17]

Table 3 lists the names of parties that have over extracted groundwater during the year and shows the amount of overextraction by each party. During 2012-2013, six parties had a combined overextraction of 23,657.02 acre-feet. The table also identifies one party, State of California (CalTrans), that has over extracted in violation of the Judgment. Since 1997-1998, CalTrans has been pumping groundwater for dewatering beneath the 105 freeway in Downey.[18] CalTrans extracted 22,844.75 acre-feet of water during 1997-1998 through 2011-2012 and 671.41 acre-feet in 2012-2013. Watermaster has suspended its effort to address the overextraction of groundwater by CalTrans.[19]

Extractions by Nonparties. Table 4 shows extractions by nonparties totaled 1.04 acre-feet. Extractions by nonparties are shown by well and by month in Table 2.

Extractions of Contaminated Groundwater. Any party may petition the Water Replenishment District of Southern California (WRD) for a Non-consumptive Water Use Permit (NCWUP) as part of a project to remedy or ameliorate groundwater contamination. If the petition is granted, the party may extract the groundwater without the production counting against its production rights.[20] Table 5 lists current Non-

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[13] Judgment Part III. Subpart A. 1. The Judgment was amended to permit each party to carry over a maximum of 100 percent of its APA from 1976-1977 and 1977-1978 because of drought.
[14] Judgment Part III. Subpart B.
[15] Judgment Part III. Subpart B. 1. (a)
[16] Judgment Part III. Subpart B. 1. (b)
[17] Judgment Part III. Subpart B. 2.
[18] CalTrans has been discharging this water to the Los Angeles and the San Gabriel Rivers after treatment through granulated activated carbon units.
[19] In a letter to the Director of the Department of Water Resources, dated September 25, 2008, the Central Basin Water Association, which represents the majority of the water right holders, said that taking legal action against Caltrans to address overextraction from the Central Basin "may at best confuse the issues before the court [regarding groundwater storage], and at worst create unnecessary delay and difficulty for a judge to resolve both questions."
[20] Judgment Part III. Subpart B. 7.

consumptive Water Use Permits issued by WRD and the amounts of groundwater extracted under those permits during 2012-2013.

Transfers of Allowed Pumping Allocations. Each year, APAs are transferred between parties through sales and leases. Table 6 shows the succession of APAs in the Basin as of June 30, 2013. Sales have reduced the number of parties from 508 in 1966-1967 to 133 in 2012-2013. Figure 4 shows samples of suggested water rights transfer agreements.

Table 7 shows transfers of APAs through sales and leases. During 2012-2013 there were four sales of APAs that totaled 635.5 acre-feet and 52 leases that totaled 28,381.47 acre-feet. Each party's APA, as of June 30, 2013, is also shown in Table 1.

When land is sold on which a water right has been developed, the Watermaster must be furnished a copy of the sale document if the water right is also sold. The water right does not pass to the new land owner unless the sale document specifies that the water right was sold with the land. For the proper accounting of the water right, the sale document must specify the exact amount of water right.

In transferring water rights, parties must specify (1) the type of right (i.e., APA, normal carryover, or drought carryover), (2) the amount of right to the nearest 0.01 acre-foot, and (3) the period of the lease, if applicable. Moreover, all leases must be made on a fiscal year basis and must be executed by the parties and received by Watermaster by June 30 of the year in which the lease is effective.

For parties wanting to buy, sell, or lease water rights, Watermaster maintains a web page.[21] Any party wishing to be listed should call the Watermaster. This is a courtesy to assist parties unable to resolve problems regarding a surplus or deficiency of water supply. Watermaster will make no recommendation regarding transactions conducted relative to the use of this service.

Exchange Pool. The Judgment authorizes an Exchange Pool to provide additional water rights to parties without sufficient water.[22] If a party's estimated water requirement for the following fiscal year exceeds its total available water supply, that party may request additional water from the Exchange Pool. Any party wishing to purchase water from the Exchange Pool must file the request with the Watermaster before April 1. If no requests are received by April 1, the Exchange Pool will not operate in the following fiscal year, and Watermaster will not process Exchange Pool forms. Table 8 shows that there were no requests for Exchange Pool water during 2013-2013.

Status of Extraction Wells. In the Basin there are 306 reported active extraction wells and 231 reported inactive extraction wells (Table 2). The locations of the active extraction wells are shown on Figure 3. Table 9 shows four new extraction wells were completed and 11 extraction wells were destroyed.

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[21] www.water.ca.gov/watermaster
[22] Judgment Part III, Subpart C.

Meter Testing Program. Accurate measurement of groundwater extractions is essential for the successful management of groundwater in the Basin. Therefore, Watermaster requires an operative water meter to be installed at each extraction well.[23] It is the responsibility of each party to ensure that its meter and test facilities are installed properly and are maintained in good working condition. It is the goal of Watermaster to test the water meter at each active extraction well at least once every two years or when a party requests a meter calibration.[24] Watermaster tests meters by volumetric or pitot comparisons. Watermaster notifies a party that it must repair or replace its meter when the meter registers beyond 5 percent accuracy. Watermaster calculates the monthly water production for each well using the meter readings and Unit of Measure Code reported for the well that month. If the registration accuracy of the meter deviates by as much as 10 percent, the calculated well production could be subject to revision.[25]

During 2012-2013, Watermaster visited 57 parties, tested 239 meters, and performed 20 well investigations. Tests showed that four meters were more than 5 percent fast, with registration accuracies of plus 6.5 percent to plus 18 percent, and two meters were more than 5 percent slow with registration accuracies of minus 12 percent to mimus 34 percent. Meters at three sites were inoperative, and meters at nine sites could not be tested because the well sites lacked test points or the pumps were inoperative. Watermaster notified and required the responsible parties to make the needed repairs.

Water Supply

Water supplies available to the communities overlying the Basin include groundwater extracted from the Basin, imported surface water and groundwater, and recycled water.

Precipitation. Because layers of materials of low permeability overlie the primary water-producing aquifers throughout much of the Basin and largely impermeable surfaces (i.e., pavement and buildings) cover most of the forebay areas, precipitation over the Basin has relatively little direct influence on the replenishment of the groundwater in the Basin. However, during years of high rainfall, increased runoff from the areas upstream of the Basin would result in increased replenishment to the Basin and would probably result in decreased water demand by the water users overlying the Basin which, in turn, could result in lower rates of groundwater extraction from the Basin.

During 2012-2013, the following amounts of precipitation were measured at six precipitation stations: 5.02 inches at 96th and Central, 7.58 inches at Montana Ranch, 4.72 inches at La Mirada, 5.01 inches at Whittier City Yard, 4.80 inches at USC, and 6.16 inches at Imperial Yard.[26] Figure 1 shows the locations of these precipitation

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[23] Judgment Part II. 1. (b)
[24] Judgment Part II. 1. (c)
[25] The Board of Directors of the Central Basin Water Association concurs with this Watermaster policy regarding adjustments to reported well production amounts.
[26] Provisional data provided by Los Angeles County Department of Public Works.

stations, and Figure 5 shows the monthly average of the rainfall measured at these stations. Based on the rainfall measured at these stations, the mean precipitation over the Central Basin was 5.55 inches, which is 40 percent of the long-term mean precipitation at these stations.[27]

Groundwater Recharge. Natural replenishment of the groundwater in the Basin is largely from surface flow and underflow through Whittier Narrows from the San Gabriel Valley. As mentioned above, little of the rainfall over the Basin would be likely to infiltrate into deeper aquifers of the Basin.

Intentional replenishment of groundwater in the Basin is accomplished by spreading water at the Rio Hondo and the San Gabriel River spreading grounds in the Montebello forebay (Figure 1). [28] The sources of this replenishment water include local storm runoff, purchased imported water, and recycled water from three reclamation plants located upstream of the Basin.[29] Table 10 shows the sources and quantities of water spread to replenish the groundwater. In 2012-2013, replenishment water included 8,274 acre-feet of local storm runoff (which is 32,140 acre-feet less than in 2011-2012), 58,113 acre-feet of recycled water, and 2 acre-feet of untreated imported water. Local runoff accounted for 13 percent of the water, recycled water accounted for 86 percent, and the untreated imported water accounted for 1 percent.

In-Lieu Replenishment. During the 1965-1966 water year,[30] the WRD, in cooperation with the Metropolitan Water District of Southern California (MWD), began an in-lieu replenishment program. WRD may contract with any producer having access to supplemental water that could be used in lieu of extracting groundwater from the Basin.[31]

The use of supplemental water in lieu of pumping groundwater does not change a party's water right,[32] but it counts as water pumped under the Judgment. The program may be used to (1) alter pumping patterns within the Basin, (2) replenish the groundwater in areas of low transmissivity where conventional recharge techniques are ineffective, (3) heighten the effect of injecting water to form a sea water barrier by reducing extractions, (4) reduce the amount of replenishment water purchased by WRD, and (5) reduce the annual extractions from the Basin. Table 11 shows that the City of Long Beach participated in the in-lieu replenishment program.

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[27] Calculation of the long-term precipitation included the Downey Fire Department precipitation station rather than the Imperial Yard station.
[28] Water injected at the Alamitos Barrier Project also contributes to the replenishment of the Central Basin.
[29] The three water reclamation plants are the Whittier Narrows, San Jose Creek, and Pomona plants. The locations of the first two plants are shown on Figure 1, but the Pomona plant is farther upstream and is not shown on the figure.
[30] October 1, 1965 through September 30, 1966
[31] California Water Code Section 60230(p).
[32] Water Code Section 1005.1

Imported Water. Water is imported from northern California via the State Water Project and from the Colorado River and is made available to water users by MWD through its member agencies: Central Basin Municipal Water District (CBMWD) and the Cities of Compton, Long Beach, and Los Angeles. The City of Los Angeles also imports water from the Owens River-Mono Basin, and the California Domestic Water Company, the San Gabriel Valley Water Company, the Suburban Water Systems, and the City of Whittier import groundwater from the San Gabriel Valley groundwater basin, which lies to the northeast and upstream of the Basin. Table 12 shows that in fiscal year 2012-2013, a total of 117,983 acre-feet of water was imported to the area overlying the Central Basin. The Water Replenishment District of Southern California (WRD) did not purchase seasonally discounted spreading water because the Metropolitan Water District of Southern California (MWD) discontinued the delivery of discounted water for groundwater replenishment in August 2011.

Quality of Imported Water

Constituent	Colorado River Water[33] (mg/L)	State Water Project Water[34] (mg/L)
Chloride	84	67
Sulfate	222	42
Hardness (as $CaCO_3$)	274	109
Total Dissolved Solids	574	259

Exported Water. California-American Water Company exported 2,505.68 acre-feet of groundwater from the Basin to its service area that overlies a portion of the West Coast Basin.

Recycled Water. Table 13 shows that 14,318 acre-feet of recycled water were used in the area overlying the Basin during 2012-2013. This amount is 560 acre-feet more than that used in 2011-2012. These amounts do not include the recycled water used to replenish groundwater in the Basin.

Alamitos Sea Water Intrusion Barrier Project. Sea water intrusion in the Alamitos Gap near the mouth of the San Gabriel River poses a threat to the groundwater in the Central Basin. The Alamitos Barrier Project is designed to prevent sea water intrusion into the fresh water aquifers of the Basin. The location of the barrier is shown on Figure 1. The Los Angeles County Department of Public Works operates the barrier project, which is comprised of four extraction wells that can be used to create a groundwater trough and 43 injection wells that create a groundwater ridge to halt sea water intrusion. In addition, the project includes 220 observation wells that are used to monitor groundwater levels and quality in the area. Table 14 shows the quantities of imported water and of recycled water injected into the barrier wells and the quantity of

[33] at Lake Mathews
[34] at Castaic Lake

water extracted. Figure 6 shows the quantities of water used in the barrier project since operation of the project began in 1965. The sea water intrusion problem has been contained by the barrier project.

Groundwater Levels. Figure 7 shows the locations of selected wells that are used to monitor groundwater level elevations. Figure 8 shows the water level elevations in key wells located in the Montebello forebay, and Figure 9 shows the water level elevations in wells perforated in the principal water producing aquifers in the Basin.

Watermaster Administration Costs and Budget

The Judgment requires Watermaster to report its administration costs.[35] Table 15 shows that Watermaster income was $462,765 and that expenditures were $403,293.

The Judgment requires Watermaster to prepare an annual budget and to apportion it among the parties.[36] The total amount billed was $356,000, and the total amount paid was $357,484.86. The budget was submitted to the Parties on May 1, 2012, and it was adopted as the final budget on June 1, 2012. Table 16 shows the approved budget of $560,000.

Table 17 shows the apportionment of the budget among the parties. A penalty of 5 percent is assessed if payments become delinquent. Seventeen parties were penalized because their payments were not made within the allowable 30 days after service of the invoice. Late fees totaling $1,484.86 were collected for deliquent payments.

Significant Water-Related Events

Motion to Amend the Judgment. On May 9, 2012, the State Supreme Court dismissed the petitions for review of the Court of Appeal decision that reversed the ruling of the Superior Court that denied jurisdiction over the motion to amend the Central Basin Judgment.[37] The case was remanded to the trial court.

On November 30, 2012, the case was assigned to Superior Court Judge Joanne O'Donnell, and she ruled that the Central Basin and the West Coast Basin Groundwater Storage Amendment cases are related. On April 3, 2013, both cases were assigned to Superior Court Judge Abraham Khan.

Replenishment Assessment Exemptions. On December 7, 2012, WRD adopted a new policy regarding Replenishment Assessment Exemptions (RAE) in the West Coast

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[35] Judgment Part II. 1. (d)
[36] Judgment Part II. 1. (e)
[37] In 2009, some of the parties to the Judgment filed a motion to amend the Judgment to allow for groundwater storage in the Basin. Litigation of the case is ongoing. See earlier Annual Reports for more information.

Basin and in the Central Basin. A party with a Non-Consumptive Water Use Permit will not be granted a RAE if the party extracts water and does not return the water to the Basin.

Water Emergency Declaration. On February 6, 2013, Judge O'Donnell lifted the stay order on the implementation of the Drought Carryover Provisions of the Central Basin Judgment.[38] On May 16, 2013, Watermaster issued a draft rule on Application of Drought Carryover Provisions, and on June 17, 2013, the Rule[39] was adopted. On July 3, 2013, Watermaster mailed letters to the Parties informing them of their Drought Carryover 1991 (DCO-91) allocations[40]. However, the motion challenging the November 19, 2010, WRD declaration of a water emergency in the Basin has not been withdrawn.

Extraction of Imported Water. On April 26, 2013, CBMWD re-filed the motion for an order declaring that extraction of non-native imported water does not diminish a Party's Allowed Pumping Allocation under the Judgment.[41]

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[38] Implementation of the WRD drought emergency declaration was stayed by Judge Kendig on July 13, 2011.

[39] See Appendix A for the Rule on Application of the Drought Carryover Provision in the Judgment.

[40] See Appendix B for Revised Table of Water Rights Accounting for 2010-2011 and Appendix C for Revised Table of Water Rights Accounting for 2011-2012.

[41] CBMWD initially filed the motion with the court on September 19, 2011.

Reference:
EDR, 2014a

M. Stephens Manufacturing
8420 South Atlantic Avenue
Bell, CA 90201

Inquiry Number: 4091848.9
September 30, 2014

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography September 30, 2014

Target Property:

8420 South Atlantic Avenue

Bell, CA 90201

Year	***Scale***	***Details***	***Source***
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1928	Aerial Photograph. Scale: 1"=500'	Flight Year: 1928	USGS
1938	Aerial Photograph. Scale: 1"=500'	Flight Year: 1938	USGS
1954	Aerial Photograph. Scale: 1"=500'	Flight Year: 1954	USGS
1963	Aerial Photograph. Scale: 1"=500'	Flight Year: 1963	USGS
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1989	Aerial Photograph. Scale: 1"=500'	Flight Year: 1989	USGS
1994	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1994	USGS/DOQQ
2002	Aerial Photograph. Scale: 1"=500'	Flight Year: 2002	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP

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YEAR: 1923
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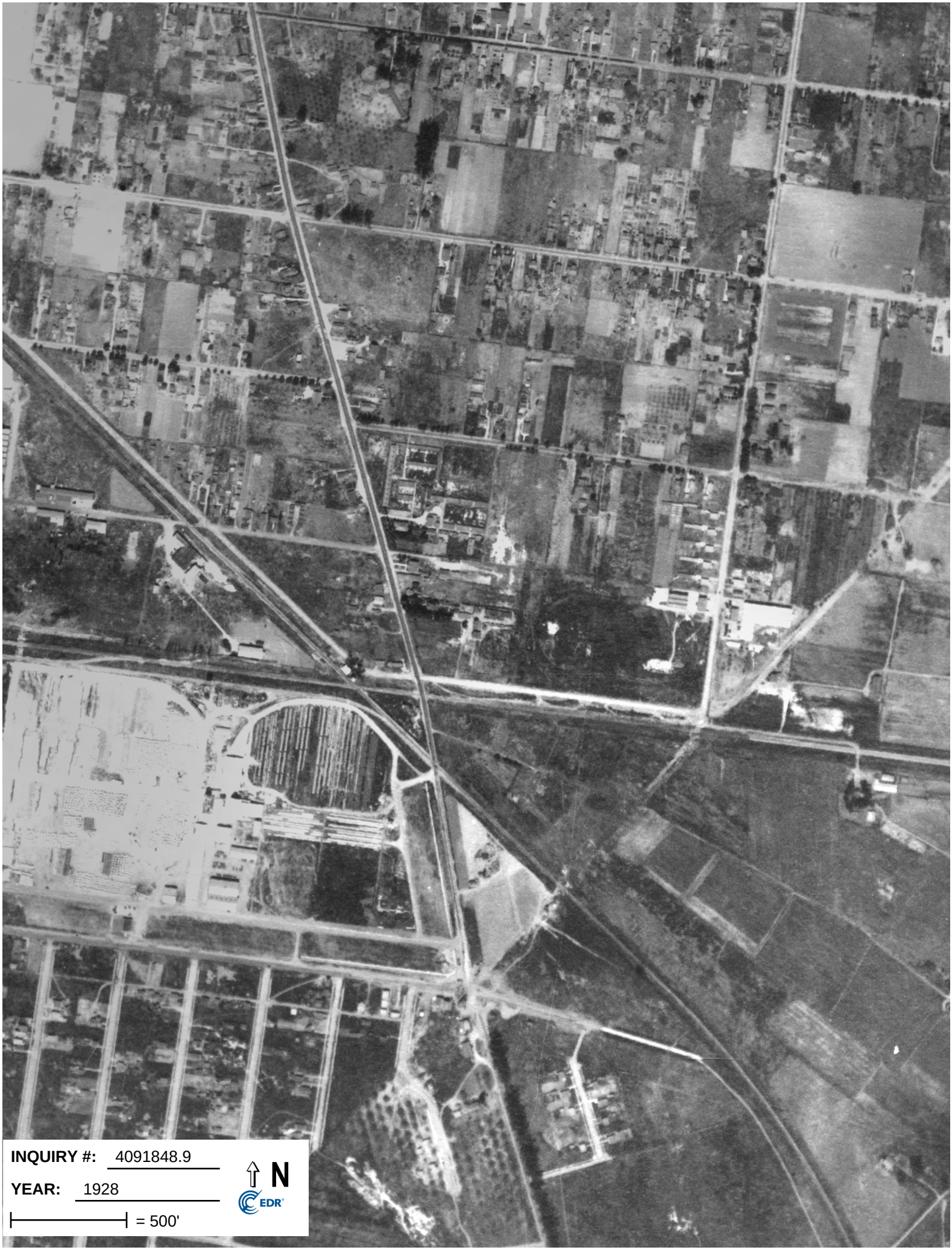
EDR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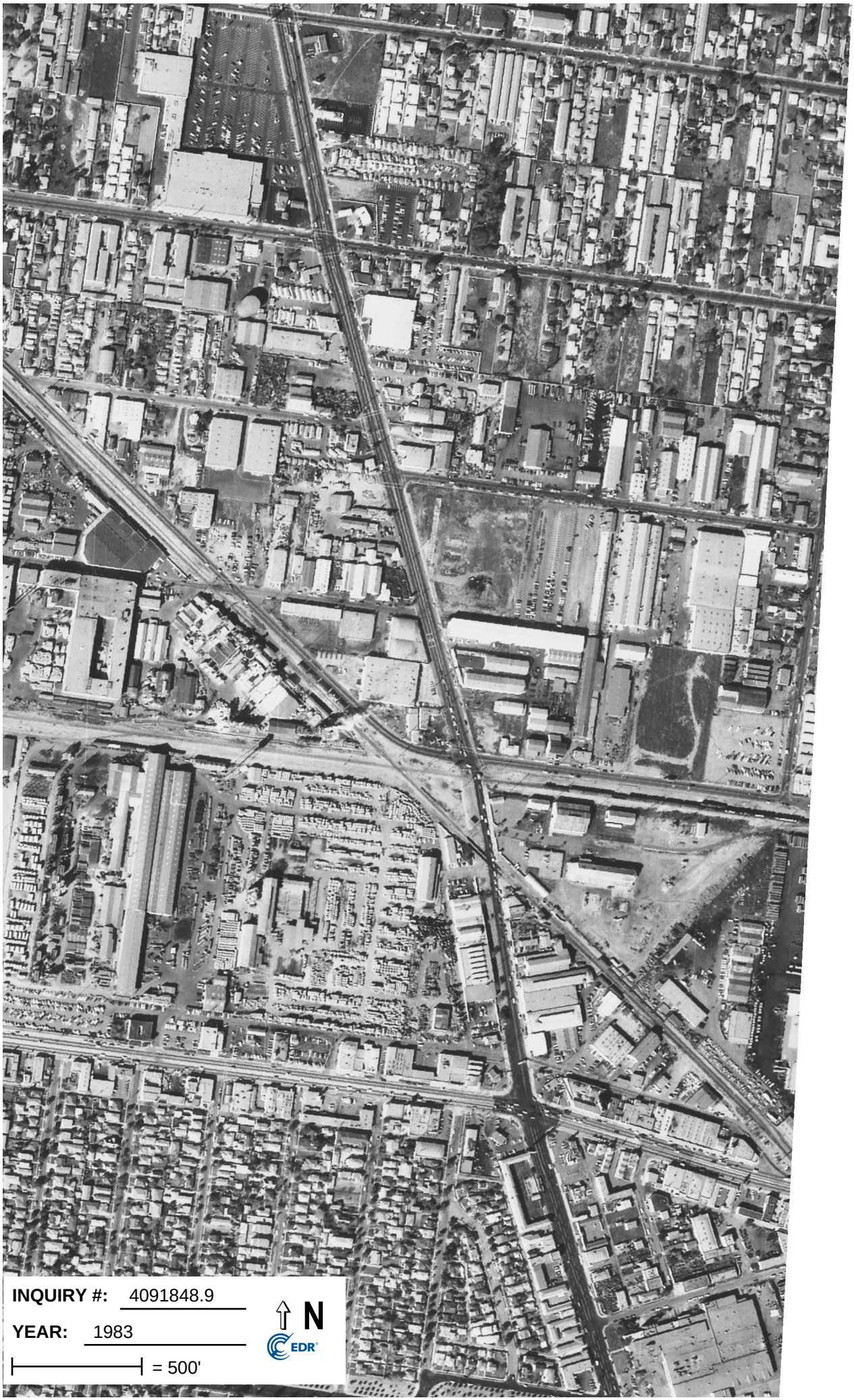
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YEAR: 2012
= 500'
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EDR

Reference:
EDR, 2014b

M. Stephens Manufacturing
8420 South Atlantic Avenue
Bell, CA 90201

Inquiry Number: 4091848.3
September 30, 2014

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
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Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

9/30/14

Site Name:
M. Stephens Manufacturing
8420 South Atlantic Avenue
Bell, CA 90201

Client Name:
Weston Solutions, Inc.
1340 Treat Boulevard
Walnut Creek, CA 94597

EDR Inquiry # 4091848.3

Contact: Brian P. Reilly

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Certified Sanborn Results:

Site Name: M. Stephens Manufacturing
Address: 8420 South Atlantic Avenue
City, State, Zip: Bell, CA 90201
Cross Street:
P.O. # 20074.063.070.1004
Project: PA M. Stevens Property
Certification # C212-4B03-80C4

Maps Provided:

1966
1950
1929

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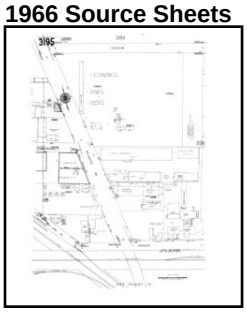
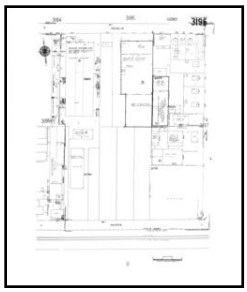


Volume 31, Sheet 3195

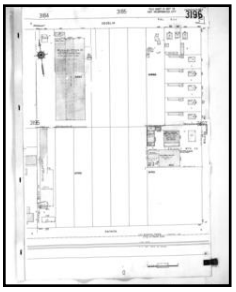


Volume 31, Sheet 3196

1950 Source Sheets

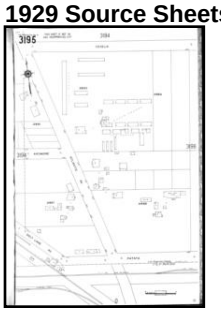
Volume 28, Sheet 2911

Volume 31, Sheet 3195



Volume 31, Sheet 3196

1929 Source Sheets



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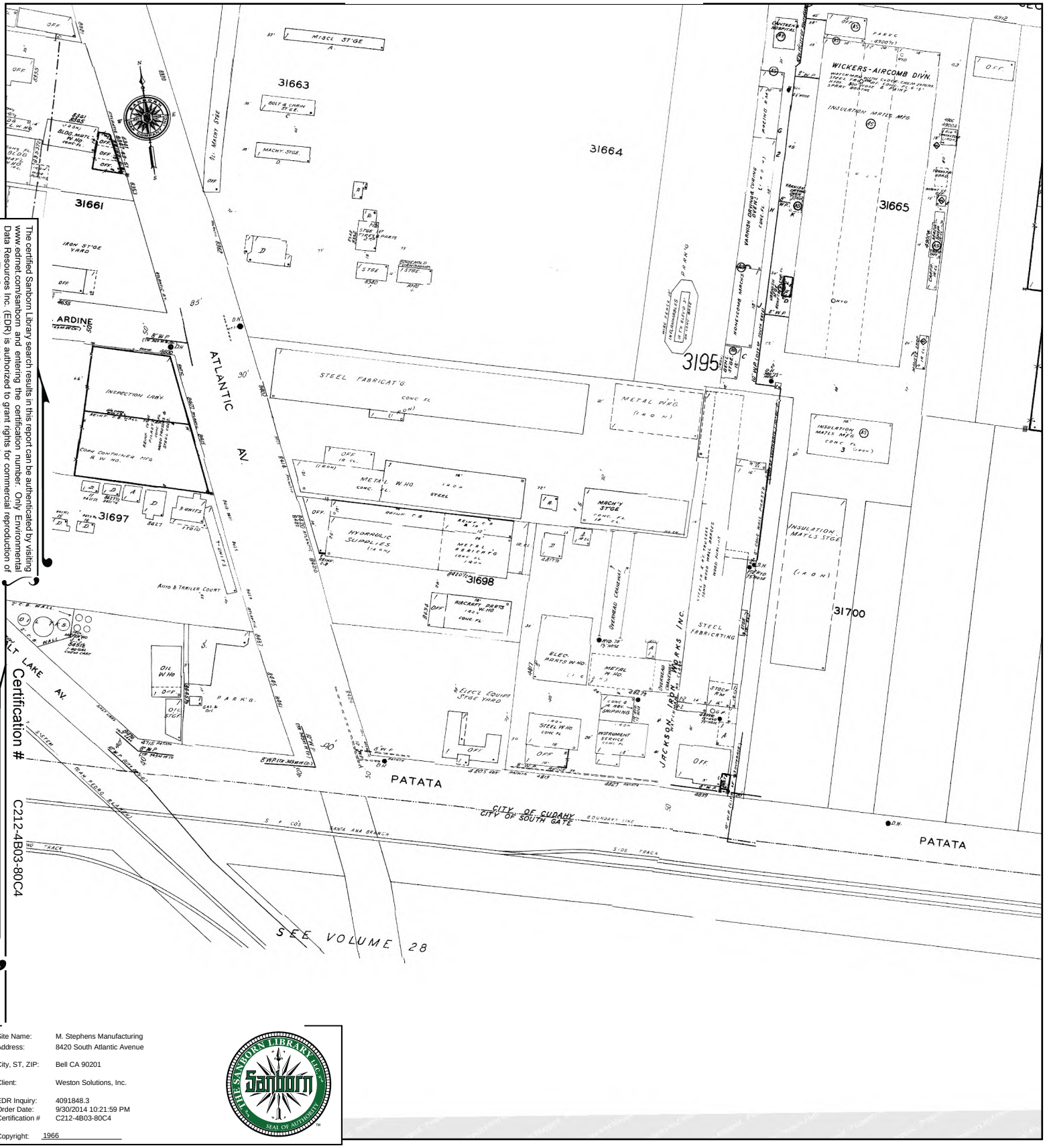

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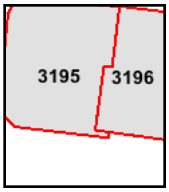

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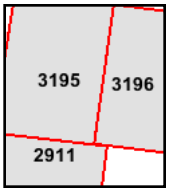

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Volume 31, Sheet 3195
Volume 31, Sheet 3196

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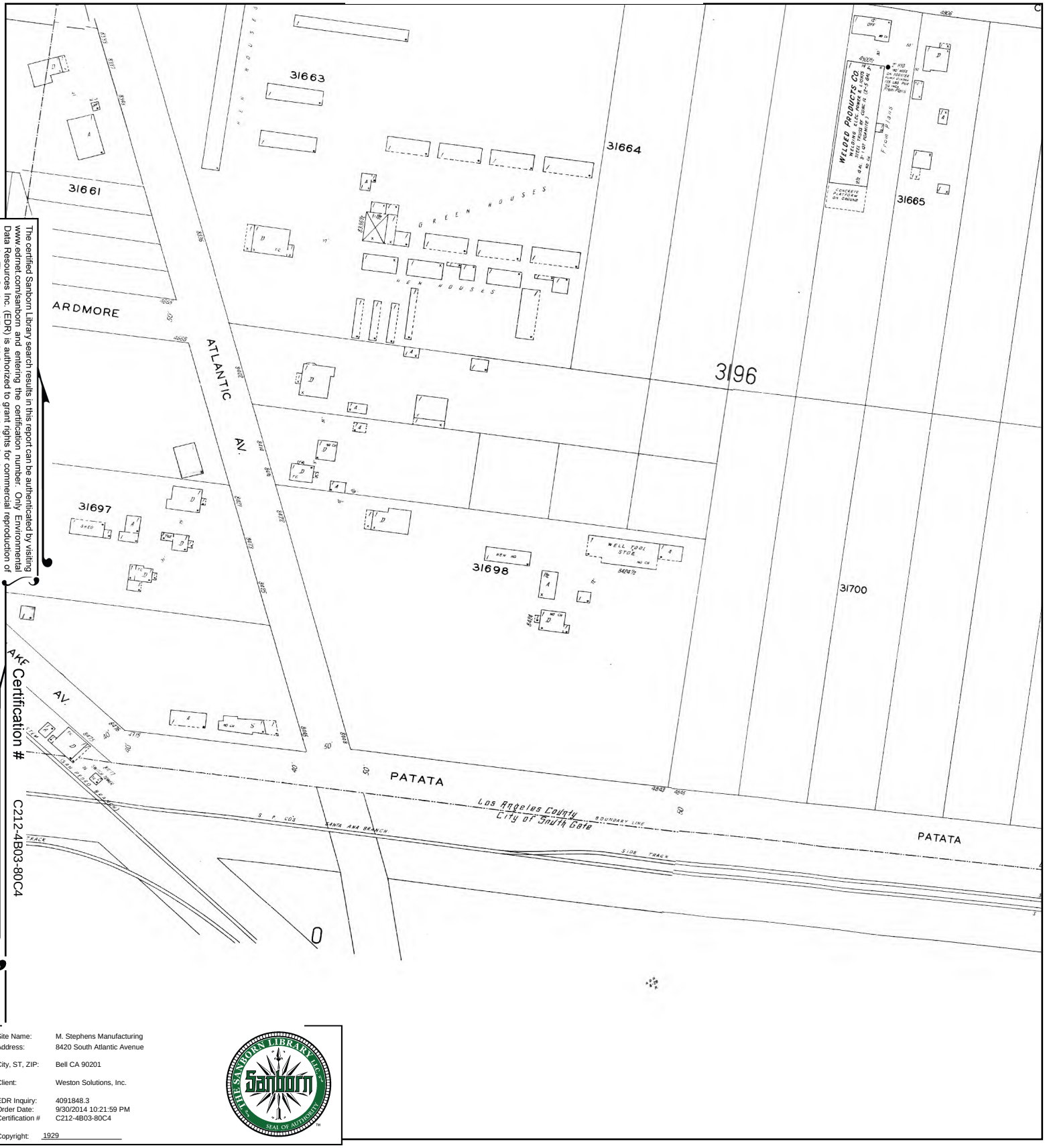

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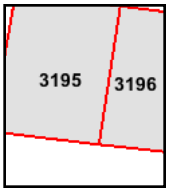

Volume 31, Sheet 3195
Volume 31, Sheet 3196

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Reference:
EDR, 2014c

M. Stephens Manufacturing
8420 South Atlantic Avenue
Bell, CA 90201

Inquiry Number: 4091848.5
October 03, 2014

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
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TABLE OF CONTENTS

SECTION

Executive Summary

Findings

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EXECUTIVE SUMMARY

DESCRIPTION

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Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2013. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2013	Cole Information Services	-	X	X	-
2008	Cole Information Services	-	X	X	-
2006	Haines Company, Inc	-	X	X	-
	Haines Company, Inc.	-	X	X	-
2004	Haines Company	-	-	-	-
2003	Haines & Company	-	-	-	-
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1999	Haines Company	-	-	-	-
1996	GTE	-	-	-	-
1995	Pacific Bell	-	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-
1991	Pacific Bell	-	X	X	-
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1975	Pacific Telephone	-	-	-	-
1972	R. L. Polk & Co.	-	-	-	-
1971	Pacific Telephone	X	X	X	-
1969	Pacific Telephone	-	X	X	-
1967	Pacific Telephone	X	X	X	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1965	Pacific Telephone	-	X	X	-
1964	Pacific Telephone	X	X	X	-
1963	Pacific Telephone	-	-	-	-
1962	Pacific Telephone	X	X	X	-
1961	Luskey Brothers & Co	-	-	-	-
1960	Pacific Telephone	X	X	X	-
1958	Pacific Telephone	X	X	X	-
1957	Pacific Telephone	X	X	X	-
1956	General Telephone Company Publishers	-	-	-	-
1955	Home Directory Service	-	-	-	-
1954	R. L. Polk & Co.	-	-	-	-
1952	Los Angeles Directory Co.	-	-	-	-
1951	Pacific Telephone & Telegraph Co.	X	X	X	-
1950	Pacific Telephone	-	-	-	-
1949	Los Angeles Directory Co.	-	-	-	-
1948	Associated Telephone Company, Ltd.	-	-	-	-
1947	Pacific Directory Co.	-	-	-	-
1946	Western Directory Co.	-	-	-	-
1945	The Glendale Directory Co.	-	-	-	-
1944	R. L. Polk & Co.	-	-	-	-
1942	Los Angeles Directory Co.	-	X	X	-
1940	Glendale Directory Co.	-	-	-	-
1939	Los Angeles Directory Co.	-	-	-	-
1938	Los Angeles Directory Co.	-	-	-	-
1937	Los Angeles Directory Co.	-	X	X	-
1936	Los Angeles Directory Co.	-	-	-	-
1935	Los Angeles Directory Co.	-	-	-	-
1934	Los Angeles Directory Co.	-	-	-	-
1933	Los Angeles Directory Co.	-	-	-	-
1932	Los Angeles Directory Co.	-	-	-	-
1931	Los Angeles Directory Co.	-	-	-	-
1930	Glendale Directory Co.	-	-	-	-
1929	Los Angeles Directory Co.	-	-	-	-
1928	Los Angeles Directory Co.	-	-	-	-
1927	Kaasen Directory Company Publishers	-	-	-	-
1926	Los Angeles Directory Co.	-	-	-	-
1925	Los Angeles Directory Co.	-	-	-	-
1924	Los Angeles Directory Co.	-	X	X	-
1923	Los Angeles Directory Co.	-	-	-	-
1921	Los Angeles Directory Co.	-	-	-	-
1920	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

MAP INFORMATION

The Overview Map provides information on nearby property parcel boundaries. Properties on this map that were selected for research are listed below the map.

SELECTED ADDRESSES

The following addresses were selected by the client. Detailed findings are contained in the findings section. An "X" indicates where information was identified.

Address	***Type***	***Findings***
8420 South Atlantic Avenue	Map ID: 1	X
4901 PATATA ST	Map ID: 11	X
8330 ATLANTIC AVE	Map ID: 15	X
4820 CECILIA ST	Map ID: 18	X
8420 ATLANTIC AVE	Map ID: 4	X
4839 PATATA ST	Map ID: 5	X
8420 ATLANTIC AVE	Map ID: 6	X

EXECUTIVE SUMMARY

Address	***Type***	***Findings***
4900 Cecilia Street	Client Entered	X
8330 Atlantic Avenue	Client Entered	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

8420 South Atlantic Avenue
Bell, CA 90201

FINDINGS DETAIL

Target Property research detail.

ATLANTIC AVE

8420 ATLANTIC AVE

Year	*Uses*	*Source*
2000	BRYANT DIE CAST CO	Haines & Company
	BWF MFG INC	Haines & Company
	CHARLES MOLD REPAIR LLC	Haines & Company
	STEPHENS M MFG INC	Haines & Company
1990	B W F MFG INC CDHY	Pacific Bell
	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1986	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1981	TRICO FEDERAL CREDIT UNION CDHY	Pacific Telephone
	TRICO INDUSTRIES INC	Pacific Telephone
1976	TRICO SUPERIOR INC	Pacific Telephone
1971	Biggie L E Fastcut Tool Co	Pacific Telephone
	Chandler Evans Control Systems Div	Pacific Telephone
	Fastcut Tool Co	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div Of Colt Industries	Pacific Telephone
	Pratt & Whitney Inc	Pacific Telephone
	Pratt & Whitney Machine Tool Div	Pacific Telephone
	Pratt & Whitney Machine Tool Division L A	Pacific Telephone
	Pratt & Whitney Machine Tool Division Of Colt Industries	Pacific Telephone
1967	Colt Industries Inc	Pacific Telephone
	Pratt & Whitney Inc	Pacific Telephone
	WILSON H & H OPERATION	Pacific Telephone
	Colt Industries Inc	Pacific Telephone

FINDINGS

Year	Uses	Source
1967	Pratt & Whitney Inc	Pacific Telephone
	WILSON H & H OPERATION	Pacific Telephone
1962	Orientronics Inc	Pacific Telephone
	Orientronics Inc	Pacific Telephone
	WILSON H & H INC	Pacific Telephone

ATLANTIC AVE S

8420 ATLANTIC AVE S

Year	Uses	Source
2000	BRYANT DIE CAST CO	Haines & Company
	BWF MFG INC	Haines & Company
	CHARLES MOLD REPAIR LLC	Haines & Company
	STEPHENS M MFG INC	Haines & Company

Patata

4839 Patata

Year	Uses	Source
1990	GRATING PACIFIC INC CDHY	Pacific Bell
1986	GRATING PACIFIC INC CDHY	Pacific Bell
1981	GRATING PACIFIC INC CDHY	Pacific Telephone
	PLASMA SPECIALTIES INC CDHY	Pacific Telephone
1971	Chamber Of Commerce Cudahy	Pacific Telephone
	CUDAHY CHAMBER OF COMMERCE	Pacific Telephone
	JACKSON IRON WORKS INC	Pacific Telephone
1970	JACKSON IRON WORKS INC	Pacific Telephone
1967	Chamber of Commerce Cudahy	Pacific Telephone
	Cudahy Chamber of Commerce	Pacific Telephone
	JACKSON IRON WORKS INC	Pacific Telephone
1966	JACKSON IRON WORKS INC	Pacific Telephone
1964	JACKSON IRON WORKS INC	Pacific Telephone
1962	JACKSON IRON WORKS INC	Pacific Telephone
1960	JACKSON IRON WORKS INC	Pacific Telephone
1958	Jackson Iron Wks Inc	Pacific Telephone
1957	JACKSON IRON WORKS INC	Pacific Telephone
1951	Patata Bell Jackson Iron Wks Inc	Pacific Telephone & Telegraph Co.

FINDINGS

PATATA ST

4839 PATATA ST

Year	Uses	Source
1971	Chamber Of Commerce Cudahy	Pacific Telephone
	CUDAHY CHAMBER OF COMMERCE	Pacific Telephone
	JACKSON IRON WORKS INC	Pacific Telephone
1970	JACKSON IRON WORKS INC	Pacific Telephone
1967	Chamber of Commerce Cudahy	Pacific Telephone
	Cudahy Chamber of Commerce	Pacific Telephone
	JACKSON IRON WORKS INC	Pacific Telephone
1966	JACKSON IRON WORKS INC	Pacific Telephone
1964	JACKSON IRON WORKS INC	Pacific Telephone
1962	JACKSON IRON WORKS INC	Pacific Telephone
1960	JACKSON IRON WORKS INC	Pacific Telephone
1958	Jackson Iron Wks Inc	Pacific Telephone
1957	JACKSON IRON WORKS INC	Pacific Telephone
1951	Patata Bell Jackson Iron Wks Inc	Pacific Telephone & Telegraph Co.

S ATLANTIC AVE

8420 S ATLANTIC AVE

Year	Uses	Source
1990	B W F MFG INC CDHY	Pacific Bell
	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1986	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1981	TRICO FEDERAL CREDIT UNION CDHY	Pacific Telephone
	TRICO INDUSTRIES INC	Pacific Telephone
1976	TRICO SUPERIOR INC	Pacific Telephone
1971	Biggie L E Fastcut Tool Co	Pacific Telephone
	Chandler Evans Control Systems Div	Pacific Telephone
	Fastcut Tool Co	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div Of Colt Industries	Pacific Telephone
	Pratt & Whitney Inc	Pacific Telephone
	Pratt & Whitney Machine Tool Div	Pacific Telephone
	Pratt & Whitney Machine Tool Division L A	Pacific Telephone

FINDINGS

Year	Uses	Source
1971	Pratt & Whitney Machine Tool Division Of Colt Industries	Pacific Telephone
1962	WILSON H & H INC	Pacific Telephone

South Atlantic Avenue

8420 South Atlantic Avenue

Year	Uses	Source
2000	BRYANT DIE CAST CO	Haines & Company
	BWF MFG INC	Haines & Company
	CHARLES MOLD REPAIR LLC	Haines & Company
	STEPHENS M MFG INC	Haines & Company
1990	B W F MFG INC CDHY	Pacific Bell
	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1986	BRYANT DIE CAST CO CDHY	Pacific Bell
	STEPHENS M MFG INC CDHY	Pacific Bell
1981	TRICO FEDERAL CREDIT UNION CDHY	Pacific Telephone
	TRICO INDUSTRIES INC	Pacific Telephone
1976	TRICO SUPERIOR INC	Pacific Telephone
1971	Biggie L E Fastcut Tool Co	Pacific Telephone
	Chandler Evans Control Systems Div	Pacific Telephone
	Fastcut Tool Co	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div	Pacific Telephone
	Pratt & Whitney Cutting Tool & Gage Div Of Colt Industries	Pacific Telephone
	Pratt & Whitney Inc	Pacific Telephone
	Pratt & Whitney Machine Tool Div	Pacific Telephone
	Pratt & Whitney Machine Tool Division L A	Pacific Telephone
	Pratt & Whitney Machine Tool Division Of Colt Industries	Pacific Telephone
1967	Colt Industries Inc	Pacific Telephone
	Pratt & Whitney Inc	Pacific Telephone
	WILSON H & H OPERATION	Pacific Telephone
1962	Orientronics Inc	Pacific Telephone
	WILSON H & H INC	Pacific Telephone

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

ARDINE ST

4655 ARDINE ST

Year	Uses	Source
2000	XXXX	Haines & Company
1957	ARDCO STEEL CO	Pacific Telephone

ATLANTIC

8421 ATLANTIC

Year	Uses	Source
1937	DUNN Oliver L Gladys P miner	Los Angeles Directory Co.

8427 ATLANTIC

Year	Uses	Source
1962	Gunter Anita	Pacific Telephone

8428 ATLANTIC

Year	Uses	Source
1942	Madzoeff Albt Helen	Los Angeles Directory Co.

8441 ATLANTIC

Year	Uses	Source
1942	Cherney Frank Goldie	Los Angeles Directory Co.

8449 ATLANTIC

Year	Uses	Source
1924	Devana Loena r	Los Angeles Directory Co.

