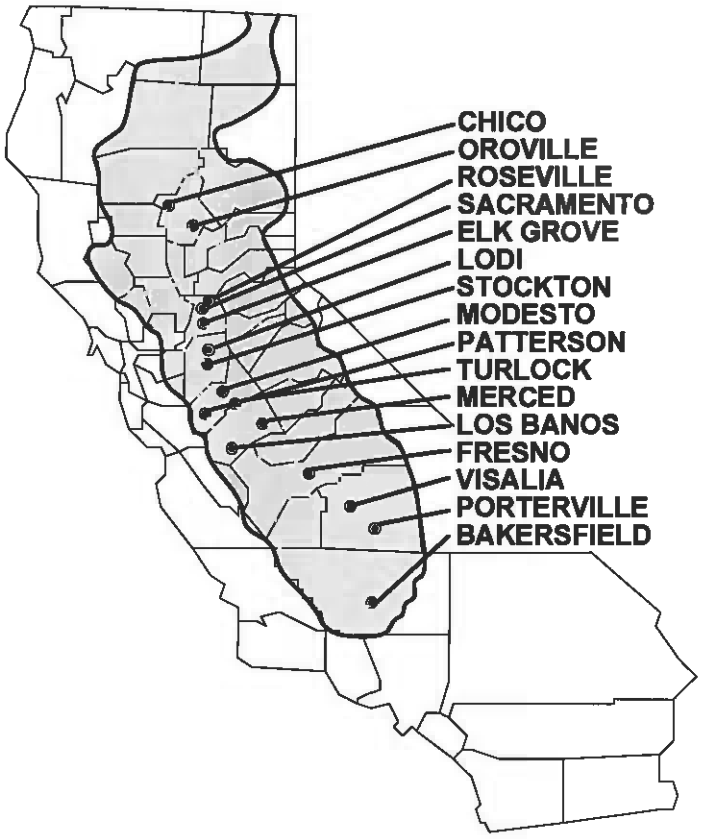
EXHIBIT B

DRY CLEANERS— A MAJOR SOURCE OF PCE IN GROUND WATER

27 March 1992

CENTRAL VALLEY
CITIES WHERE MUNICIPAL WELLS ARE AFFECTED BY
TETRACHLOROETHYLENE (PCE)



WELL INVESTIGATION PROGRAM

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DRY CLEANERS—A MAJOR SOURCE OF PCE IN GROUND WATER

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Approved by the California Regional Water Quality Control Board, Central Valley Region on 27 March 1992

INDEX

EXECUTIVE SUMMARY

Tetrachloroethylene (PCE), a known carcinogen, has degraded at least 215 wells in the Central Valley of California. Figure 1 illustrates the extent of the problem. The majority of these wells are large system municipal wells of 200 connections of more. The Chico, Sacramento, Modesto, Fresno, Turlock, Lodi and Merced areas all have wells with levels of PCE above 0.8 ppb which is the estimated one in a million incremental cancer risk (8). The Maximum Contaminant Level (MCL) set by the Department of Health Services for drinking water is five ppb. Forty-seven of the 215 wells have PCE levels above the MCL.

The Well Investigation Program of the Central Valley Regional Water Quality Control Board so far has identified the likely PCE sources in 21 of the wells; in 20 of those wells, dry cleaners are the likely source. In areas where PCE well investigations were done, dry cleaners are the only present large quantity users of this volatile organic chemical (VOC). The Halogenated Solvent Industry Alliance 1987 white paper on PCE states that dry cleaners use 56% of the PCE used in United States (5). All dry cleaners in the vicinity of degraded supply wells show evidence of major ground water degradation. Monitoring wells drilled adjacent to dry cleaners had concentration from 120 ppb to 32,000 ppb, well above the MCL.

The main discharge point for dry cleaners is the sewer line. The discharge from most dry cleaning units contains primarily water with dissolved PCE, but also contains some pure cleaning solvent and solids containing PCE. Being heavier than water, PCE settles to the bottom of the sewer line and exfiltrates through it. This liquid can leak through joints and cracks in the line. PCE, being volatile, also turns into gas and penetrates the sewer wall. Sewer lines are not designed to contain gas. The PCE then travels through the vadose zone to the ground water.

Where a source investigation has been done in connection with PCE contamination, the evidence has shown that dry cleaners have degraded the ground water. The data strongly indicate that leakage through

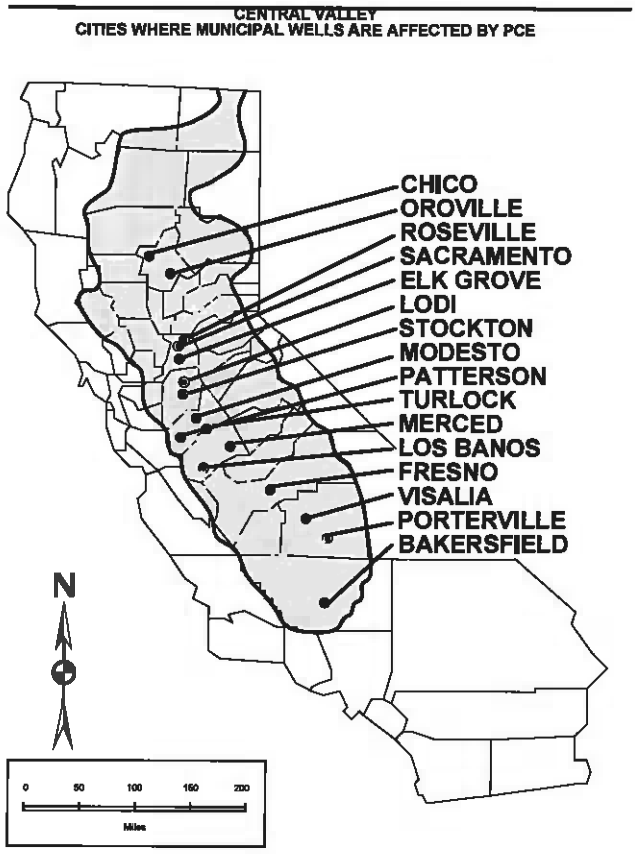


Figure 1

the sewer lines is the major avenue through which PCE is introduced to the subsurface. With approximately 285 dry cleaners in just the metropolitan areas of Sacramento, Chico, Lodi, Modesto, Turlock, Stockton and Merced, one would expect that many more wells will be degraded by PCE in the future. Most of the wells degraded by PCE and most of the dry cleaners are in residential and retail areas. Based on the data collected to date and the location of most of the degraded wells with confirmed PCE, a great majority of these wells will have dry cleaners as the source.

The solution to part of the problem is to halt the disposal of waste from dry cleaning units to the sewer line. Regulation of this discharge to the sewer could be achieved through new legislation and city ordinance. Since this problem exists throughout the state, a statewide policy seems appropriate.

The other part of the problem is ground water cleanup

which is required so that cities can continue to provide safe water. A state wide fund may be needed to help pay for cleanup.

INTRODUCTION

Over 750 wells have heen reported to the California Regional Water Quality Control Board, Central Valley Region, with confirmed levels of volatile organic chemicals (VOCs). Greater than 35% of the reported wells contain tetrachloroethylene (PCE). Municipal drinking water supplies have been affected by PCE throughout the Central Valley (Figure 1). At least one city is already treating contaminated ground water in order to continue its water supply.

This report discusses some of the data and conclusions about PCE movement to ground water, the source of the PCE, and possible solutions. The report is divided into six sections.

*Introduction

* Tetrachloroethylene (PCE)
  A brief description of the use of PCE and its physical and chemical properties.

* Source Identification for PCE Degraded Wells
  A description of how Board staff determines the source of VOC(s) in a well and the results of PCE source investigations.

* Dry Cleaning Operations and Discharge Locations
  General discussion of dry cleaning operations and waste discharge points.

* Evidence and Theory on How PCE is Leaving the Sewer

* Conclusion and Recommendations

TETRACHLOROETHYLENE (PCE)

PCE was first formulated in 1821 (22). By the 1960's and early 1970's, it had become a widely used solvent in dry cleaning, metal degreasing and other industries (18). In the late 1970's, most industries moved away from the use of PCE. The exception was the dry cleaning industry. By the early 1980's, dry cleaners used the majority of the PCE in this nation (18). In the late 1980's, dry cleaners used 56% of the PCE used in United States (5).

Compared to many VOCs, PCE is very mobile, with relatively low solubility and vapor pressure. In its liquid state, it is heavier and less viscous than water and will sink through it. In the vapor phase, PCE's density is greater than air. PCE biodegradability is low in the subsurface. The following are some of the physical and chemical properties of PCE: [3]

Molecular Weight	165.85 g
Solubility	150 mg/l at 25°C
Vapor Pressure	14 torr
Density	1.63 g/cm
Boiling Point	121 °C
Kinematic Viscosity	0.54 (water=l)
Henry's Law Constant	0.0131 atm-m /mole
Vapor Density	5.83 (air=1)
Specific Gravity	1.63 at 20° (water=l)
Relative Velocity	1.8 (water=l)

PCE is generally found in three phases in the subsurface: liquid, vapor, and dissolved in water. More than one phase usually exists in the subsurface after discharge. Figure 2 shows three possible scenarios at a discharge point.

VOCs will not adsorb to subsurface materials to any significant degree when those materials are nearly pure minerals which contain little organic matter. Most high-yield aquifers are nearly free of organic matter. The majority of fresh water aquifers and the vadose zone in the Central Valley are fan deposits from the Sierra Nevada and the Coast Range, and are composed primarily of low organic soils and substrata. Therefore, retention of VOCs in the Central Valley by soil and subsurface strata probably is very low.

PCE is a known carcinogen. The Water Quality Advisories for a l-in-a-million incremental cancer risk

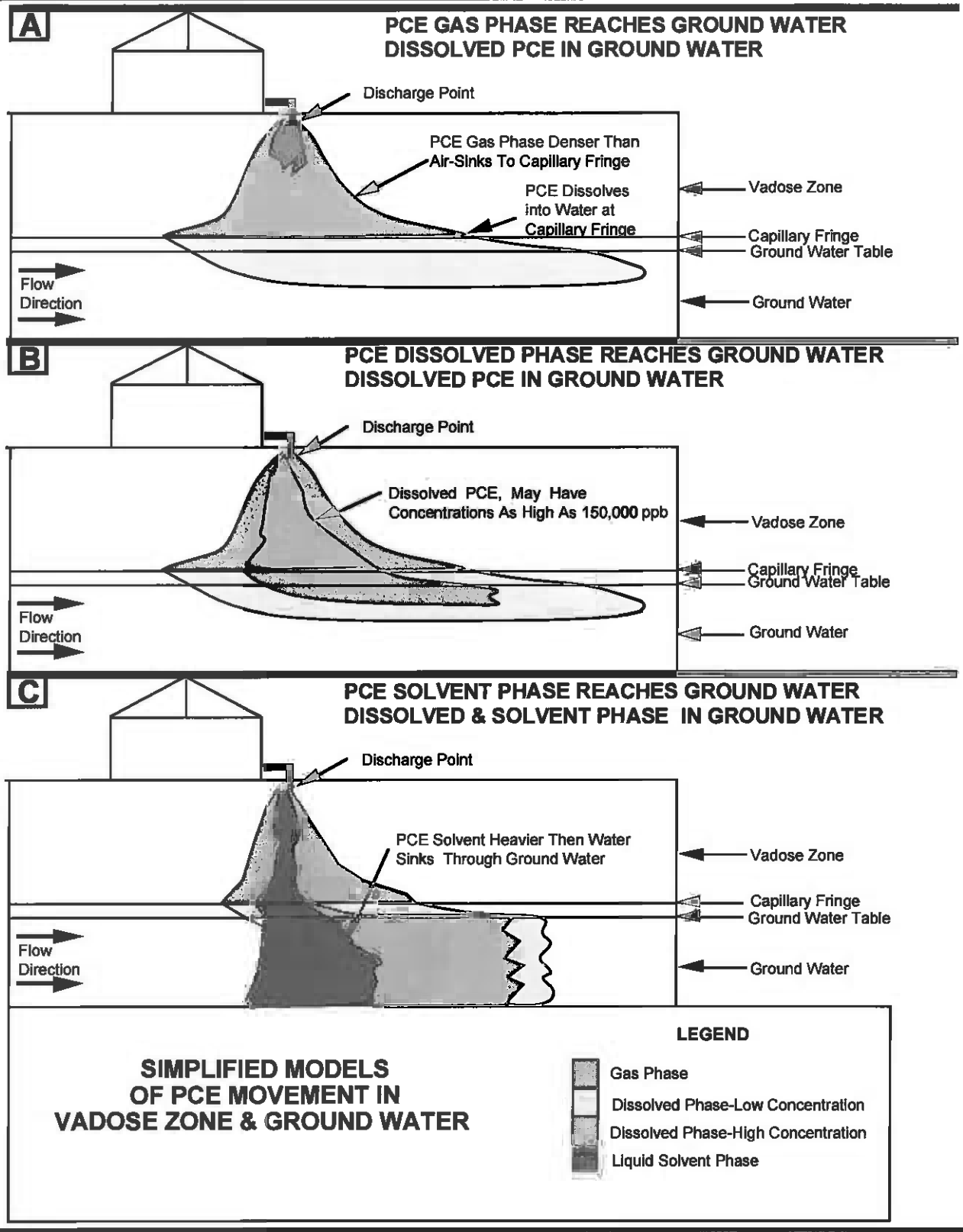

A
PCE GAS PHASE REACHES GROUND WATER
DISSOLVED PCE IN GROUND WATER
Discharge Point
PCE Gas Phase Denser Than Air-Sinks To Capillary Fringe
PCE Dissolves into Water at Capillary Fringe
Vadose Zone
Capillary Fringe
Ground Water Table
Flow Direction
Ground Water
B
PCE DISSOLVED PHASE REACHES GROUND WATER
DISSOLVED PCE IN GROUND WATER
Discharge Point
Dissolved PCE, May Have Concentrations As High As 150,000 ppb
Vadose Zone
Capillary Fringe
Ground Water Table
Flow Direction
Ground Water
C
PCE SOLVENT PHASE REACHES GROUND WATER
DISSOLVED & SOLVENT PHASE IN GROUND WATER
Discharge Point
PCE Solvent Heavier Then Water Sinks Through Ground Water
Vadose Zone
Capillary Fringe
Ground Water Table
Flow Direction
Ground Water
SIMPLIFIED MODELS OF PCE MOVEMENT IN VADOSE ZONE & GROUND WATER
LEGEND
Gas Phase
Dissolved Phase-Low Concentration
Dissolved Phase-High Concentration
Liquid Solvent Phase

Figure 2

estimate is 0.8 ppb (8). The State of California Department of Health Services Maximum Contaminant Level (MCL) for PCE is five ppb.

SOURCE IDENTIFICATION FOR PCE DEGRADED WELLS

A source investigation is conducted by Board staff to identify the source(s) of contaminant found in a drinking water supply well. This section is divided into two parts: a description of the steps in a source investigation and a general discussion of the results of a PCE source investigation.

SOURCE INVESTIGATION

There are five general steps conducted in a source investigation as follows:

1. Well reported degraded by VOCs
2. Identify possible sources of the VOCs
3. Inspect the users of the VOCs
4. Identify ground water characteristics
5. Conduct a soil gas survey

In step 1, a drinking water well is reported degraded by a VOC to the Board. The main sources of this information are the California Department of Health Services, counties, municipalities and private water companies. The information starts the Board's formal source investigation.

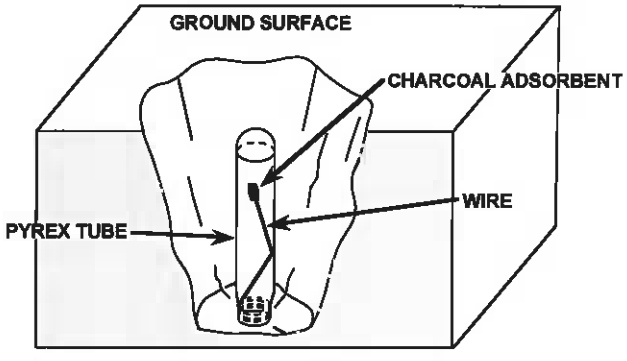
In step 2, staff attempts to identify all possible uses of the VOC(s) of concern. For example, is it used as solvent or refrigerant? Then they identify the type of businesses that would use the VOC(s). At this point staff does research using business directories, phone books, and county and city records to identify those facilities (potential sources) in the past and present that might use or have used the VOC(s) found in the well. This search for potential sources is done for an area approximately 1/2 mile in radius around the well. Some record searches for have gone as far back as the 1930's.