ATLANTIC AVE

8330 ATLANTIC AVE

Year	Uses	Source
2013	HOUSE LOCKSMITH	Cole Information Services
	I T L INC	Cole Information Services
	HOUSE LOCKSMITH	Cole Information Services
	I T L INC	Cole Information Services

FINDINGS

Year	Uses	Source
2008	ITL INC	Cole Information Services
	T L I INC	Cole Information Services
	ITL INC	Cole Information Services
	T L I INC	Cole Information Services
2006	ITLINC	Haines Company, Inc.
	ITLINC	Haines Company, Inc.
	ITLINC	Haines Company, Inc
2000	ITL INC	Haines & Company
	ITL INC	Haines & Company
1990	I T L INC CDHY	Pacific Bell
	I T L INC CDHY	Pacific Bell
1986	SHELDON OIL CO CDHY	Pacific Bell
	I T L INC CDHY	Pacific Bell
1969	VEENSTRA EARL S	Pacific Telephone
1967	Refinery Equipt Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1965	REFINERY EQUIPT CO	Pacific Telephone
1964	REFINERY EQUIPT CO	Pacific Telephone
	RAFINERY EQUIPT CO	Pacific Telephone
1962	REFINERY EQUIPT CO	Pacific Telephone
	Refinery Equipt Co	Pacific Telephone
	Refinery Equipt Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1960	REFINERY EQUIPT CO	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1958	Refinery Euipment Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone

8362 ATLANTIC AVE

Year	Uses	Source
1967	Albertson Norman K	Pacific Telephone
1962	Albertson Norman K	Pacific Telephone
1958	Albertson Norman K	Pacific Telephone

8407 ATLANTIC AVE

Year	Uses	Source
2013	DISTRIBUIDORA NUEVA JERUSALEM	Cole Information Services

FINDINGS

8414 ATLANTIC AVE

Year	Uses	Source
1962	GREER MACHINERY CO INC	Pacific Telephone
	GREEO MACHINERY CO INS	Pacific Telephone
	GREER MACHINERY CO INC	Pacific Telephone
1960	GREER MACHINERY CO INC	Pacific Telephone
1958	GREER MACHINERY CO	Pacific Telephone
	GREER MACHINERY CO	Pacific Telephone
	GREER MACHINERY CO	Pacific Telephone
	Greer Thos W Greer Machinery Co	Pacific Telephone
1957	GREER MACHINERY CO	Pacific Telephone

8415 ATLANTIC AVE

Year	Uses	Source
2013	SANTA FE METAL	Cole Information Services
	USA FITNESS	Cole Information Services
	AZTECA INTERNATIONAL	Cole Information Services
2008	AZTECA INTERNATIONAL	Cole Information Services
	OP BAG & SUPPLY INC	Cole Information Services
2006	INTERNATIONAL	Haines Company, Inc.
	AZTECA	Haines Company, Inc.
	INTERNATIONAL	Haines Company, Inc
	AZTECA	Haines Company, Inc
1967	Affiliated Container Corp	Pacific Telephone
1962	United States Wood Paper Co	Pacific Telephone
	U S Forest Products Co	Pacific Telephone
	KEY CONTAINER COMPANY	Pacific Telephone
1958	Sentinel Container Corp	Pacific Telephone
1957	BIG RED WAREHOUSE	Pacific Telephone

8427 ATLANTIC AVE

Year	Uses	Source
2013	GENERAL INSPECTION LABS INC	Cole Information Services
2006	LABS INC	Haines Company, Inc
	GENL INSPECTION	Haines Company, Inc
	GENLINSPECTION	Haines Company, Inc.
	LABS INC	Haines Company, Inc.
1967	Herweck Bill	Pacific Telephone
	Laurens Fay	Pacific Telephone
	McLean Robt	Pacific Telephone

FINDINGS

Year	Uses	Source
1967	Miller Wanda	Pacific Telephone
	Riccio Victor	Pacific Telephone
	Sharp Wilbert	Pacific Telephone
	Stephenson Dorothy	Pacific Telephone
	Aragundi Elcor	Pacific Telephone
	Barber Ruth M	Pacific Telephone
1962	Emmons Edith	Pacific Telephone
	Hendricks Wirt	Pacific Telephone
	Miller Wanda	Pacific Telephone
	Riccio Victor	Pacific Telephone
	Barton Ersking R	Pacific Telephone
1958	Draper Byron L	Pacific Telephone
	Barber Gaile A	Pacific Telephone
	Miller Wanda	Pacific Telephone
	Riccio Victor	Pacific Telephone
	Sowards June M	Pacific Telephone
	Sowards Lewis H	Pacific Telephone
	Harnden Elmer C	Pacific Telephone
	Hendricks Wirt	Pacific Telephone

8437 ATLANTIC AVE

Year	Uses	Source
1967	Millers Cave cocktl lounge	Pacific Telephone

8445 ATLANTIC AVE

Year	Uses	Source
2013	ROCHE COMMERCIAL FUELING ENTERPRISE	Cole Information Services
	MIKE ROCHE INC	Cole Information Services
2008	ROCHE C F ENTERPRISES	Cole Information Services
	MIKE ROCHE INC	Cole Information Services
2006	ROCHE MIKE INC	Haines Company, Inc.
	FUELING	Haines Company, Inc.
	ROCHECOML	Haines Company, Inc.
	ROCHE MIKE INC	Haines Company, Inc
	FUELING	Haines Company, Inc
	ROCHECOML	Haines Company, Inc

FINDINGS

8451 ATLANTIC AVE

Year	Uses	Source
1967	Sunland Refining Corp	Pacific Telephone
	CLEMENTS OIL CO	Pacific Telephone
	McVay W H petrolm distr	Pacific Telephone
	SCOTTYS SERV SELF STN	Pacific Telephone
1962	SERVICE OIL SALES	Pacific Telephone
	R & R Products	Pacific Telephone
	CLEMENTS OIL CO	Pacific Telephone
	Munn Glenn L Service Oil Sales	Pacific Telephone

8610 ATLANTIC AVE

Year	Uses	Source
2013	KIMCO FINANCIAL STAFFING	Cole Information Services
	ARGIX DIRECT INC	Cole Information Services
	PERFORMANCE TEAM FREIGHT SYSTEMS	Cole Information Services
	KOHLS	Cole Information Services
2008	ARGIX DIRECT INC	Cole Information Services
2006	ARGIX DIRECT INC	Haines Company, Inc
	ARGIXDIRECTINC	Haines Company, Inc.
1986	SMISER FREIGHT SERVICE	Pacific Bell
1967	Pehar J S	Pacific Telephone
	MORRISON KNUDSEN COMPANY INC genl contrs	Pacific Telephone
	FERGUSON H K CO THE	Pacific Telephone
1962	Morrison Knudsen Co Inc genl contrs	Pacific Telephone
	Ferguson H K Co The	Pacific Telephone
1958	Morrison Knudsen Company Inc genl Contrs	Pacific Telephone
	Purchasing Dept Warehse & Shop	Pacific Telephone
	Cen Vi Ro Pipe Corp concrete pipe mfrs	Pacific Telephone
	CEN-VI-RO PIPE CORP CONCRETE PIPE MFRS	Pacific Telephone
1957	CEN-VI-RO PIPE CORP	Pacific Telephone

8627 ATLANTIC AVE

Year	Uses	Source
2008	AMERON	Cole Information Services
2006	AMERON	Haines Company, Inc.
	AMERON	Haines Company, Inc
1967	Ampco Federal Credit Union	Pacific Telephone

FINDINGS

Year	Uses	Source
1967	Research and Development	Pacific Telephone

ATLANTIC AVE S

8407 ATLANTIC AVE S

Year	Uses	Source
2000	PRONTO SYSTEM INC	Haines & Company

8415 ATLANTIC AVE S

Year	Uses	Source
2000	AFFILIATD CONTAINER	Haines & Company

8419 ATLANTIC AVE S

Year	Uses	Source
2000	BARBER Beverly	Haines & Company

8427 ATLANTIC AVE S

Year	Uses	Source
2000	GENL INSPECTN LABS	Haines & Company

8437 ATLANTIC AVE S

Year	Uses	Source
2000	ROCHE Patrick	Haines & Company

8445 ATLANTIC AVE S

Year	Uses	Source
2000	ROCHE MIKE INC	Haines & Company
	ROCHE COML FUELING	Haines & Company

8451 ATLANTIC AVE S

Year	Uses	Source
2000	XXXX	Haines & Company

8610 ATLANTIC AVE S

Year	Uses	Source
2000	S&S PROPERTIES	Haines & Company
	RUDYS TRUCK SERVICE	Haines & Company
	FAST FREIGHT SVS	Haines & Company
	DETERGENT RESOURCES	Haines & Company
	AIR ROAD EXPRESS INC	Haines & Company

FINDINGS

8627 ATLANTIC AVE S

Year	Uses	Source
2000	COBB Eleanor	Haines & Company
	AMERON	Haines & Company

Atlantic Avenue

8330 Atlantic Avenue Client Entered

Year	Uses	Source
2006	ITLINC	Haines Company, Inc.
	ITLINC	Haines Company, Inc.
	ITLINC	Haines Company, Inc
2000	ITL INC	Haines & Company
	ITL INC	Haines & Company
1990	I T L INC CDHY	Pacific Bell
	I T L INC CDHY	Pacific Bell
1986	SHELDON OIL CO CDHY	Pacific Bell
	I T L INC CDHY	Pacific Bell
1969	VEENSTRA EARL S	Pacific Telephone
1967	Refinery Equipt Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1965	REFINERY EQUIPT CO	Pacific Telephone
1964	REFINERY EQUIPT CO	Pacific Telephone
	RAFINERY EQUIPT CO	Pacific Telephone
1962	REFINERY EQUIPT CO	Pacific Telephone
	Refinery Equipt Co	Pacific Telephone
	Refinery Equipt Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1960	REFINERY EQUIPT CO	Pacific Telephone
	REFINERY EQUIPT CO	Pacific Telephone
1958	Refinery Euipment Co	Pacific Telephone
	Clements T H Refinery Equipt Co	Pacific Telephone

ATLANTIC BLVD

8451 ATLANTIC BLVD

Year	Uses	Source
1958	CLEMENTS OIL CO	Pacific Telephone

FINDINGS

CECILIA ST

4820 CECILIA ST

Year	Uses	Source
2013	MADISON PAVING	Cole Information Services
	CENTURY INTERMODAL CORP	Cole Information Services
2008	MADISSON PAVING INC	Cole Information Services
	CENTURY INTERMODAL CORP	Cole Information Services
2006	CENTURY	Haines Company, Inc.
	t NTERMODAL CORP MADISON PAVING	Haines Company, Inc.
	CENTURY	Haines Company, Inc
	INTERMODAL CORP	Haines Company, Inc
	MADISON PAVING	Haines Company, Inc

4900 CECILIA ST

Year	Uses	Source
2013	RED PLASTIC CO INC	Cole Information Services
2008	SMITH SMITH & SMITH	Cole Information Services

Cecilia Street

Client Entered

4900 Cecilia Street

Year	Uses	Source
2006	DUR RED	Haines Company, Inc.
	PRODUCTS	Haines Company, Inc.
	RED PLASTIC CO 323 771 90 DO	Haines Company, Inc.
	DUR RED	Haines Company, Inc
	PRODUCTS	Haines Company, Inc
	RED PLASTIC CO	Haines Company, Inc

PATATA

4805 PATATA

Year	Uses	Source
1967	Electric Motors Used	Pacific Telephone
	Martin Electric M W Electric Equipt Used	Pacific Telephone
	Martin Electric M W Electric Equipt Used	Pacific Telephone
1962	Martin Electric M W	Pacific Telephone
	Electric Transformers	Pacific Telephone
	Martin Electric M W	Pacific Telephone
	Electric Motors Used	Pacific Telephone

Year	Uses	Source
1962	Martin Electric M W	Pacific Telephone
	Electric Equipt Used	Pacific Telephone

4817 PATATA

Year	Uses	Source
1962	King Jas A	Pacific Telephone

4827 PATATA

Year	Uses	Source
1962	Automatic Instrument Serv Co	Pacific Telephone

PATATA ST

4805 PATATA ST

Year	Uses	Source
1958	Martin M W Electric Co	Pacific Telephone

4817 PATATA ST

Year	Uses	Source
1958	Wilmot Arthur	Pacific Telephone
1951	Patata Martin M W elec motrs	Pacific Telephone & Telegraph Co.

4819 PATATA ST

Year	Uses	Source
1951	E Patata Bell Taylor Spotswood of Calif See Tayler Spotswood of Calif	Pacific Telephone & Telegraph Co.
	E Patata Bell Tayler Spotswood of Calif	Pacific Telephone & Telegraph Co.
	E Patata Bell Westgrate Open Steel Flooring Co	Pacific Telephone & Telegraph Co.

4827 PATATA ST

Year	Uses	Source
1958	Automatic Instrument Serv Co	Pacific Telephone
1951	Patata Engineered Wire & Metal Mfg Co	Pacific Telephone & Telegraph Co.

4901 PATATA ST

Year	Uses	Source
2013	OXFORD ARGONAUT	Cole Information Services
	SERVICIO PARA IMPORTADORES	Cole Information Services
	PACIFIC LIGHT	Cole Information Services
	STRATFORD	Cole Information Services
	POWER GROUP INC	Cole Information Services

FINDINGS

Year	Uses	Source
2013	INNOVATION CUSTOM DESIGN	Cole Information Services
2008	U S OFFICE SUPPLY INC	Cole Information Services
	SWIMWEAR EXPERT INC	Cole Information Services
	J & A TRIMMING	Cole Information Services
	SC IMPORT	Cole Information Services
	TODAYS DEALERS SCHOOL	Cole Information Services
	J & J MOBULAR SYSTEM	Cole Information Services
	OXFORD ARGONAUT MAILERS	Cole Information Services
	TODAY TRAINING CENTER	Cole Information Services
	STRATFORD INC WM	Cole Information Services
	VINTAGE BASICS APPAREL CO	Cole Information Services
	RO GENERATION INC	Cole Information Services
	LIKERR COUTURE	Cole Information Services
	J & J INSTALLATION SERVICES	Cole Information Services
	ALAMILLO RADOLFO	Cole Information Services
	ART DECOR INTERNATIONAL	Cole Information Services
	PACIFIC LIGHT	Cole Information Services
	MODELO MANUFACTURING	Cole Information Services
	ART MOMS STUDIO	Cole Information Services
2006	MLRS OXFORD	Haines Company, Inc.
	ARGONAUT	Haines Company, Inc.
	ROGENERATNINC	Haines Company, Inc.
	BUILDING ARTDECOR	Haines Company, Inc.
	INTERNATL BON MARKETING	Haines Company, Inc.
	INC FANTASY SWIM	Haines Company, Inc.
	WEAR J&ATRIMMING	Haines Company, Inc.
	J &JMOBULAR	Haines Company, Inc.
	SYSTEM J&PSALES	Haines Company, Inc.
	LABEL FACTORY	Haines Company, Inc.
	THE MAGICRIVERINC	Haines Company, Inc.
	MOMS ART STUDIO	Haines Company, Inc.
	OXFORDARGNT	Haines Company, Inc.
	MAILERS PAC LIGHT	Haines Company, Inc.
	DBA LBL FCTRY SCIMPORT	Haines Company, Inc.
	STRATFORD	Haines Company, Inc.
	TODAYS DEALERS	Haines Company, Inc.
	SCHOOL	Haines Company, Inc.
	BUILDING	Haines Company, Inc

FINDINGS

Year	Uses	Source
2006	ART DECOR	Haines Company, Inc
	INTERNATL	Haines Company, Inc
	BON MARKETING	Haines Company, Inc
	FANTASYSWIM	Haines Company, Inc
	J J&A TRIMMING	Haines Company, Inc
	J&JMOOULAR	Haines Company, Inc
	SYSTEM	Haines Company, Inc
	J&P SALES	Haines Company, Inc
	LABEL FACTORY	Haines Company, Inc
	MAGIC RIVER INC	Haines Company, Inc
	MOMS ART STUDIO	Haines Company, Inc
	OXFORD ARGNT	Haines Company, Inc
	OXFORD	Haines Company, Inc
	ARGONAUT	Haines Company, Inc
	MAILERS	Haines Company, Inc
	PAC LIGHT	Haines Company, Inc
	RO GENERATN INC	Haines Company, Inc
	DBALBLFCTRY	Haines Company, Inc
	STRATFORD	Haines Company, Inc
	TOOAYS DEALERS	Haines Company, Inc
	SCHOOL	Haines Company, Inc
	SC IMPORT	Haines Company, Inc
2000	GONZALEZ VICTOR	Haines & Company
	BUILDING A S J MANUFACTURING	Haines & Company
	ART DECOR INTL	Haines & Company
	ASSOCTE JHC	Haines & Company
	J & J MOBULAR SYSTEM	Haines & Company
	KWONTAE HYUN	Haines & Company
	MOMS ART STUDIO	Haines & Company
	OXFORD ARGNT MLRS	Haines & Company
	PAC LIGHT	Haines & Company
	S M PRINTING INC	Haines & Company
	STARLITE FURNITURE MFG	Haines & Company
	STRATFORD	Haines & Company
	TODAYS DEALERS SCHOOL	Haines & Company
	TODAYS TRAINING CENTER	Haines & Company
	TODAYS DEALERS SC	Haines & Company
1990	CALIF PAC FRAME & FURNITURE MFG CDHY	Pacific Bell

FINDINGS

Year	Uses	Source
1990	RALLYE WHEEL & TIRE CDHY	Pacific Bell
	CERAMIC CREATIONS CDHY	Pacific Bell
	VALUE TRUCK CONVERSION CDHY	Pacific Bell
	CHAN S APPAREL INC CDHY	Pacific Bell
	OXFORD ARGONAUT MAILERS CDHY	Pacific Bell
	DOBBERPUHL RAYMOND H CDHY	Pacific Bell
	STRATFORD CDHY	Pacific Bell
	ERIN OAK PRODUCTS CDHY	Pacific Bell
	MCC MANUFACTURING CDHY	Pacific Bell
	INTERNATL AUTOMOTIVE PARTS CDHY	Pacific Bell
	POWER TRANSMISSION UNLIMITED CDHY	Pacific Bell

S ATLANTIC AVE

8407 S ATLANTIC AVE

Year	Uses	Source
1971	Pharmaceutical Center Cudahy	Pacific Telephone
	BRUNSWIG DRUG COMPANY Drug Divisions	Pacific Telephone

8415 S ATLANTIC AVE

Year	Uses	Source
1990	AFFILIATED CONTAINER CORP CDHY	Pacific Bell
1986	AFFILIATED CONTAINER CORP CDHY	Pacific Bell
1976	Affiliated Container Corp	Pacific Telephone
1971	Affiliated Container Corp	Pacific Telephone

8427 S ATLANTIC AVE

Year	Uses	Source
1995	General Inspection Labs Inc	Pacific Bell
	General Inspection Labs Inc	Pacific Bell
1991	General Inspection Labs Inc	Pacific Bell
1990	GENERAL INSPECTION LABS INC CDHY	Pacific Bell
1986	GENERAL INSPECTION LABS INC CDHY	Pacific Bell
1985	General Inspection Labs Inc	Pacific Bell
1981	GENERAL INSPECTION LABS INC CDHY	Pacific Telephone
1976	GENERAL INSPECTION LABS INC	Pacific Telephone
1971	GENERAL INSPECTION LABS INC	Pacific Telephone

FINDINGS

8445 S ATLANTIC AVE

Year	Uses	Source
1990	ROCHE MIKE INC CDHY	Pacific Bell
1986	ROCHE MIKE INC CDHY	Pacific Bell
1981	ROCHE MIKE INC CDHY	Pacific Telephone

8451 S ATLANTIC AVE

Year	Uses	Source
1971	CLEMENTS OIL CO	Pacific Telephone

8600 S ATLANTIC AVE

Year	Uses	Source
1981	RITZE ROBT W CDHY	Pacific Telephone

8610 S ATLANTIC AVE

Year	Uses	Source
1990	PETERS TRUCK LINES INC S GT	Pacific Bell
	SMISER LEASING S GT	Pacific Bell
	SMISER FREIGHT SERVICE	Pacific Bell
	SMISER FREIGHT SERVICE	Pacific Bell
	CHURCHILL TRUCK LINES INC S GT	Pacific Bell
	CALIF WESTERN CO YD S GT	Pacific Bell
1986	SMISER LEASING S GT	Pacific Bell
	SMISER FREIGHT SERVICE	Pacific Bell
	CALIF WESTERN CO YD S GT	Pacific Bell
	CHURCHILL TRUCK LINES INC S GT	Pacific Bell
	NELSON FRED S GT	Pacific Bell
1981	SMISER FREIGHT SERVICE	Pacific Telephone
	SMISER FREIGHT SERVICE	Pacific Telephone
	SMISER LEASING S GT	Pacific Telephone
1976	Smiser Leasing	Pacific Telephone
	General Ofc	Pacific Telephone
	Smiser Freight Service	Pacific Telephone
	Pick Up	Pacific Telephone
	Smiser Freight Service	Pacific Telephone
	Fowler Engineering	Pacific Telephone
	Foster Electric Inc S	Pacific Telephone
	Diversified Contractors	Pacific Telephone
1971	General Ofc	Pacific Telephone
	Smiser Freight Service	Pacific Telephone

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Year	Uses	Source
1971	Pick Up	Pacific Telephone
	Smiser Freight Service	Pacific Telephone
	Morrison Knudsen Company Inc genl contrs	Pacific Telephone
	Emkay Development Company Inc	Pacific Telephone

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
8420 South Atlantic Avenue	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1985, 1980, 1975, 1972, 1969, 1965, 1963, 1961, 1956, 1955, 1954, 1952, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
4655 ARDINE ST	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4805 PATATA	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4805 PATATA ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4817 PATATA	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4817 PATATA ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4819 PATATA ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4820 CECILIA ST	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4820 CECILIA ST	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
4827 PATATA	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4827 PATATA ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4900 CECILIA ST	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4900 Cecilia Street	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4901 PATATA ST	2013, 2008, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
4901 PATATA ST	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8330 ATLANTIC AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8330 ATLANTIC AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8330 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1966, 1963, 1961, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8330 Atlantic Avenue	2013, 2008, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1966, 1963, 1961, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8362 ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8407 ATLANTIC AVE	2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

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Address Researched	Address Not Identified in Research Source
8407 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8407 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8414 ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8415 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8415 ATLANTIC AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8415 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8415 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1985, 1981, 1980, 1975, 1972, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8419 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8421 ATLANTIC	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8427 ATLANTIC	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8427 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8427 ATLANTIC AVE	2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

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Address Researched	Address Not Identified in Research Source
8427 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8427 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1992, 1980, 1975, 1972, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8428 ATLANTIC	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8437 ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8437 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8441 ATLANTIC	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8445 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8445 ATLANTIC AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8445 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8445 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1985, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8449 ATLANTIC	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1923, 1921, 1920
8451 ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

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Address Researched	Address Not Identified in Research Source
8451 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8451 ATLANTIC BLVD	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8451 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8600 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8610 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1961, 1960, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8610 ATLANTIC AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8610 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8610 S ATLANTIC AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1985, 1980, 1975, 1972, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8627 ATLANTIC AVE	2013, 2008, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8627 ATLANTIC AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
8627 ATLANTIC AVE S	2013, 2008, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

Reference:
EPA, 2014a

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TRI

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Click on "View Facility Information" to view EPA Facility information for the facility.

Facility Name:	M. STEPHENS MANUFACTURING INC.	Mailing Name:	M. STEPHENS MANUFACTURING INC.	
Address:	8420 S. ATLANTIC AVE. CUDAHY CA 90201	Mailing Address:	8420 S. ATLANTIC AVE.CUDAHY CA 90201-	
County:	LOS ANGELES	Region:	9	
Facility Information:	View Facility Information	TRI ID:	90201MSTPH8420S	DUNS Number:
		FRS ID	110002139739	
Latitude:	33.956819	Longitude:	-118.184256	
Public Contact:	RICK PALMER	Phone:	2135608301	
Parent Company:	No US Parent	Parent DUNS:	NA	
BIA Tribal Code:		Tribe:		

Starting with Reporting Year 2006, TRI Facilities began reporting NAICS codes, instead of SIC codes, to identify their Primary Business Activities.

NAICS Codes for 1995

NAICS CODE	PRIMARY	NAICS DESCRIPTION
331521	YES	Aluminum Die-Casting Foundries

The above information comes from 1995, which was the last year NAICS code data was reported for this facility. The earliest NAICS code data on file for this facility was reported in 1988.

SIC Codes for 1995

SIC CODE	PRIMARY	SIC DESCRIPTION
3363	YES	ALUMINUM DIE-CASTINGS (1987)
3364	NO	NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM (1987)

The above information comes from 1995, which was the last year SIC code data was reported for this facility. The earliest SIC code data on file for this facility was reported in 1987.

Map this facility

Map this facility using one of Envirofact's mapping utilities.

Total Aggregate Releases of TRI Chemicals to the Environment:

For all releases estimated as a range, the mid-point of the range was used in these calculations. This table summarizes the releases reported by the facility. ***NR*** *- signifies nothing reported by this facility for the corresponding medium.*

Total Aggregate Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds
(Measured in Pounds)

Media	1995	1994	1993	1992	1991	1990	1989	1988	1987
Air Emissions	250	111	83	82	100	92	17799	27147	114
Surface Water Discharges	NR	NR	NR	0	0	NR	NR	NR	N
Releases to Land	NR	NR	NR	NR	NR	NR	NR	NR	N
Underground Injection	NR	NR	NR	NR	NR	NR	NR	NR	N
Total On-Site Releases	250	111	83	82	100	92	17799	27147	114
Transfer Off-Site to Disposal	5	250	250	NR	NR	NR	36	NR	N
Total Releases	255	361	333	82	100	92	17835	27147	114

Graphic Summary of this Table

Total Aggregate Releases of Dioxin and Dioxin-like Compounds
(Measured in Grams)

Media	1995	1994	1993	1992	1991	1990	1989	1988	1987
Air Emissions	NR	NR	NR	NR	NR	NR	NR	NR	N
Surface Water Discharges	NR	NR	NR	NR	NR	NR	NR	NR	N
Releases to Land	NR	NR	NR	NR	NR	NR	NR	NR	N
Underground Injection	NR	NR	NR	NR	NR	NR	NR	NR	N
Total On-Site Releases	NR	NR	NR	NR	NR	NR	NR	NR	N
Transfer Off-Site to Disposal	NR	NR	NR	NR	NR	NR	NR	NR	N
Total Releases	NR	NR	NR	NR	NR	NR	NR	NR	N

TRI Chemicals Reported on Form A:
Please note that there were no chemicals reported on Form A for this facility

NOTE:
All chemicals reported below have release or transfer amounts greater than zero. To see a list of all chemicals reported by this facility click here.

Names and Amounts of Chemicals Released to the Environment by Year.

For all releases estimated as a range, the mid-point of the range was used in these calculations. ***NR*** *- signifies nothing reported for this facility by the corresponding medium. Rows with all "0" or "NR" values were not listed.*

Chemical Name	Media	Unit Of Measure	1995	1994	1993	1992	1991	1990	1989	1988	1987
COPPER (TRI Chemical ID: 007440508)	AIR FUG	Pounds	250	111	83	82	100	92	173	90	1
COPPER (TRI Chemical ID: 007440508)	POTW METALS	Pounds	5	250	250	NR	NR	NR	36	NR	N
TETRACHLOROETHYLENE (TRI Chemical ID: 000127184)	AIR FUG	Pounds	NR	NR	NR	NR	NR	NR	17626	27057	113

Discharge of Chemicals into Streams or Bodies of Water:

Please note that either there were no releases of chemicals into streams or bodies of water reported by this facility or the facility did not file a TRI form R for the years 1987 to 1995. Rows with Release Amount equal to "0" were not listed.

Transfer of Chemicals to Off-Site Locations other than POTWs:

For all releases estimated as a range, the mid-point of the range was used in these calculations. Rows with Total Transfer Amount equal to "0" were not listed.

Chemical Name	Year	Unit Of Measure	Total Transfer Amount	Transfer Site Name and Address	Type Of Waste Managemen
COPPER	1995	Pounds	5	**CUSTOM ALLOY SALES**	Metals Recovery

(TRI Chemical ID: 007440508)				**13329 ECTOR ST. CITY OF INDUSTRY, CA 91746**	
COPPER (TRI Chemical ID: 007440508)	1994	Pounds	5	**LIGHT METALS INC. (DIVISION O, F CUSTOM ALLOY SALES) 13329 ECTOR ST. CITY OF INDUSTRY, CA 91746**	Metals Recovery
COPPER (TRI Chemical ID: 007440508)	1993	Pounds	1	**LIGHT METALS INC. (DIVISION O, F CUSTOM ALLOY SALES) 13329 ECTOR ST. CITY OF INDUSTRY, CA 91746**	Metals Recovery
COPPER (TRI Chemical ID: 007440508)	1992	Pounds	9	**LIGHT METALS INC., DIV. OF CUSTOM ALLOY SALES 13329 ECTOR INC. CITY OF INDUSTRY, CA 91746**	Metals Recovery
TETRACHLOROETHYLENE (TRI Chemical ID: 000127184)	1988	Pounds	2448	**OMEGA CHEMICAL 12504 E. WHITTER WHITTIER, CA 90607**	Transfer to Waste Broker
TETRACHLOROETHYLENE (TRI Chemical ID: 000127184)	1987	Pounds	1292	**OMEGA CHEMICAL 12504 E. WHITTIER WHITTIER, CA 90607**	Transfer to Waste Broker

Summary of Waste Management Activities

Please note that chemical amounts shown here are not included in Total Aggregate Releases shown above.

Summary of Waste Management Activities excluding Dioxin and Dioxin-like Compounds (Measured in Pounds)

Year	On-Site Recycling	Off-Site Recycling	On-Site Energy Recovery	Off-Site Energy Recovery	On-Site Treatment	Off-Site Treatment	Total Amount
1994	0	13	0	0	0	0	
1995	0	16929	0	0	0	0	169
1996 (Projected)	0	18000	0	0	0	0	180
1997 (Projected)	0	20000	0	0	0	0	200

Summary of Waste Management Activities for Dioxin and Dioxin-like Compounds (Measured in Grams)

This facility did not report any waste management activities for Dioxin and Dioxin-like Compounds.

Chemicals Under Waste Management:

Please note that chemical amounts shown here are not included in the Total Aggregate Releases shown above. Transfers to Publicly Owned Treatment Works are listed on a separate table.

Chemical Name	Year	Unit Of Measure	On-Site Recycling	Off-Site Recycling	On-Site Energy Recovery	Off-Site Energy Recovery	On-Site Treated	Off-Site Treated	Total Amount
COPPER	1994	Pounds	0	13	0	0	0	0	
	1995	Pounds	0	16929	0	0	0	0	169
	1996 (Projected)	Pounds	0	18000	0	0	0	0	180
	1997 (Projected)	Pounds	0	20000	0	0	0	0	200

Publicly Owned Treatment Works (POTW) that Chemicals were Transferred to in 2011 and after:

This facility did not transfer any chemicals to a Publicly Owned Treatment Works (POTW) in 2011 and after.

Publicly Owned Treatment Works (POTW) that Chemicals were Transferred to PRIOR to 2011:

Prior to reporting year 2011, TRI only required facilities to report a total for all transfers of a chemical to one or more POTWs. In cases where a facility transferred waste to

more than one POTW, it was not possible to list the quantities transferred to the individual POTWS. Displayed below is the history of POTW transfers prior to 2011 showing the chemical, year and POTW Name and Address. For all releases estimated as a range, the mid-point of the range was used in these calculations. Rows with Total Transfer Amount equal to "0" were not listed.

Chemical Name	Year	Unit Of Measure	Total Transfer Amount
COPPER	1989	Pounds	
COPPER	1993	Pounds	2
COPPER	1994	Pounds	2
COPPER	1995	Pounds	

Chemical Name	Year	POTW Name and Address
COPPER	1987	**LOS ANGELES CO., SANITATION DIST. P.1O. BOX 4998 WHITTIER, CA 90607**
COPPER	1988	**LOS ANGELES CO. SANITATION, DISTRICT P.O. BOX 4998 WHITTIER, CA 90607**
COPPER	1989	**LOS ANGELES CO. SANITATION, DISTRICT P. O. BOX 4998 WHITTIER, CA 90607**
COPPER	1990	**LOS ANGELES CO., SANITATION DIST. P.O. BOX 4998 WHITTIER, CA**
COPPER	1991	**LOS ANGELES CO. SANITATION, DIST. P.O. BOX 4998 WHITTIER, CA 90607**
COPPER	1992	**LOS ANGELES COUNTY SANITATION, DISTRICT P.O. BOX 4998 WHITTIER, CA 90607**
COPPER	1993	**LOS ANGELES COUNTY SANTIATION, DISTRICT P.O. BOX 4998 WHITTIER, CA 90201**
COPPER	1994	**LOS ANGELES COUNTY SANTIATION, DISTRICT P.O. BOX 4998 WHITTIER, CA 90201**
COPPER	1995	**L.A. COUNTY SANITATION P.O. BOX 4998 WHITTIER, CA 90607**
TETRACHLOROETHYLENE	1987	**NA ,**
TETRACHLOROETHYLENE	1988	**NA ,**

Non Production Releases:

This facility did not report any Non-Production releases.

Additional Source Reduction and Pollution Prevention Data:

The P2 Report *summarizes chemical-specific Pollution Prevention (P2) data for multiple years, including Newly Implemented Source Reduction Activities (Section 8.10) and Optional Pollution Prevention Information (Section 8.11). A "P2 Data" data entry indicates that P2 data was reported for that specific chemical and year. A NR signifies that no Pollution Prevention data was reported for that specific chemical and year.*

View all P2 Information for this facility

Chemical Name	P2 Report	5-Year Waste Trend	1995	1994	1993	1992	1991
COPPER	P2 Details	NA	P2	P2	P2	P2	P2

"**P2**" indicates that P2 activity codes and/or descriptions were provided for the chemical and year in question. "**B**" indicates barriers to P2 was reported. "No P2" indicates that a Form R was submitted but no P2 information was included. "NR" indicates that no Form R was submitted.

Additional links for TRI:

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- National Library of Medicine (NLM) TOXMAP EXIT Disclaimer .
- The Environmental Defense Fund's (EDF) Chemical Scorecard has on-line environmental information regarding this facility's EXIT Disclaimer reported TRI releases.

Reference:
EPA, 2014b

http://iaspub.epa.gov/enviro/efsystemquery.rcrainfo?fac_search=primary_name&fac_value=&fac_search_type=Beginning+With&postal_code=&location_address=8420+S+Atlantic&address_search_type=Beginning+With&city_name=&county_name=&state_code=&naics_type=Equal+to&naics_to=&univ_search=0&univA=FULL_ENFORCEMENT&univB=LQG&LIBS=&proc_group=0&procname=&program_search=2&report=1&page_no=1&output_sql_switch=TRUE&database_type=RCRAINFO

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Total Number of Facilities Retrieved: 0

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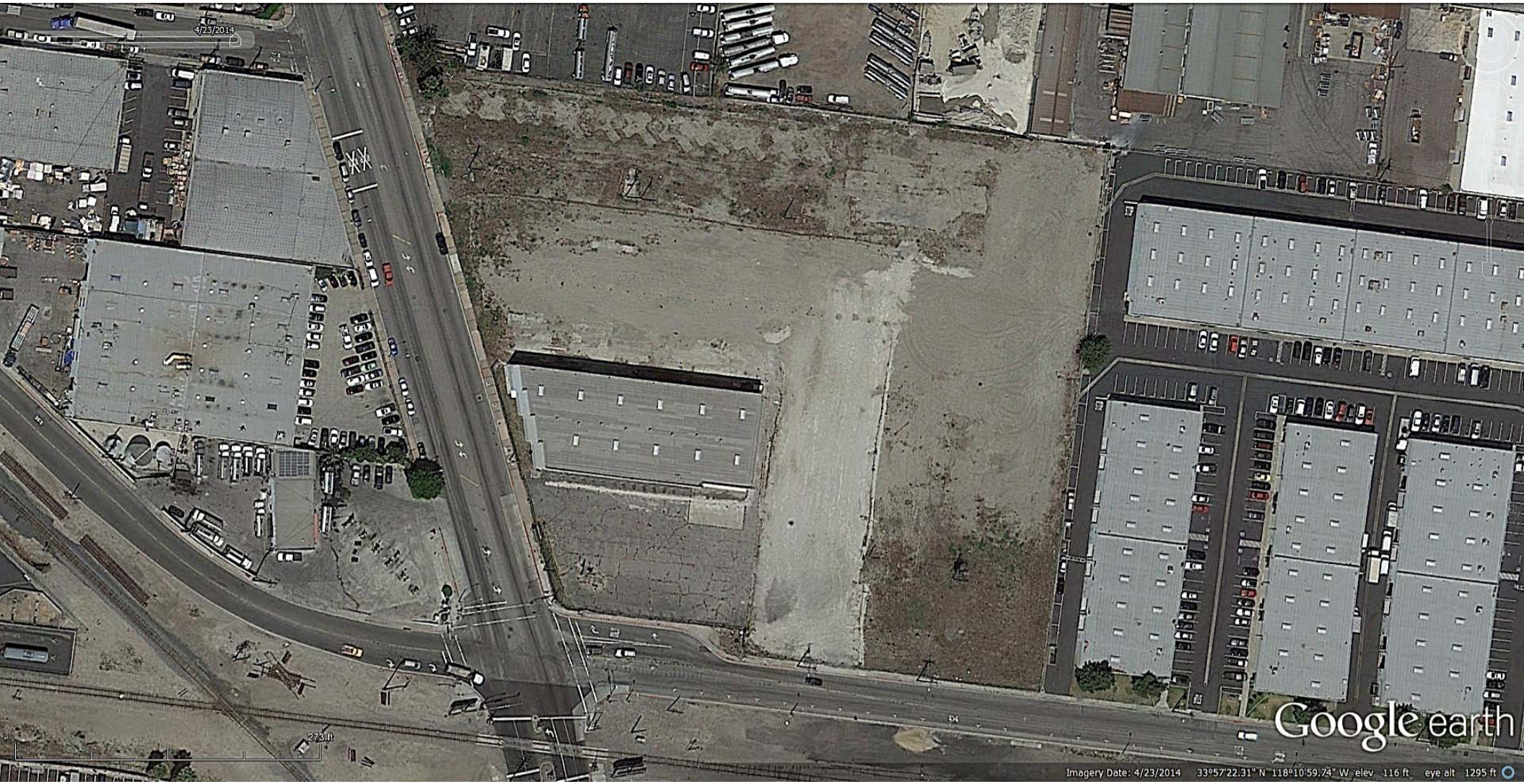
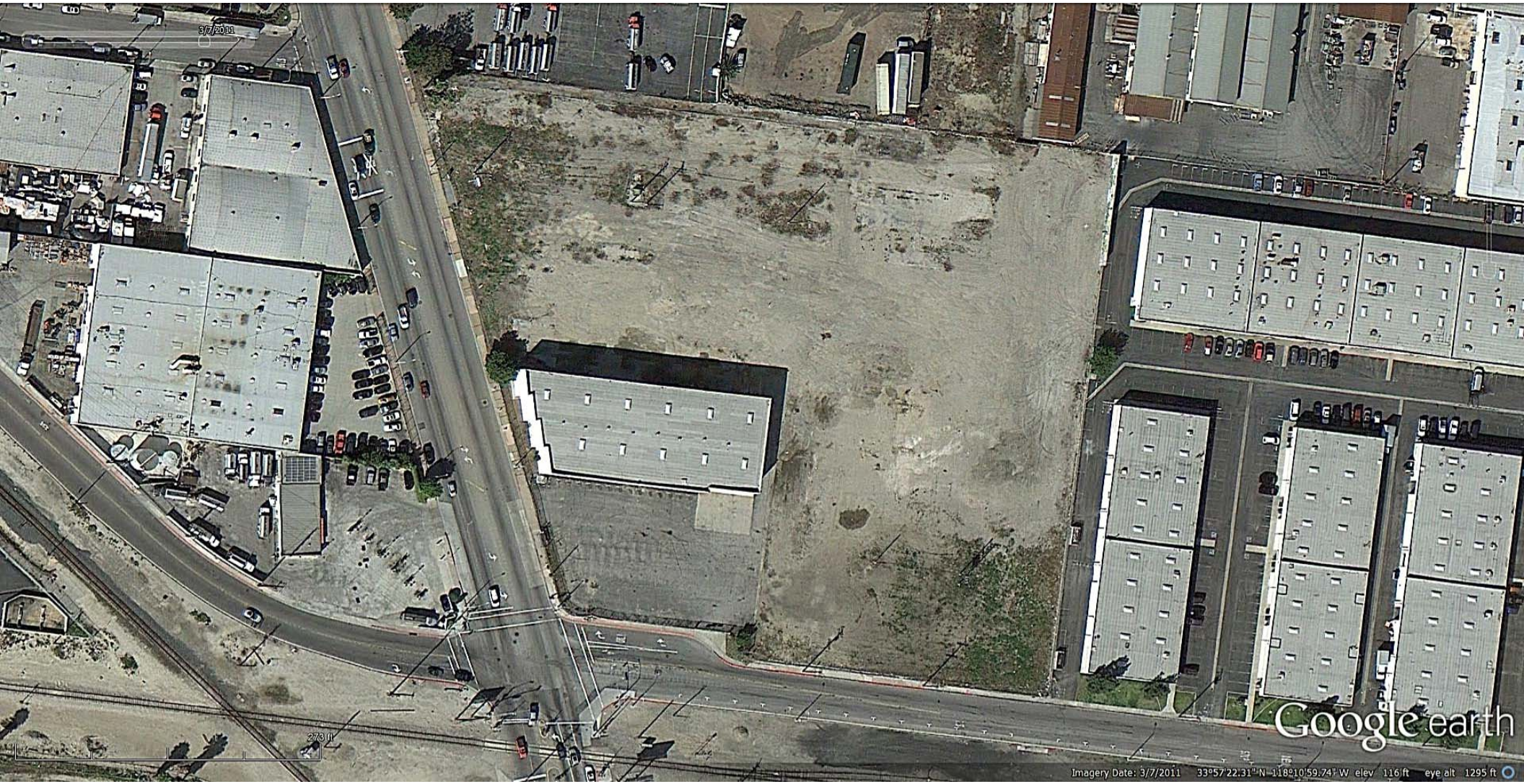
Reference:
Google, 2014


4/23/2014
273 ft
Google earth
Imagery Date: 4/23/2014 33°57'22.31" N 118°10'59.74" W elev 116 ft eye alt 1295 ft


3/7/2011
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Google earth
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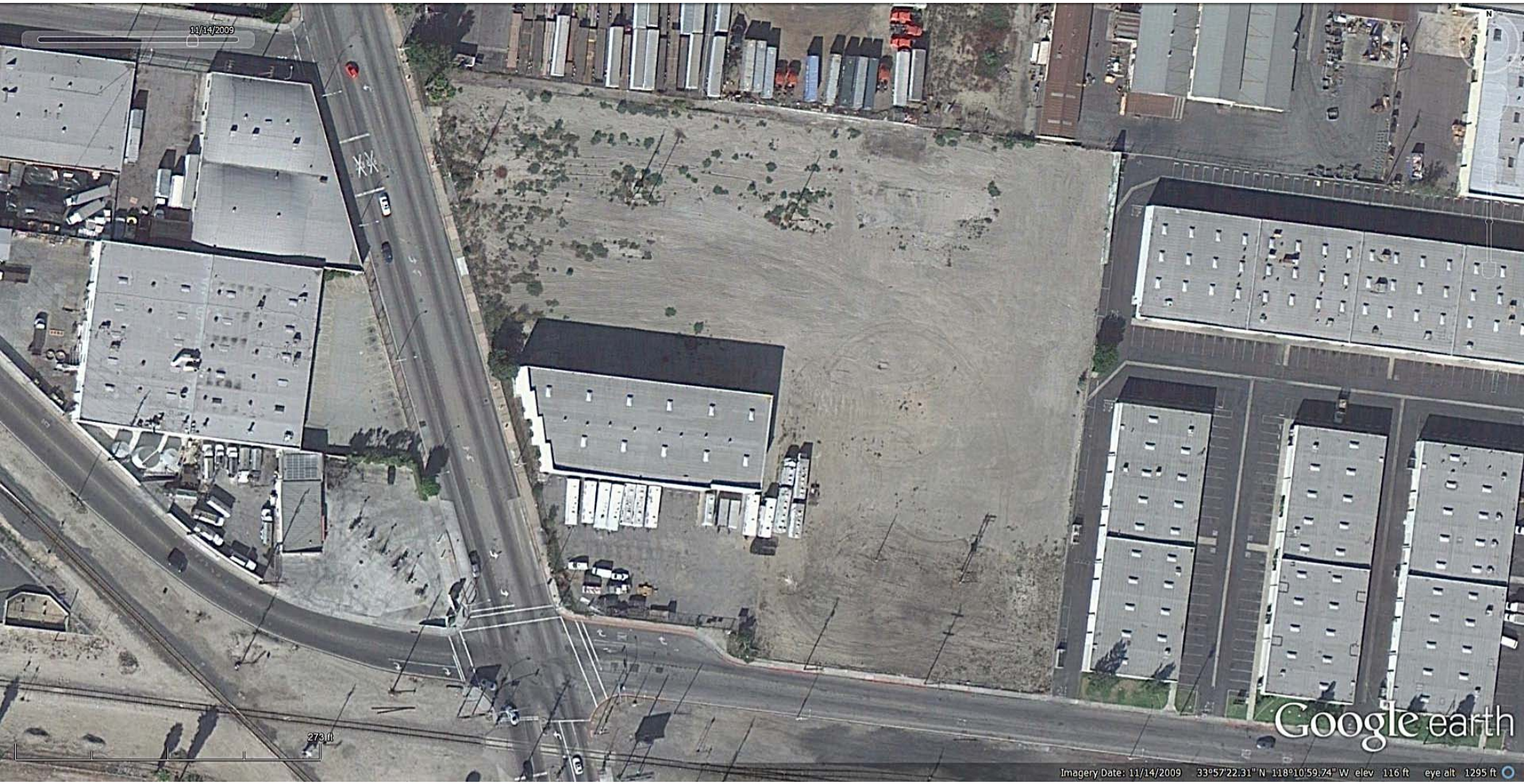
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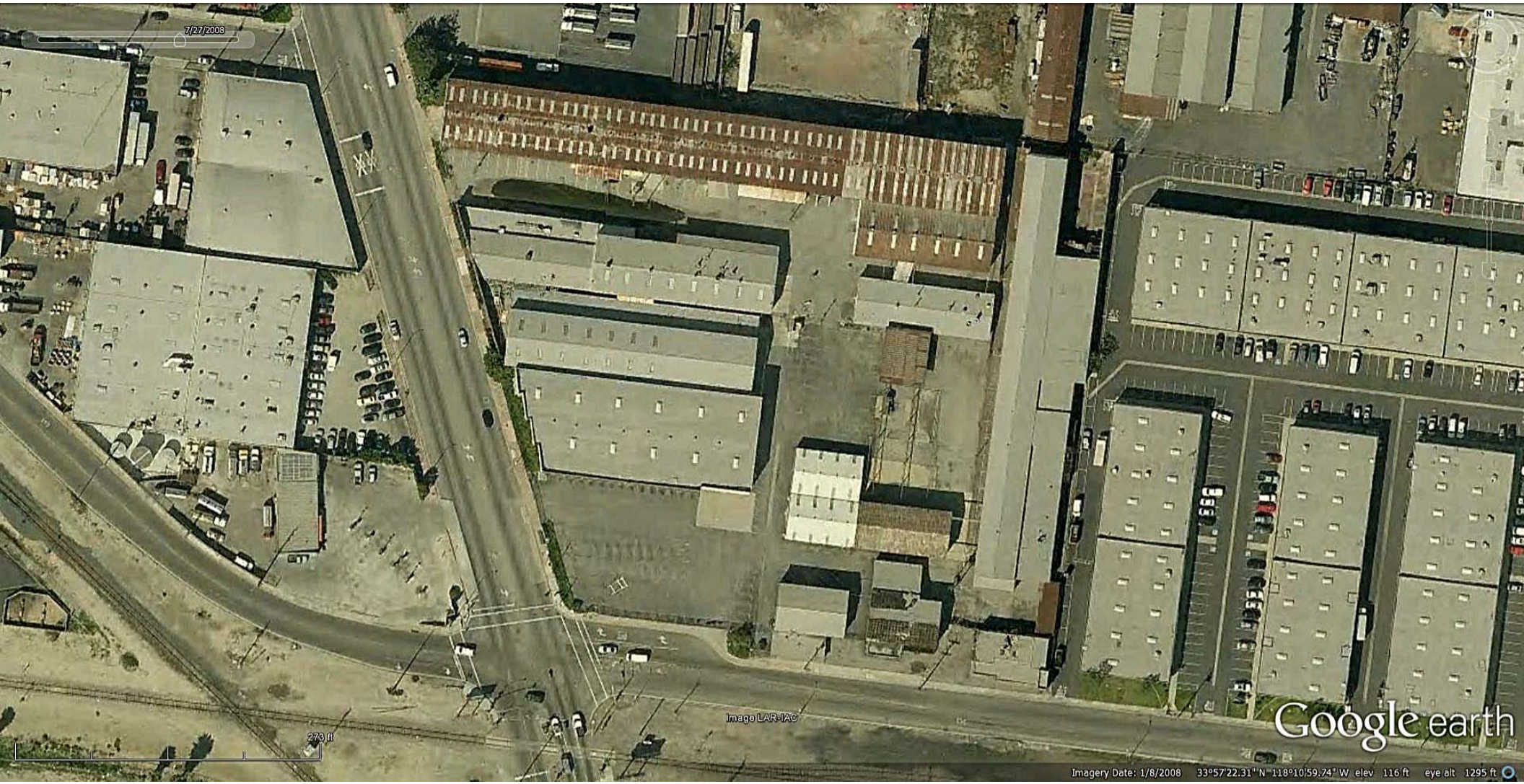
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Image LAR-IAC
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Google earth
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8/23/2005
N
Image © 2014 DigitalGlobe
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Imagery Date: 8/23/2005 33°57'22.31" N 118°10'59.74" W elev 116 ft eye alt 1295 ft

5/8/2003
N
Image © 2014 DigitalGlobe
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Imagery Date: 5/8/2003 33°57'22.31" N 118°10'59.74" W elev 116 ft eye alt 1295 ft

Reference:
HA, 2014

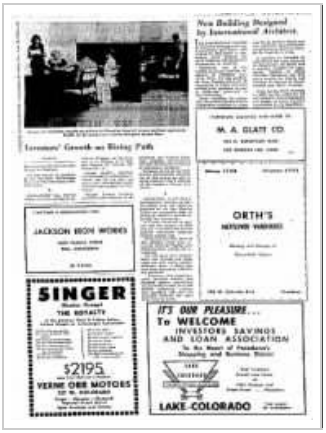
HistoricAerials.com
M. Stephens Mfg. Site
1972

Reference:
ISN, 1959

Independent Star-News

28 June 1959 › Page 62

PREMIUM



Newspaper: Independent Star-News › 1959 › June › 28 June 1959 › Page 62

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There have been no clips on this page.