In step 3, inspecting possible sources, a questionnaire is first mailed to potential sources asking the facility operators about their uses of VOCs. This is the initial screening and reduces the quantity of field inspections. For example, if a facility is listed as a dry cleaner in the phone book and the questionnaire response says it is only a transfer station and no solvents are used, then the site would be removed from the potential source list and not inspected.

Staff inspects the facilities that use VOCs and determines if the potential source should be investigated further. If an investigation continues on a facility, then staff samples all discharges leaving the facility (discharges to land, water and sewer).

In step 4, identifying ground water characteristics, staff collects information from government and private ground water studies. The data collected from these studies are correlated to give a general understanding of the stratigraphy and ground water characteristics. This is not site-specific and is done after identifying possible sources so there is not a bias to upgradient sources.

In step 5, the soil gas survey is used to identify areas of VOCs in the soil and ground water. A survey involves placing glass tubes, each containing a carbon coated wire, open end down, 10-12 inches below the soil surface (Figure 3). After placement, the tubes are covered with soil. The evaporating VOC gasses disperse through the soils and reach the survey



SOIL GAS TUBE

Figure 3

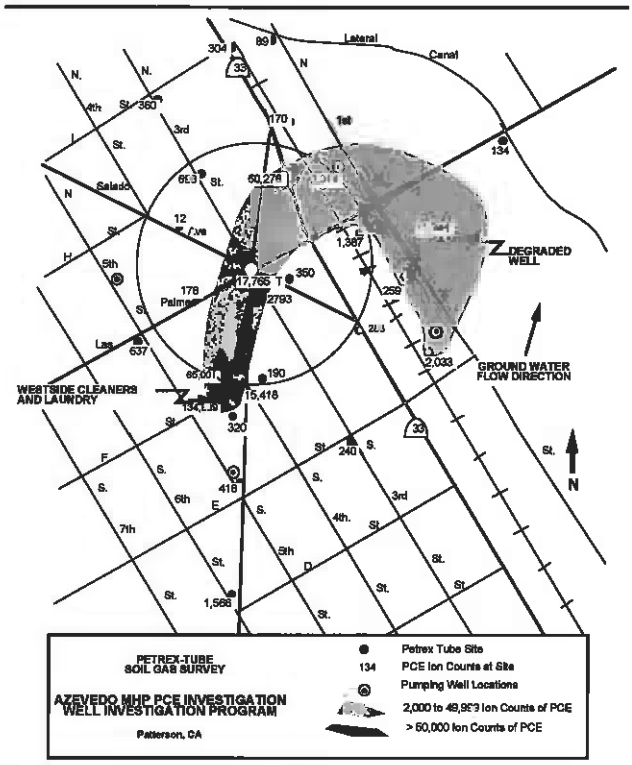


Figure 4

IDENTIFIED SOLVENT USERS

- ***Auto/Boat Industry**
  - Service Stations
  - Auto Dealerships
  - Boat Dealerships
  - Truck Repairs
  - Auto Maintenance Facilities
- ***Telephone Companies**
- **Elevator Service Companies**
- **Public Schools**
- **Mobile Home Parks**
- ***Dry Cleaners**
- **Laundries**
- **Print Shops**
  - Newspapers
  - *Copying and Printing Businesses
- **Machine Shops**
  - Electric Motor Repair
  - Sheet Metal & Welding
- **Lumber/Timber Industry**
- ***Over-the-Counter Products**
- **Furniture**
  - Strippers
  - Antique Shops
  - Upholstery Repair
- **Power Stations**
- **Paint Dealers**

* - Industries where at least one product has PCE

Figure 5

equipment. Approximately six week later, the tubes are removed and sent to the laboratory for VOC analysis. The results are in numbers of a specific VOC molecule retained by the carbon coated wire. The numbers are not concentrations, but are relative to each other. Locations with high counts have more of that VOC in the soil vapor than areas with low counts. Figure 4 is an example of the results of one of these surveys.

At this point the potential sources have been reduced to a few likely sources. It is at this time that site investigations are requested from the likely sources.

RESULTS OF PCE SOURCE INVESTIGATIONS

Staff source investigations have found that PCE is used in several industries (Figure 5) and is a component of several over-the-counter products such as brake and carburetor cleaners and spot removers. Staff surveys of industries other than dry cleaners which used these products show that PCE is not the main constituent in most of them. These products are usually less than 30% PCE, while dry cleaning solvent is 100% PCE. Dry cleaning uses a large quantity of PCE solvent compared to other potential sources. The typical cleaner uses between 15 and 40 gallons a month of pure PCE. Many of the other industries also collect the solvent after use for recycling and do not discharge waste liquids to the land or sewer. Also, many of the solvents used that contain PCE are in aerosol cans. The solvent is sprayed on the part to remove grease and as the part dries, the PCE volatilizes into the air. Most industries other than dry cleaners which use solvents have no daily discharge of waste liquids containing PCE.

The staff soil gas surveys, which include all solvent users, show dry cleaners as the source areas. Figures 6 and 7 are two examples. None of the soil gas surveys have shown PCE vapor plumes near other solvent users.

Based on questionnaires, inspections, handling practices and soil gas surveys, staff concludes that dry cleaning is a major source of PCE ground water degradation in the Central Valley.

LODI

SEWER LINES

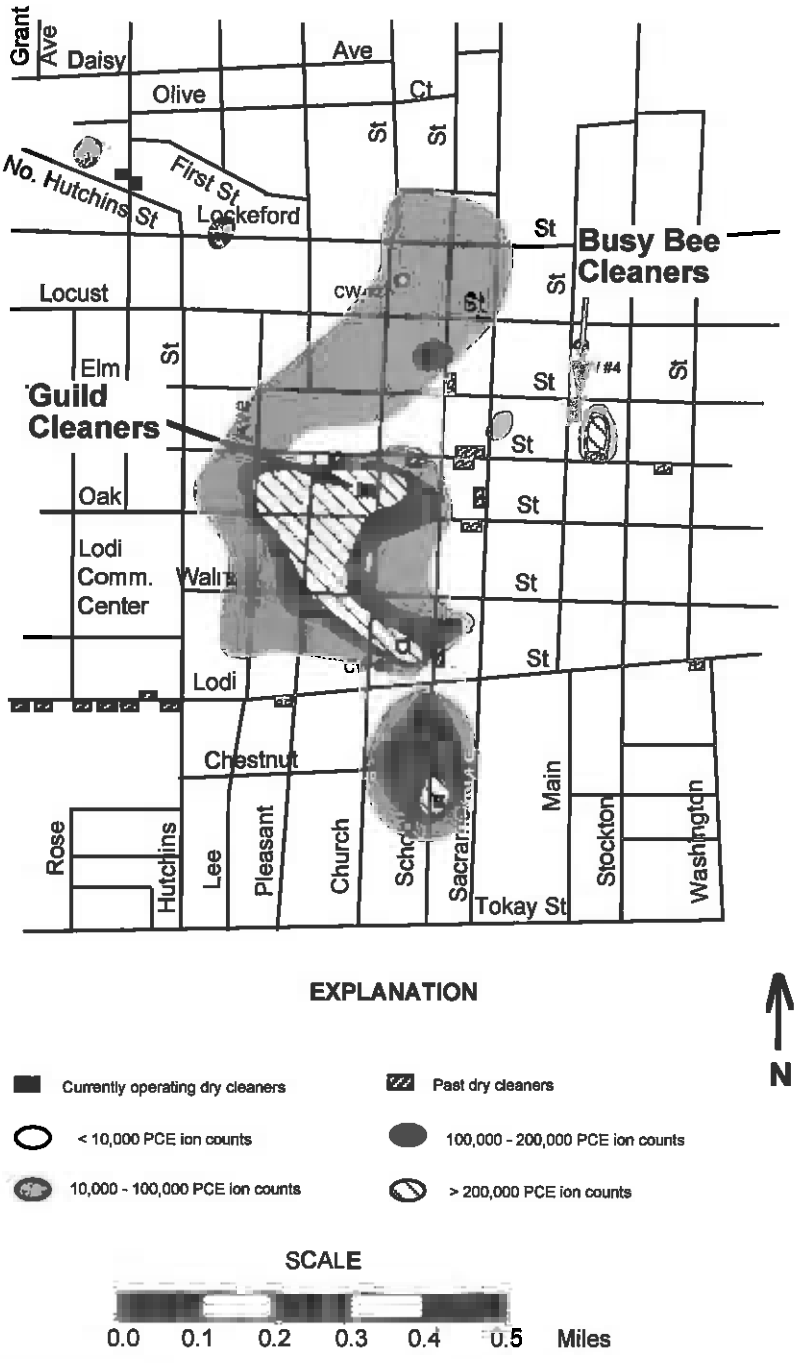


Figure 6

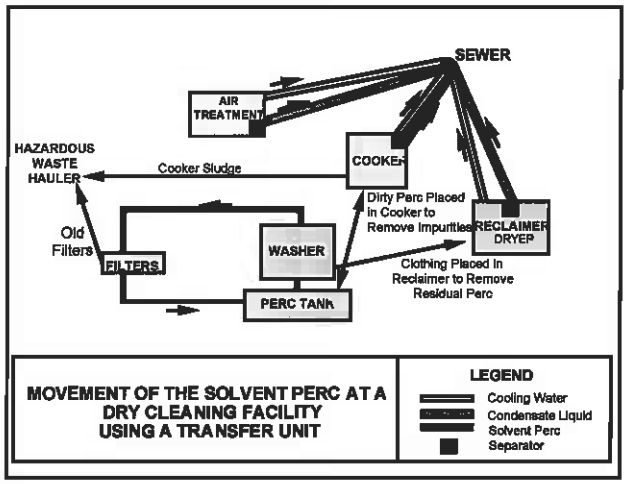
CITY OF MERCED
WELLS 3 & 5
PCE
INVESTIGATION
SOIL GAS SURVEY - JANUARY 1991
CITY OF MERCED WELL
GROUND WATER INVESTIGATION
KNOWN DISCHARGE OF PCE TO SOILS, UNDER INVESTIGATION
PCE COUNTS
5,000 - 10,000
10,000 - 100,000
> 100,000
SCALE
0
1000
In feet
MERCED LAUNDRY
SIMPSON CLEANERS
Sunshine Cleaners
ONE HOUR MARTINIZING
CITY OF MERCED WELLS
SOUTHERN PACIFIC
HIGHWAY 99
WEST 21th STREET
WEST 16th STREET
WEST 14th STREET
WEST 13th STREET
10TH STREET
CANAL STREET
N STREET
M STREET
K STREET
D STREET
Q STREET
V STREET

Figure 7

DRY CLEANERS OPERATION AND DISCHARGE LOCATIONS

There are two basic types of dry cleaning machines, transfer and dry-to-dry. Both have similar types of discharges with the dry-to-dry machine being more efficient. The only major difference is that the dry-to-dry unit does the washing and drying of the clothing in the same machine, while a transfer unit use separate machines. The following section is a general description of a facility containing a transfer unit.

Dry cleaning transfer systems include a dry cleaning wash unit, PCE storage tank (generally part of the wash unit), reclaimer (dryer), cooker and vapor condenser (Figure 8). Pure PCE solvent is added directly from the PCE tank to the wash unit. A small amount of water and soap is usually added to remove stains that PCE will not. Most facilities send the spent solvent (after washing cycle) through solid filter canisters to remove solids and then return it to the PCE tank in a closed system. The solvent in the PCE tank also is periodically purified by physical transfer to the cooker, which separates solvent from solids through distillation and forms a sludge at the bottom.



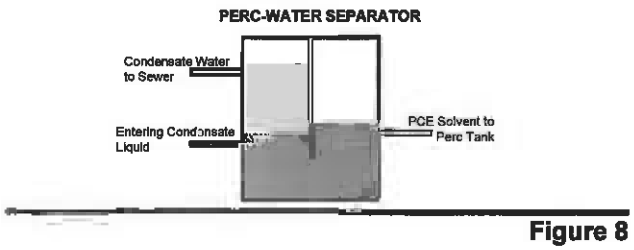


Figure 8

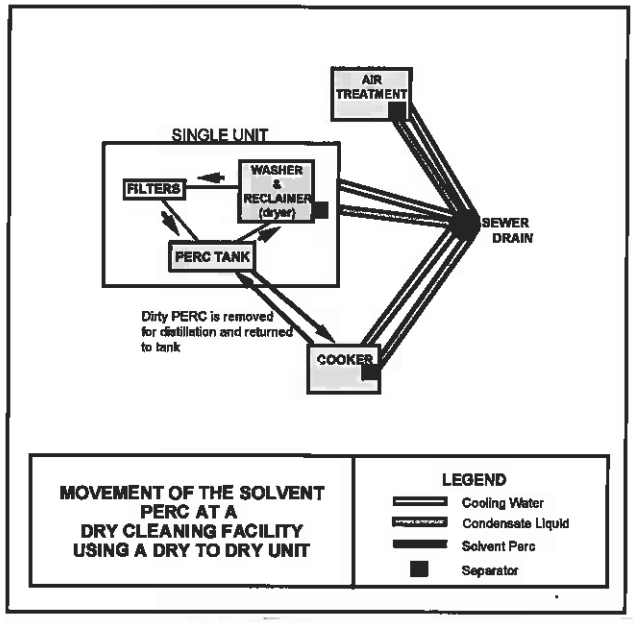
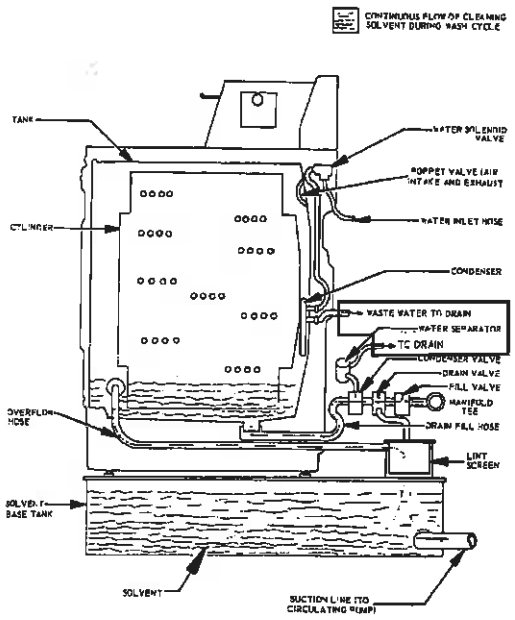


Figure 9

After washing, the clothing is removed from the wash unit and placed in the reclaimer to remove residual solvent. This drying process removes PCE solvent by heating the clothing which causes the solvent and any water to evaporate. The vaporized solvent and water is then removed from the drying portion of the machine and condensed. The PCE-water separator, which is connected to the back of the unit, takes the condensed liquid that contains PCE and water and allows the heavier PCE to settle to the bottom for reuse. The air scrubber (sniffer) extracts and cleans vapors from the other dry cleaning components and the air. These vapors also are condensed and the PCE and water separated.

In general, information provided by dry cleaner operators, inspections done by staff, and manufacturers' service manuals show that dry cleaning equipment is designed to discharge wastewater to the sewer. Figures 8 and 9 are schematics showing the two main types of wastewater discharges from dry cleaning equipment: liquid from the PCE-water separators and cooling water. Figure 10 is a schematic from one manufacturer's service manual that shows that wastewater should be discharged to the drain (11). This is typical of service manuals.