OCR Text

A sense of relaxation, security yet privacy li offered by Investors' escrow and loan application booths on the association's modern-designed second floor., Investors' Growth on Rising Path lore devoting his lull lime and energy to Investors. lie has served as president ol the Pasadena Advertising Club and has held many other civic posts. PROMINENT -San Gabriel Valley residents serving at In- vcslors Savings as directors' arc; A. G. Marcus, A. C. Nelson, Harvey W. Lieberg and Verne Orr, Jr. Joseph Gaskill, assistant vice-president, is a Rotarian director, and tor the past two years was membership chairman for the Chamber or Com- mcrce. Vaught, Loretla Kingery, secretary anil assistant to the STRUCTURAL i MISCELLANEOUS STEEL JACKSON IRON WORKS 4839 PATATA STREET BELL, CALIFORNIA LU 7-6185 Nciv Building Designed by International Architect, 1 HE DISTINCTIVE DESIGN ol Investors Savings and Loan Association's new home was created by Wenceslao A. Sar- mlento, chief designer tor Bank Building and Equipment Corporation of America. Sarmlcnto, one ol the world's loremost financial designers, is originally Xrom Lima, Peru. He" was graduated from Escucla Nacional de Ingenleros in Lima and then studied post graduate courses at Columbia University In New York City. Â·'. Alter finishing his education, Sarmienlo practiced as an Independent architect in Lima and Rio de Janeiro, Brazil, and was professor ol architectural perspectives at Escuela Nauo- sal de Engcnleros, Lima. - A member of Soclcdad de Argultcctos del Peru, Socicdad de Arquitectos del Brazil and a founder member ol Agru-

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Popular Newspapers

Reference:
Johnson et al., 2011

JOURNAL OF THE AMERICAN WATER RESOURCES ASSOCIATION
Vol. 47, No. 3 AMERICAN WATER RESOURCES ASSOCIATION June 2011

MODELING THE POTENTIAL IMPACT OF SEASONAL AND INACTIVE MULTI-AQUIFER WELLS ON CONTAMINANT MOVEMENT TO PUBLIC WATER-SUPPLY WELLS[1]

R.L. Johnson, B.R. Clark, M.K. Landon, L.J. Kauffman, and S.M. Eberts[2]

ABSTRACT: Wells screened across multiple aquifers can provide pathways for the movement of surprisingly large volumes of groundwater to confined aquifers used for public water supply (PWS). Using a simple numerical model, we examine the impact of several pumping scenarios on leakage from an unconfined aquifer to a confined aquifer and conclude that a single inactive multi-aquifer well can contribute nearly 10% of total PWS well flow over a wide range of pumping rates. This leakage can occur even when the multi-aquifer well is more than a kilometer from the PWS well. The contribution from multi-aquifer wells may be greater under conditions where seasonal pumping (e.g., irrigation) creates large, widespread downward hydraulic gradients between aquifers. Under those conditions, water can continue to leak down a multi-aquifer well from an unconfined aquifer to a confined aquifer even when those multi-aquifer wells are actively pumped. An important implication is that, if an unconfined aquifer is contaminated, multi-aquifer wells can increase the vulnerability of a confined-aquifer PWS well.

(KEY TERMS: groundwater hydrology; simulation; drinking water; nonpoint source pollution; point source pollution; source water protection; water supply.)

Johnson, R.L., B.R. Clark, M.K. Landon, L.J. Kauffman, and S.M. Eberts, 2011. Modeling the Potential Impact of Seasonal and Inactive Multi-Aquifer Wells on Contaminant Movement to Public Water-Supply Wells. *Journal of the American Water Resources Association* (JAWRA) 47(3):588-596. DOI: 10.1111/j.1752-1688.2011.00526.x

INTRODUCTION

Public water-supply (PWS) wells are often sited in confined aquifers because confined systems generally offer more protection from near-surface sources of groundwater contamination than do unconfined aquifers. However, even aquifers beneath laterally extensive confining units can be vulnerable to contamination if natural or man-made preferential flow pathways through the confining unit exist (Santi *et al.*, 2006). This is particularly the case for multi-aquifer wells; that is, wells screened across confining units. Seasonal irrigation wells are important in this context because, in many areas, these wells have been and continue to be installed with long screened intervals that connect multiple aquifers. As a result, they may provide a direct connection between unconfined aquifers and deeper confined aquifers.

At the same time, high-volume pumping (e.g., irrigation) in confined aquifers frequently creates significant downward hydraulic gradients between the

[1]Paper No. JAWRA-09-0184-P of the *Journal of the American Water Resources Association* (JAWRA). Received November 24, 2009; accepted January 12, 2011. © 2011 American Water Resources Association. This article is a U.S. Government work and is in the public domain in the USA. **Discussions are open until six months from print publication**.

[2]Respectively, Professor, Oregon Health & Science University, Portland, Oregon; Hydrologist, U.S. Geological Survey, Little Rock, Arkansas; Hydrologist, U.S. Geological Survey, San Diego, California; Hydrologist, U.S. Geological Survey, West Trenton, New Jersey; and Hydrologist, U.S. Geological Survey, 6480 Doubletree Avenue, Columbus, Ohio 43229 (E-Mail/Eberts: smeberts@usgs.gov).

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confined and overlying unconfined aquifers (Chen *et al.*, 2005). These downward hydraulic gradients can encompass multiple square-kilometer areas. During periods of heavy pumping, it is not uncommon for vertical hydraulic head differences between aquifers to be several meters of water or more (e.g., Chen *et al.*, 2005; Clark *et al.*, 2008). Thus, if wells are screened in both confined and unconfined aquifers, substantial downward flow to the confined aquifer can occur. If shallow groundwater in the vicinity of these wells is contaminated with natural or anthropogenic contaminants, including pathogens, then relatively young contaminated water can quickly reach the confined aquifer without the benefit of attenuation processes otherwise provided by the overlying confining unit.

The goal of the work presented here is to show that a simple numerical model can provide site-specific insight into the potential impact of multi-aquifer wells that are seasonally pumped (e.g., irrigation) and/or inactive (e.g., unused, abandoned and improperly decommissioned wells, test holes) on a confined-aquifer PWS well. As seasonally pumped wells frequently play a controlling role in overall aquifer stress (e.g., Clark *et al.*, 2008), understanding their effect on the movement of potentially contaminated water to PWS wells in confined aquifers also is an important objective of the work presented here.

Previous Studies

The impact of inactive multi-aquifer wells on confined aquifers has been examined previously using both mathematical modeling and field studies. Silliman and Higgins (1990) developed analytical solutions for steady-state flow between aquifers through an open well. More recently, Zinn and Konikow (2007) conducted a numerical modeling study on the effects of wellbores with long screened or open intervals on the transport of water and solutes. Their results demonstrate that inactive wells completed in multiple aquifer layers can transport water and solutes rapidly over large vertical distances. Results were highly dependent on assumed flow conditions, but in all simulations the inactive wells substantially altered the groundwater age distribution in the aquifer. When pumping in proximity to an inactive well was simulated, the inactive well served as a conduit for downward flow of recently recharged (i.e., "young") water to deeper parts of the aquifer, even where the inactive well had served as a conduit for upward flow of older water prior to pumping. Likewise, an earlier modeling study by Lacombe *et al.* (1995) indicated that contaminants from an upper aquifer can rapidly migrate downward along an open or sediment-filled borehole and result in an extensive contaminant plume in a lower aquifer. At the regional scale, wells screened across multiple aquifers have been shown to influence the overall water balance of confined aquifers (Williamson *et al.*, 1989; Hanson *et al.*, 2004; Hart *et al.*, 2006). For example, Hanson *et al.* (2004) used simulations to estimate that wellbore flow represented 19% of total groundwater flow between layered aquifers in the Santa Clara Valley, California.

Delineation of Wellhead Protection Areas in Relation to Multi-aquifer Wells

Since passage of the Amendments to the Safe Drinking Water Act (SDWA) in 1986, an extensive literature on delineation of wellhead protection areas (WHPAs) has developed, including "Guidelines for delineation of wellhead protection areas" (USEPA, 1987) and "Wellhead protection strategies for confined-aquifer settings" (USEPA, 1991). These and other publications use a range of terminologies to describe wellhead protection areas, including one that will be used here. USEPA (1987) defined the "zone of transport" (ZOT) as the 2D projection to land surface defined by "an isochrone indicating the time necessary for water or a conservative contaminant to reach the well."

In the context of contaminant transport to PWS wells, a 40-year time of travel is recommended for differentiating semiconfined and highly confined conditions (USEPA, 1991; Savoca *et al.*, 2002). As an approximation of the area over which multi-aquifer wells would be anticipated to impact a confined-aquifer PWS well, an estimate of the 40-year ZOT can be calculated from the volume of water pumped over 40 years divided by the thickness of the transmissive zone and divided by the porosity of the aquifer [i.e., the so called "cylinder" or "volumetric flow" calculation (USEPA, 1987)].

Numerical models can simulate more realistic conceptual models of groundwater flow than what is simulated with the cylinder model. However, standard approaches for using numerical models to estimate ZOTs (e.g., USEPA, 1987) do not take multi-aquifer wells into account. This is partly because commonly used numerical modeling programs (e.g., MODFLOW, Harbaugh *et al.*, 2000) have not had the capability of simulating wells with screens extending across multiple layers while allowing water to simultaneously flow into and out of different portions of the well screen. This changed for MODFLOW with development of the Multi-Node Well (MNW) package (Halford and Hanson, 2002).

In cases where anthropogenic contaminants have impacted a PWS well, it is typically difficult to document whether or not multi-aquifer wells within the

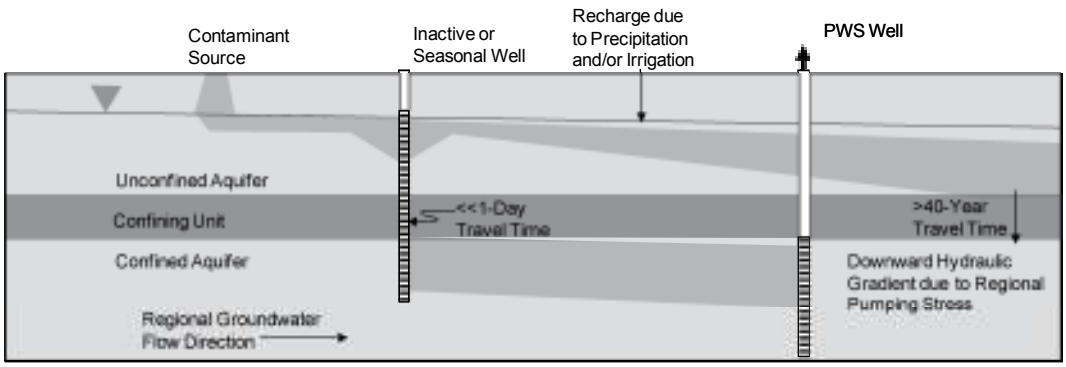

FIGURE 1. Conceptual Drawing Showing the Impact of an Inactive Multi-aquifer Well on Contaminant Movement to a Public Water-Supply Well.

ZOT for the well have played a substantial role. At the same time, it is difficult to determine *a priori* the likelihood that such contamination will occur, even if multi-aquifer wells are known to be present in a given study area. Johnson *et al.* (2000) used a probabilistic approach to estimate the potential impact of releases to shallow groundwater on PWS wells. The focus of that work was on releases from underground storage tanks near the water table. Their numerical modeling analysis indicated that, for most scenarios, there was a pumping rate threshold below which contamination would not be drawn down to the PWS well screen. Not surprisingly, that analysis showed that a confining unit between the water table and the PWS well screen substantially increased that threshold. In the work discussed here, it is shown that the threshold may be reduced or eliminated by rapid transport (leaking) from an overlying unconfined aquifer into a confined aquifer because of the presence of one or more multi-aquifer wells (Figure 1) and downward hydraulic gradients across the confining unit due to regional pumping (e.g., for irrigation and or PWS).

To demonstrate that simple models can be used to assess the potential impact of multi-aquifer wells on confined-aquifer PWS wells, we use a well-studied example from York, Nebraska (Clark *et al.*, 2008; Landon *et al.*, 2008). At that location, U.S. Geological Survey researchers identified 62 multi-aquifer production wells (primarily irrigation wells) and test holes in an ≈62-km^2 area – a density of approximately 1 multi-aquifer well per km^2. Interspersed among the multi-aquifer wells were 58 confined-aquifer wells. Heavy pumping from the confined aquifer put a significant hydraulic stress on the aquifer and resulted in downward hydraulic gradients of more than 10 m throughout the area during irrigation seasons (Landon *et al.*, 2008).

Using aquifer and pumping conditions similar to those in York, a volumetric calculation of the 40-year ZOT for a confined-aquifer PWS well gives an area of ≈12 km^2 and suggests that ≈12 multi-aquifer wells could lie within the ZOT (Table 1, top). Assuming an annual average regional downward hydraulic gradient of 3 m, the volume of water that would be estimated to leak down an inactive multi-aquifer well for

TABLE 1. Calculation of a 40-Year Zone of Transport, Number of Multi-aquifer Wells Potentially Impacting a Public Water-Supply Well, and Volumetric Flow Down an Inactive Multi-aquifer Well: Example for Confined-Aquifer Setting Similar to York, Nebraska.

Daily pumping rate	1,200 m^3/day
Total volume pumped over 40 years	17,520,000 m^3
Aquifer thickness	10 m
Effective aquifer porosity	0.15
40-year zone of transport	17,520,000 m^3/10 m/0.15 ≈12 km^2
Estimated density of multi-aquifer wells	1.0 well/km^2
Number of multi-aquifer wells potentially impacting the PWS well	12 km^2 × 1.0 well/km^2 12 wells
$Q = 2\ K_C b_C (H_U \quad H_C)/\ln(r_C/r_W)$ where, K_C is the hydraulic conductivity of the confined aquifer (≈9 m/day), b_C is the thickness of the confined aquifer (≈10.5 m), ($H_U \quad H_C$) is the hydraulic head difference across the confining unit (3 m), r_C is the radius at which the hydraulic head is measured in the confined aquifer (assumed here to be 100 m, at which point the confined head will likely not be significantly influenced by flow down the leaking well), and r_W is the radius of the well (0.1 m, assumed) (Silliman and Higgins, 1990)[1]	
Volumetric flow down inactive multi-aquifer well	
≈2 × 9 × 10.5 × 3/ln(100/0.1)	
≈260 m^3/day	
≈0.06 million gallons per day	

Note: PWS, public water supply.

[1]Assumptions inherent in this calculation include that the hydraulic head in the well equals that in the unconfined aquifer and the well is fully screened across the confined aquifer. The flow calculated by this equation may be significantly reduced if there is resistance to flow through the well (see, for example, the discussion in Halford and Hanson, 2002).

the York example is ≈260 m^3/day (Table 1, bottom). Taken together, the total volume leaked down the 12 wells potentially within the 40-year ZOT (≈3,120 m^3/day) is significantly greater than the typical pumping rates for PWS wells near York (400-2,000 m^3/day). Thus, if one or more inactive, multi-aquifer wells were contaminated, there could be a potentially significant impact on a PWS well. Of course, both the presence of multi-aquifer wells and seasonal pumping would affect the ZOT for a PWS well, but their combined effect cannot be estimated using the simple calculations in Table 1. However, as shown below, a simple numerical model can be used to take these interactions into account.

METHODS

Schematic plan and cross-section views for a simple numerical model of a confined-aquifer setting similar to York, Nebraska are shown in Figure 2. The model domain is 16 km long by 8 km wide by ≈63 m thick and is composed of 11 layers with grid blocks that are 40 m on a side. To simulate the regional groundwater flow, "constant-head" boundaries were used on the "short" sides – 74.9 and 59.4 m for the left and right sides respectively. "No-flow" boundaries were used on the "long" sides of the model domain because (1) the effects of pumping the PWS well extended only ≈2 km beyond the well, (2) these boundaries are approximately parallel to the regional groundwater flow direction, and (3) it is reasonable to assume that regionally extensive irrigation pumping is similar inside and outside the model domain and that the model boundaries are, therefore, lines of symmetry. Water-table conditions were assumed in the unconfined aquifer, and no-flow conditions were assumed along the bottom boundary. Recharge was applied at 0.0001 m/day, except in the vicinity of irrigation wells for the four months each year when water was applied. For recharge during irrigation, the application rate was 0.00025 m/day to a 1-km^2 rectangle centered on each irrigation well.

In the vicinity of the PWS well, the confined aquifer is represented by three layers at the bottom of the model with an overall thickness of 10.5 m and with horizontal hydraulic conductivity values of 6.1-15 m/day (Table 2, adapted from Clark *et al.*, 2008). The confined aquifer is overlain by a 22.4-m-thick confining unit with a horizontal hydraulic conductivity of

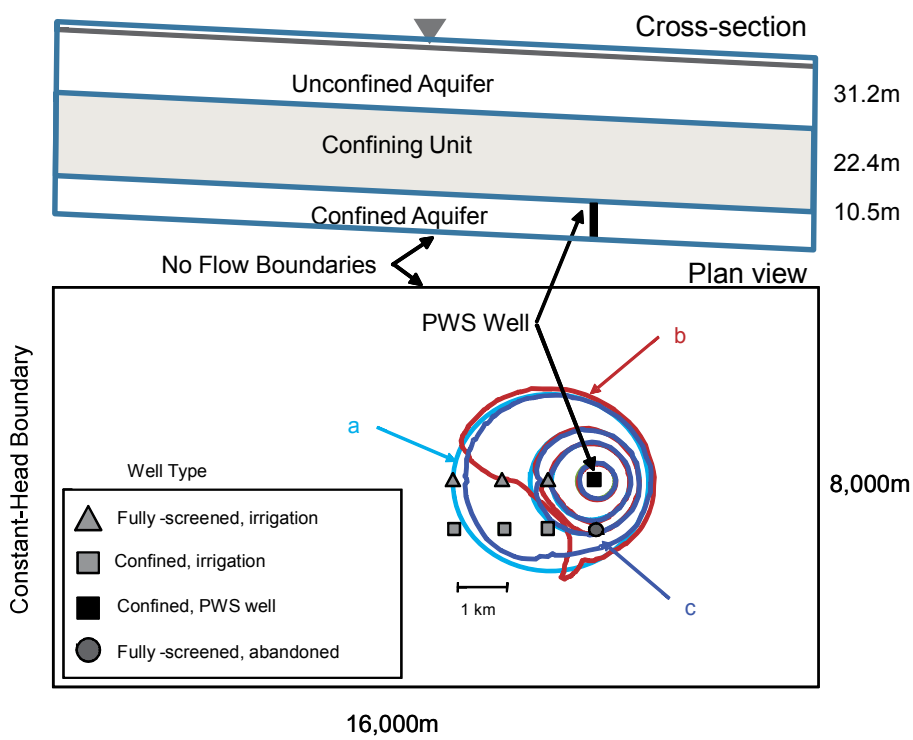

FIGURE 2. Map Showing Simplified Numerical Model Domain and Simulated Effects of Multi-aquifer Wells on Flow to a Confined-Aquifer Public Water-Supply (PWS) Well. The extent of the simulated 1-, 5-, 10-, and 40-year zones of transport (ZOT) in the confined aquifer for the PWS well are shown for the (a) PWS-well-only scenario, (b) seasonal scenario, and (c) inactive scenario. The pumping rate at the PWS well for these model results was 1,200 m^3/day.

TABLE 2. Model Parameters Used in the Simplified Numerical Model (adapted from Clark *et al.*, 2008).

Layer	Thickness (m)	Horizontal (m/day)	Vertical (m/day)	Porosity	Specific Storage	Specific Yield	Representative Aquifer or Unit
1	4.2	55	1.5	0.15	0.00001	0.15	Unconfined aquifer
2	18.6	55	1.5	0.15	0.00001	0.15	Unconfined aquifer
3	4.2	34	1.1	0.15	0.00001	0.15	Unconfined aquifer
4	4.2	12	0.4	0.15	0.00001	0.15	Unconfined aquifer
5	5.6	0.03	0.001	0.35	0.00001		Confining unit
6	5.6	0.03	0.001	0.35	0.00001		Confining unit
7	5.6	0.03	0.001	0.35	0.00001		Confining unit
8	5.6	0.03	0.001	0.35	0.00001		Confining unit
9	3.5	6.1	0.2	0.15	0.00001		Confined aquifer
10	3.5	15	0.5	0.15	0.00001		Confined aquifer
11	3.5	6.1	0.2	0.15	0.00001		Confined aquifer

0.03 m/day. A 31.2-m-thick unconfined aquifer with horizontal hydraulic conductivity values from 12 to 55 m/day overlies the confining unit. A vertical anisotropy value of 30 was used for all layers in these simulations.

The model domain described above was used to examine three different scenarios. First, a single PWS well and steady recharge were simulated. No additional wells were included in this simulation ("PWS-well-only" scenario). Second, the PWS-well-only scenario was simulated with the addition of six seasonal irrigation wells and one abandoned well ("seasonal" scenario) (see Figure 2, plan view, for well configuration). Third, the seasonal scenario was simulated without any pumping for irrigation ("inactive" scenario). To assess sensitivity of the results to PWS well pumping, three different PWS well pumping rates were examined in each scenario (400, 1,200, and 2,000 m^3/day or approximately 0.1, 0.3, and 0.5 million gallons per day). For the seasonal scenario, the irrigation wells were pumped at a rate of 1,200 m^3/day per well for a four-month period and then were inactive for the remaining eight months of each year. Three of the six irrigation wells were fully screened across the model domain, and three were screened only in the confined aquifer (Figure 2). All of the wells were simulated using MODFLOW 2000 (Harbaugh *et al.*, 2000) and the MNW package (Halford and Hanson, 2002).

For each model scenario and pumping rate, ZOTs were estimated using backward particle tracking in MODPATH (Pollock, 1994). This was accomplished by starting particles in an array on each face of the cells representing the PWS well. Particles were tracked backwards within the confined aquifer until they reached a source of water (in this case, MNW cells that leaked water) or until the desired travel time (1, 5, 10, or 40 years) was reached. The ZOTs were then calculated using the maximum horizontal extent of the tracked particles within the confined aquifer for each travel time.

To determine the fractions of leaked water reaching the PWS well within 40 years or less travel time, forward particle tracking in MODPATH was used. Particles were started on the faces of model cells where there was a source of flow from an MNW. The particles were released during the first year of the simulation and tracked until they reached a pumping well or the end of the 40-year simulation period. The cells representing the PWS wells were strong sinks, so a volume of water could be assigned to each tracked particle by dividing the flow across the model-cell face where a particle was started by the number of particles started on that face. The percentage of water pumped by the PWS well that originated as leakage down a given up-gradient multi-aquifer well was computed by summing the volumes associated with the particles released in the leaking MNW cells that reached the PWS well, dividing the computed volume by the volume of water pumped at the PWS well, and multiplying by 100.

RESULTS AND DISCUSSION

A steady-state simulation for the PWS-well-only scenario at the middle pumping rate (1,200 m^3/day) produced a 40-year ZOT in the confined aquifer of 11.6 km^2 (Figures 2 and 3). This value is similar to the simple cylinder model calculation presented in Table 1 ($\approx$12 km^2). The 40-year ZOT for the seasonal scenario was notably smaller (8.8 km^2) because much of the water pumped at the PWS well was supplied by leakage down the abandoned well and the nearest multi-aquifer irrigation well (Table 3). The shape of the 40-year ZOT in this scenario was affected by pumping at the confined-aquifer irrigation wells. The size of the 40-year ZOT for the inactive scenario was between those computed for the PWS-well-only and the seasonal scenarios because some of the water

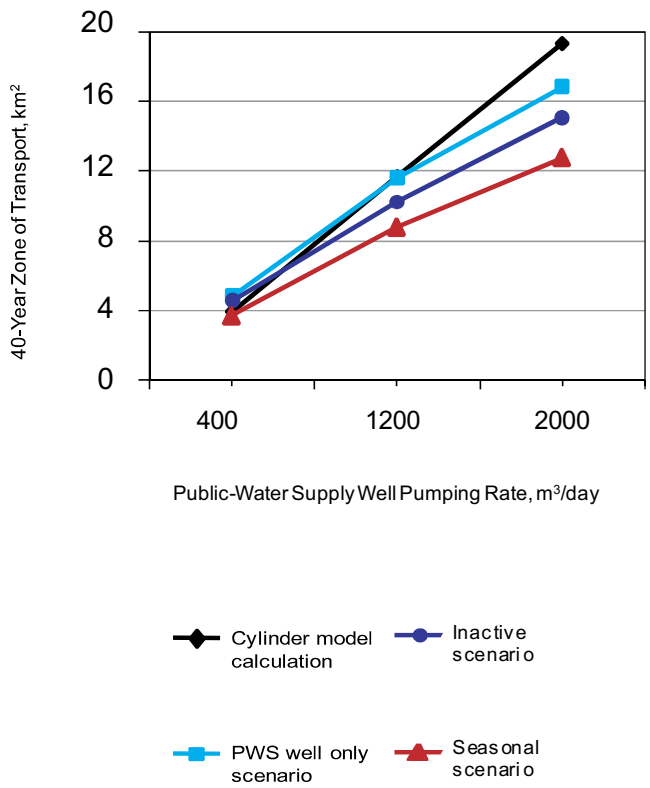

FIGURE 3. Graph Showing 40-Year Zones of Transport for Various Public Water-Supply (PWS) Well Pumping Rates in the Simplified Numerical Model.

pumped at the PWS well was supplied by leakage down multi-aquifer wellbores, but, as discussed below, flow down the multi-aquifer wells for the inactive case was less than for the seasonal case because the downward hydraulic gradients were smaller. The one- and five-year ZOTs for the three different scenarios were essentially the same because the ZOTs did not extend beyond the closest multi-aquifer wells (Figure 2).

As in many confined aquifer settings developed for water supply, hydraulic head differences were observed across the confining unit in the simulated scenarios. For the PWS-well-only scenario with a pumping rate of 1,200 m^3/day, differences of a meter or more were observed in the vicinity of the PWS well (Figure 4a). In contrast, when the seasonal wells were active, hydraulic head differences of more than a meter were observed throughout most of the model domain (Figure 4b). When the irrigation wells were present but not pumped (the inactive scenario; Figure 4c), the hydraulic head differences were similar to those in the PWS-well-only scenario.

Differences in the vertical hydraulic gradients among the scenarios resulted in differences in the multi-aquifer wells that contributed flow to the PWS well and the amount of water leaked down the multi-aquifer wells (Table 3). Not all of the leaked water reached the PWS well during the simulations. For the seasonal scenario, however, multi-aquifer wells contributed a total of about 20% of the flow to the PWS well regardless of the pumping rate at the PWS well. This is because the three confined-aquifer irrigation wells collectively had a greater influence on vertical hydraulic gradients – and thus the downward flow of water to the confined aquifer – than did the PWS well. The smaller vertical hydraulic gradients in

TABLE 3. Wellbore Leakage Rates and Percents of PWS Well Flow Rates from Multi-aquifer Wells.

		PWS Well Pumping Rate (m^3/day)					
		Inactive Scenario (no irrigation pumping)			Seasonal Scenario (seasonal irrigation pumping)		
Well	**Distance From PWS Well (km)**	**2,000**	**1,200**	**400**	**2,000**	**1,200**	**400**
Net wellbore flow rate from unconfined to confined aquifer (m^3/day)[1]							
Abandoned well	1	153	95	37	195	137	80
Multi-aquifer irrigation well	1	149	92	36	176	120	64
Multi-aquifer irrigation well	2	49	32	16	86	70	54
Multi-aquifer irrigation well	3	23	17	11	52	46	40
All wells (abandoned + three irrigation wells)		374	237	100	510	373	237
Percent of water pumped at the PWS well from multi-aquifer wellbore leakage 40 years after leakage began							
Abandoned well	1	8	8	0	10	11	6
Multi-aquifer irrigation well	1	7	8	9	9	10	13
Multi-aquifer irrigation well	2	2	2	2	2	0	0
Multi-aquifer irrigation well	3	1	0	0	0	0	0
All wells (abandoned + three irrigation wells)		17	17	11	20	21	20

Notes: PWS, public water supply; MNW, Multi-Node Well.
[1]Inactive scenario values from the MODFLOW MNW QSUM file. Seasonal scenario values derived from the MODFLOW MNW QSUM file; reported rates are averages from the time steps representing the last year of the simulation weighted by the time-step lengths.

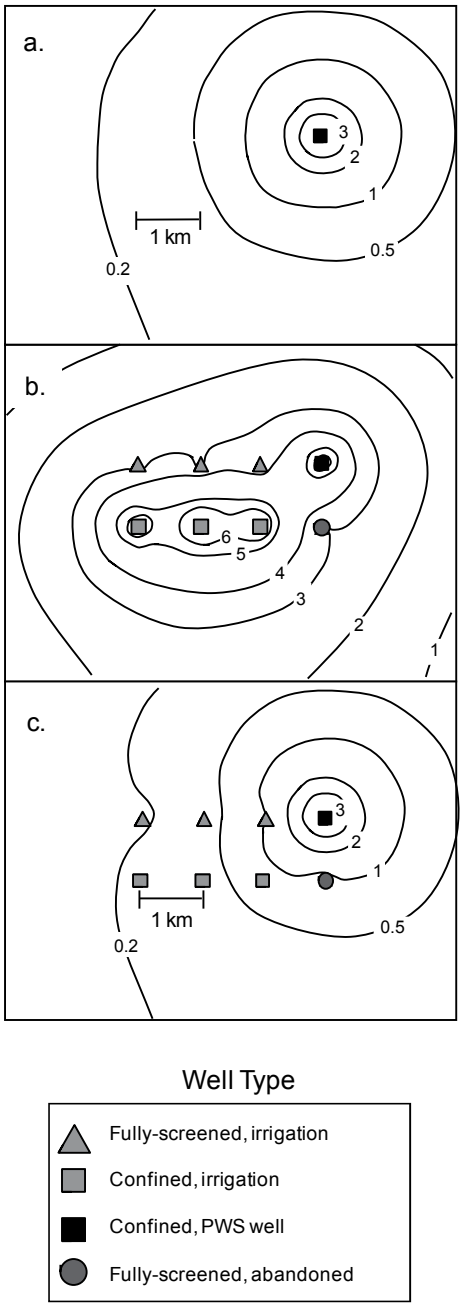

FIGURE 4. Contours of Hydraulic Head Difference Between the Confined and Unconfined Aquifers (in meters) During Irrigation and Nonirrigation Conditions. Scenarios are (a) PWS-well-only, (b) seasonal, and (c) inactive.

the inactive scenario resulted in less water leaked down individual multi-aquifer wells. Consequently, the volume of water needed to satisfy the pumping demand at the PWS well had to come from a larger area, and more multi-aquifer wells contributed flow to the PWS well. Unlike in the seasonal scenario, however, the pumping rate at the PWS well in the inactive scenario affected the percentage of leaked water that reached the PWS well. The smallest percentage of leaked water produced by the PWS well (11%) was for the inactive scenario simulation with the lowest pumping rate (400 m^3/day). Both the inactive and seasonal scenarios demonstrated that nearly 10% of the water produced by a confined-aquifer PWS well can come through a single multi-aquifer well (Table 3), even when the well is a kilometer away from the PWS well.

Interestingly, for the multi-aquifer irrigation wells, water continued to flow from the unconfined aquifer to the confined aquifer even when the wells were actively pumped. For example, the model indicated that if the total flow out of each multi-aquifer irrigation well was 1,200 m^3/day, then flow from the unconfined aquifer into the irrigation wells ranged from 1,246 to 1,320 m^3/day (determined near the end of the four-month irrigation period). At the same time, a portion of the water that entered the wells from the unconfined aquifer (46-120 m^3/day) flowed down the wells and *out* of the lower portions of the same irrigation wells into the confined aquifer. This occurred because the pumping rate at the multi-aquifer irrigation wells was too low to overcome the downward flow of water between aquifers that resulted from the large downward hydraulic gradients established in response to pumping at the confined-aquifer wells.

In the absence of multi-aquifer wells (i.e., the PWS-well-only scenario), travel times associated with water flowing from the unconfined aquifer through the confining unit to the confined aquifer were >40 years. In contrast, the model indicated that if a multi-aquifer well was 1 km from the PWS well and the PWS pumping rate was 1,200 m^3/day, water moving down the multi-aquifer well could reach the PWS well after ≈5 years of travel. Although the model presented here is conceptually simple and contains far fewer multi-aquifer wells than are reported for York, Nebraska, conclusions drawn from the model results are similar to those reached by Clark *et al.* (2008) based on the more-detailed numerical model constructed for the York area.

In other settings, the impact of multi-aquifer wells could be different. For example, a higher hydraulic conductivity in the confined aquifer for a given hydraulic head difference between aquifers would result in a higher flow rate out of the well and into the confined aquifer. However, given similar boundary conditions, a higher hydraulic conductivity would lead to a smaller hydraulic head difference and therefore a smaller flow rate out of the well. Thus, if the impact of multi-aquifer wells on a PWS well is to be explored using a simple numerical model, the model should be constructed to represent the setting of interest.

IMPLICATIONS FOR PROTECTION OF PUBLIC WATER-SUPPLY WELLS

Predicting the impact of contaminants on a PWS well due to leaking multi-aquifer wells is, in general, not possible. However, the modeling steps described here can provide site-specific insight into the potential for multi-aquifer wells to affect a confined-aquifer PWS well. First, the ZOT for the PWS well can be estimated to assess whether a multi-aquifer well might present a problem. The ZOT should be defined within the confined aquifer (rather than, for example, only considering water reaching the well from the water table within a specific time period). This is because multi-aquifer wells can reduce or eliminate any protection offered by transport through either the unconfined aquifer or the confining unit. Second, site-specific vertical hydraulic gradient data should be obtained so that the volumetric flow down inactive wells from the unconfined aquifer to the confined aquifer can be estimated using the approach developed by Silliman and Higgins (1990). Third, if the setting of interest has complexities such as numerous inactive or seasonally active multi-aquifer wells, the kind of simple numerical model discussed here can be constructed to better understand the potential contributions of those wells to the PWS well.

Although the focus here has been on volumetric water flow rather than water quality, estimates of volumetric flow through multi-aquifer wells do provide insight into the issue of contamination of PWS wells. The numerical modeling data from this study suggest that, if a leaking multi-aquifer well lies within the ZOT of a PWS well, on the order of 10% of the total PWS flow could come from that well. Stated another way, water produced from the PWS well could be expected to have concentrations that are within a factor of 10 of the concentration leaked into the confined aquifer via the multi-aquifer well. As a result, if a leaky well were contaminated, it is likely that the contaminant concentration would be high enough to impact water quality at the PWS well.

For the simulations presented here, seasonal pumping had a controlling impact on the hydraulic gradient across the confining unit during the irrigation season (i.e., when in operation, irrigation wells – especially those screened in the confined aquifer alone – placed substantial stress on the confined aquifer). An important and unexpected result for the case examined here was that, during irrigation, water levels in the multi-aquifer wells remained above the potentiometric surface for the stressed confined aquifer. As a result, water entering those wells flowed from the unconfined aquifer to the confined aquifer under both inactive and actively pumped conditions. In addition, active pumping of the irrigation wells had the potential to draw contaminants to the irrigation wells through the unconfined aquifer at the same time they continued to leak water from the unconfined aquifer to the confined aquifer.

A national survey of PWS wells concluded that anthropogenic volatile organic contaminants (VOCs) were nearly as likely to be found in water from confined aquifers as from unconfined aquifers (62 *vs.* 67% probability of detection) (Squillace and Moran, 2007). For VOC contamination of a confined aquifer to occur, both downward hydraulic gradients and preferential flow pathways through the confining layer are likely to be necessary. Thus, the Squillace and Moran data suggest that preferential flow pathways may occur frequently. Although multi-aquifer wells represent only one type of preferential flow pathway, the modeling results presented here indicate that, where they exist, multi-aquifer wells could be a major factor contributing contaminants to impacted confined-aquifer PWS wells. As a result, multi-aquifer wells, including those that are seasonally active, can lead to situations that may affect public health.

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LITERATURE CITED

Chen, X., Y. Yin, J.W. Goeke, and R.F. Diffendal, Jr., 2005. Vertical Movement of Water in a High Plains Aquifer Induced by a Pumping Well. Environmental Geology 47(7):931-941.

Clark, B.R., M.K. Landon, L.J. Kauffman, and G.Z. Hornberger, 2008. Simulations of Ground-Water Flow, Transport, Age, and Particle Tracking Near York, Nebraska, for a Study of Transport of Anthropogenic and Natural Contaminants (TANC) to Public Supply Wells. U.S. Geological Survey Scientific Investigations Report 2007-5068, Reston, Virginia. http://pubs.usgs.gov/sir/2007/5068/, *accessed* September 2010.

Halford, K.J. and R.T. Hanson, 2002. User Guide for the Drawdown-Limited, Multi-Node Well (MNW) Package for the U.S. Geological Survey's Modular Three-Dimensional Finite-Difference Ground-Water Flow Model, Versions MODFLOW-96 and MODFLOW-2000. U.S. Geological Survey Open-File Report 2002-293, Reston, Virginia. http://pubs.er.usgs.gov/usgspubs/ofr/ofr02293, *accessed* September 2010.

Hanson, R.T., Li. Zhen, and C.C. Faunt, 2004. Documentation of the Santa Clara Valley Regional Ground-Water/Surface-Water Flow Model, Santa Clara County, California. U.S. Geological Survey Scientific Investigations Report 2004-5231, Reston, Virginia. http://pubs.er.usgs.gov/usgspubs/sir/sir20045231, *accessed* September 2010.

Harbaugh, A.W., E.R. Banta, M.C. Hill, and M.G. McDonald, 2000. MODFLOW-2000, the U.S. Geological Survey Modular Ground-Water Model – User Guide to Modularization Concepts and the Ground-Water Flow Process. U.S. Geological Survey Open-File Report 2000-92, Reston, Virginia. http://pubs.er.usgs.gov/usgspubs/ofr/ofr200092, *accessed* September 2010.

Hart, D.J., K.R. Bradbury, and D.T. Feinstein, 2006. The Vertical Hydraulic Conductivity of an Aquitard at Two Spatial Scales. Ground Water 44(2):201-211.

Johnson, R., J. Pankow, D. Bender, C. Price, and J. Zogorski, 2000. MTBE – To What Extent Will Past Releases Contaminate Community Water Supply Wells? Environmental Science & Technology 34(9):210A-217A.

Lacombe, S., E.A. Sudicky, S.K. Frape, and A.J. A Unger, 1995. Influence of Leaky Boreholes on Cross-Formational Groundwater Flow and Contaminant Transport. Water Resources Research 31(8):1871-1882.

Landon, M.K., B.R. Clark, P.B. McMahon, V.L. McGuire, and M.J. Turco, 2008. Hydrogeology, Chemical Characteristics, and Transport Processes in the Zone of Contribution of a Public-Supply Well in York, Nebraska. U.S. Geological Survey Scientific Investigations Report 2008-5050, Reston, Virginia. http://pubs.er.usgs.gov/usgspubs/sir/sir20085050, *accessed* September 2010.

Pollock, D.W., 1994. User's Guide for MODPATH/MODPATH-PLOT, Version 3: A Particle Tracking Post-Processing Package for MODFLOW, the U.S. Geological Survey Finite-Difference Ground-Water Flow Model. U.S. Geological Survey Open-File Report 94-464, Reston, Virginia. http://pubs.er.usgs.gov/usgspubs/ofr/ofr94464, *accessed* September 2010.

Santi, P.M., J.E. McCray, and J.L. Martens, 2006. Investigating Cross-Contamination of Aquifers. Hydrogeology Journal 14:51-68.

Savoca, M.E., K.J. Lucey, and B.D. Lanning, 2002. Simulation of Ground-Water Flow and Delineation of Areas Contributing Recharge to Municipal Water-Supply Wells, Muscatine, Iowa. U.S. Geological Survey Water-Resources Investigations Report 02-4004, Reston, Virigina. http://pubs.er.usgs.gov/usgspubs/wri/wri024004, *accessed* September 2010.

Silliman, S. and D. Higgins, 1990. Analytical Solution for Steady-State Flow Between Aquifers Through an Open Well. Ground Water 28(2):184-190.

Squillace, P.J. and M.J. Moran, 2007. Factors Associated With Sources, Transport, and Fate of Volatile Organic Compounds and Their Mixtures in Aquifers of the United States. Environmental Science & Technology 41(7):2123-2130.

USEPA (U.S. Environmental Protection Agency), 1987. Guidelines for Delineation of Wellhead Protection Areas. EPA-440/5-93-001, Washington, D.C.

USEPA (U.S. Environmental Protection Agency), 1991. Wellhead Protection Strategies for Confined-Aquifer Settings. EPA 570/9-91-008, Washington, D.C.

Williamson, A.K., D.E. Prudic, and L.A. Swain, 1989. Ground-Water Flow in the Central Valley, California. U.S. Geological Survey Professional Paper 1401-D. http://pubs.er.usgs.gov/usgspubs/pp/pp1401D, *accessed* September 2010.

Zinn, B.A. and L.F. Konikow, 2007. Effects of Intraborehole Flow on Groundwater Age Distribution. Hydrogeology Journal 15:633-643.

Reference:
LACA, 2014

Parcel Details

- Property records are kept at the South District Office
- How frequently is this site updated? (and other FAQs)

Property Information

Assessor's ID No:	6224-034-040
Address:	8420 S ATLANTIC AVE CUDAHY CA 90201
Property Type:	Commercial / Industrial
Region / Cluster:	26 / 26820
Tax Rate Area (TRA):	00639

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Latest Sale Date:

Indicated Sale Price:

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2014 Roll Values

Recording Date:	01/17/2012
Land:	$463,133
Improvements:	$786,916
Personal Property:	$0
Fixtures:	$0
Homeowners' Exemption:	$0
Real Estate Exemption:	$0
Personal Property Exemption:	$0
Fixture Exemptions:	$0

- 2014 Annual taxes
- Property tax payment FAQs
- Estimate supplemental taxes

Property Boundary Description

TR=180 N 150 FT MEASURED AT R/A TO N LINE EX OF ST OF LOT 246

Building Description

Building Improvement 1

Square Footage:	19,401
Year Build / Effective Year Built:	1987 / 1988
Bedrooms / Bathrooms	0 / 0
Units	0

6224	34 SHEET	P. A. 1843 - 34	TRA 631 639	REVISED 2009102005006001-26 2009102005006002-26	2009120705005001-26 2009120705006001-26			SEARCH NO		OFFICE OF THE ASSESSO COUNTY OF LOS ANGELE COPYRIGHT © 2002

2010

Reference:
LACSD, 1992

See original in file #877
~~in I-11513-2Y~~
(I 092017340)

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER-FACILITIES
SANITATION DIVISION
INVESTIGATION REPORT

Complaintant Rani Iyer / LA CO. DPW
Address 900 S. Fremont / Alhambra Phone (818) 458-3560
Firm Name M. Stephans Mfg. Co. / Grating Pacific Inc.
Location Address 8420 S. Atlantic Bl. / 4839 Patata St.
Date(s) of Occurrence Ongoing

Rec'd by Robert Hartley
Date 4/1/92 Time 10:00am
Assigned to Edward Calleros
Referal: CRWQCB ( )SMD( ) LACoFCD ( ) LACoHD ( ) Other

Nature of complaint(violation) Check # of tanks existing or removed? Name of owner/operator? Are sights one & the same? Any tanks exist at 4827 or 4819 Patata St.?

Special Instructions Investigate

REPORT: (Narrative description of observations including physical condition of site, types of materials and chemicals, trade names, extent of waste flow, damage observed, statements of witnesses, preventive measures taken, location of sample points and directives given to alleged discharger.)

On Tues Apr. 6, 1992 I investigated the site. I immediately went to the main offices of M. Stephens Mfg. located at 8420 S. Atlantic Bl. Mr. Sam Friedman welcomed me and asked what I needed to know or investigate. I explained to him the nature of my visit and he proceeded to explain some discrepancies with my files. First, 8420 Atlantic (I-877-2Y) & 4839 Patata (I-11513-2Y) are owned by the same corporation (M. Stephens Mfg.). Second, 1-10,000 gal tank was removed from (I-877-2Y) and 1-1500 & 1-500 gal tank were removed from (I-11513-2Y). No other tanks exist at these sites or any other neighboring sites such as 4827 or 4819 Patata. The Owner/operator of both sites is M. Stephens Mfg. Inc (OVER)

Witness/Contact Samuel W. Friedman Address/Title Chief Executive Administr. Phone (213) 560-8301
Witness/Contact ____ Address/Title ____ Phone ____
Witness/Contact ____ Address/Title ____ Phone ____

Sample(s) taken none Delivered to ____ Photos attached( ) Ad'l pgs (X)
Citation Issued ( )Yes (X)No Type ____ Ord. ____ Section(s) ____

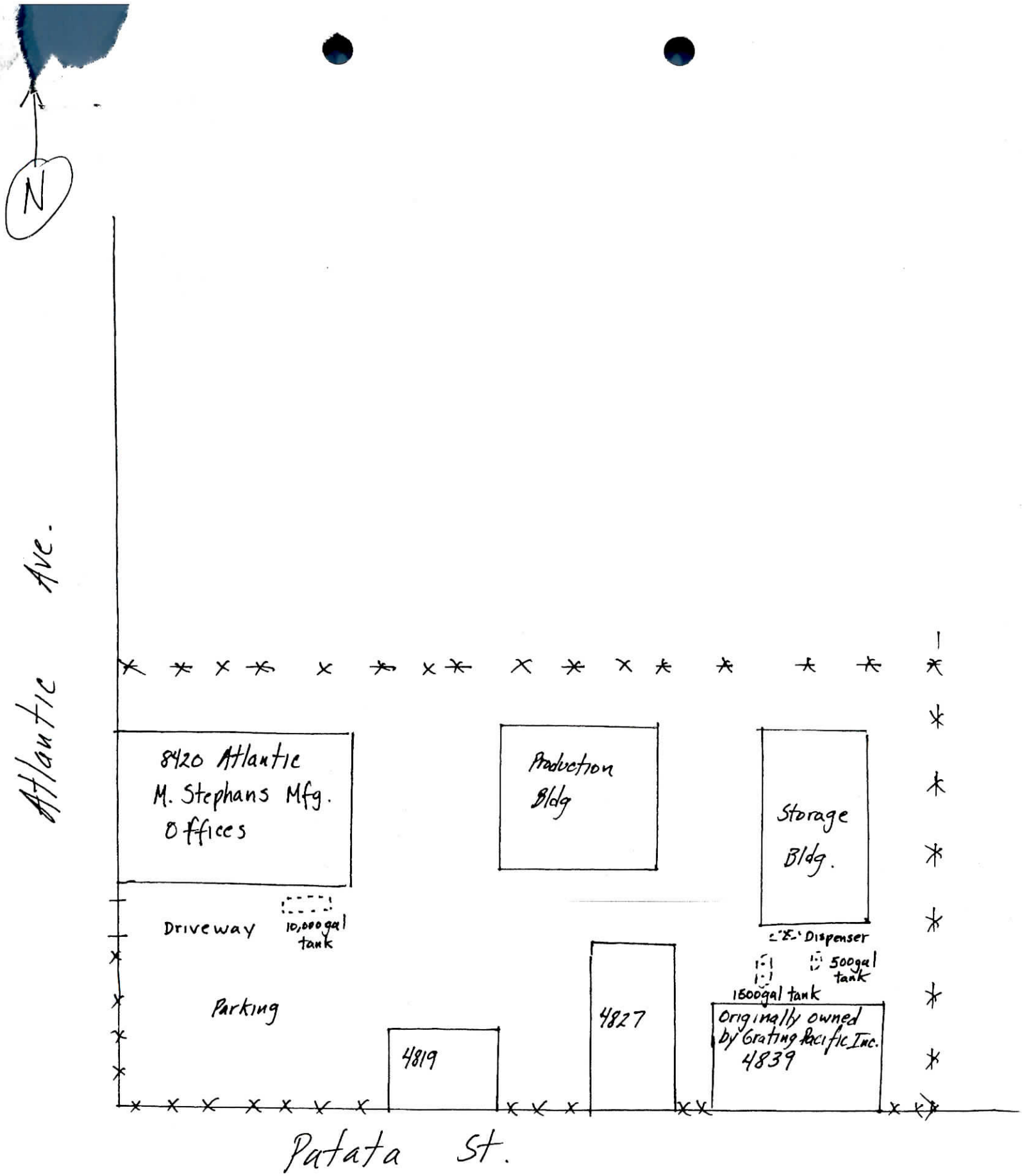
Follow-up Action Required ____

Investigation by Edward Calleros Date 4-8-92

cc: CRWQCB( ), LACoFCD( ), City of ____( ), LACoHealth( ), SMD( )
Other ____

2/81

RJH


N
Atlantic Ave.
8420 Atlantic
M. Stephans Mfg.
Offices
Production
Bldg
Storage
Bldg.
Driveway
10,000 gal
tank
Dispenser
500 gal
tank
1500 gal tank
Parking
4819
4827
Originally owned
by Grating Pacific Inc.
4839
Patata St.

Reference:
LACSD, 1997

839-I87

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422

CHARLES W. CARRY
Chief Engineer and General Manager

June 25, 1997
File: 01-00.05-00/97-10575
Account No. 1889605

Dennis Barden
Plant Manager
M. STEPHENS MANUFACTURING
8420 S. Atlantic Ave.
Cudahy, CA 90201

Dear Mr. Barden :

Violation Notice No. 14195, Violation of EPA Standards and of
Sanitation Districts' Industrial Wastewater Discharge Regulations

Enclosed is a copy of Violation Notice No. 14195 which was issued to **M. STEPHENS MANUFACTURING** on June 17, 1997, as a result of a violation of requirements established in the Sanitation Districts' Industrial Wastewater Ordinance. In one or more instances, wastewater discharged from your facility was also determined to be in violation of the Federal EPA Pretreatment Standards, 40 CFR, Part 433. The nature of noncompliance is outlined on the Violation Notice along with a required date of correction. This notice was formally received by you.

Issuance of a Notice of Violation serves as legal notification of a violation of the Sanitation Districts' Wastewater Ordinance. If violations are not corrected the Districts will be compelled to take more stringent enforcement actions against your company, which may include petitioning the court for the imposition of civil liability in a sum not to exceed $25,000 a day for each violation. It is hoped that the attached Violation Notice will serve to expedite compliance.

As part of the Sanitation Districts' enforcement follow-up procedure your company is required to submit a written report no later than **July 25, 1997**. The report should describe the cause of the violation and outline corrective actions, implemented or proposed, which will prevent future violations. Failure to comply with this requirement will result in escalated enforcement action. **If your company has already submitted a written response and/or information requested, please ignore this requirement.**

If you have any further questions regarding this matter please contact Enforcement Project Engineer Ken Vasquez at extension 2961.

Your cooperation in complying with Sanitation Districts' requirements will be appreciated.

Very truly yours,

Charles W. Carry

Leon S. Directo
Leon S. Directo
Supervising Civil Engineer

LSD:KV:ll
Enclosure(s)

cc: Department of Public Works
Attn: Eduardo Escobar

Recycled Paper

SANITATION DISTRICTS OF LOS ANGELES COUNTY

ATTENTION INDUSTRIAL WASTE SECTION

1955 WORKMAN MILL RD., P.O. BOX 4998, WHITTIER, CALIFORNIA 90607

№ V14195

NOTICE OF VIOLATION

1. DISCHARGER M STEPHENS MFG	2. ADDRESS OF WASTEWATER DISCHARGE 8420 ATLANTIC CUDAHY, CA 90201
3. LOCAL AGENCY DPW	4. TIME OF VIOLATION (Date, Hour) APRIL 16, 1997
	5. PERMIT NO. 10575 6. ACCT. NO. 1889605 7. INSP. AREA 406

8. VIOLATION OF THE DISTRICTS, WASTEWATER ORDINANCE, SECTION 210 CONCERNING

DISCHARGE OF ANY WASTEWATER WITH POLLUTANT CONCENTRATIONS IN EXCESS OF FEDERAL EPA CATEGORICAL REGULATION 40 CFR PART 433

(PER RESULTS OF COMPOSITE SAMPLE SJ 34229
ZINC RESULT: 3.31 mg/L; LIMIT: 2.61 mg/L)

9. IMPORTANT: VIOLATION MUST BE CORRECTED BY: IMMEDIATELY (DATE)

10. RECEIPT OF NOTICE ACKNOWLEDGED BY DISCHARGER

Dennis Barden (PRINTED NAME) — Plant Manager (TITLE)

Dennis Barden (SIGNATURE)

FORM NO. 5020

CHARLES W. CARRY
CHIEF ENGINEER AND GENERAL MANAGER

BY: Patrick M Carter (NAME) 6/17/97 (DATE)

INDUSTRIAL WASTE INSPECTOR (TITLE)

Reference:
LACSD, 2003

C451384, 000839 - I00877

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAHL
Chief Engineer and General Manager

December 23, 2003
File: 02-03-14831
Account No.: 2024383

Ms. Nardy Drew
Department of Public Works
Environmental Programs Division
P.O. Box 1460
Alhambra, CA 91802-1460

Dear Ms. Drew:

Industrial Wastewater Discharge Permit No. 14831

M. Stephens Mfg. Co.
8420 S. Atlantic Avenue
Cudahy, CA 90201

Effective immediately, Industrial Wastewater Discharge Permit No. 14831 is void for the following reason:

- Company has ceased all industrial wastewater producing operations at the site. The discharge pump has been removed from the sample box.

Very truly yours,

James F. Stahl

Suzanne S. Wienke

Suzanne S. Wienke
Supervising Civil Engineer

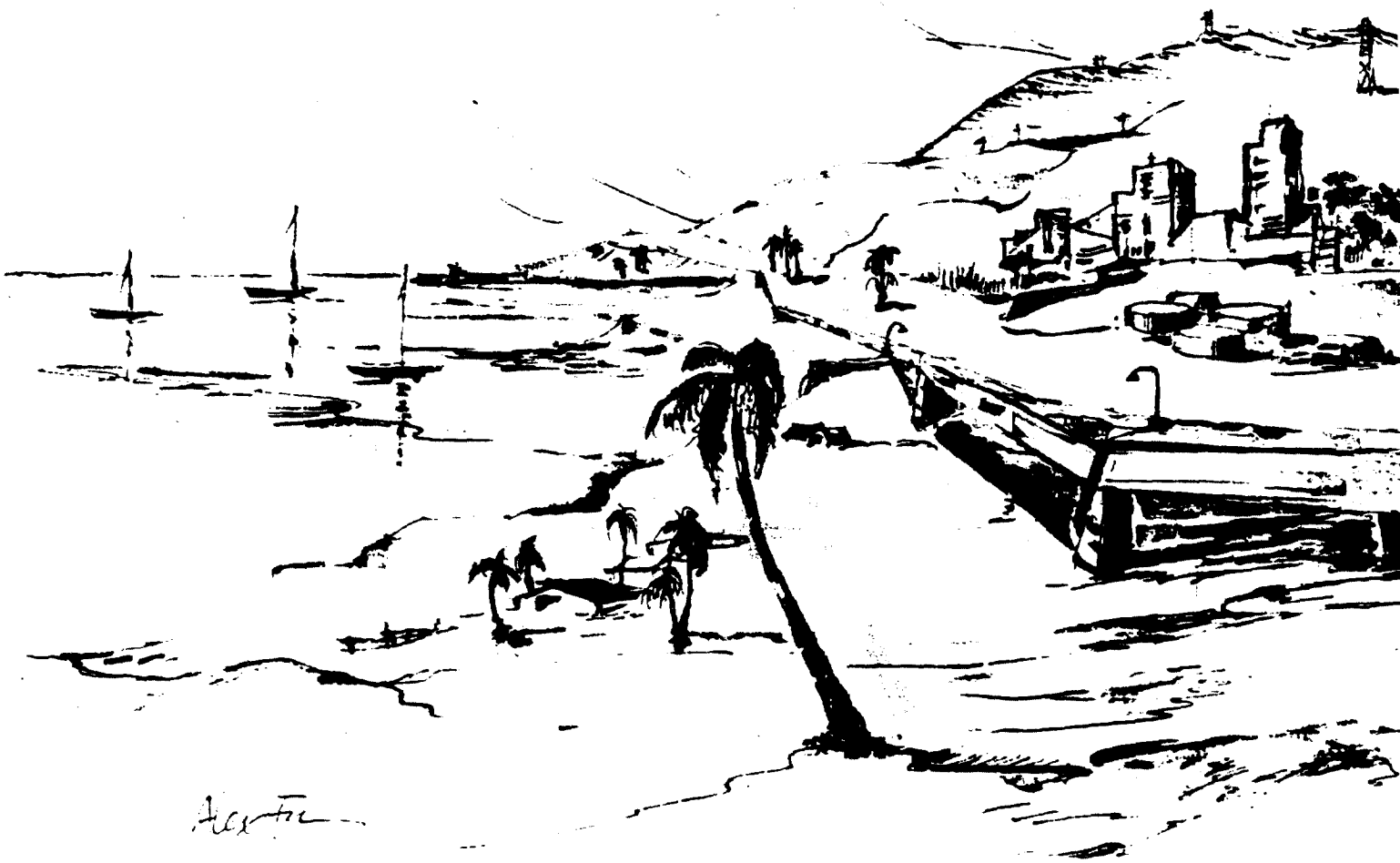
SSW:EM:cb
cc: M. Stephens Mfg. Co.

Recycled Paper

Reference:
RWQCB, 1994

WATER QUALITY CONTROL PLAN
Los Angeles Region

Basin Plan
for the
Coastal Watersheds of
Los Angeles and Ventura Counties



California Regional Water Quality Control Board

Los Angeles Region (4)

Water Resources/Water Quality Issues

Surface and ground waters within the Los Angeles Region have proven insufficient to support the rapidly growing population in the Los Angeles Region. Water imported from other areas now meets about 50% of fresh water demands in the Region. Restrictions on imported water as well as drought conditions have necessitated water conservation measures which, at present, are voluntary. These conservation measures have slightly lessened the use of potable water in many areas of the Region. In addition, the demand for water is being partially fulfilled by the increasing use of reclaimed water for non-potable purposes such as greenbelt irrigation and industrial processing and servicing.

Surface Waters

Major surface waters of the Los Angeles Region flow from head waters in pristine mountain areas (largely in two National Forests and the Santa Monica Mountains), through urbanized foothill and valley areas, high density residential and industrial coastal areas, and terminate at highly utilized recreational beaches and harbors. Uncontrolled pollutants from nonpoint sources are believed to be the greatest threats to rivers and streams within the Region.

- *Ventura River Watershed:* The Ventura River is the northern-most river system in southern California (south of Point Conception) that supports a large number of sensitive aquatic species, several of which are currently, or proposed to be, endangered or threatened. Water quality in the upper reaches is good but quality in the lower reaches is impacted by a combination of municipal water discharges and agricultural, urban and oil industry nonpoint sources.

- *Santa Clara River Watershed:* The Santa Clara River is the largest river system in southern California that remains in a relatively natural state. Extensive patches of high quality riparian habitat are present along the length of the river and its tributaries. Stream flows are diverted, usually during high flow, for "out-of-stream" beneficial uses. Threats to water quality include increasing development in floodplain areas, necessitating flood control measures such as channelization that results in increased flows, erosion, and loss of habitat.

- *Calleguas Creek Watershed:* Calleguas Creek drains a predominantly agricultural area on the Oxnard Plain and empties into Mugu Lagoon, one of southern California's few remaining large wetlands. While natural flows in the past were intermittent, discharges of municipal, agricultural, and urban wastewaters have increased surface flow in the watershed resulting in increased sedimentation in the lagoon. The general instability of the streambanks, continual destruction of riparian vegetation, and other land use practices have accelerated erosion in this watershed. Erosion problems are intensified in areas where residential development is occurring on steeply sloping upland areas. Should sedimentation continue at the present rate, the lagoon is projected to fill with sediment in about 50 years. Additional problems are produced by irrigation return-flows which add nutrients, pesticides, and other dissolved constituents to the creek and its tributaries.

- *Malibu Creek Watershed:* This watershed has changed rapidly in the last 20 years from a predominantly rural area to a steadily developing area that has doubled in population to nearly 80,000 residents. Increased flows (from imported waters needed to support the growing population base) and channelization of several tributaries to Malibu Creek have caused an imbalance in the natural flow regime in the watershed. Pollutants of concern, many of which are discharged from nonpoint sources, include excess nutrients, sediment, and bacteria.

- *Ballona Creek Watershed:* Pollutants from industrial and municipal effluent as well as urban runoff degrade the quality of Ballona Creek. Specific pollutants include high levels of dissolved solids (chlorides, sulfates, heavy metals) and bacteria. Untreated sewage overflows discharged into Ballona Creek during the rainy season cause beach closures along Santa Monica Bay. In addition, high concentrations of DDT in sediments at the mouth of the creek and in Marina Del Rey provide evidence of past discharges that have resulted in long-term water quality problems.

- *Los Angeles River Watershed:* The Los Angeles River is highly modified, having been lined with concrete along most of its length by the U.S. Army Corps of Engineers from the

1930s to the 1960s. One seven-mile reach in the narrows area (in the middle portion of the river system), where ground water rises into the streambed, is mostly unlined along the stream bottom and provides natural habitat for fish and other wildlife in an otherwise concrete conveyance. The upper reaches of the river carry urban runoff and flood flows from the San Fernando Valley. Below the Sepulveda Basin, flows are dominated by tertiary-treated effluent from several municipal wastewater treatment plants. Because the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water quality in the Los Angeles River and tributaries.

- *San Gabriel River Watershed:* While the upper San Gabriel River and its tributaries remain in a relatively pristine state, intensive recreational use of this area for picnicking, off road vehicle use, fishing, and hiking threaten water quality and aquatic and riparian habitats. Further problems in the upper San Gabriel River occur as vast amounts of naturally eroding sediment from the rugged San Gabriel Mountains settle into reservoirs behind flood control dams. Improper sediment sluicing operations from these reservoirs can impact aquatic habitats and groundwater recharge areas. In the San Gabriel Valley, the middle reaches of the river have been extensively modified in order to control flood and debris flows and to recharge ground water. Extensive sand and gravel operations are found along these stretches of the river. The lower San Gabriel River (i.e., those stretches flowing through the Los Angeles Coastal Plain) also has been extensively modified and is lined with concrete from approximately Firestone Boulevard to the estuary. Flow in these lower reaches is dominated by effluent from several municipal wastewater treatment facilities and urban runoff. Beneficial uses have been impaired in these lower reaches of the San Gabriel River, as evidenced by ambient toxicity and bioaccumulation of metals in fish tissue.

Other more generalized surface water problems in the Region include:

- Poor mineral quality in some areas due to a variety of reasons including geology, agricultural runoff, discharge of highly mineralized ground water, and poor quality of some imported waters
- Bioaccumulation of toxic compounds in fish and other aquatic life
- Impacts from increased development and recreational uses
- In-stream toxicity from point and nonpoint sources
- Diversion of flows necessary for the propagation of fish and wildlife populations
- Channelization, dredging, and other losses of habitat
- Impacts from transient camps located along creeks and lagoons
- Illegal dumping
- Introduction of non-native plants which are of little value to the biota and clog the streams
- Impacts from sand and gravel mining operations
- Natural oil seeps
- Eutrophication and the accumulation of toxic pollutants in lakes

Ground Waters

Ground water accounts for most of the Region's local (i.e., non-imported) supply of fresh water. Major groundwater basins in the Region are shown in Figure 1-9.

The general quality of ground water in the Region has degraded substantially from background levels. Much of the degradation reflects land uses. For example, fertilizers and pesticides, typically used on agricultural lands, can degrade ground water when irrigation-return waters containing such substances seep into the subsurface. In areas that are unsewered, nitrogen and pathogenic bacteria from overloaded or improperly sited septic tanks can seep into ground water and result in health risks to those who rely on ground water for domestic supply. In areas with industrial or commercial activities, aboveground and underground storage tanks contain vast quantities of hazardous substances. Thousands of these tanks in the Region have leaked or are leaking, discharging petroleum fuels, solvents, and other hazardous substances into the subsurface. These leaks as well as otherdischarges

Reference:
RWQCB, 1995

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, *Governor*

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
FAX: (213) 266-7600

September 27, 1995

Ms. Ellenmary Bryant
M. Stephens Manufacturing, Inc.
8240 South Atlantic Avneue
Cudahy, CA 90201

Dear Ms. Bryant:

UNDERGROUND STORAGE TANK CASE CLOSURE -M. STEPHENS MANUFACTURING, INC. 4839 PATATA STREET, CUDAHY (I-11513)

This letter confirms the completion of the site investigation and remedial action for the underground storage tanks formerly located at the above-described location.

Based on the available information and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground storage tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

Please contact Dr. Nancy Adin at (213) 266-7676, if you have any questions concerning this matter.

Sincerely,

Robert P. Ghirelli

ROBERT P. GHIRELLI, D.Env.
Executive Officer

cc: Mr. Jorge Leon, State Water Resources Control Board, Office of Chief Counsel
Mr. Carl Sjoberg, Los Angeles County Department of Public Works, Waste Management Division
Mr. Alfredo Cardenas, Water Replenishment District of Southern California
Dr. Robert Gaal, Anderson Industries

9/27

TO: Al Novak

FROM: Nancy Adin

DATE: September 27, 1995

SUBJECT: Review of File for Closure (I-11513)
M. Stephens Manufacturing, Inc.
4839 Patata St.
Cudahy, CA 90201

BACKGROUND: In November 1989, a 1,000 gallon gasoline UST and a 500 gallon waste oil UST were removed from the property. Analysis of soil samples taken from beneath the gasoline tank showed that contamination was not present. One sample taken from near the waste oil tank in the excavation pit had TRPH at 9ppm.

Two inclined boreholes were drilled under the dispenser area. Samples taken from HB-1 were not contaminated but a sample taken from HB-2 at a depth of 14 feet indicated the presence of 5,900 ppm TPH, 140 ppm benzene, 637 ppm toluene, 249 ppm ethylbenzene and 749 ppm total xylenes.

Further site assessment was done. Three soil borings (B-1, B-2 and B-3) were drilled and soil samples analyzed. No TPH was detected in any of the samples. However, significant contamination was detected in samples collected at 20 and 25 feet from B-1 and B-2 (see attached).

SUMMARY OF MOST RECENT SUBMITTAL: The most recent submittal confirms the fact that the contaminated soil has been removed from the property. Approximately 184 cubic yards of soil was excavated from the tank pit area. Confirmatory sampling data (see Table 3, attached) indicated that the contaminated soil had been removed.

The excavation tank pit was backfilled with clean soil and the area resurfaced with asphalt.

During an earlier site assessment, what was thought to be another UST was discovered, but excavation revealed a buried car hoist. No contamination was noted. An inspector from DPW oversaw the removal operation.

Groundwater was not encountered at this site.

COMMENTS AND RECOMMENDATIONS: This site can be closed.

Case Closure Summary

Leaking Underground Fuel Storage Tank Program

I. Agency Information

Date: 9/27/95

Agency name:	RWQCB	Address:	101 Centre Plaza Drive
City/State/ZIP:	Monterey Park	Phone:	213-266-7676
Responsible staff person:	Nancy Adin	Title:	

II. Case Information

Site facility name:	M. Stephens Manufacturing, Inc	
Site facility address:	4839 Patata St., Cudahy	
RB LUSTIS Case No:	Local Case No:	LOP Case No: F-11513
URF filing date:	SWEEPS No:	

Responsible Parties	Addresses	Phone Numbers
Ms. Ellanmary Bryant	8240 S. Atlantic Ave.	
	Cudahy, CA 90201	

Tank No	Size in Gal.	Contents	Closed in-Place/Removed?	Date
1	1,000	Gasoline	Removed	1989
2	500	waste oil	Removed	1989
3				

III. Release and Site Characterization Information

Cause and type of release:	—		
Site characterization complete?	Yes / No	Date approved by oversight agency:	
Monitoring Wells Installed?	Yes / No	Number:	Proper screened interval? Yes / No
Highest GW depth below ground surface:	Not Applicable	Lowest depth:	Flow direction:
Most Sensitive Current Use:	—		
Are drinking water wells affected?	Yes / No	Aquifer name:	
Is surface water affected?	Yes / No	Nearest/affected SW name:	
Off-site beneficial use impacts (addresses/locations):	—		
Report(s) on file?	Yes / No	Where is report(s) filed?	

Treatment and Disposal of Affected Material

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	1-1000 Gal	Gasoline > Removed	1989
Piping	1-500 Gal	Waste oil >	
Free Product			
Soil	184 cu. yds	Removed	1995
Groundwater			
Barrels			

III. Release and Site Characterization Information (Continued)

Maximum Documented Contaminant Concentrations — Before and After Cleanup

Contaminant	Soil (ppm) Before	Soil (ppm) After	Water (ppm) Before	Water (ppm) After	Contaminant	Soil (ppm) Before	Soil (ppm) After	Water (ppm) Before	Water (ppm) After
TPH (Gas)	57900	N/A			Xylene	749	ND		
TPH (Diesel)					Ethylbenzene	249	ND		
Benzene	140	ND			Oil & Grease				
Toluene	637	ND			Heavy metals				
Other					Other				

Comments (Depth of Remediation, etc.): GW not encountered. Contaminated soil was excavated.

IV. Closure

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? (Yes) No

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? (Yes) No

Does corrective action protect public health for current land use? (Yes) No

Site management requirements: None

Should corrective action be reviewed if land use changes? Yes (No)

Monitoring wells Decommisioned: ~~Yes~~ No | Number Decommisioned: | Number Retained:

List enforcement actions taken: None

List enforcement actions rescinded: None

V. Local Agency Representative Data

Name: | Title:

Signature: | Date:

VI. RWQCB Notification

Date Submitted to RB: | RB Response:

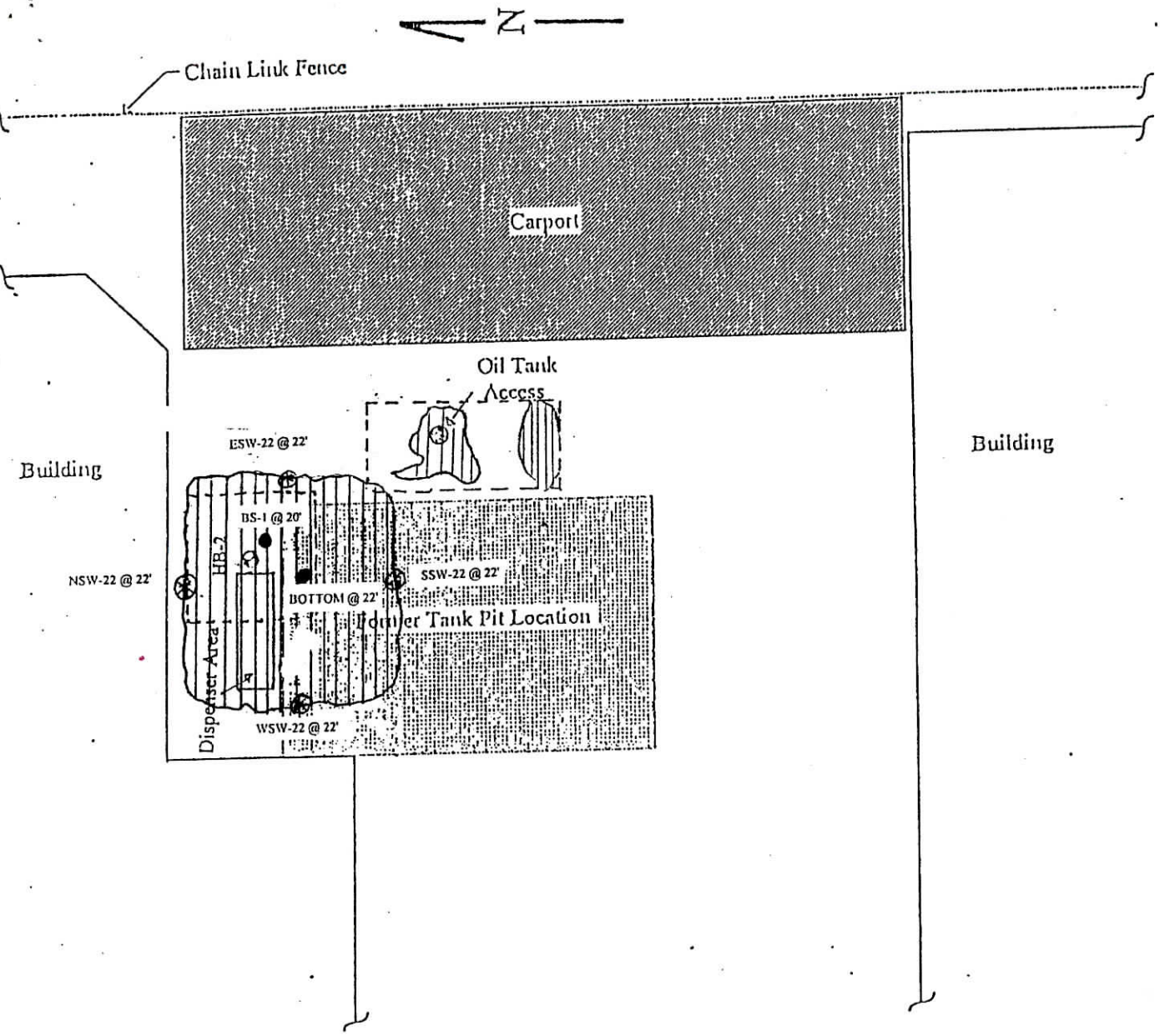
RWQCB Staff Name: Nancy Adin | Title: | Date: 9/07/95

VII. Additional Comments, Data, etc.

Site can be closed.

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.

8/24/93



Legend:

- Borehole Locations, HB-2
- UST Access Fitting
- --- Proposed Area of Excavation
- Locations Sidewall Samples @ 22' bgs
- Locations of Bottom Samples
- Actual Area of Excavation

LOCATION OF AREA OF EXCAVATION

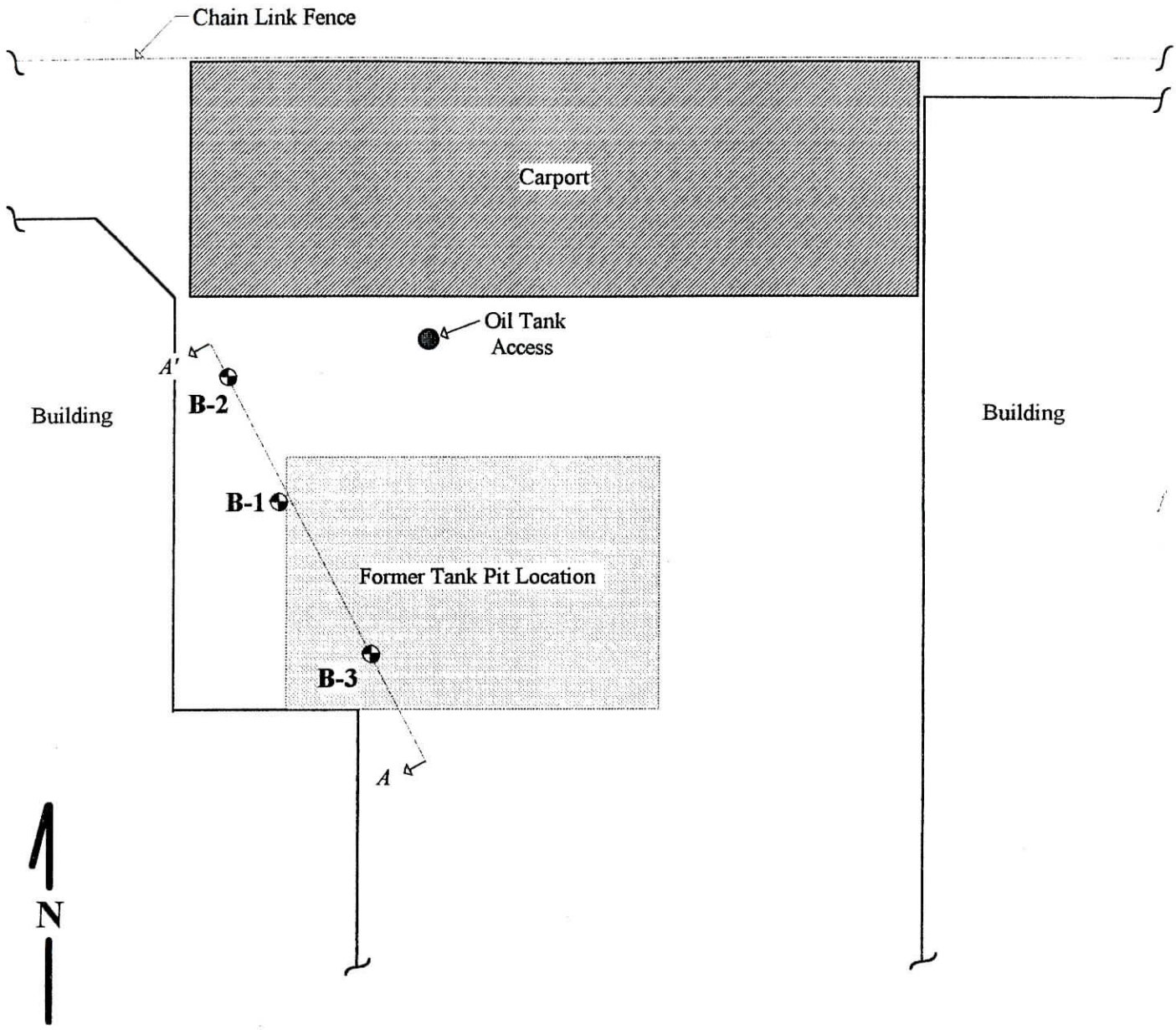
M. Stephens Manufacturing Inc.
4839 Patata Street
Cudahy, California 90201

ANDERSON INDUSTRIES
13039 Los Nietos Rd., Santa Fe Springs
California 90670

Figure No: 3	SCALE: 1 in. = 10 ft.

TABLE 3: SAMPLE ANALYSES DATA

Sample #	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	TPH-G mg/Kg
NSW 22	ND	ND	ND	ND	ND
SSW 22	ND	ND	ND	ND	ND
WSW 22	ND	ND	ND	ND	0.16
ESW 22	ND	ND	ND	ND	ND
BOTTOM 22	ND	ND	ND	ND	1.4
BS-1 @ 20'	ND	0.006	0.013	0.086	93



Legend:

- Borehole Locations
- UST Access Fitting

BOREHOLE LOCATIONS
(as built)

M. Stephens Manufacturing Inc.
4839 Patata Street
Cudahy, California 90201

Amwest Environmental Engineering
28 Centerpointe Drive, #100
La Palma, CA 90723-1054

PROJECT NO.: EI 4013	SCALE: 1 in. = 10 ft.
FIGURE NO.:3	DRAWN BY:W.P.C.
DATE: 3/6/95	APPROVED BY: R.S.

Table 3

Analytical Results of Borehole Soil Samples
Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
M. Stephens Manufacturing, Inc.
Cudahy, California
(February 1995)

Sample Depth (feet)	Borehole B-1	Borehole B-2	Borehole B-3
	B/T/E/X		
5	NA	ND/ND/ND/ND	NA
10	NA	NA	NA
15	NA	ND/ND/ND/ND	NA
20	60.6/57.7/45.4/244	NA	NA
25	110/29.7/6.6/313	35.4/7.1/13.4/76.5	235/459/118/866
30	ND/ND/ND/ND	ND/ND/ND/ND	ND/ND/ND/ND
35	ND/ND/ND/ND	NA	NA
40	ND/ND/ND/ND	ND/ND/ND/	NA
45	ND/ND/ND/ND		ND/6.7/ND/ND
50	ND/ND/ND/ND		ND/ND/ND/ND
55	ND/ND/ND/ND		
Method Detection Limit	5/5/5/15	5/5/5/15	5/5/5/15
Total Depth (feet)	55	40	50

NA = Sample Not Analyzed
ND = Compounds Not Detected
B/T/E/X = Benzene; toluene; ethylbenzene; m, p-xylenes and o-xylenes (in microgram per kilogram)

Reference:
RWQCB, 2014

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER

M STEPHENS MANUFACTURING (T0603703809) - (MAP)

SIGN UP FOR EMAIL ALERTS

4839 PATATA ST
CUDAHY, CA 90201
LOS ANGELES COUNTY
LUST CLEANUP SITE
ASSOCIATED ENVIROSTOR PROJECTS
PRINTABLE CASE SUMMARY

CLEANUP OVERSIGHT AGENCIES
LOS ANGELES RWQCB (REGION 4) *(LEAD)* - *CASE #: I-11513*
CASEWORKER: *YUE RONG*
LOS ANGELES COUNTY
CASEWORKER: *JOHN AWUJO*

Regulatory Profile

CLEANUP STATUS - DEFINITIONS

COMPLETED - CASE CLOSED AS OF 9/27/1995 - CLEANUP STATUS HISTORY

POTENTIAL CONTAMINANTS OF CONCERN
GASOLINE

POTENTIAL MEDIA AFFECTED
SOIL

FILE LOCATION

BENEFICIAL USE
NONE SPECIFIED

DWR GROUNDWATER SUB-BASIN NAME
Coastal Plain Of Los Angeles - Central (4-11.04)

RB WATERSHED NAME
Los Angeles-San Gabriel River - Coastal Plain - Central (Split) (40515)

Site History

No site history available

Regulatory Activities

* Indicates a revised due date

ACTION TYPE	ACTION	ACTION DATE	RECEIVED / ISSUE DATE
LEAK ACTION	Leak Reported	8/10/1994	
LEAK ACTION	Leak Discovery	7/14/1994	

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0.6210938 seconds

Reference:
RWQCB, 2015

Well Report

TRACT 349 MUTUAL WATER CO. (CUDAHY)
WELL 03
4630 SANTA ANA STREET
CUDAHY , CA 90201
(Show This Well on Map)

State Well #: 1910160-003
Well Source: Groundwater
Well Status: Active Raw

Detailed Well Information | DPH Water Quality Data

Plot Selected Chemicals | Reset Boxes | **Note: You may select up to 6 chemicals.**

(ALL DATA) | (MOST RECENT) | (MAXIMUM CONCENTRATIONS)

DATE	PARAMETER	QUALIFIER	RESULT	UNITS	MCL	Plot
5/12/2006	1,1,1,2-TETRACHLOROETHANE	<	0.5	UG/L	NA	
10/24/2013	1,1,1-TRICHLOROETHANE	<	0.5	UG/L	200	
10/24/2013	1,1,2,2-TETRACHLOROETHANE	<	0.5	UG/L	1	
10/24/2013	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10	UG/L	1200	
10/24/2013	1,1,2-TRICHLOROETHANE	<	0.5	UG/L	5	
10/14/2010	1,1-DICHLOROETHANE	<	1	UG/L	5	
10/24/2013	1,1-DICHLOROETHYLENE	<	0.5	UG/L	6	
5/12/2006	1,1-DICHLOROPROPENE	<	0.5	UG/L	NA	
5/12/2006	1,2,3-TRICHLOROBENZENE	<	0.5	UG/L	NA	
5/12/2006	1,2,3-TRICHLOROPROPANE	<	0.5	UG/L	NA	
10/24/2013	1,2,4-TRICHLOROBENZENE	<	0.5	UG/L	5	
5/12/2006	1,2,4-TRIMETHYLBENZENE	<	0.5	UG/L	NA	
10/24/2013	1,2-DICHLOROBENZENE	<	0.5	UG/L	600	
10/24/2013	1,2-DICHLOROETHANE	<	0.5	UG/L	0.5	
10/24/2013	1,2-DICHLOROPROPANE	<	0.5	UG/L	5	
5/12/2006	1,3,5-TRIMETHYLBENZENE	<	0.5	UG/L	NA	
5/12/2006	1,3-DICHLOROBENZENE	<	0.5	UG/L	NA	
5/12/2006	1,3-DICHLOROPROPANE	<	0.5	UG/L	NA	
10/24/2013	1,3-DICHLOROPROPENE (TOTAL)	<	0.5	UG/L	0.5	
10/24/2013	1,4-DICHLOROBENZENE	<	0.5	UG/L	5	
4/23/2014	1,4-DIOXANE	.	5.3	UG/L	NA	
5/12/2006	1-PHENYLPROPANE (N-PROPYLBENZENE)	<	0.5	UG/L	NA	
5/12/2006	2,2-DICHLOROPROPANE	<	0.5	UG/L	NA	
5/5/2003	2,3,7,8-TCDD (DIOXIN)		0	PG/L	30	
6/7/1989	2,4,5-TP (SILVEX)	<	1	UG/L	50	
6/7/1989	2,4-D	<	10	UG/L	70	
9/7/2004	2-CHLOROETHYLVINYL ETHER	<	1	UG/L	NA	
5/12/2006	2-CHLOROTOLUENE	<	0.5	UG/L	NA	
5/5/2003	3-HYDROXYCARBOFURAN	<	2	UG/L	NA	
5/12/2006	4-CHLOROTOLUENE	<	0.5	UG/L	NA	
5/4/2007	AGGRSSIVE INDEX (CORROSIVITY)		13		NA	
5/5/2003	ALACHLOR	<	1	UG/L	2	
5/5/2003	ALDICARB	<	2	UG/L	NA	
5/5/2003	ALDICARB SULFONE	<	2	UG/L	NA	
5/5/2003	ALDICARB SULFOXIDE	<	2	UG/L	NA	
5/5/2003	ALDRIN	<	0.075	UG/L	NA	
6/7/1989	ALKALINITY (TOTAL) AS CACO3		178.9	MG/L	NA	
5/26/1992	ALUMINUM	<	100	UG/L	1000	
4/23/2013	ANTIMONY	<	6	UG/L	6	
6/7/1989	ARSENIC	<	10	UG/L	10	
5/5/2003	ASBESTOS	<	0.2	MFL	7	
7/10/1989	ATRAZINE	<	1	UG/L	1	
5/4/2007	BARIUM		190	UG/L	1000	
5/5/2003	BENTAZON	<	2	UG/L	18	
10/24/2013	BENZENE	<	0.5	UG/L	1	
5/5/2003	BENZO (A) PYRENE	<	0.1	UG/L	0.2	
4/23/2013	BERYLLIUM	<	1	UG/L	4	
6/7/1989	BICARBONATE ALKALINITY		218.3	MG/L	NA	
7/17/2001	BIS (2-CHLOROETHYL) ETHER		0	UG/L	NA	