COIN-OP DRY TO DRY UNIT

Graphic From - Norge Sales Corporation, Service Instruction and Parts Catalog, 1961

Figure 10

The water from the PCE-water separators has been in direct contact with PCE. Water samples from separators at some cleaners have had such high concentrations of PCE that after the sample bottle sat for a day, solvent had separated out. As much as 30 percent of some samples has been pure solvent. PCE-water separator waste liquid has had PCE levels up to 1,119,300 ug/l (ppb), with an average of 151,800 ppb and median 64,000 ppb (Figure 11). Cooling water samples at dry cleaners have usually ranged from 3 to 70 ppb PCE, but some have been as high as 4,000 ppb (Figure 12).

EVIDENCE AND THEORY ON HOW PCE IS LEAVING THE SEWER LINES

Based on site inspections, the majority of the cleaners had only one discharge point and that was to the sewer. Because of these discharges, staff investigated sewer lines as a possible discharge point for PCE to the soils. Samples taken from these lines indicated that liquids or sludges with high concentrations of PCE are lying on the bottom of the sewer. Soil gas surveys

DRY CLEANERS SAMPLING RESULTS FROM CONDENSATE LIQUID

CLEANER	CITY	DATE	RESULT in ppb	UNIT
Busy Bee	Lodi	9/11/90	60,699	Reclaimer
Turlock Cleaners	Turlock	4/29/91	62,755	Cooker
Snow White	Turlock	1/26/89	140	Reclaimer
			56	Cooker
Durite Cleaners	Turlock	1/30/89	15,000	Sniffer & Reclaimer II
			150,000	Reclaimer I
Brite Cleaners	Turlock	5/11/89	66,000	Reclaimer
Southgate Norge	Sacramento	3/20/91	247,000	Sniffer & Reclaimer
Tillet Cleaners	Roseville	4/11/89	74,000	Reclaimer
Merced Laundry	Merced	11/29/88	130,000	Sniffer
Modesto Steam	Modesto	4/30/91	1,119,300	Reclaimer
			139,087	Cooker
			8,120	Chiller
			53,618	Recalimer
		Median	64,000	
		Average	151,800	

Figure 11

CONCENTRATION OF ORGANIC CHEMICALS IN COOLING WATER FROM DRY CLEANERS

DRY CLEANERS	CITY	DATE	RESULTS in ppb	
Busy Bee	Lodi	8/24/89	0.66	PCE
			2.1	TCE
			0.69	1.1-DCE
		8/28/90	1.2	PCE
			1	TCE
DuRite	Turlock	11/29/91	6.3	PCE
			4.7	PCE
			1.7	PCE
			5.3	PCE
Turlock	Turlock	5/21/90	0.8	PCE
			1.3	PCE
Bright	Turlock	5/11/89	2.7	PCE
Tillet	Roseville	11/30/88	67	PCE
			32	Chloroform
		2/10/89	1.1	PCE
			23	Chloroform
Deluxe	Roseville	2/26/89	0.8	PCE
			69	Chloroform
Elwood's	Modesto	4/30/91	14	PCE
Parkway	Merced	9/8/88	69	PCE
Simpson	Merced	9/8/88	38	PCE
Southgate Norge	Sacramento	1/12/89	28	PCE
Merced Laundry	Merced	11/29/89	4000	PCE

Figure 12

done by staff and by private consultants illustrate high PCE vapor concentrations along the sewer lines. Work done by the City of Merced shows that intact sewer lines can and have discharged PCE to the soil.

Below are descriptions of sampling done and our interpretation of the data. Following these descriptions is a section on the theories of how PCE escapes from the sewer pipes.

SOIL GAS SURVEYS

Soil gas surveys related to PCE in ground water have been done by Board staff in Sacramento, Lodi, Merced, Modesto, Stockton, Roseville and Turlock. Every place PCE molecules have exceeded 100,000 counts and monitoring wells have been installed, PCE levels in ground water exceeded the MCL. In most cases, the PCE concentration in ground water has exceeded 300 ppb, which is 60 times the MCL. Thus, this survey technique has been very successful.

Figures 13 through 16 are maps showing results of soil gas surveys from Turlock, Modesto, Lodi and Merced which illustrate that PCE vapors are higher along the sewer lines. The highest counts are usually near the cleaners, but the counts continue high from the sites down the sewer line.

Around several dry cleaners near Stockton, a private consultant performed a soil vapor survey for PCE. The consultant extracted a volume of air from the soils

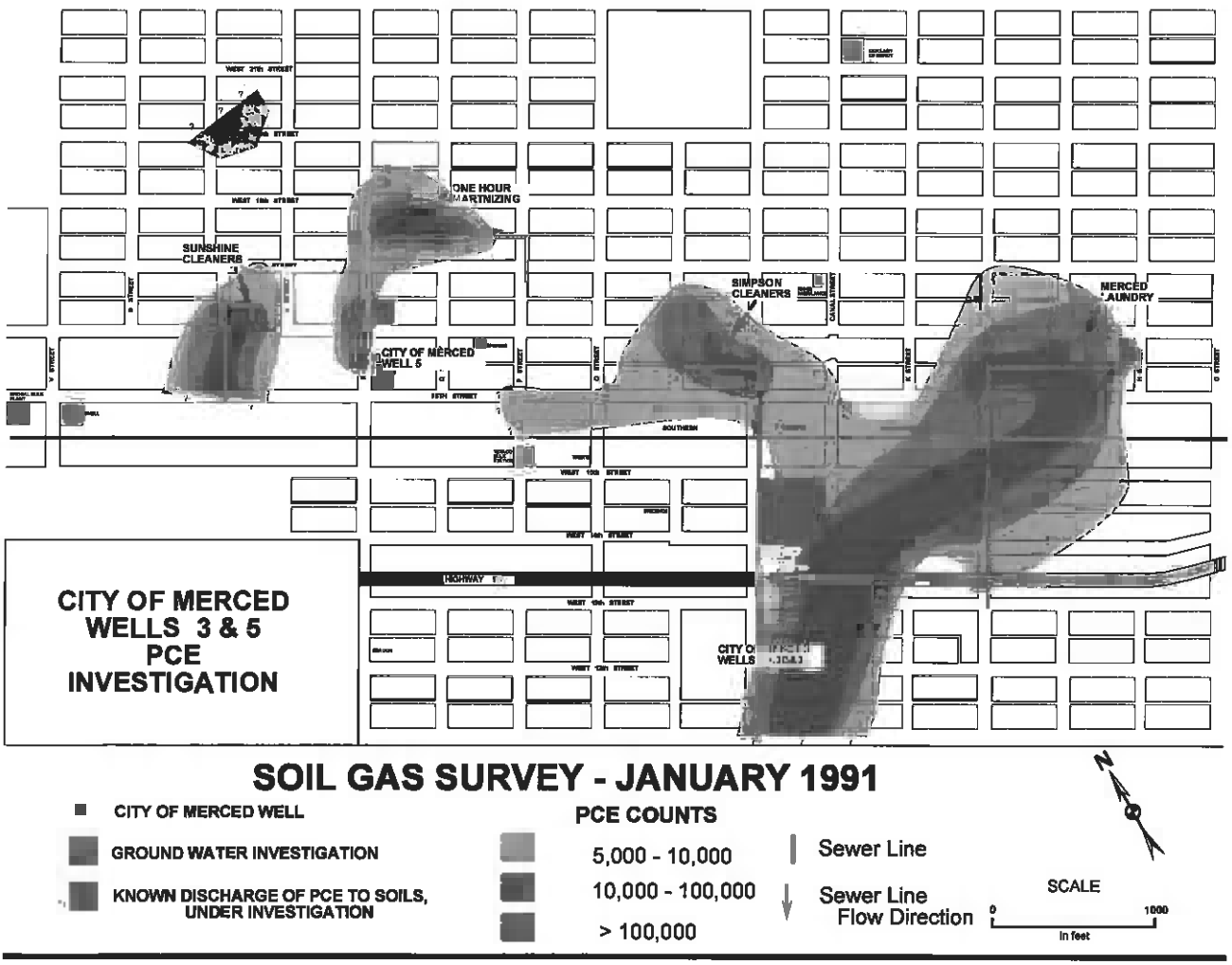


FIGURE 13


Ideal Cleaners
Briggsmore
Ave
Grange
Ground Water Gradient
M17
Orangeburg
Ave
Mc Henry
College
M14
Halford Cleaners
Virginia
N
SCALE
0
1/2
in miles
CITY OF MODESTO
WELL 11, 14 & 21
SOIL GAS SURVEY
AND
SEWER LINE LOCATIONS
PCE ION COUNTS
(in thousands)
10 - 50
50 - 150
>150
Municipal Well
Active Dry Cleaner
Inactive Dry Cleaner
Other Buildings
Sewer Lines