10/1/2001	BORON		150	UG/L	NA
5/5/2003	BROMACIL	<	10	UG/L	NA
5/12/2006	BROMOBENZENE	<	0.5	UG/L	NA
5/12/2006	BROMOCHLOROMETHANE	<	0.5	UG/L	NA
10/24/2013	BROMODICHLORMETHANE (THM)	<	1	UG/L	NA
8/5/2002	BROMOFORM (THM)		1.6	UG/L	NA
5/12/2006	BROMOMETHANE	<	0.5	UG/L	NA
5/5/2003	BUTACHLOR	<	0.38	UG/L	NA
4/23/2013	CADMIUM	<	1	UG/L	5
6/7/1989	CALCIUM		70.3	MG/L	NA
5/5/2003	CARBARYL	<	2	UG/L	NA
5/5/2003	CARBOFURAN	<	5	UG/L	18
5/12/2006	CARBON DISULFIDE	<	0.5	UG/L	NA
10/24/2013	CARBON TETRACHLORIDE	<	0.5	UG/L	0.5
4/23/2013	CARBONATE ALKALINITY	<	2.4	MG/L	NA
5/5/2003	CHLORDANE	<	0.1	UG/L	0.1
5/7/2010	CHLORIDE		54	MG/L	500
5/12/2006	CHLOROETHANE	<	0.5	UG/L	NA
10/24/2013	CHLOROFORM (THM)	<	1	UG/L	NA
5/12/2006	CHLOROMETHANE	<	0.5	UG/L	NA
5/5/2003	CHLOROTHALONIL	<	5	UG/L	NA
9/7/2004	CHROMIUM (TOTAL CR-CRVI SCREEN)	<	0.5	UG/L	NA
4/23/2013	CHROMIUM (TOTAL)	<	10	UG/L	50
10/24/2013	CIS-1,2-DICHLOROETHYLENE	<	0.5	UG/L	6
10/22/2012	CIS-1,3-DICHLOROPROPENE	<	0.5	UG/L	0.5
5/3/2004	COLOR	<	3	UNITS	15
4/23/2013	COPPER	<	50	UG/L	1000
4/23/2013	CYANIDE	<	100	UG/L	150
5/5/2003	DACTHAL	<	0.1	UG/L	NA
5/5/2003	DALAPON	<	0.5	UG/L	200
5/5/2003	DI(2-ETHYLHEXYL)ADIPATE	<	5	UG/L	400
7/12/2012	DI(2-ETHYLHEXYL)PHTHALATE	<	3	UG/L	4
5/5/2003	DIAZINON	<	0.25	UG/L	NA
10/24/2013	DIBROMOCHLOROMETHANE (THM)	<	1	UG/L	NA
2/16/2006	DIBROMOCHLOROPROPANE (DBCP)	<	0.5	UG/L	0.2
5/12/2006	DIBROMOMETHANE	<	0.5	UG/L	NA
5/5/2003	DICAMBA	<	0.6	UG/L	NA
11/13/2007	DICHLORODIFLUOROMETHANE (FREON 12)	<	0.5	UG/L	NA
10/24/2013	DICHLOROMETHANE	<	0.5	UG/L	5
5/5/2003	DIELDRIN	<	0.02	UG/L	NA
5/12/2006	DIISOPROPYL ETHER	<	3	UG/L	NA
5/5/2003	DIMETHOATE	<	1	UG/L	NA
5/5/2003	DINOSEB	<	0.5	UG/L	7
5/5/2003	DIQUAT	<	4	UG/L	20
6/7/1995	DIURON		0	UG/L	NA
5/5/2003	ENDOTHALL	<	45	UG/L	100
5/5/2003	ENDRIN	<	0.1	UG/L	2
11/13/2007	ETHYL-TERT-BUTYL ETHER	<	3	UG/L	NA
10/24/2013	ETHYLBENZENE	<	0.5	UG/L	300
2/16/2006	ETHYLENE DIBROMIDE (EDB)	<	0.5	UG/L	0.05
5/7/2010	FLUORIDE (F) (NATURAL-SOURCE)		0.33	MG/L	2
4/23/2013	FOAMING AGENTS (MBAS)	<	0.1	MG/L	0.5
5/5/2003	GLYPHOSATE	<	6	UG/L	700
7/17/2001	GROSS ALPHA		4.37	PCI/L	15
7/17/2001	GROSS ALPHA COUNTING ERROR		1.92	PCI/L	NA
6/7/1989	HARDNESS (TOTAL) AS CACO3		220.8	MG/L	NA
5/5/2003	HEPTACHLOR	<	0.01	UG/L	0.01
5/5/2003	HEPTACHLOR EPOXIDE	<	0.01	UG/L	0.01
5/5/2003	HEXACHLOROBENZENE	<	0.5	UG/L	1
5/12/2006	HEXACHLOROBUTADIENE	<	0.5	UG/L	NA
5/5/2003	HEXACHLOROCYCLOPENTADIENE	<	1	UG/L	50
5/12/2006	HEXACHLOROETHANE	<	1	UG/L	NA

5/7/2010	HYDROXIDE ALKALINITY	<	2	MG/L	NA
4/23/2013	IRON	<	100	UG/L	300
5/12/2006	ISOPROPYLBENZENE	<	0.5	UG/L	NA
5/26/1992	LANGELIER INDEX AT SOURCE TEMP.		0.8		NA
6/7/1989	LEAD	<	10	UG/L	NA
6/7/1989	LINDANE	<	0.4	UG/L	0.2
10/24/2013	M,P-XYLENE	<	0.5	UG/L	NA
8/5/2002	M-XYLENE		0	UG/L	NA
5/26/1992	MAGNESIUM		14	MG/L	NA
9/1/1998	MANGANESE		75.2	UG/L	50
4/23/2013	MERCURY	<	1	UG/L	2
12/17/1987	METHOD 601 NEGATIVE - NO 602 REPORTED		0		NA
12/17/1987	METHOD 602 NEGATIVE - NO 601 REPORTED		0		NA
5/5/2003	METHOMYL	<	2	UG/L	NA
5/5/2003	METHOXYCHLOR	<	10	UG/L	30
5/12/2006	METHYL ETHYL KETONE	<	5	UG/L	NA
5/12/2006	METHYL ISOBUTYL KETONE	<	5	UG/L	NA
10/24/2013	METHYL-TERT-BUTYL-ETHER (MTBE)	<	3	UG/L	13
5/5/2003	METOLACHLOR	<	0.5	UG/L	NA
5/5/2003	METRIBUZIN	<	0.5	UG/L	NA
7/10/1989	MOLINATE	<	2	UG/L	20
10/24/2013	MONOCHLOROBENZENE	<	0.5	UG/L	70
5/12/2006	N-BUTYLBENZENE	<	0.5	UG/L	NA
5/12/2006	NAPHTHALENE	<	0.5	UG/L	NA
4/23/2013	NICKEL	<	10	UG/L	100
6/7/1989	NITRATE (AS NO3)		4.6	MG/L	45
5/4/2007	NITRATE + NITRITE (AS N)		510	UG/L	10000
5/4/2007	NITRATE NITROGEN (NO3-N)		510	UG/L	10000
11/13/2007	NITRITE (AS N)		460	UG/L	1000
10/24/2013	O-XYLENE	<	0.5	UG/L	NA
5/26/1992	ODOR THRESHOLD @ 60 C		3	TON	3
5/5/2003	OXAMYL	<	2	UG/L	50
5/12/2006	P-ISOPROPYLTOLUENE	<	0.5	UG/L	NA
8/5/2002	P-XYLENE		0	UG/L	NA
5/5/2003	PCB-1016 (AS DECACHLOROBIPHENYL (DCB))	<	0.1	UG/L	NA
5/5/2003	PCB-1221 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PCB-1232 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PCB-1242 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PCB-1248 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PCB-1254 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PCB-1260 (AS DCB)	<	0.1	UG/L	NA
5/5/2003	PENTACHLOROPHENOL	<	0.2	UG/L	1
7/11/2013	PERCHLORATE	<	4	UG/L	6
5/26/1992	PH, LABORATORY		8.2		NA
5/5/2003	PICLORAM	<	1	UG/L	500
5/26/1992	POLYCHLORINATED BIPHENYLS, TOTAL, AS DCB		0	UG/L	0.5
5/3/2004	POTASSIUM		3.8	MG/L	NA
5/5/2003	PROMETRYN	<	0.5	UG/L	NA
5/5/2003	PROPACHLOR	<	0.5	UG/L	NA
10/19/2007	RADIUM 226		0.15	PCI/L	NA
10/19/2007	RADIUM 226 COUNTING ERROR		0.11	PCI/L	NA
11/17/2005	RADIUM 228	<	1	PCI/L	NA
11/23/2009	RADIUM 228 COUNTING ERROR		0.28	PCI/L	NA
5/12/2006	SEC-BUTYLBENZENE	<	0.5	UG/L	NA
4/23/2013	SELENIUM	<	5	UG/L	50
4/23/2013	SILVER	<	10	UG/L	100
5/12/2006	SIMAZINE	<	1	UG/L	4
6/7/1989	SODIUM		65	MG/L	NA
5/7/2010	SOURCE TEMPERATURE C		22	C	NA
6/7/1989	SPECIFIC CONDUCTANCE		720	US	1600
10/24/2013	STYRENE	<	0.5	UG/L	100
6/7/1995	SULFATE		111.5	MG/L	600

11/13/2007	TERT-AMYL-METHYL ETHER	<	3	UG/L	NA
5/12/2006	TERT-BUTYL ALCOHOL		3.9	UG/L	NA
5/12/2006	TERT-BUTYLBENZENE	<	0.5	UG/L	NA
10/24/2013	TETRACHLOROETHYLENE	<	0.5	UG/L	5
4/23/2013	THALLIUM	<	1	UG/L	2
7/12/2012	THIOBENCARB	<	1	UG/L	70
10/24/2013	TOLUENE	<	0.5	UG/L	150
4/13/1998	TOTAL DISSOLVED SOLIDS		424	MG/L	1000
8/5/2002	TOTAL TRIHALOMETHANES		2.11	UG/L	80
5/5/2003	TOXAPHENE	<	1	UG/L	3
10/24/2013	TRANS-1,2-DICHLOROETHYLENE	<	0.5	UG/L	10
10/22/2012	TRANS-1,3-DICHLOROPROPENE	<	0.5	UG/L	NA
10/24/2013	TRICHLOROETHYLENE	<	0.5	UG/L	5
10/24/2013	TRICHLOROFLUOROMETHANE	<	5	UG/L	150
5/7/2010	TURBIDITY, LABORATORY		0.48	NTU	5
10/19/2007	URANIUM (PCI/L)	<	1	PCI/L	20
7/17/2001	URANIUM COUNTING ERROR		0.456	PCI/L	NA
10/1/2001	VANADIUM		0	UG/L	NA
10/24/2013	VINYL CHLORIDE	<	0.5	UG/L	0.5
10/24/2013	XYLENES (TOTAL)	<	1	UG/L	1750
4/23/2013	ZINC	<	50	UG/L	5000

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data

Plot Selected Chemicals | Reset Boxes | **Note: You may select up to 6 chemicals.**

(ALL DATA) | (MOST RECENT) | (MAXIMUM CONCENTRATIONS)

DATE	PARAMETER	QUALIFIER	RESULT	UNITS	MCL	Plot
10/1/2001	1,1,1,2-TETRACHLOROETHANE		0	UG/L	NA	
3/16/1989	1,1,1-TRICHLOROETHANE	<	0.5	UG/L	200	
9/23/1987	1,1,2,2-TETRACHLOROETHANE	<	0.5	UG/L	1	
10/1/2001	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		0	UG/L	1200	
10/10/1985	1,1,2-TRICHLOROETHANE	<	0.5	UG/L	5	
10/10/1985	1,1-DICHLOROETHANE	<	0.5	UG/L	5	
10/11/1999	1,1-DICHLOROETHYLENE		2	UG/L	6	
10/1/2001	1,1-DICHLOROPROPENE		0	UG/L	NA	
10/1/2001	1,2,3-TRICHLOROBENZENE		0	UG/L	NA	
10/1/2001	1,2,3-TRICHLOROPROPANE		0	UG/L	NA	
10/10/1985	1,2,4-TRICHLOROBENZENE	<	5	UG/L	5	
10/1/2001	1,2,4-TRIMETHYLBENZENE		0	UG/L	NA	
10/10/1985	1,2-DICHLOROBENZENE	<	0.5	UG/L	600	
10/10/1985	1,2-DICHLOROETHANE	<	0.5	UG/L	0.5	
10/10/1985	1,2-DICHLOROPROPANE	<	0.5	UG/L	5	
10/1/2001	1,3,5-TRIMETHYLBENZENE		0	UG/L	NA	
10/10/1985	1,3-DICHLOROBENZENE	<	0.5	UG/L	NA	
10/1/2001	1,3-DICHLOROPROPANE		0	UG/L	NA	
10/1/2001	1,3-DICHLOROPROPENE (TOTAL)		0	UG/L	0.5	
10/10/1985	1,4-DICHLOROBENZENE	<	0.5	UG/L	5	
10/1/2001	1-PHENYLPROPANE (N-PROPYLBENZENE)		0	UG/L	NA	
10/1/2001	2,2-DICHLOROPROPANE		0	UG/L	NA	
8/27/1987	2,4,5-TP (SILVEX)	<	0.2	UG/L	50	
10/10/1985	2,4,6-TRICHLOROPHENOL	<	5	UG/L	NA	
8/27/1987	2,4-D	<	2	UG/L	70	
10/10/1985	2,4-DICHLOROPHENOL	<	5	UG/L	NA	
10/10/1985	2,4-DIMETHYLPHENOL	<	5	UG/L	NA	
10/10/1985	2,4-DINITROPHENOL	<	5	UG/L	NA	
10/10/1985	2,4-DINITROTOLUENE	<	5	UG/L	NA	
10/10/1985	2,6-DINITROTOLUENE	<	5	UG/L	NA	
10/10/1985	2-CHLOROETHYLVINYL ETHER	<	0.5	UG/L	NA	
10/10/1985	2-CHLORONAPHTHALENE	<	5	UG/L	NA	
10/10/1985	2-CHLOROPHENOL	<	5	UG/L	NA	
10/1/2001	2-CHLOROTOLUENE		0	UG/L	NA	
10/10/1985	2-METHYL-4,6-DINITROPHENOL	<	5	UG/L	NA	
10/10/1985	2-NITROPHENOL	<	5	UG/L	NA	

10/10/1985	3,3-DICHLOROBENZIDINE	<	20	UG/L	NA	
10/10/1985	4,4-DDD	<	0.02	UG/L	NA	
10/10/1985	4,4-DDE	<	0.01	UG/L	NA	
10/10/1985	4,4-DDT	<	0.02	UG/L	NA	
10/10/1985	4-BROMOPHENYL PHENYL ETHER	<	5	UG/L	NA	
10/10/1985	4-CHLORO-3-METHYLPHENOL	<	5	UG/L	NA	
10/10/1985	4-CHLOROPHENYL PHENYL ETHER	<	5	UG/L	NA	
10/1/2001	4-CHLOROTOLUENE		0	UG/L	NA	
10/10/1985	4-NITROPHENOL	<	5	UG/L	NA	
10/10/1985	ACENAPHTHENE	<	5	UG/L	NA	
10/10/1985	ACENAPHTHYLENE	<	5	UG/L	NA	
10/10/1985	ALACHLOR	<	0.2	UG/L	2	
10/10/1985	ALDRIN	<	0.01	UG/L	NA	
8/13/1992	ALKALINITY (TOTAL) AS CACO3		213.6	MG/L	NA	
10/10/1985	ALPHA-BHC	<	0.01	UG/L	NA	
11/15/2000	ALUMINUM		51	UG/L	1000	
6/4/1990	ALUMINUM, DISSOLVED	<	0.1	UG/L	NA	
12/13/1994	AMMONIA (NH3-N)		0.24	MG/L	NA	
10/10/1985	ANTHRACENE	<	5	UG/L	NA	
11/15/2000	ANTIMONY		0	UG/L	6	
8/27/1987	ARSENIC	<	20	UG/L	10	
8/30/1989	ATRAZINE	<	1	UG/L	1	
11/15/2000	BARIUM	<	100	UG/L	1000	
10/10/1985	BENFLURALIN	<	1	UG/L	NA	
12/13/1994	BENTAZON		0	UG/L	18	
10/10/1985	BENZENE	<	0.5	UG/L	1	
10/10/1985	BENZIDINE	<	5	UG/L	NA	
10/10/1985	BENZO (A) ANTHRACENE	<	10	UG/L	NA	
10/10/1985	BENZO (A) PYRENE	<	10	UG/L	0.2	
10/10/1985	BENZO (B) FLUORANTHENE	<	10	UG/L	NA	
10/10/1985	BENZO (GHI) PERYLENE	<	10	UG/L	NA	
10/10/1985	BENZO (K) FLUORANTHENE	<	10	UG/L	NA	
10/10/1985	BENZYL BUTYL PHTHALATE	<	10	UG/L	NA	
11/15/2000	BERYLLIUM		0	UG/L	4	
10/10/1985	BETA-BHC	<	0.05	UG/L	NA	
8/13/1992	BICARBONATE ALKALINITY		260.6	MG/L	NA	
10/10/1985	BIS (2-CHLOROETHOXY) METHANE	<	5	UG/L	NA	
10/1/2001	BIS (2-CHLOROETHYL) ETHER		0	UG/L	NA	
10/10/1985	BIS (2-CHLOROISOPROPYL) ETHER	<	5	UG/L	NA	
6/12/1995	BORON		170	UG/L	NA	
10/10/1985	BROMACIL	<	10	UG/L	NA	
10/1/2001	BROMOBENZENE		0	UG/L	NA	
10/1/2001	BROMOCHLOROMETHANE		0	UG/L	NA	
10/10/1985	BROMODICHLORMETHANE (THM)	<	0.5	UG/L	NA	
10/10/1985	BROMOFORM (THM)	<	0.5	UG/L	NA	
10/10/1985	BROMOMETHANE	<	2	UG/L	NA	
12/13/1994	BUTACHLOR		0	UG/L	NA	
8/27/1987	CADMIUM	<	5	UG/L	5	
8/27/1987	CALCIUM		98.2	MG/L	NA	
10/10/1985	CAPTAN	<	1	UG/L	NA	

10/10/1985	CARBARYL	<	1	UG/L	NA	
10/10/1985	CARBON TETRACHLORIDE	<	0.5	UG/L	0.5	
8/31/1992	CARBONATE ALKALINITY	<	1	MG/L	NA	
10/10/1985	CHLORDANE	<	0.05	UG/L	0.1	
10/10/1985	CHLORDIMEFORM	<	1	UG/L	NA	
11/15/2000	CHLORIDE		63	MG/L	500	
10/10/1985	CHLOROETHANE	<	0.5	UG/L	NA	
10/4/1988	CHLOROFORM (THM)		2.3	UG/L	NA	
10/10/1985	CHLOROMETHANE	<	0.5	UG/L	NA	
10/10/1985	CHLOROPICRIN	<	1	UG/L	NA	
10/10/1985	CHLOROPROPHAM	<	10	UG/L	NA	
10/10/1985	CHLOROTHALONIL	<	5	UG/L	NA	
8/28/2000	CHROMIUM (TOTAL)		86	UG/L	50	
8/6/2001	CHROMIUM, HEXAVALENT		75	UG/L	10	
10/10/1985	CHRYSENE	<	5	UG/L	NA	
10/1/2001	CIS-1,2-DICHLOROETHYLENE		0	UG/L	6	
10/10/1985	CIS-1,3-DICHLOROPROPENE	<	0.5	UG/L	0.5	
10/10/1985	CIS-PERMETHRIN	<	1	UG/L	NA	
8/27/1987	COLOR	<	5	UNITS	15	
12/2/1997	COPPER		74.5	UG/L	1000	
11/5/1985	CYANAZINE	<	150	UG/L	NA	
6/12/1995	CYANIDE		0	UG/L	150	
10/10/1985	DACTHAL	<	0.1	UG/L	NA	
6/12/1995	DALAPON		0	UG/L	200	
10/10/1985	DELTA-BHC	<	0.05	UG/L	NA	
6/12/1995	DI(2-ETHYLHEXYL)ADIPATE		0	UG/L	400	
10/10/1985	DI(2-ETHYLHEXYL)PHTHALATE	<	5	UG/L	4	
10/10/1985	DI-N-BUTYLPHTHALATE	<	5	UG/L	NA	
10/10/1985	DI-N-OCTYLPHTHALATE	<	5	UG/L	NA	
4/27/1995	DIAZINON		0	UG/L	NA	
10/10/1985	DIBENZO (A,H) ANTHRACENE	<	5	UG/L	NA	
10/10/1985	DIBROMOCHLOROMETHANE (THM)	<	0.5	UG/L	NA	
8/30/1989	DIBROMOCHLOROPROPANE (DBCP)	<	0.01	UG/L	0.2	
10/1/2001	DIBROMOMETHANE		0	UG/L	NA	
12/13/1994	DICAMBA		0	UG/L	NA	
10/10/1985	DICHLORODIFLUOROMETHANE (FREON 12)	<	0.5	UG/L	NA	
10/10/1985	DICHLOROMETHANE	<	0.5	UG/L	5	
10/10/1985	DICOFOL	<	0.1	UG/L	NA	
10/10/1985	DIELDRIN	<	0.05	UG/L	NA	
10/10/1985	DIETHYL PHTHALATE	<	5	UG/L	NA	
2/5/1992	DIMETHOATE		0	UG/L	NA	
10/10/1985	DIMETHYL PHTHALATE	<	5	UG/L	NA	
10/10/1985	DINOSEB	<	100	UG/L	7	
10/10/1985	DIPHENAMIDE	<	10.1	UG/L	NA	
11/4/1998	DIQUAT		0	UG/L	20	
10/10/1985	DIURON	<	1	UG/L	NA	
10/10/1985	DNOC	<	100	UG/L	NA	
10/10/1985	ENDOSULFAN I	<	0.01	UG/L	NA	
10/10/1985	ENDOSULFAN II	<	0.05	UG/L	NA	
10/10/1985	ENDOSULFAN SULFATE	<	0.05	UG/L	NA	

10/10/1985	ENDOTHALL	<	100	UG/L	100
8/27/1987	ENDRIN	<	0.1	UG/L	2
10/10/1985	ENDRIN ALDEHYDE	<	0.05	UG/L	NA
10/10/1985	EPTC	<	10	UG/L	NA
10/1/2001	ETHYL-TERT-BUTYL ETHER		0	UG/L	NA
10/10/1985	ETHYLBENZENE	<	0.5	UG/L	300
8/30/1989	ETHYLENE DIBROMIDE (EDB)	<	0.02	UG/L	0.05
10/10/1985	FLUCHLORALIN	<	1	UG/L	NA
10/10/1985	FLUORANTHENE	<	5	UG/L	NA
10/10/1985	FLUORENE	<	5	UG/L	NA
8/31/1992	FLUORIDE (F) (NATURAL-SOURCE)		0.5	MG/L	2
8/31/1992	FOAMING AGENTS (MBAS)	<	0.02	MG/L	0.5
11/4/1998	GLYPHOSATE		0	UG/L	700
4/13/1998	GROSS ALPHA		5.7	PCI/L	15
4/13/1998	GROSS ALPHA COUNTING ERROR		2.7	PCI/L	NA
12/13/1994	GROSS BETA		7.73	PCI/L	50
6/12/1995	GROSS BETA COUNTING ERROR		3.4	PCI/L	NA
11/15/2000	HARDNESS (TOTAL) AS CACO3		300	MG/L	NA
10/10/1985	HEPTACHLOR	<	0.02	UG/L	0.01
10/10/1985	HEPTACHLOR EPOXIDE	<	0.1	UG/L	0.01
10/10/1985	HEXACHLOROBENZENE	<	5	UG/L	1
10/10/1985	HEXACHLOROBUTADIENE	<	5	UG/L	NA
10/10/1985	HEXACHLOROCYCLOPENTADIENE	<	20	UG/L	50
10/10/1985	HEXACHLOROETHANE	<	5	UG/L	NA
8/31/1992	HYDROXIDE ALKALINITY	<	1	MG/L	NA
10/10/1985	INDENO (1,2,3-CD) PYRENE	<	10	UG/L	NA
6/3/1998	IRON		3430	UG/L	300
10/10/1985	ISOPHORONE	<	10	UG/L	NA
10/1/2001	ISOPROPYLBENZENE		0	UG/L	NA
10/10/1985	KEROSENE	<	1	UG/L	NA
11/4/1998	LANGELIER INDEX AT SOURCE TEMP.		0.293		NA
12/2/1997	LEAD		10.1	UG/L	NA
8/27/1987	LINDANE	<	0.1	UG/L	0.2
10/1/2001	M,P-XYLENE		0	UG/L	NA
10/1/2001	M-XYLENE		0	UG/L	NA
8/13/1992	MAGNESIUM		27.1	MG/L	NA
12/2/1997	MANGANESE		121	UG/L	50
6/4/1990	MERCURY	<	1	UG/L	2
10/10/1985	MERPHOS	<	1	UG/L	NA
10/10/1985	METHOMYL	<	10	UG/L	NA
8/27/1987	METHOXYCHLOR	<	1	UG/L	30
10/10/1985	METHYL ETHYL KETONE	<	1	UG/L	NA
10/10/1985	METHYL ISOBUTYL KETONE	<	1	UG/L	NA
10/1/2001	METHYL-TERT-BUTYL-ETHER (MTBE)		0	UG/L	13
8/30/1989	MOLINATE	<	2	UG/L	20
10/10/1985	MONOCHLOROBENZENE	<	0.5	UG/L	70
10/1/2001	N-BUTYLBENZENE		0	UG/L	NA
10/10/1985	N-NITROSODI-N-PROPYLAMINE (NDPA)	<	5	UG/L	NA
10/10/1985	N-NITROSODIMETHYLAMINE (NDMA)	<	5	UG/L	NA
10/10/1985	N-NITROSODIPHENYLAMINE	<	5	UG/L	NA

10/10/1985	NAPHTHALENE	<	5	UG/L	NA	
10/10/1985	NAPROPAMIDE	<	5	UG/L	NA	
11/15/2000	NICKEL		0	UG/L	100	
8/6/2001	NITRATE (AS NO3)		18	MG/L	45	
6/12/1995	NITRATE + NITRITE (AS N)		2800	UG/L	10000	
12/13/1994	NITRATE NITROGEN (NO3-N)		2800	UG/L	10000	
2/2/1995	NITRITE (AS N)	<	400	UG/L	1000	
10/10/1985	NITROBENZENE	<	5	UG/L	NA	
10/1/2001	O-XYLENE		0	UG/L	NA	
11/15/2000	ODOR THRESHOLD @ 60 C		1	TON	3	
10/10/1985	ORYZALIN	<	1	UG/L	NA	
10/10/1985	OXAMYL	<	10	UG/L	50	
10/1/2001	P-ISOPROPYLTOLUENE		0	UG/L	NA	
10/1/2001	P-XYLENE		0	UG/L	NA	
10/10/1985	PCB-1016 (AS DECACHLOROBIPHENYL (DCB))	<	0.2	UG/L	NA	
10/10/1985	PCB-1221 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PCB-1232 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PCB-1242 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PCB-1248 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PCB-1254 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PCB-1260 (AS DCB)	<	0.2	UG/L	NA	
10/10/1985	PENTACHLOROPHENOL	<	0.5	UG/L	1	
5/2/2000	PERCHLORATE		0	UG/L	6	
6/12/1995	PH, FIELD		7.5		NA	
8/27/1987	PH, LABORATORY		8.08		NA	
10/10/1985	PHENANTHRENE	<	5	UG/L	NA	
10/10/1985	PHENOL	<	5	UG/L	NA	
6/12/1995	PICLORAM		0	UG/L	500	
6/12/1995	POLYCHLORINATED BIPHENYLS, TOTAL, AS DCB		0	UG/L	0.5	
8/27/1987	POTASSIUM		3.9	MG/L	NA	
11/5/1985	PROMETRYN	<	0.5	UG/L	NA	
10/10/1985	PROPAMIDE	<	1	UG/L	NA	
10/10/1985	PROPARGITE	<	1	MG/L	NA	
10/10/1985	PROPHAM	<	10	UG/L	NA	
10/10/1985	PYRENE	<	5	UG/L	NA	
3/27/2000	RADON 222		270	PCI/L	NA	
8/1/2000	RADON 222 COUNTING ERROR		26	PCI/L	NA	
10/1/2001	SEC-BUTYLBENZENE		0	UG/L	NA	
6/4/1990	SELENIUM	<	5	UG/L	50	
6/4/1990	SILVER	<	10	UG/L	100	
8/30/1989	SIMAZINE	<	1	UG/L	4	
8/13/1992	SODIUM		53.5	MG/L	NA	
6/12/1995	SOURCE TEMPERATURE C		66	C	NA	
11/15/2000	SPECIFIC CONDUCTANCE		850	US	1600	
6/12/1995	STRONTIUM-90	-	0.06	PCI/L	8	
6/12/1995	STRONTIUM-90 COUNTING ERROR		1.35	PCI/L	NA	
10/1/2001	STYRENE		0	UG/L	100	
11/15/2000	SULFATE		120	MG/L	600	
10/1/2001	TERT-AMYL-METHYL ETHER		0	UG/L	NA	
8/6/2001	TERT-BUTYL ALCOHOL		0	UG/L	NA	

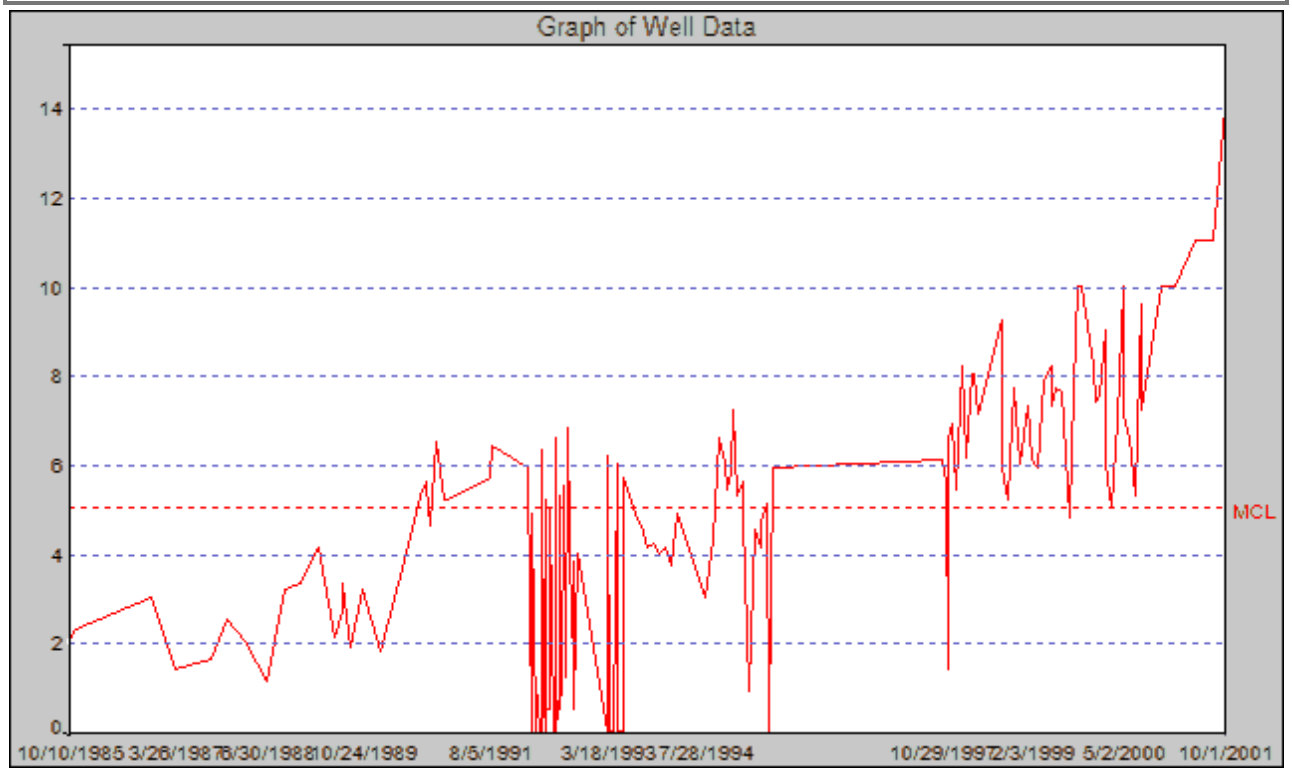
10/1/2001	TERT-BUTYLBENZENE		0	UG/L	NA	
10/1/2001	TETRACHLOROETHYLENE		3.8	UG/L	5	
11/15/2000	THALLIUM		0	UG/L	2	
8/30/1989	THIOBENCARB	<	0.8	UG/L	70	
11/5/1990	TOLUENE		0.7	UG/L	150	
8/27/1987	TOTAL DISSOLVED SOLIDS		545.2	MG/L	1000	
10/1/2001	TOTAL TRIHALOMETHANES		0	UG/L	80	
8/27/1987	TOXAPHENE	<	2	UG/L	3	
10/10/1985	TRANS-1,2-DICHLOROETHYLENE	<	0.5	UG/L	10	
10/10/1985	TRANS-1,3-DICHLOROPROPENE	<	0.5	UG/L	NA	
10/10/1985	TRANS-PERMETHRIN	<	1	UG/L	NA	
10/1/2001	TRICHLOROETHYLENE		14	UG/L	5	
10/10/1985	TRICHLOROFLUOROMETHANE	<	0.5	UG/L	150	
6/12/1995	TRITIUM		17.2	PCI/L	20000	
12/13/1994	TRITIUM COUNTING ERROR		199.7	PCI/L	NA	
12/2/1997	TURBIDITY, LABORATORY		1.45	NTU	5	
4/13/1998	URANIUM (PCI/L)		2.4	PCI/L	20	
12/2/1997	URANIUM COUNTING ERROR		0.85	PCI/L	NA	
10/1/2001	VANADIUM		0	UG/L	NA	
10/10/1985	VINYL CHLORIDE	<	0.5	UG/L	0.5	
10/10/1985	XYLENES (TOTAL)	<	0.5	UG/L	1750	
8/31/1992	ZINC	<	50	UG/L	5000	

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
10/1/2001	TRICHLOROETHYLENE	14	UG/L	5
8/6/2001	TRICHLOROETHYLENE	11	UG/L	5
5/2/2001	TRICHLOROETHYLENE	11	UG/L	5
1/22/2001	TRICHLOROETHYLENE	10	UG/L	5
11/15/2000	TRICHLOROETHYLENE	10	UG/L	5
8/3/2000	TRICHLOROETHYLENE	7.2	UG/L	5
8/1/2000	TRICHLOROETHYLENE	9.6	UG/L	5
7/6/2000	TRICHLOROETHYLENE	5.3	UG/L	5
6/1/2000	TRICHLOROETHYLENE	6.6	UG/L	5
5/4/2000	TRICHLOROETHYLENE	7.1	UG/L	5
5/2/2000	TRICHLOROETHYLENE	10	UG/L	5
4/6/2000	TRICHLOROETHYLENE	7	UG/L	5
3/2/2000	TRICHLOROETHYLENE	5	UG/L	5
2/3/2000	TRICHLOROETHYLENE	6	UG/L	5
2/1/2000	TRICHLOROETHYLENE	9	UG/L	5
1/6/2000	TRICHLOROETHYLENE	7.5	UG/L	5
12/22/1999	TRICHLOROETHYLENE	7.4	UG/L	5
12/9/1999	TRICHLOROETHYLENE	8.2	UG/L	5
10/11/1999	TRICHLOROETHYLENE	10	UG/L	5
9/15/1999	TRICHLOROETHYLENE	10	UG/L	5
9/2/1999	TRICHLOROETHYLENE	7.7	UG/L	5
8/5/1999	TRICHLOROETHYLENE	4.8	UG/L	5
7/1/1999	TRICHLOROETHYLENE	7.6	UG/L	5
6/3/1999	TRICHLOROETHYLENE	7.7	UG/L	5
5/6/1999	TRICHLOROETHYLENE	7.3	UG/L	5

5/5/1999	TRICHLOROETHYLENE	8.2	UG/L	5
4/1/1999	TRICHLOROETHYLENE	7.9	UG/L	5
3/4/1999	TRICHLOROETHYLENE	5.9	UG/L	5
2/3/1999	TRICHLOROETHYLENE	6.1	UG/L	5
1/7/1999	TRICHLOROETHYLENE	7.3	UG/L	5
12/3/1998	TRICHLOROETHYLENE	6	UG/L	5
11/4/1998	TRICHLOROETHYLENE	7.7	UG/L	5
10/1/1998	TRICHLOROETHYLENE	5.2	UG/L	5
9/3/1998	TRICHLOROETHYLENE	5.9	UG/L	5
9/1/1998	TRICHLOROETHYLENE	9.2	UG/L	5
5/7/1998	TRICHLOROETHYLENE	7.1	UG/L	5
4/13/1998	TRICHLOROETHYLENE	8	UG/L	5
4/2/1998	TRICHLOROETHYLENE	8	UG/L	5
3/5/1998	TRICHLOROETHYLENE	6.13	UG/L	5
2/12/1998	TRICHLOROETHYLENE	8.2	UG/L	5
1/8/1998	TRICHLOROETHYLENE	5.4	UG/L	5
12/18/1997	TRICHLOROETHYLENE	6.9	UG/L	5
12/4/1997	TRICHLOROETHYLENE	6.6	UG/L	5
12/2/1997	TRICHLOROETHYLENE	1.4	UG/L	5
11/20/1997	TRICHLOROETHYLENE	5.6	UG/L	5
10/29/1997	TRICHLOROETHYLENE	6.1	UG/L	5
7/6/1995	TRICHLOROETHYLENE	5.9	UG/L	5
6/12/1995	TRICHLOROETHYLENE	0	UG/L	5
6/1/1995	TRICHLOROETHYLENE	5.1	UG/L	5
5/4/1995	TRICHLOROETHYLENE	4.7	UG/L	5
4/27/1995	TRICHLOROETHYLENE	4.1	UG/L	5
4/6/1995	TRICHLOROETHYLENE	4.5	UG/L	5
3/2/1995	TRICHLOROETHYLENE	0.9	UG/L	5
2/2/1995	TRICHLOROETHYLENE	4.8	UG/L	5
2/2/1995	TRICHLOROETHYLENE	5.6	UG/L	5
1/5/1995	TRICHLOROETHYLENE	5.3	UG/L	5
12/13/1994	TRICHLOROETHYLENE	7.2	UG/L	5
12/1/1994	TRICHLOROETHYLENE	5.8	UG/L	5
11/7/1994	TRICHLOROETHYLENE	5.4	UG/L	5
11/2/1994	TRICHLOROETHYLENE	6	UG/L	5
10/6/1994	TRICHLOROETHYLENE	6.6	UG/L	5
9/1/1994	TRICHLOROETHYLENE	4.3	UG/L	5
7/28/1994	TRICHLOROETHYLENE	3	UG/L	5
3/3/1994	TRICHLOROETHYLENE	4.9	UG/L	5
2/3/1994	TRICHLOROETHYLENE	3.7	UG/L	5
2/1/1994	TRICHLOROETHYLENE	3.7	UG/L	5
1/6/1994	TRICHLOROETHYLENE	4.1	UG/L	5
12/2/1993	TRICHLOROETHYLENE	4	UG/L	5
11/2/1993	TRICHLOROETHYLENE	4.2	UG/L	5
10/7/1993	TRICHLOROETHYLENE	4.1	UG/L	5
9/2/1993	TRICHLOROETHYLENE	4.6	UG/L	5
8/10/1993	TRICHLOROETHYLENE	4.9	UG/L	5
6/3/1993	TRICHLOROETHYLENE	0	UG/L	5
6/3/1993	TRICHLOROETHYLENE	5.7	UG/L	5
5/6/1993	TRICHLOROETHYLENE	6	UG/L	5
5/6/1993	TRICHLOROETHYLENE	0	UG/L	5
4/15/1993	TRICHLOROETHYLENE	0	UG/L	5
4/1/1993	TRICHLOROETHYLENE	0	UG/L	5
3/22/1993	TRICHLOROETHYLENE	6.2	UG/L	5
3/18/1993	TRICHLOROETHYLENE	0	UG/L	5
10/19/1992	TRICHLOROETHYLENE	4	UG/L	5
10/1/1992	TRICHLOROETHYLENE	0.5	UG/L	5
10/1/1992	TRICHLOROETHYLENE	0.8	UG/L	5
10/1/1992	TRICHLOROETHYLENE	1.1	UG/L	5
10/1/1992	TRICHLOROETHYLENE	3.8	UG/L	5
9/17/1992	TRICHLOROETHYLENE	2.1	UG/L	5
9/3/1992	TRICHLOROETHYLENE	6.8	UG/L	5
8/20/1992	TRICHLOROETHYLENE	1.2	UG/L	5
8/6/1992	TRICHLOROETHYLENE	5.5	UG/L	5

7/30/1992	TRICHLOROETHYLENE	0.8	UG/L	5
7/17/1992	TRICHLOROETHYLENE	5.3	UG/L	5
7/16/1992	TRICHLOROETHYLENE	0.5	UG/L	5
7/16/1992	TRICHLOROETHYLENE	0.9	UG/L	5
7/2/1992	TRICHLOROETHYLENE	0	UG/L	5
7/2/1992	TRICHLOROETHYLENE	6.6	UG/L	5
7/2/1992	TRICHLOROETHYLENE	0.5	UG/L	5
7/2/1992	TRICHLOROETHYLENE	0.5	UG/L	5
6/25/1992	TRICHLOROETHYLENE	0.5	UG/L	5
6/18/1992	TRICHLOROETHYLENE	0	UG/L	5
6/4/1992	TRICHLOROETHYLENE	5	UG/L	5
5/28/1992	TRICHLOROETHYLENE	0.5	UG/L	5
5/14/1992	TRICHLOROETHYLENE	0.5	UG/L	5
5/14/1992	TRICHLOROETHYLENE	0	UG/L	5
5/7/1992	TRICHLOROETHYLENE	5.2	UG/L	5
5/7/1992	TRICHLOROETHYLENE	0.7	UG/L	5
5/7/1992	TRICHLOROETHYLENE	0.8	UG/L	5
5/7/1992	TRICHLOROETHYLENE	0	UG/L	5
4/30/1992	TRICHLOROETHYLENE	0.6	UG/L	5
4/17/1992	TRICHLOROETHYLENE	6.3	UG/L	5
4/16/1992	TRICHLOROETHYLENE	0	UG/L	5
4/16/1992	TRICHLOROETHYLENE	0	UG/L	5
4/9/1992	TRICHLOROETHYLENE	0	UG/L	5
4/2/1992	TRICHLOROETHYLENE	0.8	UG/L	5
4/2/1992	TRICHLOROETHYLENE	0.6	UG/L	5
3/19/1992	TRICHLOROETHYLENE	0	UG/L	5
3/5/1992	TRICHLOROETHYLENE	0	UG/L	5
3/5/1992	TRICHLOROETHYLENE	0	UG/L	5
3/5/1992	TRICHLOROETHYLENE	4.9	UG/L	5
2/5/1992	TRICHLOROETHYLENE	5.9	UG/L	5
8/14/1991	TRICHLOROETHYLENE	6.4	UG/L	5
8/5/1991	TRICHLOROETHYLENE	5.7	UG/L	5
1/2/1991	TRICHLOROETHYLENE	5.2	UG/L	5
12/11/1990	TRICHLOROETHYLENE	5.2	UG/L	5
11/5/1990	TRICHLOROETHYLENE	6.5	UG/L	5
10/9/1990	TRICHLOROETHYLENE	4.6	UG/L	5
9/12/1990	TRICHLOROETHYLENE	5.6	UG/L	5
9/12/1990	TRICHLOROETHYLENE	5.5	UG/L	5
8/17/1990	TRICHLOROETHYLENE	5.3	UG/L	5
6/4/1990	TRICHLOROETHYLENE	4	UG/L	5
1/24/1990	TRICHLOROETHYLENE	1.8	UG/L	5
10/24/1989	TRICHLOROETHYLENE	3.2	UG/L	5
8/31/1989	TRICHLOROETHYLENE	1.9	UG/L	5
7/19/1989	TRICHLOROETHYLENE	3.3	UG/L	5
7/19/1989	TRICHLOROETHYLENE	2.7	UG/L	5
6/6/1989	TRICHLOROETHYLENE	2.1	UG/L	5
3/16/1989	TRICHLOROETHYLENE	4.1	UG/L	5
12/15/1988	TRICHLOROETHYLENE	3.3	UG/L	5
10/4/1988	TRICHLOROETHYLENE	3.2	UG/L	5
6/30/1988	TRICHLOROETHYLENE	1.1	UG/L	5
6/30/1988	TRICHLOROETHYLENE	1.1	UG/L	5
3/17/1988	TRICHLOROETHYLENE	2	UG/L	5
12/17/1987	TRICHLOROETHYLENE	2.5	UG/L	5
9/23/1987	TRICHLOROETHYLENE	1.6	UG/L	5
3/26/1987	TRICHLOROETHYLENE	1.4	UG/L	5
12/1/1986	TRICHLOROETHYLENE	3	UG/L	5
11/5/1985	TRICHLOROETHYLENE	2.3	UG/L	5
10/10/1985	TRICHLOROETHYLENE	2	UG/L	5

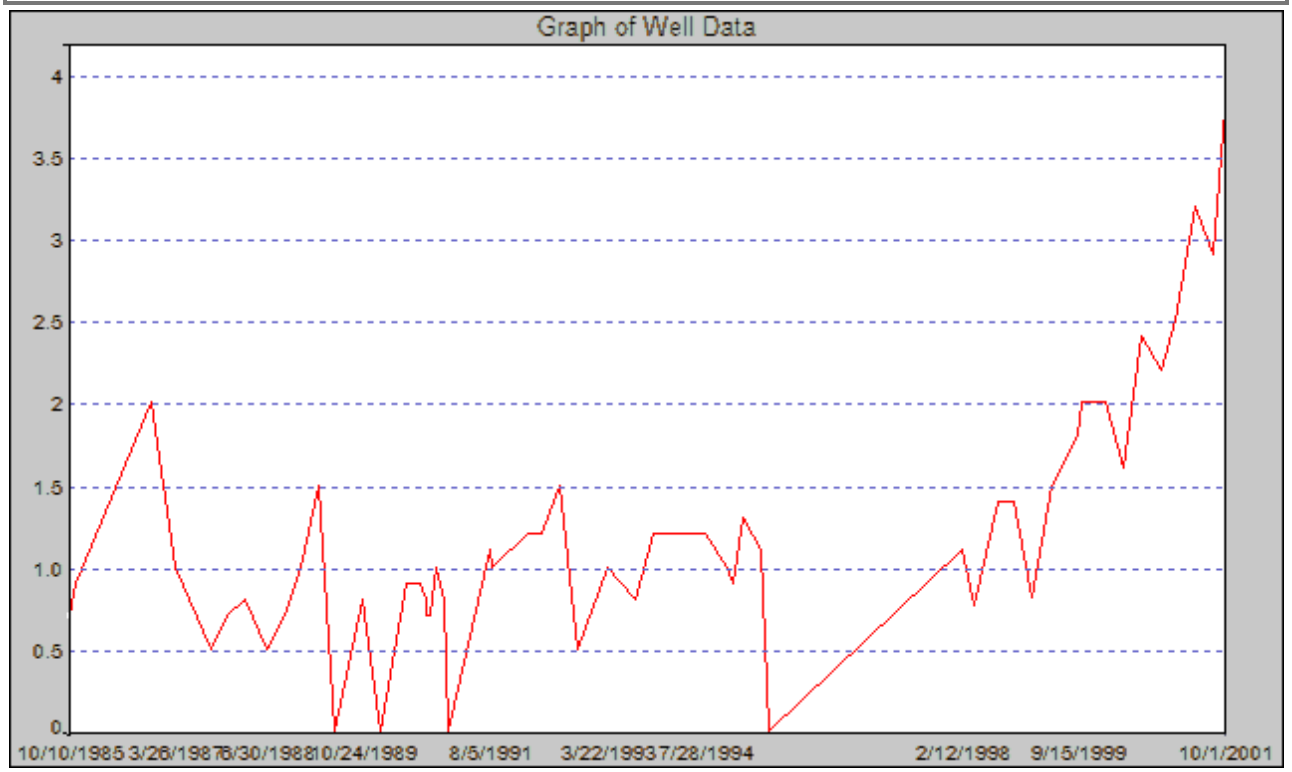
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
10/1/2001	TETRACHLOROETHYLENE	3.8	UG/L	5
8/6/2001	TETRACHLOROETHYLENE	2.9	UG/L	5
5/2/2001	TETRACHLOROETHYLENE	3.2	UG/L	5
1/22/2001	TETRACHLOROETHYLENE	2.5	UG/L	5
11/15/2000	TETRACHLOROETHYLENE	2.2	UG/L	5
8/1/2000	TETRACHLOROETHYLENE	2.4	UG/L	5
5/2/2000	TETRACHLOROETHYLENE	1.6	UG/L	5
2/1/2000	TETRACHLOROETHYLENE	2	UG/L	5
10/11/1999	TETRACHLOROETHYLENE	2	UG/L	5
9/15/1999	TETRACHLOROETHYLENE	1.8	UG/L	5
5/5/1999	TETRACHLOROETHYLENE	1.5	UG/L	5
2/3/1999	TETRACHLOROETHYLENE	0.81	UG/L	5
11/4/1998	TETRACHLOROETHYLENE	1.4	UG/L	5
9/1/1998	TETRACHLOROETHYLENE	1.4	UG/L	5
8/13/1998	TETRACHLOROETHYLENE	1.4	UG/L	5
4/13/1998	TETRACHLOROETHYLENE	0.76	UG/L	5
2/12/1998	TETRACHLOROETHYLENE	1.1	UG/L	5
6/12/1995	TETRACHLOROETHYLENE	0	UG/L	5
4/27/1995	TETRACHLOROETHYLENE	1.1	UG/L	5
2/2/1995	TETRACHLOROETHYLENE	1.3	UG/L	5
12/13/1994	TETRACHLOROETHYLENE	0.9	UG/L	5
11/7/1994	TETRACHLOROETHYLENE	1	UG/L	5
7/28/1994	TETRACHLOROETHYLENE	1.2	UG/L	5
11/2/1993	TETRACHLOROETHYLENE	1.2	UG/L	5
8/10/1993	TETRACHLOROETHYLENE	0.8	UG/L	5

3/22/1993	TETRACHLOROETHYLENE	1	UG/L	5
10/19/1992	TETRACHLOROETHYLENE	0.5	UG/L	5
7/17/1992	TETRACHLOROETHYLENE	1.5	UG/L	5
4/17/1992	TETRACHLOROETHYLENE	1.2	UG/L	5
2/5/1992	TETRACHLOROETHYLENE	1.2	UG/L	5
8/14/1991	TETRACHLOROETHYLENE	1	UG/L	5
8/5/1991	TETRACHLOROETHYLENE	1.1	UG/L	5
1/2/1991	TETRACHLOROETHYLENE	0	UG/L	5
12/11/1990	TETRACHLOROETHYLENE	0.8	UG/L	5
11/5/1990	TETRACHLOROETHYLENE	1	UG/L	5
10/9/1990	TETRACHLOROETHYLENE	0.7	UG/L	5
9/12/1990	TETRACHLOROETHYLENE	0.8	UG/L	5
9/12/1990	TETRACHLOROETHYLENE	0.7	UG/L	5
8/17/1990	TETRACHLOROETHYLENE	0.9	UG/L	5
6/4/1990	TETRACHLOROETHYLENE	0.9	UG/L	5
1/24/1990	TETRACHLOROETHYLENE	0	UG/L	5
10/24/1989	TETRACHLOROETHYLENE	0.8	UG/L	5
6/6/1989	TETRACHLOROETHYLENE	0	UG/L	5
3/16/1989	TETRACHLOROETHYLENE	1.5	UG/L	5
12/15/1988	TETRACHLOROETHYLENE	1	UG/L	5
10/4/1988	TETRACHLOROETHYLENE	0.7	UG/L	5
6/30/1988	TETRACHLOROETHYLENE	< 0.5	UG/L	5
6/30/1988	TETRACHLOROETHYLENE	< 0.5	UG/L	5
3/17/1988	TETRACHLOROETHYLENE	0.8	UG/L	5
12/17/1987	TETRACHLOROETHYLENE	0.7	UG/L	5
9/23/1987	TETRACHLOROETHYLENE	< 0.5	UG/L	5
3/26/1987	TETRACHLOROETHYLENE	1	UG/L	5
3/26/1987	TETRACHLOROETHYLENE	1	UG/L	5
12/1/1986	TETRACHLOROETHYLENE	2	UG/L	5
11/5/1985	TETRACHLOROETHYLENE	0.9	UG/L	5
10/10/1985	TETRACHLOROETHYLENE	0.7	UG/L	5

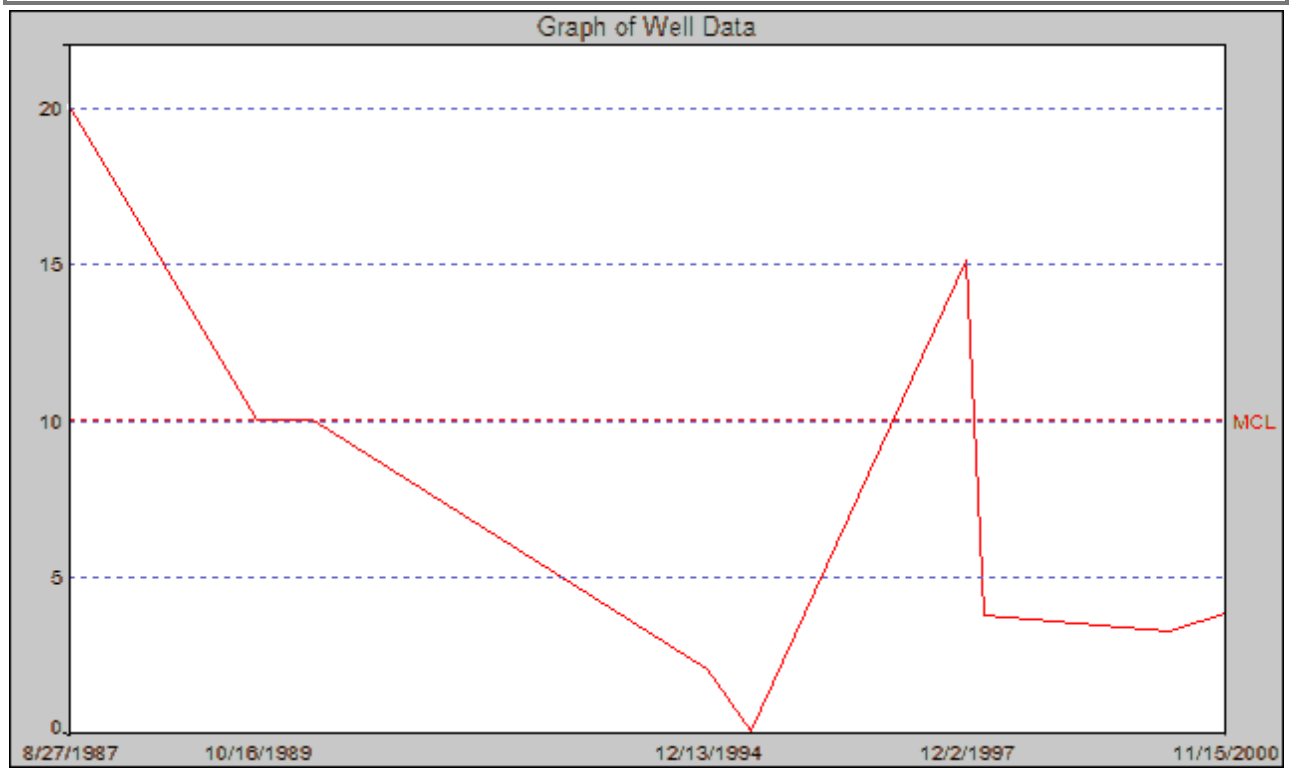
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
11/15/2000	ARSENIC	3.8	UG/L	10
3/27/2000	ARSENIC	3.2	UG/L	10
2/12/1998	ARSENIC	3.72	UG/L	10
12/2/1997	ARSENIC	15.1	UG/L	10
6/12/1995	ARSENIC	0	UG/L	10
12/13/1994	ARSENIC	2	UG/L	10
6/4/1990	ARSENIC	< 10	UG/L	10
10/16/1989	ARSENIC	< 10	UG/L	10
8/27/1987	ARSENIC	< 20	UG/L	10
8/27/1987	ARSENIC	< 20	UG/L	10

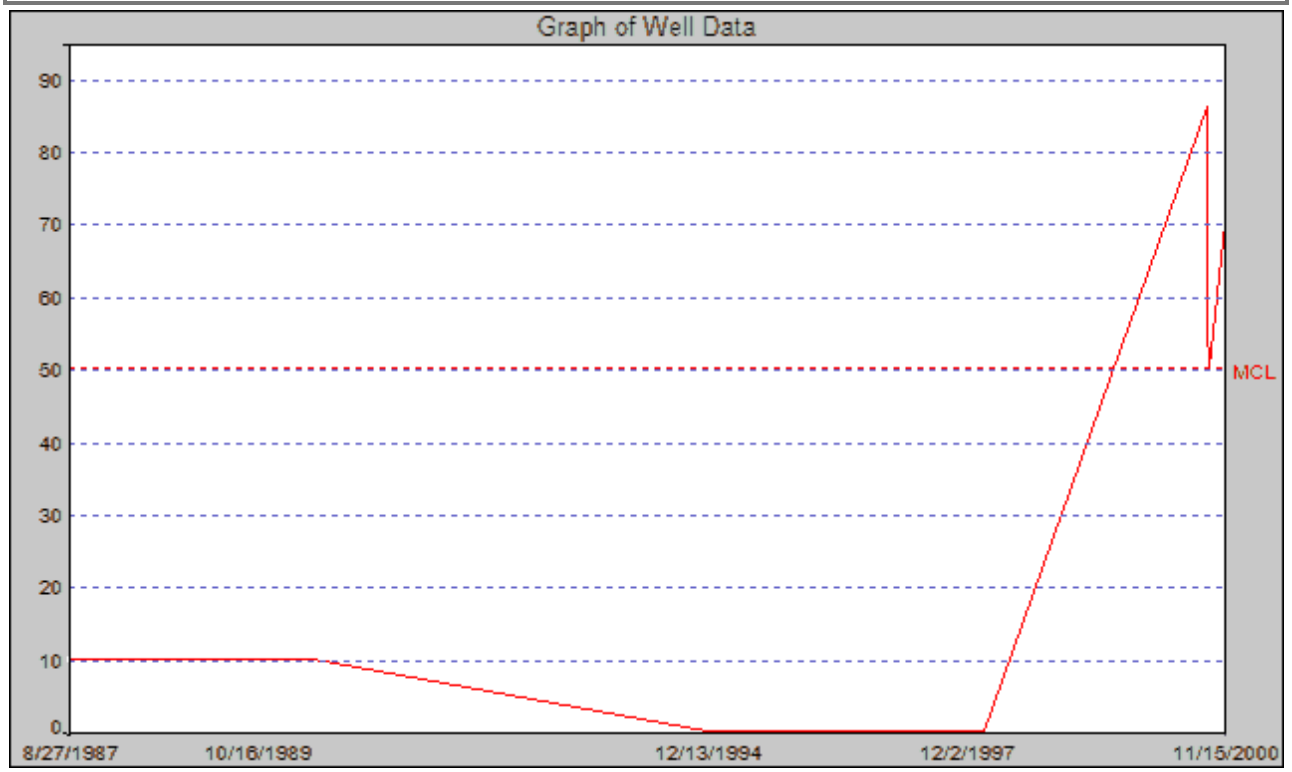
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
11/15/2000	CHROMIUM (TOTAL)	70	UG/L	50
9/7/2000	CHROMIUM (TOTAL)	50	UG/L	50
9/5/2000	CHROMIUM (TOTAL)	56	UG/L	50
8/31/2000	CHROMIUM (TOTAL)	54	UG/L	50
8/28/2000	CHROMIUM (TOTAL)	86	UG/L	50
2/12/1998	CHROMIUM (TOTAL)	0	UG/L	50
12/2/1997	CHROMIUM (TOTAL)	0	UG/L	50
6/12/1995	CHROMIUM (TOTAL)	0	UG/L	50
12/13/1994	CHROMIUM (TOTAL)	0	UG/L	50
6/4/1990	CHROMIUM (TOTAL)	< 10	UG/L	50
10/16/1989	CHROMIUM (TOTAL)	< 10	UG/L	50
8/27/1987	CHROMIUM (TOTAL)	< 10	UG/L	50
8/27/1987	CHROMIUM (TOTAL)	< 10	UG/L	50

FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

SOUTH GATE-CITY, WATER DEPT. (SOUTH GATE)
WELL 07 - DESTROYED
8650 CALIFORNIA AVE.
SOUTH GATE , CA 90280280
(Show This Well on Map)

State Well #: 1910152-002
Well Source: Groundwater
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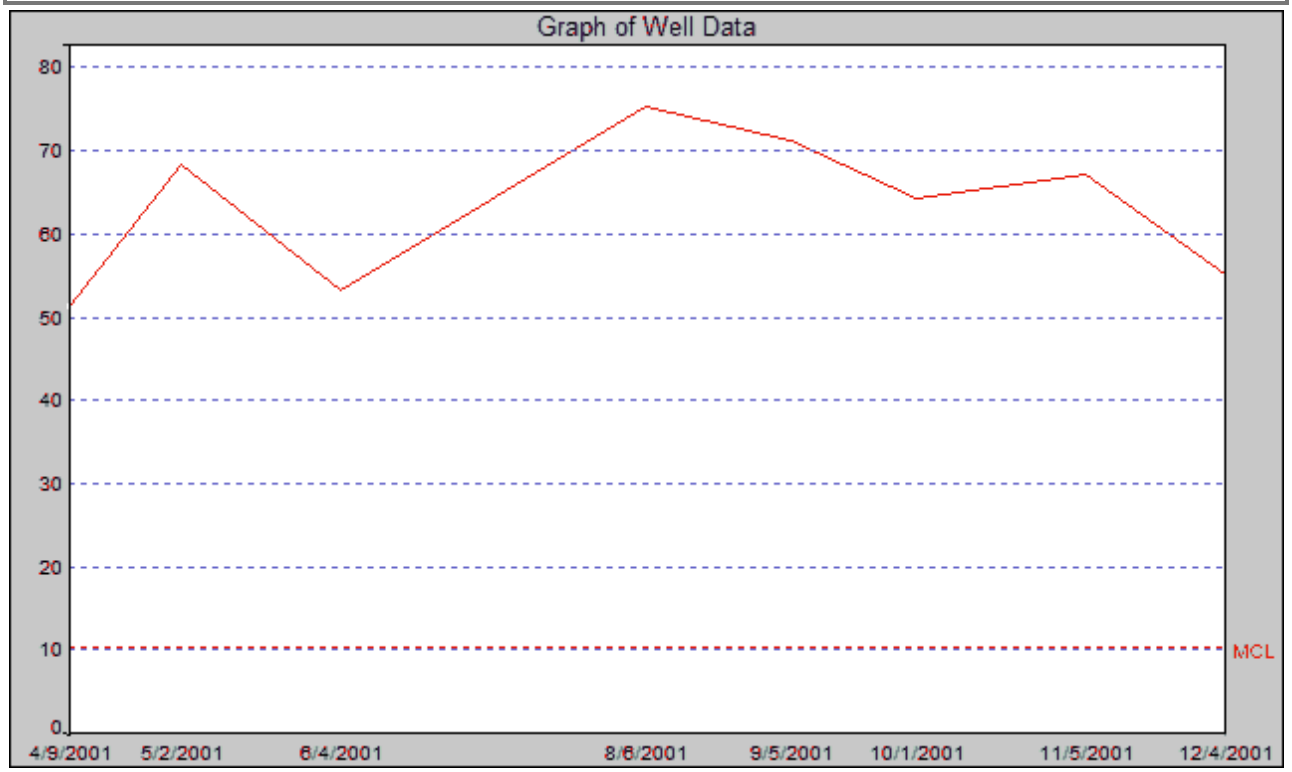
Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
12/4/2001	CHROMIUM, HEXAVALENT	55	UG/L	10
11/5/2001	CHROMIUM, HEXAVALENT	67	UG/L	10
10/1/2001	CHROMIUM, HEXAVALENT	64	UG/L	10
9/5/2001	CHROMIUM, HEXAVALENT	71	UG/L	10
8/6/2001	CHROMIUM, HEXAVALENT	75	UG/L	10
6/4/2001	CHROMIUM, HEXAVALENT	53	UG/L	10
5/2/2001	CHROMIUM, HEXAVALENT	68	UG/L	10
4/9/2001	CHROMIUM, HEXAVALENT	51	UG/L	10

FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

GSWC - BELL, BELL GARDENS (SANTA FE SPRINGS)
HOFFMAN WELL 02 - DESTROYED 10/26/07
12035 Burke Street, #1
SANTA FE SPRINGS , CA 90670670
(Show This Well on Map)

State Well #: 1910011-008
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data

Plot Selected Chemicals | Reset Boxes | **Note: You may select up to 6 chemicals.**

(ALL DATA) | (MOST RECENT) | (MAXIMUM CONCENTRATIONS)

DATE	PARAMETER	QUALIFIER	RESULT	UNITS	MCL	Plot
11/28/2000	1,1,1,2-TETRACHLOROETHANE		0	UG/L	NA	
3/22/1989	1,1,1-TRICHLOROETHANE	<	0.5	UG/L	200	
10/22/1985	1,1,2,2-TETRACHLOROETHANE	<	0.5	UG/L	1	
11/28/2000	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		0	UG/L	1200	
6/17/1987	1,1,2-TRICHLOROETHANE	<	0.5	UG/L	5	
10/22/1985	1,1-DICHLOROETHANE	<	0.5	UG/L	5	
7/24/1997	1,1-DICHLOROETHYLENE		3.9	UG/L	6	
11/28/2000	1,1-DICHLOROPROPENE		0	UG/L	NA	
11/28/2000	1,2,3-TRICHLOROBENZENE		0	UG/L	NA	
11/28/2000	1,2,3-TRICHLOROPROPANE		0	UG/L	NA	
10/3/1985	1,2,4-TRICHLOROBENZENE	<	5	UG/L	5	
11/28/2000	1,2,4-TRIMETHYLBENZENE		0	UG/L	NA	
10/22/1985	1,2-DICHLOROBENZENE	<	0.5	UG/L	600	
10/22/1985	1,2-DICHLOROETHANE	<	0.5	UG/L	0.5	
10/22/1985	1,2-DICHLOROPROPANE	<	0.5	UG/L	5	
11/28/2000	1,3,5-TRIMETHYLBENZENE		0	UG/L	NA	
10/22/1985	1,3-DICHLOROBENZENE	<	0.5	UG/L	NA	
11/28/2000	1,3-DICHLOROPROPANE		0	UG/L	NA	
11/28/2000	1,3-DICHLOROPROPENE (TOTAL)		0	UG/L	0.5	
10/22/1985	1,4-DICHLOROBENZENE	<	0.5	UG/L	5	
11/28/2000	1-PHENYLPROPANE (N-PROPYLBENZENE)		0	UG/L	NA	
11/28/2000	2,2-DICHLOROPROPANE		0	UG/L	NA	
6/13/1989	2,4,5-TP (SILVEX)	<	1	UG/L	50	
10/3/1985	2,4,6-TRICHLOROPHENOL	<	5	UG/L	NA	
6/13/1989	2,4-D	<	10	UG/L	70	
10/3/1985	2,4-DICHLOROPHENOL	<	5	UG/L	NA	
10/3/1985	2,4-DIMETHYLPHENOL	<	5	UG/L	NA	
10/3/1985	2,4-DINITROPHENOL	<	5	UG/L	NA	
10/3/1985	2,4-DINITROTOLUENE	<	5	UG/L	NA	
10/3/1985	2,6-DINITROTOLUENE	<	5	UG/L	NA	
10/22/1985	2-CHLOROETHYLVINYL ETHER	<	0.5	UG/L	NA	
10/3/1985	2-CHLORONAPHTHALENE	<	5	UG/L	NA	
10/3/1985	2-CHLOROPHENOL	<	5	UG/L	NA	
11/28/2000	2-CHLOROTOLUENE		0	UG/L	NA	
10/3/1985	2-METHYL-4,6-DINITROPHENOL	<	5	UG/L	NA	
10/3/1985	2-NITROPHENOL	<	5	UG/L	NA	

10/3/1985	3,3-DICHLOROBENZIDINE	<	20	UG/L	NA
10/3/1985	4,4-DDD	<	0.02	UG/L	NA
10/3/1985	4,4-DDE	<	0.01	UG/L	NA
10/3/1985	4,4-DDT	<	0.02	UG/L	NA
10/3/1985	4-BROMOPHENYL PHENYL ETHER	<	5	UG/L	NA
10/3/1985	4-CHLORO-3-METHYLPHENOL	<	5	UG/L	NA
10/3/1985	4-CHLOROPHENYL PHENYL ETHER	<	5	UG/L	NA
11/28/2000	4-CHLOROTOLUENE		0	UG/L	NA
10/3/1985	4-NITROPHENOL	<	5	UG/L	NA
10/3/1985	ACENAPHTHENE	<	5	UG/L	NA
10/3/1985	ACENAPHTHYLENE	<	5	UG/L	NA
10/3/1985	ALACHLOR	<	0.2	UG/L	2
10/3/1985	ALDRIN	<	0.01	UG/L	NA
11/28/2000	ALKALINITY (TOTAL) AS CACO3		237	MG/L	NA
10/3/1985	ALPHA-BHC	<	0.01	UG/L	NA
7/22/1991	ALUMINUM	<	200	UG/L	1000
6/13/1989	ALUMINUM, DISSOLVED		0.13	UG/L	NA
10/3/1985	ANTHRACENE	<	5	UG/L	NA
11/28/2000	ANTIMONY	<	6	UG/L	6
6/13/1989	ARSENIC	<	10	UG/L	10
9/29/1989	ATRAZINE	<	1	UG/L	1
11/28/2000	BARIUM	<	100	UG/L	1000
10/3/1985	BENFLURALIN	<	1	UG/L	NA
10/22/1985	BENZENE	<	0.5	UG/L	1
10/3/1985	BENZIDINE	<	5	UG/L	NA
10/3/1985	BENZO (A) ANTHRACENE	<	10	UG/L	NA
10/3/1985	BENZO (A) PYRENE	<	10	UG/L	0.2
10/3/1985	BENZO (B) FLUORANTHENE	<	10	UG/L	NA
10/3/1985	BENZO (GHI) PERYLENE	<	10	UG/L	NA
10/3/1985	BENZO (K) FLUORANTHENE	<	10	UG/L	NA
10/3/1985	BENZYL BUTYL PHTHALATE	<	10	UG/L	NA
11/28/2000	BERYLLIUM	<	1	UG/L	4
10/3/1985	BETA-BHC	<	0.05	UG/L	NA
11/28/2000	BICARBONATE ALKALINITY		289	MG/L	NA
10/3/1985	BIS (2-CHLOROETHOXY) METHANE	<	5	UG/L	NA
11/4/1998	BIS (2-CHLOROETHYL) ETHER		0	UG/L	NA
10/3/1985	BIS (2-CHLOROISOPROPYL) ETHER	<	5	UG/L	NA
10/3/1985	BROMACIL	<	10	UG/L	NA
11/28/2000	BROMOBENZENE		0	UG/L	NA
11/28/2000	BROMOCHLOROMETHANE		0	UG/L	NA
10/22/1985	BROMODICHLORMETHANE (THM)	<	0.5	UG/L	NA
10/22/1985	BROMOFORM (THM)	<	0.5	UG/L	NA
10/3/1985	BROMOMETHANE	<	2	UG/L	NA
11/28/2000	CADMIUM	<	1	UG/L	5
11/28/2000	CALCIUM		144	MG/L	NA
10/3/1985	CAPTAN	<	1	UG/L	NA
10/3/1985	CARBARYL	<	1	UG/L	NA
10/22/1985	CARBON TETRACHLORIDE	<	0.5	UG/L	0.5
7/22/1991	CARBONATE ALKALINITY		1.53	MG/L	NA
10/3/1985	CHLORDANE	<	0.05	UG/L	0.1

10/3/1985	CHLORDIMEFORM	<	1	UG/L	NA
11/28/2000	CHLORIDE		78.2	MG/L	500
10/22/1985	CHLOROETHANE	<	0.5	UG/L	NA
8/19/1991	CHLOROFORM (THM)		8.1	UG/L	NA
10/22/1985	CHLOROMETHANE	<	0.5	UG/L	NA
10/3/1985	CHLOROPICRIN	<	1	UG/L	NA
10/3/1985	CHLOROPROPHAM	<	10	UG/L	NA
10/3/1985	CHLOROTHALONIL	<	5	UG/L	NA
11/28/2000	CHROMIUM (TOTAL)		333	UG/L	50
10/3/1985	CHRYSENE	<	5	UG/L	NA
10/22/1985	CIS-1,2-DICHLOROETHYLENE	<	0.5	UG/L	6
10/22/1985	CIS-1,3-DICHLOROPROPENE	<	0.5	UG/L	0.5
10/3/1985	CIS-PERMETHRIN	<	1	UG/L	NA
11/28/2000	COLOR	<	3	UNITS	15
7/22/1991	COPPER		350	UG/L	1000
10/29/1985	CYANAZINE	<	150	UG/L	NA
11/28/2000	CYANIDE	<	100	UG/L	150
10/3/1985	DACTHAL	<	0.1	UG/L	NA
6/9/1992	DALAPON		0	UG/L	200
10/3/1985	DELTA-BHC	<	0.05	UG/L	NA
10/3/1985	DI(2-ETHYLHEXYL)PHTHALATE	<	5	UG/L	4
10/3/1985	DI-N-BUTYLPHTHALATE	<	5	UG/L	NA
10/3/1985	DI-N-OCTYLPHTHALATE	<	5	UG/L	NA
11/16/1995	DIAZINON		0	UG/L	NA
10/3/1985	DIBENZO (A,H) ANTHRACENE	<	5	UG/L	NA
10/22/1985	DIBROMOCHLOROMETHANE (THM)	<	0.5	UG/L	NA
9/29/1989	DIBROMOCHLOROPROPANE (DBCP)	<	0.01	UG/L	0.2
11/28/2000	DIBROMOMETHANE		0	UG/L	NA
10/22/1985	DICHLORODIFLUOROMETHANE (FREON 12)	<	0.5	UG/L	NA
4/4/1997	DICHLOROMETHANE	<	0.5	UG/L	5
10/3/1985	DICOFOL	<	0.1	UG/L	NA
10/3/1985	DIELDRIN	<	0.05	UG/L	NA
10/3/1985	DIETHYL PHTHALATE	<	5	UG/L	NA
10/3/1985	DIMETHYL PHTHALATE	<	5	UG/L	NA
10/3/1985	DINOSEB	<	100	UG/L	7
10/3/1985	DIPHENAMIDE	<	10.1	UG/L	NA
11/4/1998	DIQUAT		0	UG/L	20
10/3/1985	DIURON	<	1	UG/L	NA
10/3/1985	DNOC	<	100	UG/L	NA
10/3/1985	ENDOSULFAN I	<	0.01	UG/L	NA
10/3/1985	ENDOSULFAN II	<	0.05	UG/L	NA
10/3/1985	ENDOSULFAN SULFATE	<	0.05	UG/L	NA
10/3/1985	ENDOTHALL	<	100	UG/L	100
6/13/1989	ENDRIN	<	0.01	UG/L	2
10/3/1985	ENDRIN ALDEHYDE	<	0.05	UG/L	NA
11/28/2000	ETHYL-TERT-BUTYL ETHER		0	UG/L	NA
10/22/1985	ETHYLBENZENE	<	0.5	UG/L	300
9/29/1989	ETHYLENE DIBROMIDE (EDB)	<	0.02	UG/L	0.05
10/3/1985	FLUCHLORALIN	<	1	UG/L	NA
10/3/1985	FLUORANTHENE	<	5	UG/L	NA

10/3/1985	FLUORENE	<	5	UG/L	NA	
7/26/1994	FLUORIDE (F) (NATURAL-SOURCE)		0.7	MG/L	2	
7/22/1991	FOAMING AGENTS (MBAS)	<	0.05	MG/L	0.5	
11/4/1998	GLYPHOSATE		0	UG/L	700	
4/20/1993	GROSS ALPHA		4.9	PCI/L	15	
3/2/1990	GROSS ALPHA COUNTING ERROR		2.4	PCI/L	NA	
11/28/2000	HARDNESS (TOTAL) AS CACO3		372	MG/L	NA	
10/3/1985	HEPTACHLOR	<	0.02	UG/L	0.01	
10/3/1985	HEPTACHLOR EPOXIDE	<	0.1	UG/L	0.01	
10/3/1985	HEXACHLOROBENZENE	<	5	UG/L	1	
10/3/1985	HEXACHLOROBUTADIENE	<	5	UG/L	NA	
10/3/1985	HEXACHLOROCYCLOPENTADIENE	<	20	UG/L	50	
10/3/1985	HEXACHLOROETHANE	<	5	UG/L	NA	
11/28/2000	HYDROXIDE ALKALINITY	<	1	MG/L	NA	
10/3/1985	INDENO (1,2,3-CD) PYRENE	<	10	UG/L	NA	
11/28/2000	IRON	<	100	UG/L	300	
10/3/1985	ISOPHORONE	<	10	UG/L	NA	
11/28/2000	ISOPROPYLBENZENE		0	UG/L	NA	
10/3/1985	KEROSENE	<	1	UG/L	NA	
7/22/1991	LANGELIER INDEX @ 60 C		0.7		NA	
11/4/1998	LANGELIER INDEX AT SOURCE TEMP.		0.273		NA	
6/13/1989	LEAD	<	10	UG/L	NA	
6/13/1989	LINDANE	<	0.4	UG/L	0.2	
11/28/2000	M,P-XYLENE		0	UG/L	NA	
7/22/1991	MAGNESIUM		26	MG/L	NA	
7/26/1994	MANGANESE	<	30	UG/L	50	
11/28/2000	MERCURY	<	1	UG/L	2	
10/3/1985	MERPHOS	<	1	UG/L	NA	
10/3/1985	METHOMYL	<	10	UG/L	NA	
6/13/1989	METHOXYCHLOR	<	10	UG/L	30	
10/22/1985	METHYL ETHYL KETONE	<	1	UG/L	NA	
10/22/1985	METHYL ISOBUTYL KETONE	<	1	UG/L	NA	
11/28/2000	METHYL-TERT-BUTYL-ETHER (MTBE)		0	UG/L	13	
9/29/1989	MOLINATE	<	2	UG/L	20	
10/22/1985	MONOCHLOROBENZENE	<	0.5	UG/L	70	
11/28/2000	N-BUTYLBENZENE		0	UG/L	NA	
10/3/1985	N-NITROSODI-N-PROPYLAMINE (NDPA)	<	5	UG/L	NA	
10/3/1985	N-NITROSODIMETHYLAMINE (NDMA)	<	5	UG/L	NA	
10/3/1985	N-NITROSODIPHENYLAMINE	<	5	UG/L	NA	
10/3/1985	NAPHTHALENE	<	5	UG/L	NA	
10/3/1985	NAPROPAMIDE	<	5	UG/L	NA	
11/28/2000	NICKEL	<	10	UG/L	100	
11/28/2000	NITRATE (AS NO3)		32.6	MG/L	45	
11/28/2000	NITRATE + NITRITE (AS N)		7360	UG/L	10000	
11/28/2000	NITRITE (AS N)	<	400	UG/L	1000	
10/3/1985	NITROBENZENE	<	5	UG/L	NA	
11/28/2000	O-XYLENE		0	UG/L	NA	
11/28/2000	ODOR THRESHOLD @ 60 C		1	TON	3	
10/3/1985	ORYZALIN	<	1	UG/L	NA	
10/3/1985	OXAMYL	<	10	UG/L	50	

11/28/2000	P-ISOPROPYLTOLUENE		0	UG/L	NA
10/3/1985	PCB-1016 (AS DECACHLOROBIPHENYL (DCB))	<	0.2	UG/L	NA
10/3/1985	PCB-1221 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PCB-1232 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PCB-1242 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PCB-1248 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PCB-1254 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PCB-1260 (AS DCB)	<	0.2	UG/L	NA
10/3/1985	PENTACHLOROPHENOL	<	0.5	UG/L	1
11/28/2000	PERCHLORATE	<	5	UG/L	6
7/22/1991	PH, LABORATORY		7.9		NA
10/3/1985	PHENANTHRENE	<	5	UG/L	NA
10/3/1985	PHENOL	<	5	UG/L	NA
6/9/1992	PICLORAM		0	UG/L	500
6/9/1992	POLYCHLORINATED BIPHENYLS, TOTAL, AS DCB		0	UG/L	0.5
11/28/2000	POTASSIUM		3.5	MG/L	NA
10/29/1985	PROMETRYN	<	0.5	UG/L	NA
10/3/1985	PROPAMIDE	<	1	UG/L	NA
10/3/1985	PROPARGITE	<	1	MG/L	NA
10/3/1985	PYRENE	<	5	UG/L	NA
11/28/2000	RADON 222		293	PCI/L	NA
11/28/2000	RADON 222 COUNTING ERROR		7	PCI/L	NA
10/3/1985	S,S,S-TRIBUTYLPHOSPHOROTRITHIOATE	<	1	UG/L	NA
11/28/2000	SEC-BUTYLBENZENE		0	UG/L	NA
11/28/2000	SELENIUM	<	5	UG/L	50
11/28/2000	SILVER	<	10	UG/L	100
9/29/1989	SIMAZINE	<	1	UG/L	4
11/28/2000	SODIUM		68	MG/L	NA
11/28/2000	SOURCE TEMPERATURE C		19.4	C	NA
11/28/2000	SPECIFIC CONDUCTANCE		955	US	1600
11/28/2000	STYRENE		0	UG/L	100
11/28/2000	SULFATE		140	MG/L	600
11/28/2000	TERT-AMYL-METHYL ETHER		0	UG/L	NA
11/28/2000	TERT-BUTYLBENZENE		0	UG/L	NA
11/28/2000	TETRACHLOROETHYLENE		5.7	UG/L	5
11/28/2000	THALLIUM	<	1	UG/L	2
9/29/1989	THIOBENCARB	<	0.8	UG/L	70
10/22/1985	TOLUENE	<	0.5	UG/L	150
11/28/2000	TOTAL DISSOLVED SOLIDS		611	MG/L	1000
8/19/1991	TOTAL TRIHALOMETHANES		8	UG/L	80
6/13/1989	TOXAPHENE	<	0.5	UG/L	3
10/22/1985	TRANS-1,2-DICHLOROETHYLENE	<	0.5	UG/L	10
10/22/1985	TRANS-1,3-DICHLOROPROPENE	<	0.5	UG/L	NA
10/3/1985	TRANS-PERMETHRIN	<	1	UG/L	NA
11/1/1996	TRICHLOROETHYLENE		15.3	UG/L	5
10/22/1985	TRICHLOROFLUOROMETHANE	<	0.5	UG/L	150
7/26/1994	TURBIDITY, LABORATORY		0.6	NTU	5
10/19/1993	URANIUM (PCI/L)		5	PCI/L	20
2/10/1998	URANIUM COUNTING ERROR		0.87	PCI/L	NA
10/22/1985	VINYL CHLORIDE	<	0.5	UG/L	0.5

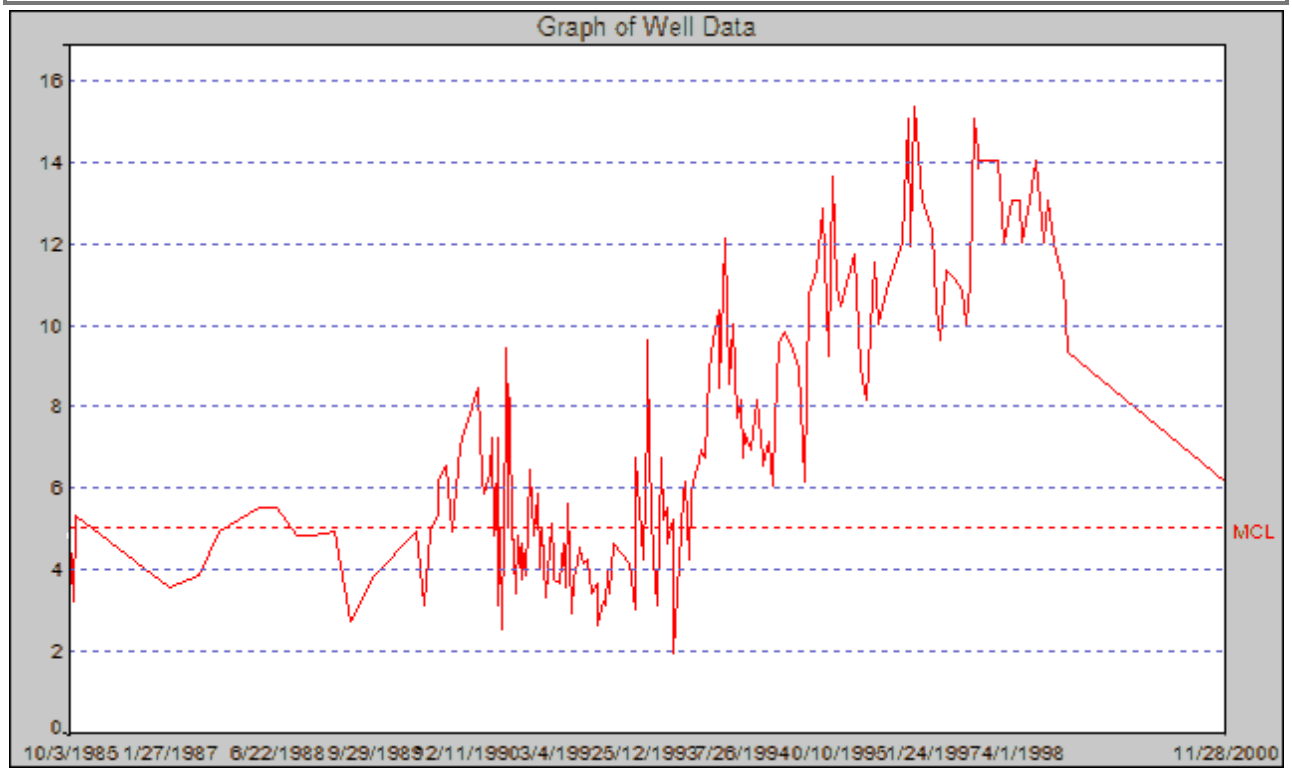
10/22/1985	XYLENES (TOTAL)	<	0.5	UG/L	1750
11/28/2000	ZINC	<	50	UG/L	5000

Well Report

GSWC - BELL, BELL GARDENS (SANTA FE SPRINGS)
HOFFMAN WELL 02 - DESTROYED 10/26/07
12035 Burke Street, #1
SANTA FE SPRINGS , CA 90670670
(Show This Well on Map)

State Well #: 1910011-008
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
11/28/2000	TRICHLOROETHYLENE	6.1	UG/L	5
11/4/1998	TRICHLOROETHYLENE	9.3	UG/L	5
10/21/1998	TRICHLOROETHYLENE	11	UG/L	5
9/3/1998	TRICHLOROETHYLENE	12	UG/L	5
8/6/1998	TRICHLOROETHYLENE	13	UG/L	5
7/9/1998	TRICHLOROETHYLENE	12	UG/L	5
6/4/1998	TRICHLOROETHYLENE	14	UG/L	5
5/7/1998	TRICHLOROETHYLENE	13	UG/L	5
4/1/1998	TRICHLOROETHYLENE	12	UG/L	5
3/23/1998	TRICHLOROETHYLENE	13	UG/L	5
2/10/1998	TRICHLOROETHYLENE	13	UG/L	5
1/7/1998	TRICHLOROETHYLENE	12	UG/L	5
12/3/1997	TRICHLOROETHYLENE	14	UG/L	5
9/5/1997	TRICHLOROETHYLENE	14	UG/L	5
8/28/1997	TRICHLOROETHYLENE	13.8	UG/L	5
8/28/1997	TRICHLOROETHYLENE	14.2	UG/L	5
8/28/1997	TRICHLOROETHYLENE	13.8	UG/L	5
8/14/1997	TRICHLOROETHYLENE	15	UG/L	5
7/24/1997	TRICHLOROETHYLENE	11	UG/L	5
7/11/1997	TRICHLOROETHYLENE	10	UG/L	5
6/13/1997	TRICHLOROETHYLENE	10.8	UG/L	5
5/9/1997	TRICHLOROETHYLENE	11.1	UG/L	5
4/4/1997	TRICHLOROETHYLENE	11.3	UG/L	5
3/5/1997	TRICHLOROETHYLENE	9.6	UG/L	5
2/18/1997	TRICHLOROETHYLENE	10.4	UG/L	5