Figure 14

LODI

SEWER LINES

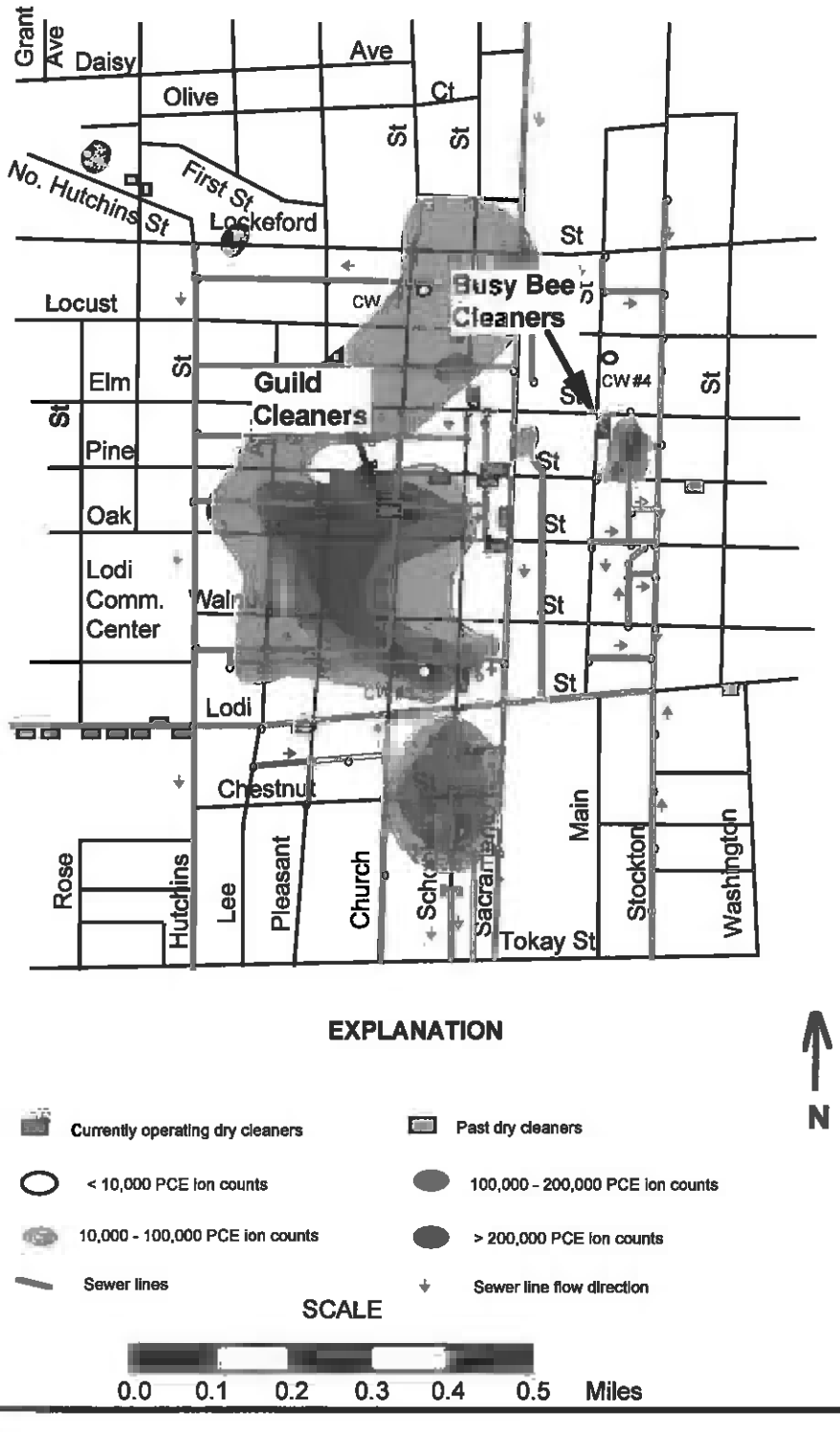
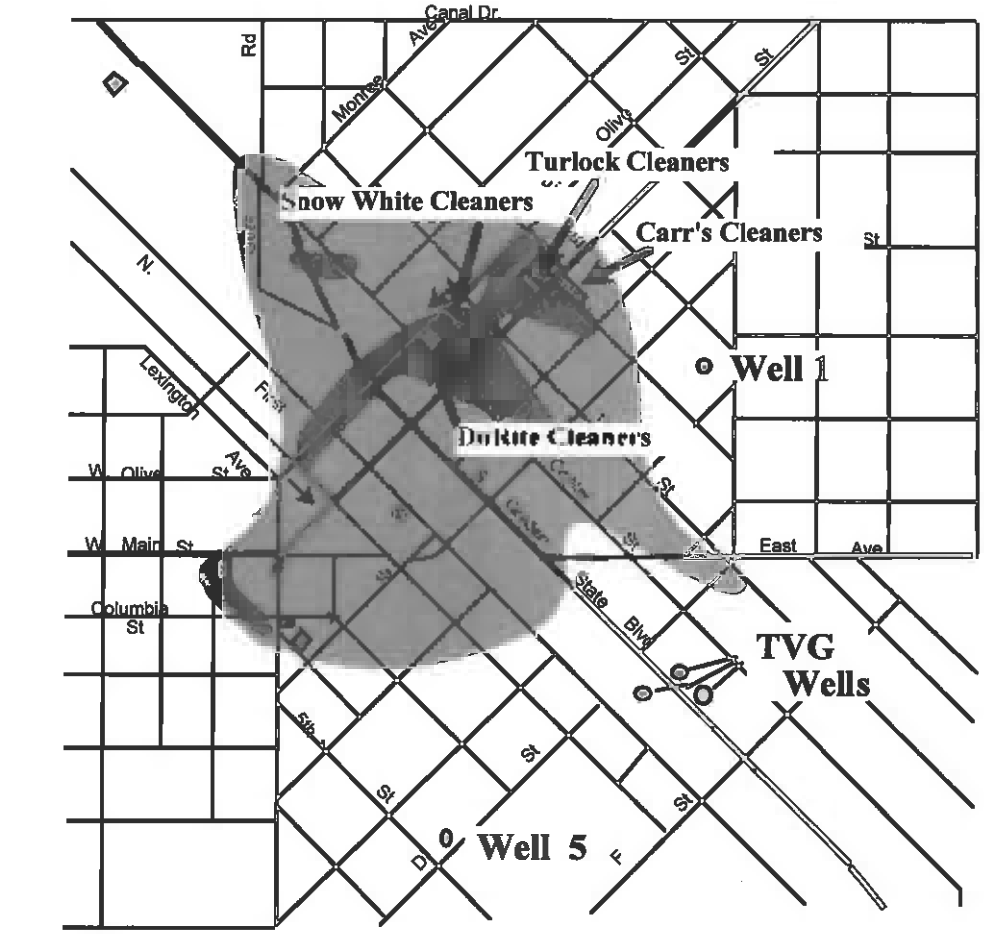


Figure 15

TURLOCK SOIL GAS SURVEY



ACTIVE DRY CLEANER

INACTIVE DRY CLEANER

WELL

SEWER LINE

10,000-100,000 PCE ION COUNT

100,000-200,000 PCE ION COUNT

>200,000 PCE ION COUNT

0 SCALE 1/2

MILES

N

Figure 16

and ran the sample through a gas chromatograph. This survey also indicates high concentrations of PCE vapor along the sewer line (Figure 17). There are similar surveys done by other private consultants with the same results.