1/24/1997	TRICHLOROETHYLENE	12.3	UG/L	5
12/6/1996	TRICHLOROETHYLENE	13	UG/L	5
11/1/1996	TRICHLOROETHYLENE	15.3	UG/L	5
10/16/1996	TRICHLOROETHYLENE	11.9	UG/L	5
9/30/1996	TRICHLOROETHYLENE	15	UG/L	5
9/3/1996	TRICHLOROETHYLENE	12	UG/L	5
6/19/1996	TRICHLOROETHYLENE	10.8	UG/L	5
5/16/1996	TRICHLOROETHYLENE	10	UG/L	5
4/19/1996	TRICHLOROETHYLENE	11.5	UG/L	5
3/14/1996	TRICHLOROETHYLENE	8.1	UG/L	5
2/16/1996	TRICHLOROETHYLENE	8.9	UG/L	5
1/19/1996	TRICHLOROETHYLENE	11.7	UG/L	5
11/16/1995	TRICHLOROETHYLENE	10.4	UG/L	5
11/15/1995	TRICHLOROETHYLENE	10.4	UG/L	5
10/26/1995	TRICHLOROETHYLENE	10.9	UG/L	5
10/10/1995	TRICHLOROETHYLENE	13.6	UG/L	5
9/20/1995	TRICHLOROETHYLENE	9.2	UG/L	5
8/15/1995	TRICHLOROETHYLENE	12.8	UG/L	5
7/26/1995	TRICHLOROETHYLENE	11.3	UG/L	5
6/13/1995	TRICHLOROETHYLENE	10.7	UG/L	5
5/26/1995	TRICHLOROETHYLENE	6.1	UG/L	5
4/26/1995	TRICHLOROETHYLENE	8.9	UG/L	5
3/24/1995	TRICHLOROETHYLENE	9.5	UG/L	5
2/15/1995	TRICHLOROETHYLENE	9.8	UG/L	5
1/19/1995	TRICHLOROETHYLENE	9.5	UG/L	5
1/4/1995	TRICHLOROETHYLENE	7.6	UG/L	5
12/20/1994	TRICHLOROETHYLENE	6	UG/L	5
12/7/1994	TRICHLOROETHYLENE	7.1	UG/L	5
11/9/1994	TRICHLOROETHYLENE	6.5	UG/L	5
11/3/1994	TRICHLOROETHYLENE	6.7	UG/L	5
10/5/1994	TRICHLOROETHYLENE	8.1	UG/L	5
9/7/1994	TRICHLOROETHYLENE	6.9	UG/L	5
8/9/1994	TRICHLOROETHYLENE	7.3	UG/L	5
8/3/1994	TRICHLOROETHYLENE	6.7	UG/L	5
7/26/1994	TRICHLOROETHYLENE	8.1	UG/L	5
7/6/1994	TRICHLOROETHYLENE	7.7	UG/L	5
6/16/1994	TRICHLOROETHYLENE	10	UG/L	5
6/1/1994	TRICHLOROETHYLENE	8.5	UG/L	5
5/4/1994	TRICHLOROETHYLENE	12.1	UG/L	5
4/14/1994	TRICHLOROETHYLENE	8.4	UG/L	5
4/6/1994	TRICHLOROETHYLENE	10.3	UG/L	5
3/10/1994	TRICHLOROETHYLENE	9.6	UG/L	5
3/2/1994	TRICHLOROETHYLENE	9.2	UG/L	5
2/24/1994	TRICHLOROETHYLENE	8.8	UG/L	5
2/2/1994	TRICHLOROETHYLENE	6.7	UG/L	5
1/18/1994	TRICHLOROETHYLENE	6.9	UG/L	5
1/5/1994	TRICHLOROETHYLENE	6.6	UG/L	5
12/14/1993	TRICHLOROETHYLENE	6.3	UG/L	5
12/1/1993	TRICHLOROETHYLENE	5.8	UG/L	5
11/18/1993	TRICHLOROETHYLENE	4.2	UG/L	5
11/3/1993	TRICHLOROETHYLENE	6.1	UG/L	5
10/19/1993	TRICHLOROETHYLENE	5.8	UG/L	5
10/6/1993	TRICHLOROETHYLENE	4.9	UG/L	5
9/2/1993	TRICHLOROETHYLENE	1.9	UG/L	5
9/1/1993	TRICHLOROETHYLENE	5.2	UG/L	5
8/4/1993	TRICHLOROETHYLENE	4.6	UG/L	5
8/3/1993	TRICHLOROETHYLENE	5.5	UG/L	5
7/20/1993	TRICHLOROETHYLENE	5.2	UG/L	5
7/7/1993	TRICHLOROETHYLENE	6.7	UG/L	5
6/17/1993	TRICHLOROETHYLENE	3.1	UG/L	5
6/2/1993	TRICHLOROETHYLENE	4.2	UG/L	5
5/12/1993	TRICHLOROETHYLENE	6.7	UG/L	5
5/5/1993	TRICHLOROETHYLENE	9.6	UG/L	5
4/28/1993	TRICHLOROETHYLENE	7.7	UG/L	5

4/14/1993	TRICHLOROETHYLENE	4.2	UG/L	5
3/9/1993	TRICHLOROETHYLENE	6.7	UG/L	5
3/3/1993	TRICHLOROETHYLENE	3	UG/L	5
2/3/1993	TRICHLOROETHYLENE	4.1	UG/L	5
11/16/1992	TRICHLOROETHYLENE	4.6	UG/L	5
11/4/1992	TRICHLOROETHYLENE	3.4	UG/L	5
10/20/1992	TRICHLOROETHYLENE	3.9	UG/L	5
10/14/1992	TRICHLOROETHYLENE	3.1	UG/L	5
10/7/1992	TRICHLOROETHYLENE	3.2	UG/L	5
9/3/1992	TRICHLOROETHYLENE	2.6	UG/L	5
9/2/1992	TRICHLOROETHYLENE	3.6	UG/L	5
8/5/1992	TRICHLOROETHYLENE	3.4	UG/L	5
7/21/1992	TRICHLOROETHYLENE	4.2	UG/L	5
7/1/1992	TRICHLOROETHYLENE	4.1	UG/L	5
6/9/1992	TRICHLOROETHYLENE	4.5	UG/L	5
6/3/1992	TRICHLOROETHYLENE	4.1	UG/L	5
5/18/1992	TRICHLOROETHYLENE	3.7	UG/L	5
5/6/1992	TRICHLOROETHYLENE	2.9	UG/L	5
4/13/1992	TRICHLOROETHYLENE	5.6	UG/L	5
4/1/1992	TRICHLOROETHYLENE	3.5	UG/L	5
3/23/1992	TRICHLOROETHYLENE	4.6	UG/L	5
3/4/1992	TRICHLOROETHYLENE	3.6	UG/L	5
2/11/1992	TRICHLOROETHYLENE	3.7	UG/L	5
2/5/1992	TRICHLOROETHYLENE	4.2	UG/L	5
1/27/1992	TRICHLOROETHYLENE	5.1	UG/L	5
1/2/1992	TRICHLOROETHYLENE	3.3	UG/L	5
12/17/1991	TRICHLOROETHYLENE	5	UG/L	5
12/4/1991	TRICHLOROETHYLENE	4	UG/L	5
11/22/1991	TRICHLOROETHYLENE	5.8	UG/L	5
11/6/1991	TRICHLOROETHYLENE	4.8	UG/L	5
10/17/1991	TRICHLOROETHYLENE	6.4	UG/L	5
10/2/1991	TRICHLOROETHYLENE	3.8	UG/L	5
9/12/1991	TRICHLOROETHYLENE	4.6	UG/L	5
9/4/1991	TRICHLOROETHYLENE	3.7	UG/L	5
8/19/1991	TRICHLOROETHYLENE	4.8	UG/L	5
8/7/1991	TRICHLOROETHYLENE	3.4	UG/L	5
7/24/1991	TRICHLOROETHYLENE	5.2	UG/L	5
7/22/1991	TRICHLOROETHYLENE	4.7	UG/L	5
7/10/1991	TRICHLOROETHYLENE	7.9	UG/L	5
7/2/1991	TRICHLOROETHYLENE	5	UG/L	5
7/2/1991	TRICHLOROETHYLENE	8.5	UG/L	5
6/26/1991	TRICHLOROETHYLENE	9.4	UG/L	5
6/25/1991	TRICHLOROETHYLENE	8.6	UG/L	5
6/19/1991	TRICHLOROETHYLENE	4.5	UG/L	5
6/12/1991	TRICHLOROETHYLENE	5.1	UG/L	5
6/5/1991	TRICHLOROETHYLENE	2.49	UG/L	5
5/29/1991	TRICHLOROETHYLENE	4.7	UG/L	5
5/28/1991	TRICHLOROETHYLENE	4.1	UG/L	5
5/22/1991	TRICHLOROETHYLENE	5	UG/L	5
5/15/1991	TRICHLOROETHYLENE	3.1	UG/L	5
5/15/1991	TRICHLOROETHYLENE	7.2	UG/L	5
5/8/1991	TRICHLOROETHYLENE	5	UG/L	5
4/24/1991	TRICHLOROETHYLENE	4.8	UG/L	5
4/17/1991	TRICHLOROETHYLENE	7.2	UG/L	5
4/10/1991	TRICHLOROETHYLENE	6.3	UG/L	5
3/13/1991	TRICHLOROETHYLENE	5.8	UG/L	5
3/4/1991	TRICHLOROETHYLENE	6.2	UG/L	5
2/11/1991	TRICHLOROETHYLENE	8.4	UG/L	5
12/11/1990	TRICHLOROETHYLENE	7.5	UG/L	5
11/19/1990	TRICHLOROETHYLENE	7	UG/L	5
10/9/1990	TRICHLOROETHYLENE	4.9	UG/L	5
9/10/1990	TRICHLOROETHYLENE	6.5	UG/L	5
8/6/1990	TRICHLOROETHYLENE	6.1	UG/L	5
7/30/1990	TRICHLOROETHYLENE	5.3	UG/L	5

6/26/1990	TRICHLOROETHYLENE	4.9	UG/L	5
5/30/1990	TRICHLOROETHYLENE	3.1	UG/L	5
4/19/1990	TRICHLOROETHYLENE	4.9	UG/L	5
9/29/1989	TRICHLOROETHYLENE	3.8	UG/L	5
9/29/1989	TRICHLOROETHYLENE	3.8	UG/L	5
6/13/1989	TRICHLOROETHYLENE	2.7	UG/L	5
3/22/1989	TRICHLOROETHYLENE	4.9	UG/L	5
12/13/1988	TRICHLOROETHYLENE	4.8	UG/L	5
9/27/1988	TRICHLOROETHYLENE	4.8	UG/L	5
6/22/1988	TRICHLOROETHYLENE	5.5	UG/L	5
3/23/1988	TRICHLOROETHYLENE	5.5	UG/L	5
9/23/1987	TRICHLOROETHYLENE	4.9	UG/L	5
6/17/1987	TRICHLOROETHYLENE	3.8	UG/L	5
1/27/1987	TRICHLOROETHYLENE	3.5	UG/L	5
10/29/1985	TRICHLOROETHYLENE	5.3	UG/L	5
10/22/1985	TRICHLOROETHYLENE	3.2	UG/L	5
10/3/1985	TRICHLOROETHYLENE	4.8	UG/L	5

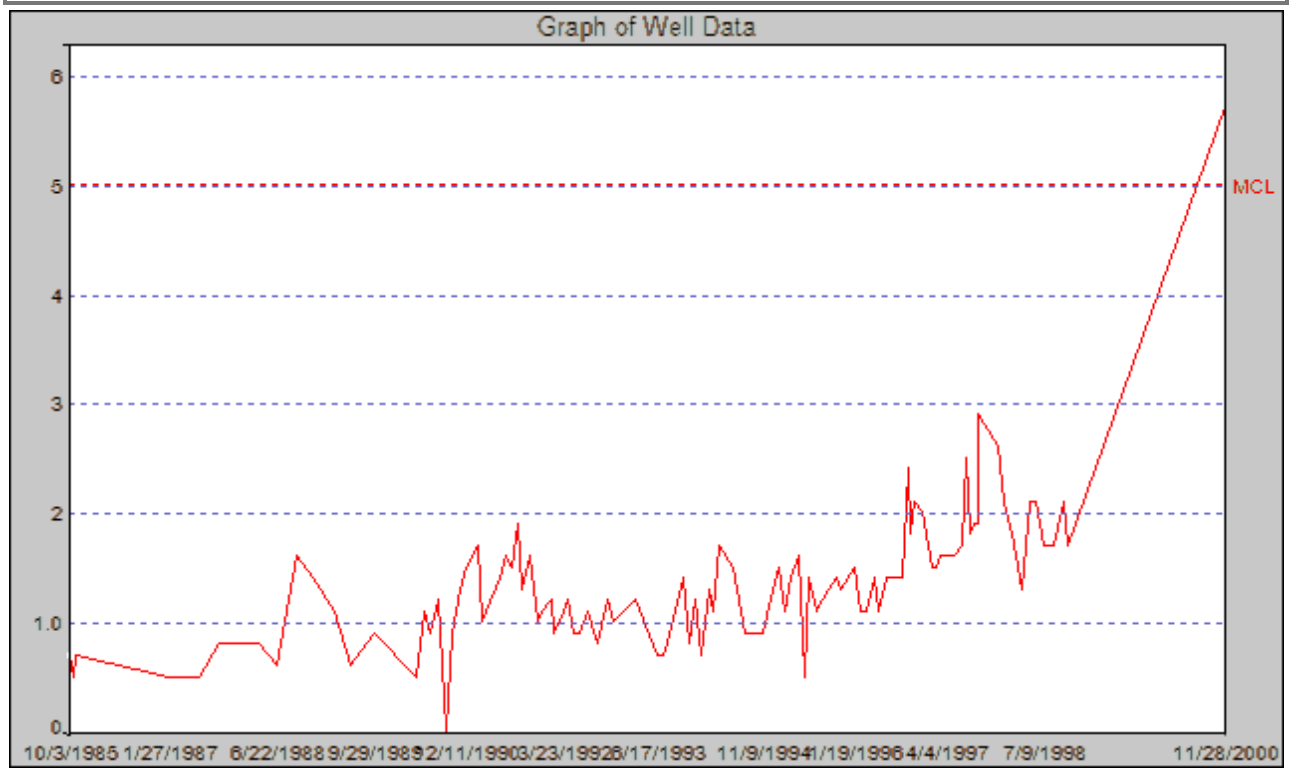
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

GSWC - BELL, BELL GARDENS (SANTA FE SPRINGS)
HOFFMAN WELL 02 - DESTROYED 10/26/07
12035 Burke Street, #1
SANTA FE SPRINGS , CA 90670670
(Show This Well on Map)

State Well #: 1910011-008
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
11/28/2000	TETRACHLOROETHYLENE	5.7	UG/L	5
11/4/1998	TETRACHLOROETHYLENE	1.7	UG/L	5
10/21/1998	TETRACHLOROETHYLENE	2.1	UG/L	5
9/3/1998	TETRACHLOROETHYLENE	1.7	UG/L	5
8/6/1998	TETRACHLOROETHYLENE	1.7	UG/L	5
7/9/1998	TETRACHLOROETHYLENE	1.7	UG/L	5
6/4/1998	TETRACHLOROETHYLENE	2.1	UG/L	5
5/7/1998	TETRACHLOROETHYLENE	2.1	UG/L	5
4/1/1998	TETRACHLOROETHYLENE	1.3	UG/L	5
3/23/1998	TETRACHLOROETHYLENE	1.4	UG/L	5
2/10/1998	TETRACHLOROETHYLENE	1.8	UG/L	5
1/7/1998	TETRACHLOROETHYLENE	2.1	UG/L	5
12/3/1997	TETRACHLOROETHYLENE	2.6	UG/L	5
9/5/1997	TETRACHLOROETHYLENE	2.9	UG/L	5
8/28/1997	TETRACHLOROETHYLENE	1.9	UG/L	5
8/28/1997	TETRACHLOROETHYLENE	2	UG/L	5
8/28/1997	TETRACHLOROETHYLENE	2.2	UG/L	5
8/14/1997	TETRACHLOROETHYLENE	1.9	UG/L	5
7/24/1997	TETRACHLOROETHYLENE	1.8	UG/L	5
7/11/1997	TETRACHLOROETHYLENE	2.5	UG/L	5
6/13/1997	TETRACHLOROETHYLENE	1.7	UG/L	5
5/9/1997	TETRACHLOROETHYLENE	1.6	UG/L	5
4/4/1997	TETRACHLOROETHYLENE	1.6	UG/L	5
3/5/1997	TETRACHLOROETHYLENE	1.6	UG/L	5
2/18/1997	TETRACHLOROETHYLENE	1.5	UG/L	5

1/24/1997	TETRACHLOROETHYLENE	1.5	UG/L	5
12/6/1996	TETRACHLOROETHYLENE	2	UG/L	5
11/1/1996	TETRACHLOROETHYLENE	2.1	UG/L	5
10/16/1996	TETRACHLOROETHYLENE	1.8	UG/L	5
9/30/1996	TETRACHLOROETHYLENE	2.4	UG/L	5
9/3/1996	TETRACHLOROETHYLENE	1.4	UG/L	5
6/19/1996	TETRACHLOROETHYLENE	1.4	UG/L	5
5/16/1996	TETRACHLOROETHYLENE	1.1	UG/L	5
4/19/1996	TETRACHLOROETHYLENE	1.4	UG/L	5
3/14/1996	TETRACHLOROETHYLENE	1.1	UG/L	5
2/16/1996	TETRACHLOROETHYLENE	1.1	UG/L	5
1/19/1996	TETRACHLOROETHYLENE	1.5	UG/L	5
11/16/1995	TETRACHLOROETHYLENE	1.3	UG/L	5
10/26/1995	TETRACHLOROETHYLENE	1.4	UG/L	5
9/20/1995	TETRACHLOROETHYLENE	1.3	UG/L	5
8/15/1995	TETRACHLOROETHYLENE	1.2	UG/L	5
7/26/1995	TETRACHLOROETHYLENE	1.1	UG/L	5
6/13/1995	TETRACHLOROETHYLENE	1.4	UG/L	5
5/26/1995	TETRACHLOROETHYLENE	0.5	UG/L	5
4/26/1995	TETRACHLOROETHYLENE	1.6	UG/L	5
3/24/1995	TETRACHLOROETHYLENE	1.4	UG/L	5
2/15/1995	TETRACHLOROETHYLENE	1.1	UG/L	5
1/19/1995	TETRACHLOROETHYLENE	1.5	UG/L	5
12/20/1994	TETRACHLOROETHYLENE	1.3	UG/L	5
11/9/1994	TETRACHLOROETHYLENE	0.9	UG/L	5
8/9/1994	TETRACHLOROETHYLENE	0.9	UG/L	5
7/26/1994	TETRACHLOROETHYLENE	1.1	UG/L	5
6/16/1994	TETRACHLOROETHYLENE	1.5	UG/L	5
4/14/1994	TETRACHLOROETHYLENE	1.7	UG/L	5
3/10/1994	TETRACHLOROETHYLENE	1.1	UG/L	5
2/24/1994	TETRACHLOROETHYLENE	1.3	UG/L	5
1/18/1994	TETRACHLOROETHYLENE	0.7	UG/L	5
12/14/1993	TETRACHLOROETHYLENE	1.2	UG/L	5
11/18/1993	TETRACHLOROETHYLENE	0.8	UG/L	5
10/19/1993	TETRACHLOROETHYLENE	1.4	UG/L	5
8/3/1993	TETRACHLOROETHYLENE	0.8	UG/L	5
7/20/1993	TETRACHLOROETHYLENE	0.7	UG/L	5
6/17/1993	TETRACHLOROETHYLENE	0.7	UG/L	5
3/9/1993	TETRACHLOROETHYLENE	1.2	UG/L	5
11/16/1992	TETRACHLOROETHYLENE	1	UG/L	5
10/20/1992	TETRACHLOROETHYLENE	1.2	UG/L	5
9/3/1992	TETRACHLOROETHYLENE	0.8	UG/L	5
7/21/1992	TETRACHLOROETHYLENE	1.1	UG/L	5
6/9/1992	TETRACHLOROETHYLENE	0.9	UG/L	5
5/18/1992	TETRACHLOROETHYLENE	0.9	UG/L	5
4/13/1992	TETRACHLOROETHYLENE	1.2	UG/L	5
3/23/1992	TETRACHLOROETHYLENE	1.1	UG/L	5
2/11/1992	TETRACHLOROETHYLENE	0.9	UG/L	5
1/27/1992	TETRACHLOROETHYLENE	1.2	UG/L	5
12/17/1991	TETRACHLOROETHYLENE	1.1	UG/L	5
11/22/1991	TETRACHLOROETHYLENE	1	UG/L	5
10/17/1991	TETRACHLOROETHYLENE	1.6	UG/L	5
9/12/1991	TETRACHLOROETHYLENE	1.3	UG/L	5
8/19/1991	TETRACHLOROETHYLENE	1.9	UG/L	5
7/22/1991	TETRACHLOROETHYLENE	1.5	UG/L	5
6/25/1991	TETRACHLOROETHYLENE	1.6	UG/L	5
5/28/1991	TETRACHLOROETHYLENE	1.4	UG/L	5
3/4/1991	TETRACHLOROETHYLENE	1	UG/L	5
2/11/1991	TETRACHLOROETHYLENE	1.7	UG/L	5
12/11/1990	TETRACHLOROETHYLENE	1.5	UG/L	5
11/19/1990	TETRACHLOROETHYLENE	1.3	UG/L	5
10/9/1990	TETRACHLOROETHYLENE	0.9	UG/L	5
9/10/1990	TETRACHLOROETHYLENE	0	UG/L	5
8/6/1990	TETRACHLOROETHYLENE	1.2	UG/L	5

7/30/1990	TETRACHLOROETHYLENE	1.2	UG/L	5
6/26/1990	TETRACHLOROETHYLENE	0.9	UG/L	5
5/30/1990	TETRACHLOROETHYLENE	1.1	UG/L	5
4/19/1990	TETRACHLOROETHYLENE	0.5	UG/L	5
9/29/1989	TETRACHLOROETHYLENE	0.9	UG/L	5
9/29/1989	TETRACHLOROETHYLENE	0.9	UG/L	5
6/13/1989	TETRACHLOROETHYLENE	0.6	UG/L	5
3/22/1989	TETRACHLOROETHYLENE	1.1	UG/L	5
12/13/1988	TETRACHLOROETHYLENE	1.4	UG/L	5
9/27/1988	TETRACHLOROETHYLENE	1.6	UG/L	5
6/22/1988	TETRACHLOROETHYLENE	0.6	UG/L	5
3/23/1988	TETRACHLOROETHYLENE	0.8	UG/L	5
9/23/1987	TETRACHLOROETHYLENE	< 0.8	UG/L	5
6/17/1987	TETRACHLOROETHYLENE	0.5	UG/L	5
1/27/1987	TETRACHLOROETHYLENE	0.5	UG/L	5
10/29/1985	TETRACHLOROETHYLENE	0.7	UG/L	5
10/22/1985	TETRACHLOROETHYLENE	< 0.5	UG/L	5
10/3/1985	TETRACHLOROETHYLENE	0.7	UG/L	5

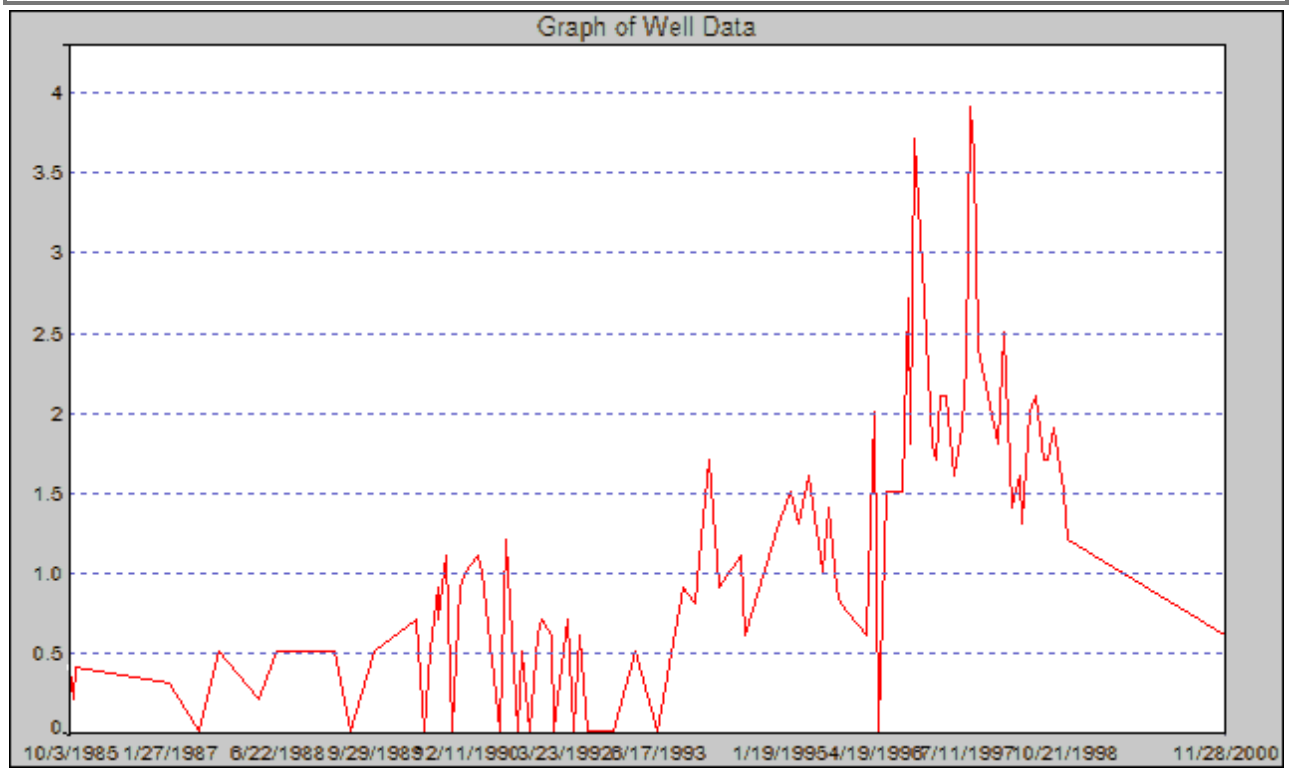
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

GSWC - BELL, BELL GARDENS (SANTA FE SPRINGS)
HOFFMAN WELL 02 - DESTROYED 10/26/07
12035 Burke Street, #1
SANTA FE SPRINGS , CA 90670670
(Show This Well on Map)

State Well #: 1910011-008
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
11/28/2000	1,1-DICHLOROETHYLENE	0.6	UG/L	6
11/4/1998	1,1-DICHLOROETHYLENE	1.2	UG/L	6
10/21/1998	1,1-DICHLOROETHYLENE	1.5	UG/L	6
9/3/1998	1,1-DICHLOROETHYLENE	1.9	UG/L	6
8/6/1998	1,1-DICHLOROETHYLENE	1.7	UG/L	6
7/9/1998	1,1-DICHLOROETHYLENE	1.7	UG/L	6
6/4/1998	1,1-DICHLOROETHYLENE	2.1	UG/L	6
5/7/1998	1,1-DICHLOROETHYLENE	2	UG/L	6
4/1/1998	1,1-DICHLOROETHYLENE	1.3	UG/L	6
3/23/1998	1,1-DICHLOROETHYLENE	1.6	UG/L	6
2/10/1998	1,1-DICHLOROETHYLENE	1.4	UG/L	6
1/7/1998	1,1-DICHLOROETHYLENE	2.5	UG/L	6
12/3/1997	1,1-DICHLOROETHYLENE	1.8	UG/L	6
9/5/1997	1,1-DICHLOROETHYLENE	2.4	UG/L	6
8/14/1997	1,1-DICHLOROETHYLENE	3.6	UG/L	6
7/24/1997	1,1-DICHLOROETHYLENE	3.9	UG/L	6
7/11/1997	1,1-DICHLOROETHYLENE	2.3	UG/L	6
6/13/1997	1,1-DICHLOROETHYLENE	1.9	UG/L	6
5/9/1997	1,1-DICHLOROETHYLENE	1.6	UG/L	6
4/4/1997	1,1-DICHLOROETHYLENE	2.1	UG/L	6
3/5/1997	1,1-DICHLOROETHYLENE	2.1	UG/L	6
2/18/1997	1,1-DICHLOROETHYLENE	1.7	UG/L	6
1/24/1997	1,1-DICHLOROETHYLENE	1.8	UG/L	6
12/6/1996	1,1-DICHLOROETHYLENE	2.9	UG/L	6
11/1/1996	1,1-DICHLOROETHYLENE	3.7	UG/L	6

10/16/1996	1,1-DICHLOROETHYLENE	1.8	UG/L	6
9/30/1996	1,1-DICHLOROETHYLENE	2.7	UG/L	6
9/3/1996	1,1-DICHLOROETHYLENE	1.5	UG/L	6
6/19/1996	1,1-DICHLOROETHYLENE	1.5	UG/L	6
5/16/1996	1,1-DICHLOROETHYLENE	0	UG/L	6
4/19/1996	1,1-DICHLOROETHYLENE	2	UG/L	6
3/14/1996	1,1-DICHLOROETHYLENE	0.6	UG/L	6
11/16/1995	1,1-DICHLOROETHYLENE	0.8	UG/L	6
10/26/1995	1,1-DICHLOROETHYLENE	0.9	UG/L	6
9/20/1995	1,1-DICHLOROETHYLENE	1.4	UG/L	6
8/15/1995	1,1-DICHLOROETHYLENE	1	UG/L	6
6/13/1995	1,1-DICHLOROETHYLENE	1.6	UG/L	6
4/26/1995	1,1-DICHLOROETHYLENE	1.3	UG/L	6
3/24/1995	1,1-DICHLOROETHYLENE	1.5	UG/L	6
1/19/1995	1,1-DICHLOROETHYLENE	1.3	UG/L	6
8/9/1994	1,1-DICHLOROETHYLENE	0.6	UG/L	6
7/26/1994	1,1-DICHLOROETHYLENE	1.1	UG/L	6
4/14/1994	1,1-DICHLOROETHYLENE	0.9	UG/L	6
2/24/1994	1,1-DICHLOROETHYLENE	1.7	UG/L	6
1/18/1994	1,1-DICHLOROETHYLENE	1.2	UG/L	6
12/14/1993	1,1-DICHLOROETHYLENE	0.8	UG/L	6
10/19/1993	1,1-DICHLOROETHYLENE	0.9	UG/L	6
6/17/1993	1,1-DICHLOROETHYLENE	0	UG/L	6
3/9/1993	1,1-DICHLOROETHYLENE	0.5	UG/L	6
11/16/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
10/20/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
9/3/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
7/21/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
6/9/1992	1,1-DICHLOROETHYLENE	0.6	UG/L	6
5/18/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
4/13/1992	1,1-DICHLOROETHYLENE	0.7	UG/L	6
3/23/1992	1,1-DICHLOROETHYLENE	0.5	UG/L	6
2/11/1992	1,1-DICHLOROETHYLENE	0	UG/L	6
1/27/1992	1,1-DICHLOROETHYLENE	0.6	UG/L	6
12/17/1991	1,1-DICHLOROETHYLENE	0.7	UG/L	6
11/22/1991	1,1-DICHLOROETHYLENE	0.6	UG/L	6
10/17/1991	1,1-DICHLOROETHYLENE	0	UG/L	6
9/12/1991	1,1-DICHLOROETHYLENE	0.5	UG/L	6
8/19/1991	1,1-DICHLOROETHYLENE	0	UG/L	6
7/22/1991	1,1-DICHLOROETHYLENE	0.6	UG/L	6
6/25/1991	1,1-DICHLOROETHYLENE	1.2	UG/L	6
5/28/1991	1,1-DICHLOROETHYLENE	0	UG/L	6
3/4/1991	1,1-DICHLOROETHYLENE	1	UG/L	6
2/11/1991	1,1-DICHLOROETHYLENE	1.1	UG/L	6
12/11/1990	1,1-DICHLOROETHYLENE	1	UG/L	6
11/19/1990	1,1-DICHLOROETHYLENE	0.9	UG/L	6
10/9/1990	1,1-DICHLOROETHYLENE	0	UG/L	6
9/10/1990	1,1-DICHLOROETHYLENE	1.1	UG/L	6
8/6/1990	1,1-DICHLOROETHYLENE	0.7	UG/L	6
7/30/1990	1,1-DICHLOROETHYLENE	0.9	UG/L	6
6/26/1990	1,1-DICHLOROETHYLENE	0.5	UG/L	6
5/30/1990	1,1-DICHLOROETHYLENE	0	UG/L	6
4/19/1990	1,1-DICHLOROETHYLENE	0.7	UG/L	6
9/29/1989	1,1-DICHLOROETHYLENE	0.5	UG/L	6
9/29/1989	1,1-DICHLOROETHYLENE	0.5	UG/L	6
6/13/1989	1,1-DICHLOROETHYLENE	0	UG/L	6
3/22/1989	1,1-DICHLOROETHYLENE	< 0.5	UG/L	6
12/13/1988	1,1-DICHLOROETHYLENE	< 0.5	UG/L	6
9/27/1988	1,1-DICHLOROETHYLENE	< 0.5	UG/L	6
6/22/1988	1,1-DICHLOROETHYLENE	< 0.5	UG/L	6
3/23/1988	1,1-DICHLOROETHYLENE	< 0.2	UG/L	6
9/23/1987	1,1-DICHLOROETHYLENE	< 0.5	UG/L	6
6/17/1987	1,1-DICHLOROETHYLENE	0	UG/L	6
1/27/1987	1,1-DICHLOROETHYLENE	0.3	UG/L	6

10/29/1985	1,1-DICHLOROETHYLENE		0.4	UG/L	6
10/22/1985	1,1-DICHLOROETHYLENE		< 0.2	UG/L	6
10/3/1985	1,1-DICHLOROETHYLENE		0.4	UG/L	6

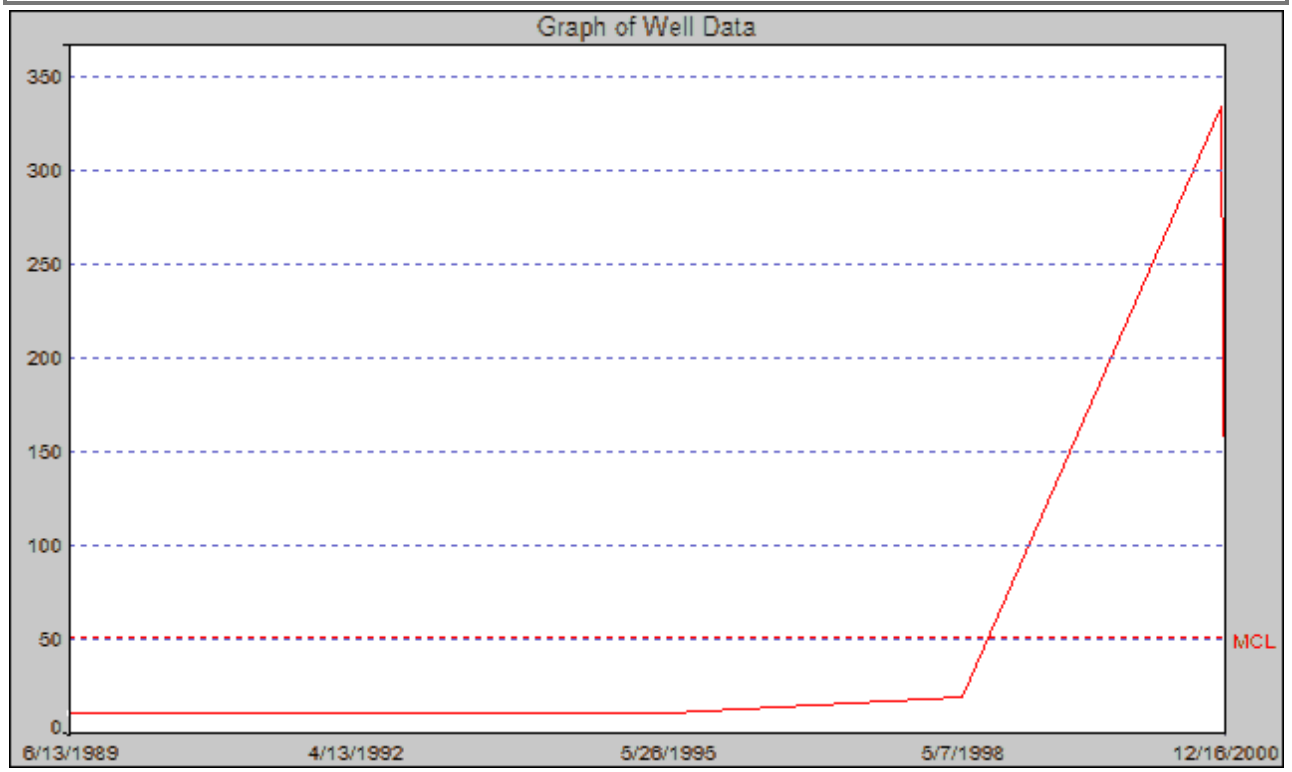
FROM DATE: **TO DATE:** **GRAPH SIZE** Small **NORMALIZED** Redraw

Well Report

GSWC - BELL, BELL GARDENS (SANTA FE SPRINGS)
HOFFMAN WELL 02 - DESTROYED 10/26/07
12035 Burke Street, #1
SANTA FE SPRINGS , CA 90670670
(Show This Well on Map)

State Well #: 1910011-008
Well Source: Groundwater
Well Status: Destroyed

Detailed Well Information | DPH Water Quality Data



DATE	PARAMETER	RESULT	UNITS	MCL
12/16/2000	CHROMIUM (TOTAL)	98.9	UG/L	50
11/28/2000	CHROMIUM (TOTAL)	333	UG/L	50
5/7/1998	CHROMIUM (TOTAL)	17.7	UG/L	50
5/26/1995	CHROMIUM (TOTAL)	< 10	UG/L	50
4/13/1992	CHROMIUM (TOTAL)	< 10	UG/L	50
6/13/1989	CHROMIUM (TOTAL)	< 10	UG/L	50

FROM DATE: TO DATE: GRAPH SIZE Small NORMALIZED Redraw

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Thomas Tolleson

Fullerton, CA 92831

Job Function Management & Business, Manufacturing & Production

Career Summary

As a highly competent Director of Manufacturing Operations, I am looking to join a team which will utilize my diversified skills and expertise in the areas of manufacturing, engineering, quality management, facilities management, and material planning & logistics; where my strong leadership, communication skills, strategic planning, and lean team building skills will be mutually beneficial.

Timeline

'13 Technical Director
ALLOY DIE CASTING COMPANY

'10 Management Representative for ISO

'07 sales, Cudahy and Tijuana facilities
YRS. BWF / M. STEPHENS

'04 I assisted the president

'01

'98 Vice President, Operations
YRS. WESLOCK NATIONAL, INC

'95

'92

'89 Vice President of Operations
CETEC

'86

'83

'80 Plant Manager
YRS. GARY SAFE CO

'77 Quality Control Manager 1 Yr
MUSKIN CORP

'74

'71

sales, Cudahy and Tijuana facilities

YRS. BWF / M. STEPHENS, YRS. BWF / M. STEPHENS JAN '98 - DEC '06 (8 YEARS, 11 MONTHS)

1998-2006 8 Yrs. BWF / M. Stephens, $33MM sales, Cudahy and Tijuana facilities Director of Manufacturing Managed all phases of manufacturing, (Die Casting, Machine shop, Powder Coating / Paint, Sub-assembly and Final Assembly) at the Cudahy and Tijuana plants, including Accounting, Administration, Materials Control, Purchasing, Manufacturing Engineering, Maintenance, Tool and Die. P/L responsibilities include Inventory, D/L, IND/L and Manufacturing Overhead. 600 employees. Worked with testing labs to get certifications, UL, CSA, ANSI ASTM and NOM. Re-engineered D/L Foundry operations, which resulted in a first year savings of $500,000. Re-designed Die cast molds to maximize our die cast machines capacity a savings of $400,000 yr. Responsible for the successful purchase and installation of 5 new die cast machines. Improved the Cudahy plant productivity from 62% in 1998 to 99% by 2001. In the Tijuana facility, I lead the team that re-designed the manufacturing assembly and machining areas, which increased productivity from 47% in 1998 to 95% in 2003.

Skills

LEARNING INTERMEDIATE ADVANCED EXPERT

Quality Co

Industrial/manufacturing Inspection Inventory Labor Cost Liaison Life Cycle Machine Shop Machining Maintenance Manufacturing Engineering Manufacturing Operations Manufacturing Processes Metal Stamping New Product Introduction Non-conforming

Work Experience

Management Representative for ISO
JAN '08 - DEC '08
Management Representative for ISO 9001-2008/AS9100-C Certification proce ...More

Technical Director
ALLOY DIE CASTING COMPANY // JUN '06 - JUL '13
2006-6/7/2013 Alloy Die Casting Company, $25MM sales, Buena Park Ca. Tec ...More

I assisted the president
JAN '03 - DEC '03
In 2003 I assisted the president in closing down all Cudahy Mfg. Operations, ...More

sales, Cudahy and Tijuana facilities
YRS. BWF / M. STEPHENS // JAN '98 - DEC '06
1998-2006 8 Yrs. BWF / M. Stephens, $33MM sales, Cudahy and Tijuana facil ...More

Vice President, Operations
YRS. WESLOCK NATIONAL, INC // JAN '88 - DEC '98
1988-1998 10 Yrs. WESLOCK NATIONAL, INC., $66MM sales, Los Angeles, CA ...More

Vice President of Operations
CETEC // JAN '84 - JAN '88
1984-1988 Cetec-Anco, $12MM sales, South El Monte, CA. Vice President of ...More

Plant Manager
YRS. GARY SAFE CO // JAN '79 - DEC '79
1979-1984 Yrs. GARY SAFE CO., $30MM sales, City of Industry, CA. Plant Man ...More

Quality Control Manager 1 Yr
MUSKIN CORP // JAN '69 - JAN '79
1969-1979 MUSKIN CORP., $36MM sales, Colton, CA. Quality Control Manag ...More

Education

Associate Degree // Sociology
POLICE SCIENCE SAN BERNARDINO VALLEY COLLEGE

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Thomas Tolleson

Fullerton, CA 92831

Job Function Management & Business, Manufacturing & Production

Career Summary

As a highly competent Director of Manufacturing Operations, I am looking to join a team which will utilize my diversified skills and expertise in the areas of manufacturing, engineering, quality management, facilities management, and material planning & logistics; where my strong leadership, communication skills, strategic planning, and lean team building skills will be mutually beneficial.

Timeline

'13 Technical Director
ALLOY DIE CASTING COMPANY

'10 Management Representative for ISO

'07 sales, Cudahy and Tijuana facilities
YRS. BWF / M. STEPHENS

'04 I assisted the president

'01

'98 Vice President, Operations
YRS. WESLOCK NATIONAL, INC

'95

'92

'89

'86 Vice President of Operations
CETEC

'83

'80 Plant Manager
YRS. GARY SAFE CO

'77 Quality Control Manager 1 Yr
MUSKIN CORP

'74

'71

I assisted the president

JAN '03 - DEC '03 (11 MONTHS)

In 2003 I assisted the president in closing down all Cudahy Mfg. Operations, I was then responsible for building a new foundry and moving operations into Tijuana Mexico this was done 2 months early and $250,000 under plan.

Skills

LEARNING	INTERMEDIATE	ADVANCED	EXPERT
			Quality Co
			Sales
			Operations

Keywords

Accounting Annual Sales Ansi Assembly Astm Audits Buying/procurement Casting Cnc Cnc Machining Contract Negotiations Customer Service Die Cast Final Assembly Including Accounting Industrial/manufacturing Inspection Inventory Labor Cost Liaison Life Cycle Machine Shop Machining Maintenance Manufacturing Engineering Manufacturing Operations Manufacturing Processes Metal Stamping New Product Introduction Non-conforming

Work Experience

Management Representative for ISO
JAN '08 - DEC '08
Management Representative for ISO 9001-2008/AS9100-C Certification proce ...More

Technical Director
ALLOY DIE CASTING COMPANY // JUN '06 - JUL '13
2006-6/7/2013 Alloy Die Casting Company, $25MM sales, Buena Park Ca. Tec ...More

I assisted the president
JAN '03 - DEC '03
In 2003 I assisted the president in closing down all Cudahy Mfg. Operations, ...More

sales, Cudahy and Tijuana facilities
YRS. BWF / M. STEPHENS // JAN '98 - DEC '06
1998-2006 8 Yrs. BWF / M. Stephens, $33MM sales, Cudahy and Tijuana facil ...More

Vice President, Operations
YRS. WESLOCK NATIONAL, INC // JAN '88 - DEC '98
1988-1998 10 Yrs. WESLOCK NATIONAL, INC., $66MM sales, Los Angeles, CA ...More

Vice President of Operations
CETEC // JAN '84 - JAN '88
1984-1988 Cetec-Anco, $12MM sales, South El Monte, CA. Vice President of ...More

Plant Manager
YRS. GARY SAFE CO // JAN '79 - DEC '79
1979-1984 Yrs. GARY SAFE CO., $30MM sales, City of Industry, CA. Plant Man ...More

Quality Control Manager 1 Yr
MUSKIN CORP // JAN '69 - JAN '79
1969-1979 MUSKIN CORP., $36MM sales, Colton, CA. Quality Control Manag ...More

Education

Associate Degree // Sociology
POLICE SCIENCE SAN BERNARDINO VALLEY COLLEGE

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Reference:
TEP, 2014

TEDDICO
ELECTRICAL PRODUCTS

Weatherproof Electrical Products

www.teddicobwf.com

Corporate Statement

As Manufacturers of Outdoor Weatherproof Electrical Products, it is BWF/M. Stephens' goal to provide our Customers with quality products at competitive prices - backed by the highest level of commitment and service available in this industry.

We provide a broad range of electrical fittings and weatherproof products to the market, and are committed to total Customer satisfaction by meeting or exceeding expectations for quality, on-time delivery, and friendly, knowledgable Customer service.

The vision of M. Stephens is to acheive this by being more responsive, more flexible, faster, easier and more profitable to do business with than our competitors. Every element of our on-going business strategies will be aimed at accomplishing this vision.

Reference:
TSD, 1980

DY

I - 877-2Y

TRICO INDUSTRIES, INC.

SUPERIOR DIVISION
P.O. Box 22200
Los Angeles, California 90022
8420 South Atlantic Avenue
Cudahy, California 90201
Telephone (213) 773-8611
Telex: 69-1711

February 13, 1980

CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD - LOS ANGELES REGION
107 South Broadway, Room 4027
Los Angeles, California 90012

Attention: Executive Officer

Reference: Technical Monitoring Report
#6178 CA0057576

Gentlemen:

Reference the Boards Order No. 75-103 N.P.D.E.S. #CA0057576, our prescribed requirements for monitoring and reporting our waste discharge. Please find attached the laboratory report and our monthly report for the month of April.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 13 day of February, 1980, at Trico Industries, Superior Division, Los Angeles California.

Yours very truly,

Fred Haller

Fred Haller
Plant Manager

FH/sp

Enclosure

cc: S. Iguchi
Dept. of County Eng.

RECEIVED
FEB 14 1980
SANITATION

AP

1980
WASTE WATER DISCHARGE REPORT
TRICO INDUSTRIES, SUPERIOR DIVISION

NPDES CA 0057576 Concentration Limits (mg/1)		January	February	March	April	May	June
Temperature	100°	62°					
Total Waste Flow (GPD)	10,000	8,000					
PH	6.5-9.0	7.55					
Suspended Solids	50-75	.06					
Settleable Solids	1/0.1-0.2	N.D. 0.1 M1/1					
BOD 5 20° C	20-30	2MG/1					
Oil & Grease	10-15	0.2					
Turbidity	2/50-75	0.94FTU					
Total Disvld. Solids	626-1,500	442					

1/ML/1

2/T.U.