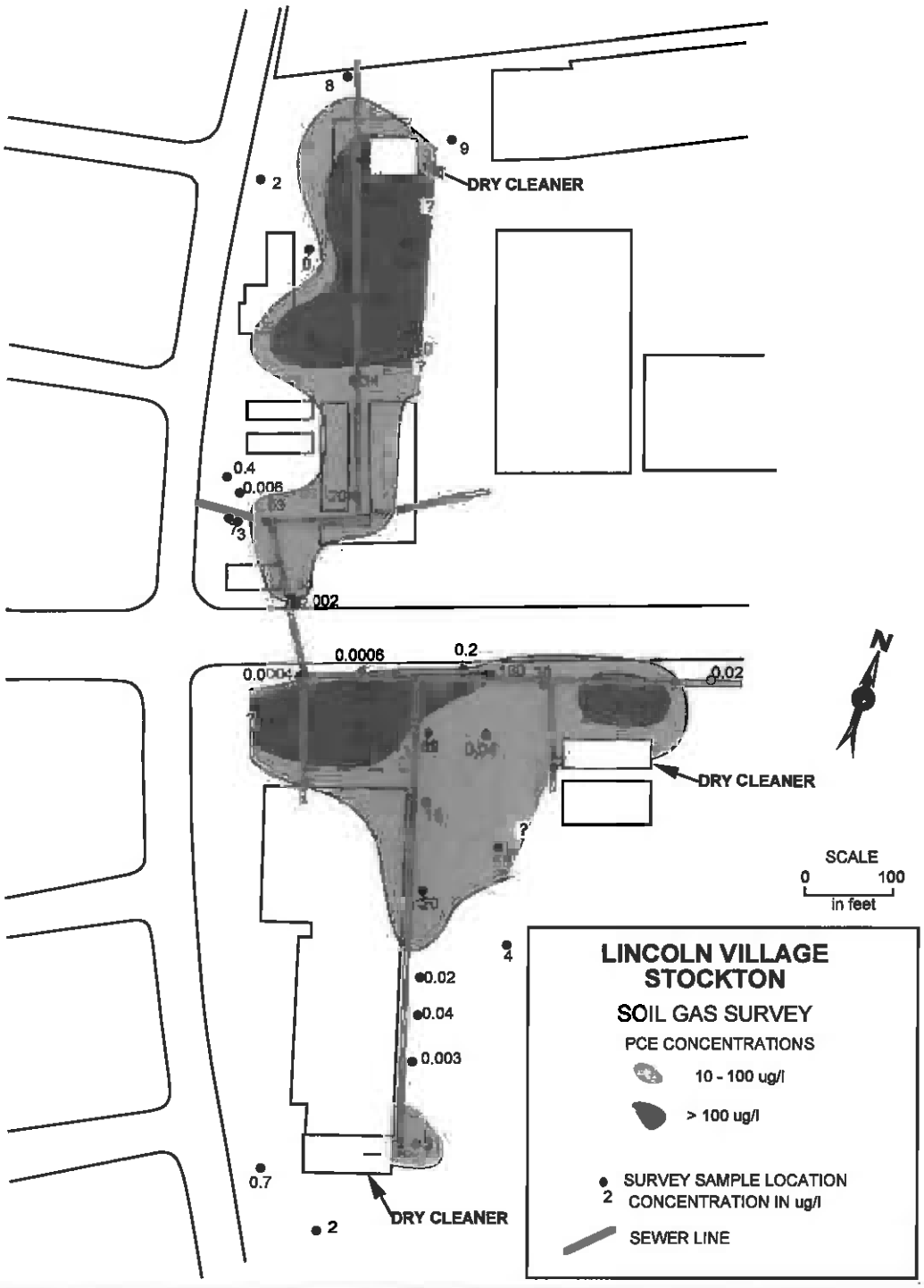


Figure 17

SEWER MAIN SAMPLING

Three samples are usually taken from the sewer: an upgradient, a downgradient and a flush sample. The upgradient (background) and downgradient samples are taken at the sewer access just above and below where the dry cleaner's sewer lateral enters the main (Figure 18). All samples are taken by placing a jar on a pole and scooping liquid into the jar. The liquid is then poured into volatile organic analysis (VOA) bottles and sent to a California certified lab for analysis. The flush sample is taken after stirring up the bottom sediment by adding large quantities of water (and sometimes running a ball down the line). The flush sample is taken at the downgradient sewer access, when an increase of flow is noted (Figure 18).

The concentration of PCE in the downgradient sample has always exceeded that in the upgradient sample, and in most cases PCE in the upgradient sample was not detected. When flush samples were taken, their PCE content almost always exceeded that in the downgradient sample. Since water is being added to the system, one would expect the PCE concentration to decrease in the flush sample because of dilution. Therefore, the increase indicates that PCE liquids or sludges are sitting on the bottom of the sewer line.

SEWER SAMPLING ADJACENT TO DRY CLEANERS

	Upgradient in ppb	Downgradient in ppb	Flush in ppb
MERCED			
Merced Laundry	-	180	-
One Hour Martinizing "R"	NF	110	23,000
One Hour Martinizing "G"	NF	730	96,000
Simpson Cleaners	-	-	6,300
Sunshine Cleaners	NF	-	167,000
Parkway Cleaners	NF	853	280,000
SACRAMENTO			
Southgate Norge Cleaners	NF	350	830
ROSEVILLE			
Deluxe Cleaners	-	120	260
Tillets Cleaners	NF	28	380
TURLOCK			
Carr's Cleaners	<0.5	14	2.5
Snow White Cleaners	1,800	3,800	220
Turlock Cleaners	NF	3,500	<25
Bright Cleaners	<0.5	0.6	23,000
Durite Cleaners	35	190	<5
LODI			
Busy Bee	NF	700	280,000
Woodlake Cleaners	-	620	210,000
Guild Cleaners	<0.5	24	<5
	Median	190	3,565
	Average	748	67,937

NF - NO FLOW

Figure 18

CITY OF MERCED

Between 12 January and 2 February 1989, the City of Merced conducted soil sampling near four dry cleaners. The City staff did a video scan of the sewer lines at each of the cleaners to check for possible leaks. After these scans, they drilled a soil boring adjacent to the sewer line downgradient of each facility where a problem was seen on the video tape. If the tape showed no problem, they drilled adjacent to the sewer line near the dry cleaner. In each boring they took several soil samples and had them analyzed for VOCs by EPA Method 8010. They also took soil vapor measurements using a Sensidyne-Gastec system (similar to Draeger tubes) with a detection limit of 400 ppb.

In addition to the City's work, each dry cleaning facility had a monitoring well (MW) drilled as required by staff. Soil samples were taken every five feet during drilling and analyzed for VOCs using EPA Method 8010. One ground water sample was taken from each well and analyzed for VOCs using EPA Method 601.

Parkway Cleaners

Figure 19 contains the data from the Parkway Cleaners site. The MW was drilled approximately 22 feet from Parkway's sewer lateral and 15 feet from the sewer main. Soil samples from the well boring had low levels of PCE (<5 ppb). The concentration of PCE in the ground water was 160 ppb.

The City's video scan of the sewer main showed no breaks in the clay pipe. Because of this, the City arbitrarily selected a soil boring site adjacent to the sewer line, six feet downgradient from Parkway Cleaners' sewer lateral. The PCE concentration in the soil sample in the City soil boring was 120 times

PARKWAY CLEANERS

MERCED

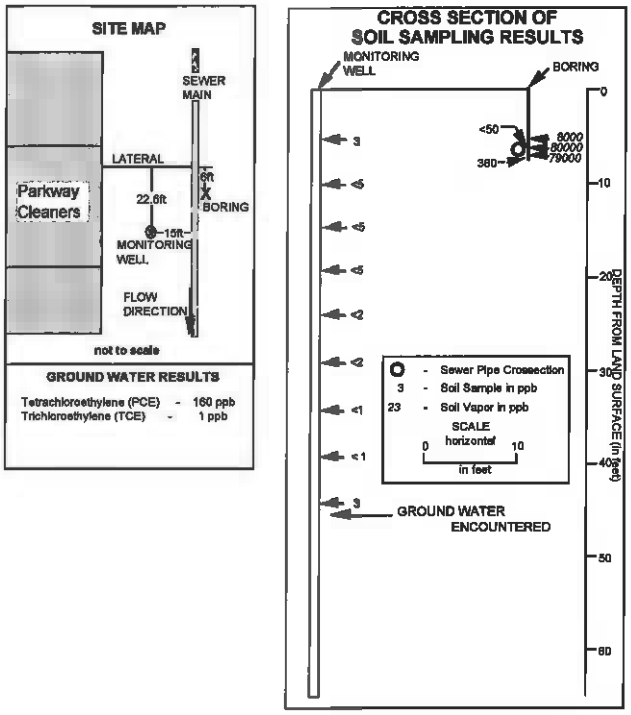


Figure 19

higher than was found in the MW. Also, soil vapor samples in the City boring contained up to 80,000 ppb PCE.