4914 - Buff
8814 - Green

AGRI SCIENCE

GRI-SCIENCE LABORATORIES INCORPORATED

SANITATION DISTRICTS OF LOS ANGELES COUNTY
INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

Lab No. 0969
Received 1-16-80
Sampled
by

Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES		Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES	
A	Flow (Total)			gals/day	V	Manganese - Total			mg/l
B	Flow (Peak)			gals/min.	W	Mercury - Total			mg/l
C	COD			mg/l	X	Molybdenum - Total			mg/l
D	SS (Suspended Solids)	A	0.4	mg/l	Y	Nickel - Total			mg/l
E	pH	A	7.72	Units	Z	Selenium - Total			mg/l
F	Total Dissolved Solids	A	462	mg/l	AA	Silver - Total			mg/l
G	Ammonia (N)			mg/l	BB	Sodium - Total			mg/l
H	Sulfide			mg/l	CC	Thallium - Total			mg/l
I	Cyanide			mg/l	DD	Tin - Total			mg/l
J	Fluoride			mg/l	EE	Titanium - Total			mg/l
K	Aluminum - Total			mg/l	FF	Zinc - Total			mg/l
L	Antimony - Total			mg/l	GG	Oil & Grease (freon Extract)	A	4.0	mg/l
M	Arsenic - Total			mg/l	HH	Phenols			mg/l
N	Beryllium - Total			mg/l	II	Surfactants (MBAS)			mg/l
O	Boron - Total			mg/l	JJ	Chlorinated Hydrocarbons (except pesticides)			mg/l
P	Cadmium - Total			mg/l					
Q	Chromium - Total			mg/l	KK	Pesticides (Chlor. Hycarb.)			mg/l
R	Cobalt - Total			mg/l	LL	Radioactivity (Alpha, Beta & Gamma)			pCi/l
S	Copper - Total			mg/l	MM	Temperature			Degrees °F
T	Iron - Total			mg/l	NN	Color			Units
U	Lead - Total			mg/l	OO	Thiosulfate (S)			mg/l

NON-CRITICAL PARAMETERS (Report When Available)					OTHER PARAMETERS (Report When Requested)			
PP	Calcium			mg/l	A1	~~Sett. Solids~~	A	~~None Detected~~
QQ	Magnesium			mg/l	A2	Turbidity	A	3 FTU
RR	Potassium			mg/l	A3	BOD_5	A	<2 mg/l
SS	Barium			mg/l	A4			
TT	Nitrate			mg/l	A5			
UU	Chloride			mg/l	A6			
VV	Bromide			mg/l	A7			
WW	Sulfate			mg/l	A8			
XX	Phosphorus-Ortho			mg/l	A9			

NOTES:

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameters required by the Districts but *known to be absent* from the wastewater may be reported by placing the word absent in the appropriate space.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using *representative* 24-hour composite samples, by a State Certified or Districts Approved Laboratory. If values are obtained by estimate, write E in this column. *Estimated values are acceptable for new plants only.*

Reported 1-23-80

Agri Science Labs, 2122 So. Granville, Los Angeles, CA 90025
(Print) Name and Address of Laboratory Performing Analyses and Flow Measurements

Trico Superior, Inc. 8420 Atlantic Ave., Cudahy, CA 90201
(Print) Name of Company Having Wastewater Discharge — SIC Number(s)

(Print) Address of Wastewater Discharge

(Print) Additional Location Data (Data above should be for only *one* discharge point to the sewerage system)

Statement of Accuracy of Data

I hereby affirm that the above data comprise a true and correct representation of the wastewater discharged from the stated discharge point.

Date: _____ Location: _____

Kenneth P. Stoub

KENNETH P. STOUB
Vice President & Director
Agri Science Laboratories, Inc.

(Signed) Name — Position (Administrative Officer of Company with Wastewater Discharge)

AGRI SCIENCE

AGRI-SCIENCE LABORATORIES INCORPORATED

SANITATION DISTRICTS OF LOS ANGELES COUNTY
INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

Lab No. ~~0968~~
Received ~~1-16-80~~
Sampled
by

Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES	Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES
A	Flow (Total)		gals/day	V	Manganese - Total		mg/l
B	Flow (Peak)		gals/min.	W	Mercury - Total		mg/l
C	COD		mg/l	X	Molybdenum - Total		mg/l
D	SS (Suspended Solids)	A	2.0 mg/l	Y	Nickel - Total		mg/l
E	pH	A	7.72 Units	Z	Selenium - Total		mg/l
F	Total Dissolved Solids	A	450 mg/l	AA	Silver - Total		mg/l
G	Ammonia (N)		mg/l	BB	Sodium - Total		mg/l
H	Sulfide		mg/l	CC	Thallium - Total		mg/l
I	Cyanide		mg/l	DD	Tin - Total		mg/l
J	Fluoride		mg/l	EE	Titanium - Total		mg/l
K	Aluminum - Total		mg/l	FF	Zinc - Total		mg/l
L	Antimony - Total		mg/l	GG	Oil & Grease (freon Extract)	A	4.5 mg/l
M	Arsenic - Total		mg/l	HH	Phenols		mg/l
N	Beryllium - Total		mg/l	II	Surfactants (MBAS)		mg/l
O	Boron - Total		mg/l	JJ	Chlorinated Hydrocarbons (except pesticides)		mg/l
P	Cadmium - Total		mg/l				
Q	Chromium - Total		mg/l	KK	Pesticides (Chlor. Hycarb.)		mg/l
R	Cobalt - Total		mg/l	LL	Radioactivity (Alpha, Beta & Gamma)		pCi/l
S	Copper - Total		mg/l	MM	Temperature		Degrees °F
T	Iron - Total		mg/l	NN	Color		Units
U	Lead - Total		mg/l	OO	Thiosulfate (S)		mg/l

NON-CRITICAL PARAMETERS (Report When Available)				OTHER PARAMETERS (Report When Requested)			
PP	Calcium		mg/l	A1	~~Sett. Solids~~	A	~~None Detected~~
QQ	Magnesium		mg/l	A2	~~Turbidity~~	A	~~7 FTU~~
RR	Potassium		mg/l	A3	~~BOD5~~	A	~~<2 mg/l~~
SS	Barium		mg/l	A4			
TT	Nitrate		mg/l	A5			
UU	Chloride		mg/l	A6			
VV	Bromide		mg/l	A7			
WW	Sulfate		mg/l	A8			
XX	Phosphorus-Ortho		mg/l	A9			

NOTES:

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameters required by the Districts but *known to be absent* from the wastewater may be reported by placing the word absent in the appropriate space.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using representative 24-hour composite samples, by a State Certified or Districts Approved Laboratory. If values are obtained by estimate, write E in this column. *Estimated values are acceptable for new plants only.*

Reported 1-23-80

(Print) Name and Address of Laboratory Performing Analyses and Flow Measurements: Agri Science Labs, 2122 So. Granville, Los Angeles, CA 90025

(Print) Name of Company Having Wastewater Discharge: ~~Trico Superior, Inc~~ SIC Number(s)

(Print) Address of Wastewater Discharge: ~~3420 Atlantic Ave., Cudahy, CA 90201~~

(Print) Additional Location Data (Data above should be for only *one* discharge point to the sewerage system)

Statement of Accuracy of Data

I hereby affirm that the above data comprise a true and correct representation of the wastewater discharged from the stated discharge point.

Kenneth P. Stoub

KENNETH P. STOUB
Vice President & Director
Agri Science Laboratories, Inc.

Date: _____ Location: _____

(Signed) Name — Position (Administrative Officer of Company with Wastewater Discharge)

TRICO INDUSTRIES, INC.
SUPERIOR DIVISION
P.O. Box 22200
Los Angeles, California 90022
8420 South Atlantic Avenue
Cudahy, California 90201
Telephone (213) 773-8611
Telex: 69-1711

RECEIVED
JAN 16 1980
SANITATION

January 15, 1980

California Regional Water Quality
Control Board - Los Angeles Region
107 South Broadway, Room 4027
Los Angeles, California 90012

Attention: Executive Officer

Reference: Technical Monitoring Report
#6178 CA0057576

Gentlemen:

Reference the Boards Order Number 75-103 N.P.D.E.S. #CA0057576, our prescribed requirements for monitoring and reporting our waste discharge. Please find attached the laboratory report and our monthly report for the month of October 1979.

Executed on the 15th day of January 1980, at Trico Industries, Inc., Superior Division, Los Angeles, California.

Very truly yours,

Fred Haller

Fred Haller
Production Manager

FH/sp
Enclosure

cc: S. Iguchi
Dept. of County Engineers

1979

WASTE DISCHARGE REQUIREMENTS

TRICO SUPERIOR, INC.

NPDES CA 0057576

	Concentration Limits (mg/l)	1	2	3 JAN.	4 FEB.	5 MAR.	6 APR.	7 MAY	8 JUNE	9 JULY	10 AUG.	11 SEPT.	12 OCT.	13 NOV.	14 DEC.
1	Temperature	100°		61°	62°	62°	65°			62°	65°	65°	62°	62°	60
2															
3	Total Waste Flow	10,000		9,050	9000	9000	9,230			9,160	9,200	8000	7800	7400	8000
4	(GPD)														
5	PH	6.5 - 9.0		7.55			7.40			7.50					
6															
7	Suspended solids	50 - 75		0.6			1.3			1.3					
8															
9	Settleable solids	1/0.1-0.2		N.D., 0.1 ml/l			ND, 0.01 ml/l			ND 0.1 ml/l					
10															
11	BOD 5 20° C	20 - 30		2 mg/l			1.4 mg/l			ND 2 ppm					
12															
13	Oil & Grease	10 - 15		0.2			2.1			1.5					
14															
15	Turbidity	2/50 - 75		0.94 FTU			0.38 FTU			0.29 FTU					
16															
17	Total disvld. solids	626-1,500		442			428			448					
18															
19															
20	1/ ML/1														
21															
22	2/ T.U.														
23															
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36															
37															
38															
39															
40															

8825 - Green

I-877

TRICO INDUSTRIES, INC.

SUPERIOR DIVISION
P.O. Box 22200
Los Angeles, California 90022
8420 South Atlantic Avenue
Cudahy, California 90201
Telephone (213) 773-8611
Telex: 69-1711

COUNTY ENGINEER-FACILITIES
JUL 26 10 00 AM '79
CWJ ___ DYM ___ PAP ___
REFD TO ___
RPT ___ PREP REPLY ___

July 25, 1979

California Regional Water Quality
Control Board - Los Angeles Region
107 South Broadway, Room 4027
Los Angeles, California 90012

RECEIVED
JUL 26 1979
SANITATION

Attention: Executive Officer

Reference: Technical Monitoring Report
#6178 CA0057576

Gentlemen:

Reference the Boards Order Number 75-103 N.P.D.E.S. #CA0057576, our prescribed requirements for monitoring and reporting our waste discharge. Please find attached the laboratory report and our monthly report for the month of June.

Executed on the 25th day of July, 1979 at Trico Industries, Superior Division, Los Angeles, California.

Very truly yours,

Fred Haller

Fred Haller
Production Manager

FH:tn
Enclosure

cc: S. Iguchi
Dept. of County Engineers

1979

WASTE DISCHARGE REQUIREMENTS

TRICO SUPERIOR, INC.

NPDES CA 0057576

Concentration Limits (mg/1)		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Temperature	100°	61°			65°			62°					
Total Waste Flow (GPD)	10,000	9,050			9,230			9,160					
PH	6.5 - 9.0	7.55			7.40			7.50					
Suspended solids	50 - 75	0.6			1.3			1.3					
Settleable solids	1/0.1-0.2	N.D., 0.1 ml/1			ND, 0.01 ml/1			ND 0.1 m/1/1					
BOD 5 20° C	20 - 30	2 mg/1			1.4 mg/1			ND 2 ppm					
Oil & Grease	10 - 15	0.2			2.1			1.5					
Turbidity	2/50 - 75	0.94 FTU			0.38 FTU			0.29 FTU					
Total disvld. solids	626-1,500	442			428			448					

1/ ML/1

2/ T.U.

AGRI SCIENCE

AGRI-SCIENCE LABORATORIES INCORPORATED

SANITATION DISTRICTS OF LOS ANGELES COUNTY
INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

Lab No. 4746
Received 7/17/79
Sampled 7/17/79
by Agri Science

Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES		Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES	
A	Flow (Total)			gals/day	V	Manganese - Total			mg/l
B	Flow (Peak)			gals/min.	W	Mercury - Total			mg/l
C	COD			mg/l	X	Molybdenum - Total			mg/l
D	SS (Suspended Solids)	A	13	mg/l	Y	Nickel - Total			mg/l
E	pH	A	7.50	Units	Z	Selenium - Total			mg/l
F	Total Dissolved Solids	A	448	mg/l	AA	Silver - Total			mg/l
G	Ammonia (N)			mg/l	BB	Sodium - Total			mg/l
H	Sulfide			mg/l	CC	Thallium - Total			mg/l
I	Cyanide			mg/l	DD	Tin - Total			mg/l
J	Fluoride			mg/l	EE	Titanium - Total			mg/l
K	Aluminum - Total			mg/l	FF	Zinc - Total			mg/l
L	Antimony - Total			mg/l	GG	Oil & Grease (freon Extract)	A	1.5	mg/l
M	Arsenic - Total			mg/l	HH	Phenols			mg/l
N	Beryllium - Total			mg/l	II	Surfactants (MBAS)			mg/l
O	Boron - Total			mg/l	JJ	Chlorinated Hydrocarbons (except pesticides)			mg/l
P	Cadmium - Total			mg/l					
Q	Chromium - Total			mg/l	KK	Pesticides (Chlor. Hycarb.)			mg/l
R	Cobalt - Total			mg/l	LL	Radioactivity (Alpha, Beta & Gamma)			pCi/l
S	Copper - Total			mg/l	MM	Temperature			Degrees °F
T	Iron - Total			mg/l	NN	Color			Units
U	Lead - Total			mg/l	OO	Thiosulfate (S)			mg/l
	NON-CRITICAL PARAMETERS (Report When Available)					OTHER PARAMETERS (Report When Requested)			
PP	Calcium			mg/l	A1	Sett. Solids	A	ND, <0.1 ml/l	
QQ	Magnesium			mg/l	A2	TURbidity	A	0.29 FTU	
RR	Potassium			mg/l	A3	BOD_5	A	ND, <2 ppm	
SS	Barium			mg/l	A4				
TT	Nitrate			mg/l	A5				
UU	Chloride			mg/l	A6				
VV	Bromide			mg/l	A7				
WW	Sulfate			mg/l	A8				
XX	Phosphorus-Ortho			mg/l	A9				

NOTES:

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameters required by the Districts but *known to be absent* from the wastewater may be reported by placing the word absent in the appropriate space.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using representative 24-hour composite samples, by a State Certified or Districts Approved Laboratory. If values are obtained by estimate, write E in this column. *Estimated values are acceptable for new plants only.*

Agri Science Labs, 2122 So. Granville, Los Angeles, CA 90025

Name and Address of Laboratory Performing Analyses and Flow Measurements

Trico Superior, Inc.

Name of Company Having Wastewater Discharge — SIC Number(s)

8420 Atlantic Ave., Cudahy, CA 90201

Address of Wastewater Discharge

Additional Location Data (Data above should be for only *one* discharge point to the sewerage system)

Statement of Accuracy of Data

I hereby affirm that the above data comprise a true and correct representation of the wastewater discharged from the stated discharge point.

Date: _____ Location: _____, California _____

(Signed) Name — Position (Administrative Officer of Company with Wastewater Discharge)

Reported: 7/23/79

Kenneth P. Stoub

KENNETH P. STOUB
Vice President & Director
Agri Science Laboratories, Inc.

TRICO INDUSTRIES, INC.
SUPERIOR DIVISION
P.O. Box 22200
Los Angeles, California 90022
8420 South Atlantic Avenue
Cudahy, California 90201
Telephone (213) 773-8611
Telex: 69-1711

COUNTY ENGINEER-FACILITIES
CJK ____ RWI ____
HB ____ GJF ____
MAY 10 2 16 PM '79
CWJ ____ DYM ____ PAP ____
REFD TO ____
RPT ____ PREP REPLY ____

I-877

May 9, 1979

RECEIVED
MAY 11 1979
SANITATION

California Regional Water Quality
Control Board - Los Angeles Region
107 South Broadway, Room 4027
Los Angeles, California 90012

Attention: Executive Officer

Reference: Technical Monitoring Report
#6178 CA0057576

Gentlemen:

Reference the Boards Order No. 75-103 N.P.D.E.S. #CA0057576 our prescribed requirements for monitoring and reporting our waste discharge. Please find attached the laboratory report and our monthly report for the month of April.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 9th day of May, 1979 at Trico Industries, Superior Division Los Angeles, California.

Yours very truly,

Jess Marquez
Plant Manager

MN:cg

Enclosure

cc: S. Iguchi
Dept. of County Eng.

1979

WASTE DISCHARGE REQUIREMENTS

TRICO SUPERIOR, INC.

DES CA 0057576	1	2	3	4	5	6	7	8	9	10	11	12	13
ncentration Limits (mg/l)			JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.
Temperature	100°		61°			65°							
Total Waste Flow (GPD)	10,000		9,050			9,230							
PH	6.5 - 9.0		7.55			7.40							
Suspended solids	50 - 75		0.6			1.3							
Settleable solids	1/0.1-0.2		N.D., 0.1 ml/l			ND, 0.01 ml/l							
BOD 5 20° C	20 - 30		2 mg/l			1.4 mg/l							
Oil & Grease	10 - 15		0.2			2.1							
Turbidity	2/50 - 75		0.94 FTU			0.38 FTU							
Total disvld. solids	626-1,500		442			428							

1/ ML/l

2/ T.U.

AGRI SCIENCE

AGRI-SCIENCE LABORATORIES INCORPORATED

SANITATION DISTRICTS OF LOS ANGELES COUNTY
INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

Lab No. 1703
Received 4/26/79
Sampled 4/26/79
by M. Neal

Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES		Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES	
A	Flow (Total)			gals/day	V	Manganese - Total			mg/l
B	Flow (Peak)			gals/min.	W	Mercury - Total			mg/l
C	COD			mg/l	X	Molybdenum - Total			mg/l
D	SS (Suspended Solids)	A	1.3	mg/l	Y	Nickel - Total			mg/l
E	pH	A	7.40	Units	Z	Selenium - Total			mg/l
F	Total Dissolved Solids	A	428	mg/l	AA	Silver - Total			mg/l
G	Ammonia (N)			mg/l	BB	Sodium - Total			mg/l
H	Sulfide			mg/l	CC	Thallium - Total			mg/l
I	Cyanide			mg/l	DD	Tin - Total			mg/l
J	Fluoride			mg/l	EE	Titanium - Total			mg/l
K	Aluminum - Total			mg/l	FF	Zinc - Total			mg/l
L	Antimony - Total			mg/l	GG	Oil & Grease (freon Extract)	A	2.1	mg/l
M	Arsenic - Total			mg/l	HH	Phenols			mg/l
N	Beryllium - Total			mg/l	II	Surfactants (MBAS)			mg/l
O	Boron - Total			mg/l	JJ	Chlorinated Hydrocarbons (except pesticides)			mg/l
P	Cadmium - Total			mg/l					
Q	Chromium - Total			mg/l	KK	Pesticides (Chlor. Hycarb.)			mg/l
R	Cobalt - Total			mg/l	LL	Radioactivity (Alpha, Beta & Gamma)			pCi/l
S	Copper - Total			mg/l	MM	Temperature			Degrees °F
T	Iron - Total			mg/l	NN	Color			Units
U	Lead - Total			mg/l	OO	Thiosulfate (S)			mg/l
	NON-CRITICAL PARAMETERS (Report When Available)					OTHER PARAMETERS (Report When Requested)			
PP	Calcium			mg/l	A1	Turbidity	A	0.38 FTU	
QQ	Magnesium			mg/l	A2	Sett. Solids	A	ND, <0.01 ml/l	
RR	Potassium			mg/l	A3	BOD	A	1.4 mg/l	
SS	Barium			mg/l	A4				
TT	Nitrate			mg/l	A5				
UU	Chloride			mg/l	A6				
VV	Bromide			mg/l	A7				
WW	Sulfate			mg/l	A8				
XX	Phosphorus-Ortho			mg/l	A9				

NOTES:

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameters required by the Districts but *known to be absent* from the wastewater may be reported by placing the word absent in the appropriate space.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using representative 24-hour composite samples, by a State Certified or Districts Approved Laboratory. If values are obtained by estimate, write E in this column. *Estimated values are acceptable for new plants only.*

Agri Science Labs, 2122 So. Granville, Los Angeles, CA 90025

D(Print) Name and Address of Laboratory Performing Analyses and Flow Measurements

Trico Superior, Inc.

F(Print) Name of Company Having Wastewater Discharge — SIC Number(s)

8420 Atlantic Avenue, Cudahy, CA 90201

C(Print) Address of Wastewater Discharge

I(Print) Additional Location Data (Data above should be for only *one* discharge point to the sewerage system)

Statement of Accuracy of Data

I hereby affirm that the above data comprise a true and correct representation of the wastewater discharged from the stated discharge point.

Date: _____ Location: _____, California _____

(Signed) Name — Position (Administrative Officer of Company with Wastewater Discharge)

Reported: 5/3/79

TRICO INDUSTRIES, INC.
TRICO SUPERIOR INC.
Post Office Box 22200 • Los Angeles, California 90022 (213) 773-8611
Telex: 69-1711 Cable: Tri-Sup

COUNTY ENGINEER-FACILITIES
JAN 9 10 40 AM '79
REFD TO
KPT PREP REPLY

December 29, 1978

RECEIVED
JAN 10 1979
L. A. COUNTY ENGINEER
SANITATION DIVISION

California Regional Water Quality
Control Board - Los Angeles Region
107 South Broadway, Room 4027
Los Angeles, CA 90012

Attention: Executive Officer

Gentlemen:

Enclosed please find the temperature and water flow rates for the months of November and December on our 1978 Waste Discharge Requirements.

Yours very truly,

Jess Marquez
Plant Manager

JM:hh

Enclosure

cc: S. Iguchi
Dept. of County Eng.

1978

WASTE DISCHARGE REQUIREMENTS
TRICO SUPERIOR, INC.

NPDES CA 0057576	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Concentration limit (mg/1)		*JAN.	FEB.	MARCH	*APRIL	MAY	JUNE	JULY	AUG.	SEPT.	*OCT.	NOV.	DEC.	
Temperature	100°	62°	63°	62°	65°	65°	66°	68°	67°	68°	67°	64°	65°	
Total Waste Flow (GPD)	10,000	7,190	8,245	8,540	8,725	8,490	9,660	9,204	9,008	9,200	8,440	8,009	9,230	
PH	6.5 - 9.0	7.42			7.25			6.00			7.18			
Suspended solids	50 - 75	1.9			0.9			1.2			0.75			
Settleable Solids	1/0.2-0.2	ND, 0.1 ml/1			ND, 0.1ml/1			ND, 0.1 ml/1			ND 0.1 ml/1			
BOD 5 20° C	20 - 30	6 mg/1			3.5 mg/1			3.4 mg/1			3 mg/1			
Oil & Grease	10 - 15	1.8			6.0			0.2			0.2			
Turbidity	2/50 - 75	2.7 FTU			1.0 FTU			3.3 FTU			0.55 FTU			
Total Disvld Solids	626 - 1,500	480			433			415			464			

1/ ML/1

2/ T.U.

Reference:
WRD, 2014

Water Replenishment District of Southern California

Engineering Survey and Report

2014

March 6, 2014

Updated:
May 1, 2014

CHAPTER III
GROUNDWATER CONDITIONS

Introduction

The California Water Code Section 60300 requires WRD to determine annually in the Engineering Survey and Report ("ESR") the following items related to groundwater conditions in the Central Basin and West Coast Basin ("CBWCB"):

1) Total groundwater production for the previous water year and estimates for the current and ensuing water years;

2) The Annual Overdraft for the previous water year and estimates for the current and ensuing water years;

3) The Accumulated Overdraft for previous water year and an estimate for the current water year;

4) Changes in groundwater levels (pressure levels or piezometric heights) within the District and the effects these changes have on groundwater supplies within the District; and

5) An estimate of the quantity, source, and cost of water available for replenishment during the ensuing water year;

To meet these requirements, WRD's hydrogeologists and engineers closely monitor and collect data to manage the groundwater resources of the District throughout the year. They track groundwater levels from WRD's network of specialized monitoring wells and from groundwater producers' production wells. They update and run computer models developed by the United States Geological Survey ("USGS") and others to simulate groundwater conditions and to predict future conditions. They use their geographic information system ("GIS") and database management system to store, analyze, map, and report on the information required for the ESR. They work closely with the Los Angeles County Department of Public Works ("LACDPW") on spreading grounds and seawater barrier wells to determine current and future operational impacts to groundwater supplies. They work closely with the Metropolitan Water District of Southern California ("MWD" or "Met"), the local MWD member agencies, and the Sanitation Districts of Los Angeles County ("SDLAC") on the current and future availability of replenishment water. They also work with regulators on replenishment criteria for water quality and recycled water use, and with the groundwater pumpers, the pumpers' Technical Advisory Committee ("TAC"), the Budget Advisory Committee ("BAC"), and other stakeholders to discuss the current and future groundwater conditions and beneficial projects and programs within the District and neighboring basins.

The information on Annual Overdraft, Accumulated Overdraft, water levels, and change in storage are discussed in the remainder of this chapter. Groundwater production was previously discussed in Chapter II. The estimated quantity, source, and cost of replenishment water will be discussed in Chapter IV. Projects and programs are discussed in Chapter IV.

Annual Overdraft

Section 60022 of the Water Replenishment District Act defines Annual Overdraft as "*...the amount...by which the quantity of groundwater removed by any natural or artificial means from the groundwater supplies within such replenishment district during the water year exceeds the quantity of non-saline water replaced therein by the replenishment of such groundwater supplies in such water year by any natural or artificial means other than replenishment under the provisions of Part 6 of this act or by any other governmental agency or entity.*" (Part 6 of the Act pertains to water that WRD purchases for replenishment). Therefore, the Annual Overdraft equals the natural inflows to basins (not including WRD purchased water) minus all of the outflows (mostly pumping). There is an Annual Overdraft almost every year for the simple fact that the groundwater extractions typically exceed the natural groundwater replenishment. It has been one of the District's main responsibilities since 1959 to help make up this Annual Overdraft by purchasing artificial replenishment water to recharge the aquifers and supplement the natural recharge.

To determine the Annual Overdraft for the previous water year, WRD determines the inflows and outflows of the CBWCB. In the previous Water Year 2012/2013, natural inflows (storm water capture, areal recharge, and net groundwater underflow) totaled 85,684 AF and WRD or others contributed 84,994 AF of recharge water at the seawater barrier wells and spreading grounds. Total natural and artificial inflows, therefore, equaled 170,678 AF. Total pumping in the basins was 238,678 AF. The Annual Overdraft is the natural inflows minus total outflows, or 152,994 AF (rounded to 153,000 AF).

For the current and ensuing WY estimates for Annual Overdraft, the concept of "Average Annual Groundwater Deficiency" is utilized. The Average Annual Groundwater Deficiency is the long-term average of natural inflows minus total outflows and represents the long term average deficit (Annual Overdraft) in the basins. The development of the USGS/WRD computer model derived these long term average inflow and outflow terms. **Table 4** presents this information, which concluded that the Average Annual Groundwater Deficiency is 105,385 AFY. Values of the average deficiency are based on the long term (30 year average) inflows and outflows as calculated by the computer model. Long-term average inflows are influenced by the amount of precipitation falling on the District as well as for storm water capture at the spreading grounds. **Table 5** and **Figure A** show the historical precipitation at LACDPW Station #107D, located in Downey near the Montebello Forebay, or alternate stations nearby if Station #107D data are not reliable or available.

The calculation of the Average Annual Groundwater Deficiency represents in general that WRD needs to replenish about 105,385 AFY assuming long-term average conditions for the water balance to reach equilibrium, the overall change in storage to equal zero, and groundwater levels to remain relatively constant. As shown in **Table 6**, adjustments are made to the long term average inflows and outflows for the current and ensuing WY to reflect estimates of the Annual Overdraft for those particular years. The current year has been very dry to date. Therefore, the projected Annual Overdraft is expected to be greater than the long term average. Based on these adjustments, the current year Annual Overdraft is estimated at 119,800 AF and the ensuing year is estimated at 96,800 AF.

Accumulated Overdraft

Section 60023 of the Water Replenishment District Act defines *"Accumulated Overdraft"* as "*...the aggregate amount…by which the quantity of ground water removed by any natural or artificial*

means from the groundwater supplies…during all preceding water years shall have exceeded the quantity of nonsaline water replaced therein by the replenishment of such ground water supplies in such water years by any natural or artificial means…"

In connection with the preparation of Bulletin No. 104-Appendix A (1961), the DWR estimated that the historically utilized storage (Accumulated Overdraft) between the high water year of 1904 and 1957[1] was 1,080,000 AF (780,000 in CB, 300,000 in WCB). Much of this storage removal was from the forebay areas (Montebello Forebay and Los Angeles Forebay), where aquifers are merged, unconfined and serve as the "headwaters" to the confined pressure aquifers. Storage loss from the confined and completely full, deeper aquifers was minimal in comparison or was replaced by seawater intrusion, which cannot be accounted for under the language of the Water Code since it is considered saline water.

The goal of groundwater basin management by WRD is to ensure a sufficient supply of safe and reliable groundwater in the basins for annual use by the pumpers, to keep a sufficient supply in storage for times of drought when imported water supplies may be curtailed for several consecutive years as well as to keep suitable room available in the basins to receive natural water replenishment in very wet years, such as an El Niño type year.

To compute the Accumulated Overdraft since this initial amount of 1,080,000 AF, WRD takes each consecutive year's Annual Overdraft and replenishment activities and determines the change in storage. It adds to or subtracts the corresponding value from the Accumulated Overdraft. Since the base level, the aggregate excess of extractions over recharge from the basins has been reduced due to the replenishment by LACDPW in the earlier years and WRD since 1959, the reduction of pumping established by the adjudications, and the replenishment from the seawater barrier well injection. The Accumulated Overdraft at the end of the previous WY was determined to be 757,500 AF. For the current year, due to the statewide drought, the Accumulated Overdraft is forecast to decrease to 780,700 AF. This could change if hydrology or pumping patterns or planned artificial replenishment activities vary considerably.

Table 7 presents information for the previous and current Accumulated Overdraft estimate. The annual changes in storage are presented on **Table 8**.

Groundwater Levels

A groundwater elevation contour map representing water levels within the District in fall 2013 (end of the water year) was prepared for this report and is presented as **Plate 2**. The data for the map were collected from wells that are screened in the deeper basin aquifers where the majority of groundwater pumping occurs. These deeper aquifers include the Upper San Pedro Formation aquifers, including the Lynwood, Silverado, and Sunnyside. Water level data was obtained from WRD's network of monitoring wells and from groundwater production wells that are screened in the deeper aquifers.

As can be seen on **Plate 2**, groundwater elevations range from a high of about 170 feet above mean sea level (msl) in the northeast portion of the basin above the spreading grounds in the Whittier Narrows to a low of about 100 feet below msl in the Gardena and Long Beach areas. With the

[1] DWR Bulletin 104-A did not refer to the ending year for the storage determination. WRD has assumed it to be the year 1957, as this is the end year for their detailed storage analysis presented in Bulletin 104-B – Safe Yield Determination.

exception of the Montebello Forebay and along the West Coast Basin Barrier Project, the majority of groundwater levels in the District are below sea level (red colored contours on **Plate 2**), which is why continued injection at the seawater barriers is needed to prevent saltwater intrusion.

Plate 2 also shows the location of the key wells used for long-term water level data. These long-term hydrographs have been presented in the ESR for years, and provide a consistent basis from which to compare changing water levels. A discussion of water levels observed in the key wells is presented below.

Los Angeles Forebay

The Los Angeles Forebay occupies the westerly portion of the Central Basin Non-Pressure Area. Historically a recharge area for the Los Angeles River, this forebay's natural recharge capability has been substantially reduced since the river channel was lined and open areas paved over. Recharge is now limited to deep percolation of precipitation in limited areas, In-Lieu replenishment when available, subsurface inflow from the Montebello Forebay, the northern portion of the Central Basin outside of WRD's boundary, and the San Fernando Valley through the Los Angeles Narrows.

Key well #2778 (2S/13W-10A01) represents the water level conditions of the Los Angeles Forebay (see **Figure B**). The water level high was observed in 1938 and by 1962 water levels had fallen nearly 180 feet due to basin over-pumping and lack of sufficient natural recharge. Since then, basin adjudication and managed aquifer recharge by WRD and others have improved water levels in this area by over 80 feet. Over the past 10 years, groundwater levels in this well have remained relatively constant with only minor fluctuations. This past year saw a 2.8 foot water level drop in the well between September 2012 and September 2013. The average water level change throughout the entire Los Angeles Forebay was a drop of 4.2 feet.

Montebello Forebay

The Montebello Forebay lies in the northeastern portion of the Central Basin and connects with the San Gabriel Basin to the north through the Whittier Narrows. The Rio Hondo and San Gabriel River Spreading Grounds (often called the “Montebello Forebay Spreading Grounds”) provide a substantial amount of recharge water to the CBWCB since the aquifers there are unconfined and allow easy infiltration of surface water impounded at the spreading grounds to the deeper groundwater.

Three key wells help describe the groundwater level conditions in the Montebello Forebay, a northern well, a middle well, and a southeastern well (**Plate 2**). The historic water levels in these three key wells are discussed below:

- Well Pico1_4 (2S/11W-18C07) is in the northern part of the Montebello Forebay. The upper chart on **Figure C** shows the water levels for this well. Historic water levels at this well or its predecessors have ranged from a high elevation of 164.7 feet above mean sea level in April 1944 to a low of 42.8 feet msl in December 1957. At the end of WY 2012/2013, groundwater levels in this well were at an elevation of 97.0 feet msl and were 17 feet lower than the previous year.

- Well 1601T (2S/12W-24M08) is centrally located between the Rio Hondo and San Gabriel spreading grounds. This well is monitored weekly to assess water levels in the middle of the

forebay. The center chart on **Figure C** shows the water levels for this well. The historic water level high was observed in 1942 at an elevation of 137.8 feet above mean sea level, but by 1957 it had fallen 117 feet to an all-time low elevation of 20.9 feet msl due to basin over-pumping and insufficient natural recharge. As described above for the Los Angeles Forebay, adjudication of pumping rights and managed aquifer recharge helped restore water levels in the Montebello Forebay. At the end of WY 2012/2013, groundwater levels in this well were at an elevation of 72.8 feet msl and were 11 feet lower than the previous year. So far in the current year, water levels have continued to drop through winter because of the extremely dry year. As of February 2014, water levels are at an elevation of 65.8 feet msl.

- Well 1615P (3S/12W-01A06) is located downgradient and southeast of the spreading grounds near the southern end of the Montebello Forebay. Water level responses in this well are typically less pronounced than the other two wells because it is further from the spreading grounds and the recharge that occurs there. The lower chart on **Figure C** shows the water level history for this well. The historic water level high was observed in 1947 at an elevation of 113.6 feet above mean sea level but by 1957 had dropped 102 feet to an all-time low elevation of 11.4 feet msl. Since then, water levels have recovered to approximately 60 feet above mean sea level. At the end of WY 2012/2013, groundwater levels were at an elevation of 52.9 feet msl and were 8 feet lower than the previous year.

The average water level change throughout the entire Montebello Forebay during the previous water year was a decline of 12.7 feet.

Central Basin Pressure Area

The District monitors key wells 906D (4S/13W-12K01) and 460K (4S/12W-28H09) which represent the conditions of the pressurized groundwater levels in the Central Basin Pressure Area. The hydrographs for these two wells are shown on **Figure D**.

Groundwater highs were observed in these wells in 1935 when they began to continually drop over 110 feet until their lows in 1961 due to the over-pumping and insufficient natural recharge. Groundwater levels recovered substantially during the early 1960s as a result of replenishment operations and reduced pumping. Between 1995 and 2007 there were 100-foot swings in water levels each year between winter and summer caused by pumping pattern changes by some of the Central Basin producers who operate with more groundwater in the summer months and less groundwater in the winter months, and took advantage of the MWD and WRD In-Lieu programs. From May 2007 to March 2011 the In-Lieu water was not available, so pumping remained more constant throughout those years and water levels remain low. Since then, In-Lieu with the City of Long Beach has occurred on several occasions, with resulting water levels rising as the pumps go off, and falling when the pumps come on.

At the end of WY 2012/2013, groundwater levels in well 906D were at an elevation of 61.9 feet below sea level and were 16.4 feet lower than the previous year. Water levels in well 460K were at an elevation of 90.9 below sea level and were 48.7 feet lower than the previous year. The average change in water levels in the entire Central Basin Pressure Area during the previous water year was a drop of 6.9 feet.

Groundwater Conditions

West Coast Basin

The West Coast Basin is separated from the Central Basin by the Newport-Inglewood Uplift, which is a series of discontinuous, sub-parallel hills and faults that act as a partial barrier to groundwater flow in some places but not in others. Groundwater moves across the uplift based on water levels on both sides and the "tightness" (permeability) of the uplift along various reaches.

Figure E shows the hydrographs of key wells 760C (3S/14W-22L01) and Wilmington1_3 (which has replaced well 4S/13W-22P01). These two wells represent the general conditions of the water levels in the West Coast Basin. In 1955, the control of groundwater extractions in the West Coast Basin resulted in stabilizing and reversal of the declining water levels in the center of the basin (well 760C), whereas at the eastern end near the Dominguez Gap Barrier water levels continued to decline until about 1971, when a recovery began due mostly to the startup of the Dominguez Gap Barrier Project.

At the end of the previous WY 2012/2013, water levels in well 760C were at an elevation of 17.2 feet below sea level and were 4.6 feet lower than the previous year. Water levels in well Wilmington1_3 were at an elevation of 34.3 feet below sea level and were 11.7 feet higher than the previous year due to reduced pumping in the area near the well. Over the entire West Coast Basin, the average water level change was a rise of 1.8 feet.

Plate 3 shows the water level changes over the entire CBWCB over the previous water year. Because of the dry year and reduced replenishment water, the WRD service area saw on average a decrease in water levels of 4 feet, with specific regions having greater or lesser amounts as described above.

For the current WY, rainfall is significantly below normal and the State of California has declared a drought emergency. Therefore, although WRD is maximizing recycled water replenishment within regulatory limits, the District expects a decrease in water levels in both the Central Basin and West Coast Basin in WY 2013/2014 which will result in a decrease in the amount of groundwater in storage.

Because the current groundwater levels in the CBWCB are within historic ranges and the anticipated replenishment activities by WRD will continue as planned, the District anticipates that there will continue to be sufficient supplies of safe and reliable groundwater to meet the demands of the pumpers in our service area in the current and ensuing years.

Change in Storage

The District determines the annual change in groundwater storage by comparing water levels from one year to the next, and factoring in the storage coefficients of the major aquifer layers. Rising groundwater means there is an increase in the amount of groundwater in storage whereas a drop in groundwater levels means there is a decrease in storage. Using groundwater elevation data collected from WRD's monitoring well network and selected production wells, the District constructs a groundwater level change map showing water level differences from one year to the next (**Plate 3**). The data from this map are converted to grids in the District's Geographic Information System (GIS) and multiplied by the storage coefficient value grids for the aquifer layers as obtained from the

USGS calibrated Modflow computer model of the District. This calculation produces the change in storage value for the previous water year.

For WY 2012/2013, there was an overall drop in water levels with a resulting loss from storage in the amount of 68,000 AF. Most of this storage loss (57,300 AF or 84%) occurred in the Montebello Forebay, which is the gateway for large amounts of recharge water to enter the aquifer systems and flow into the rest of the District. This loss from storage occurred due to the dry year resulting in reduced replenishment water. However, the groundwater basins are operating properly as an enormous underground reservoir – accepting water and rising when replenishment water is plentiful and pumping demands are low, and draining to meet the demands when replenishment water is lacking and pumping is high. **Table 8** provides the historical groundwater storage changes in the CBWCB.

Optimum Groundwater Quantity

In response to a 2002 State audit of the District's activities, the Board of Directors adopted an Optimum Quantity for groundwater amounts in the CBWCB. The Optimum Quantity is based on the Accumulated Overdraft (AOD) concept described in the Water Code and this ESR. The historic maximum groundwater drawdown due to over pumping reported in the CBWCB between 1904 and 1957 was 1,080,000 AF. This is defined as the historic maximum AOD. As pumping eased and artificial replenishment occurred, more water was put back into the basins and the AOD was reduced resulting in rising water levels.

After considerable analysis and discussion, the Board of Directors on April 19, 2006 established an Optimum Quantity of an AOD of 612,000 AF. This value was based on an extensive review of over 70 years of water level fluctuations in the District and recognizing that at the end of WY 1999/2000 groundwater amounts were at an acceptable quantity to sustain the adjudicated pumping rights in the basins. The AOD at that time was 611,900 AF (rounded to 612,000 AF), and therefore was set by the Board of Directors as the Optimum Quantity.

The Board of Directors on April 19, 2006 also adopted a policy to make up the Optimum Quantity should it fall too low. The policy is as follows:

> *An Accumulated Overdraft greater than the Optimum Quantity is a deficit. WRD will make up the deficit within a 20 year period as decided by the Board on an annual basis. If the deficit is within 5 percent of the Optimum Quantity, then no action needs to be taken to allow for natural replenishment to makeup the deficit.*

The Accumulated Overdraft at the end of WY 2012/2013 was 757,500 AF, or 145,500 AF below the Optimum Quantity.

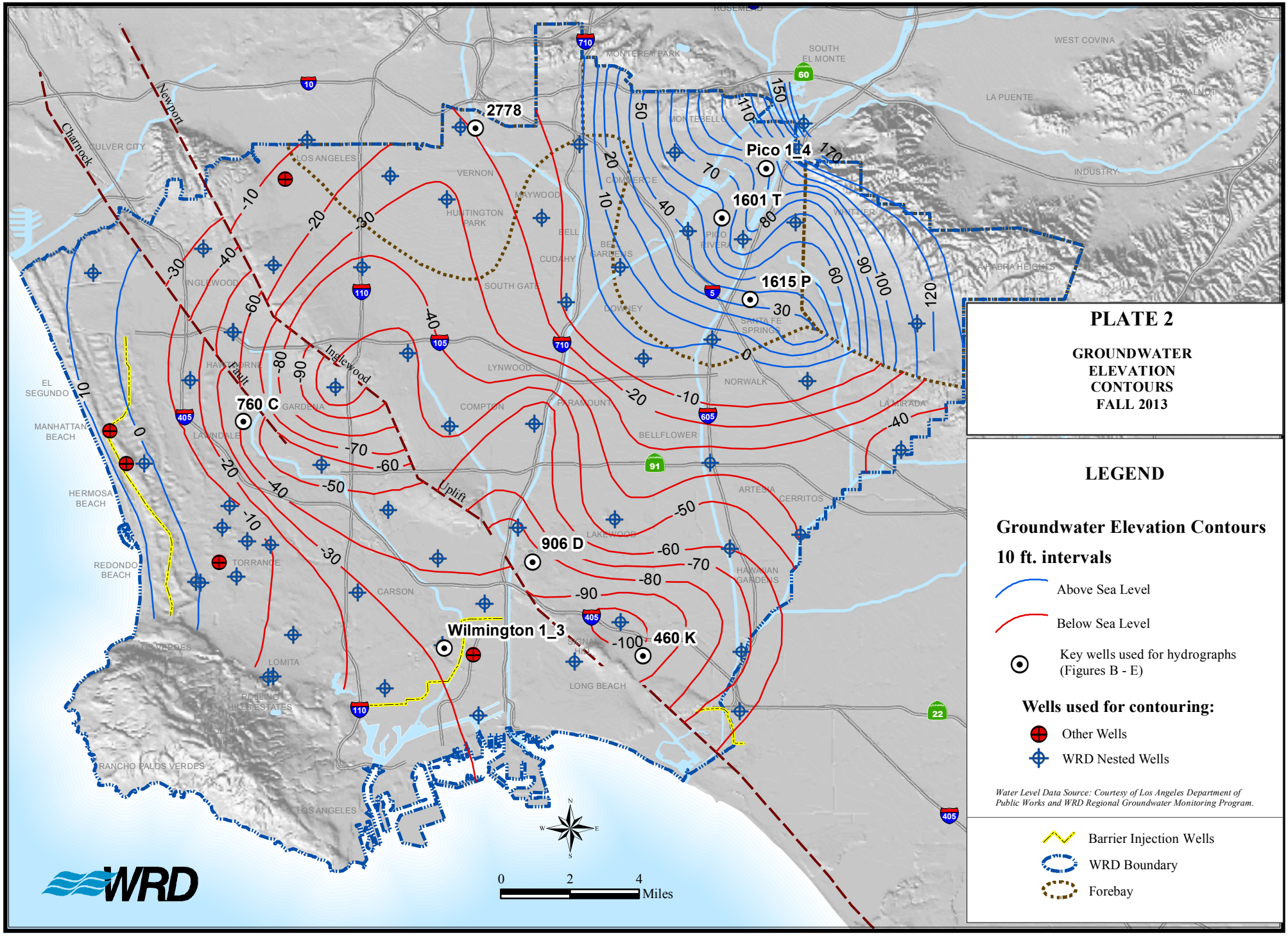
PLATE 2
GROUNDWATER ELEVATION CONTOURS FALL 2013
LEGEND
Groundwater Elevation Contours
10 ft. intervals
Above Sea Level
Below Sea Level
Key wells used for hydrographs (Figures B - E)
Wells used for contouring:
Other Wells
WRD Nested Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay
2778
Pico 1_4
1601 T
1615 P
760 C
906 D
Wilmington 1_3
460 K
Charnock
Newport
Inglewood
Fault
Uplift
0 2 4 Miles
WRD