At this location the levels in the soil are much higher adjacent to the sewer line than in the MW. Also the data from the sampling adjacent to the sewer line indicate that PCE has moved from the line into the adjacent soils.

Simpson's Cleaners

Figure 20 illustrates the data from the Simpson's Cleaners site. Soil samples taken during the drilling of the MW at the southwest corner of the facility had PCE levels from non-detect to 71 ppb. The shallow ground water sample had 270 ppb PCE and also contained 29 ppb trichloroethylene (TCE), 65 ppb cis-1,2dichloroethene (DCE), two ppb trans-1,2-DCE, and 6 ppb 1,2-dichloroethane, all of which are breakdown

SIMPSON'S CLEANERS

MERCED

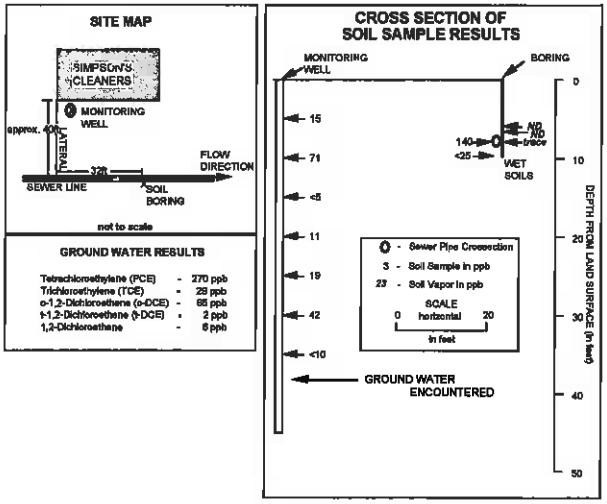


Figure 20

products of PCE. The MCL for TCE is 5 ppb and for DCE is 6 ppb.

The City's video scan of the clay sewer main adjacent to the cleaners showed a break at one of the joints. This break is approximately 40 feet downstream along the sewer line from the southeast corner of Simpson's Cleaners. While drilling alongside this joint the soil became very wet. One of the soil samples had 140 ppb PCE, higher than samples taken from the MW boring. The soil gas measurement readings were non-detect.

Again the soil sample adjacent to the sewer line contained higher PCE levels than samples taken from the MW boring. One probable reason the soil gas measurements were non-detect at the joint was the soils were very wet, which means the soil pores were probably full of water leaving no available room for the soil vapor.

Sunshine Cleaners

Figure 21 contains the data from the Sunshine Cleaners site. The MW was drilled near the northeast corner of the cleaners, 9.5 feet from its sewer lateral. The soil samples from the MW had PCE concentrations up to

SUNSHINE CLEANERS

MERCED

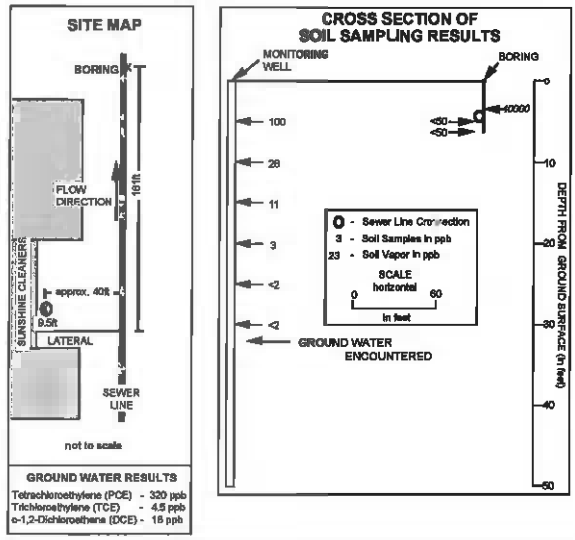


Figure 21

100 ppb. The ground water sample had 320 ppb PCE, 4.5 ppb TCE and 18 ppb DCE.

The City's video scan of the sewer line showed no breaks in the concrete sewer main. The City personnel chose a sag in the sewer main where the water pools for the location of the adjacent soil boring. This site was 181 feet downgradient of the cleaner's sewer lateral. PCE in the soil samples was nondetect, but the detection limit was high at 50 ppb. The Sensidyne-Gastec vapor system had a reading of 40,000 ppb in the boring.

The high levels detected by the Sensidyne-Gastec system indicates even at a distance of 181 feet downgradient from the dry cleaner, the concentration of PCE in the soil gas is significant. No comparison of soil samples between the MW and City's soil boring can be made because of the high detection limit from the City's samples.

One Hour Martinizing "R" Street

Figure 22 shows the data from the One Hour Martinizing "R" Street site. The MW was drilled eight feet northwest of the sewer line approximately 16 feet

ONE HOUR MARTNIZING

R STREET, MERCED

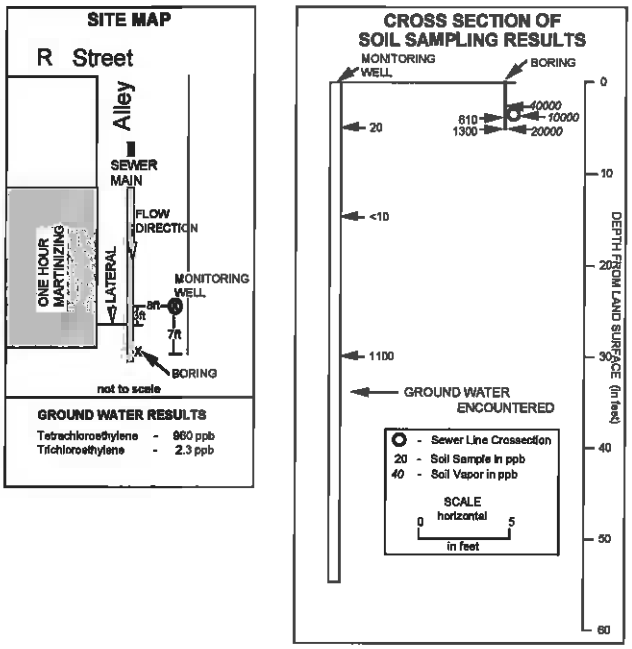


Figure 22

from the cleaner's northwest wall. PCE levels in the soil samples taken during drilling of the MW were low in the upper 20 feet ranging from nondetect to 20 ppb, but near the ground water a soil sample had 1,100 ppb PCE. The ground water sample had PCE and TCE with concentrations of 960 ppb and 2.3 ppb, respectively.

The City's video scan of the clay sewer line showed no breaks. The City personnel decided to drill adjacent to a bell joint four feet downgradient from where the cleaner's sewer lateral intersects the sewer main. Soil samples in this boring had PCE at 610 ppb (depth 461') and 1,300 ppb (depth 63"). The City took three Sensidyne-Gastec system measurements at the following depths from the surface: 361' (above the main), 461' (bottom side of pipe) and 631' (below the main), and the readings were 40,000 ppb, 10,000 ppb and 20,000 ppb, respectively.

Along the sewer main, the soil gas measurements and

the soil samples had high levels of PCE, indicating that at this location the sewer main is discharging PCE.

THEORIES ON HOW PCE LEAKS FROM SEWER LINES

Based on staff field work and research, there are five likely methods by which PCE can penetrate the sewer line:

1. Through breaks or cracks in the sewer pipes
2. Through pipe joints and other connections
3. By leaching in liquid form directly through sewer lines into the vadose zone
4. By saturating the bottom of the sewer pipe with a high concentration of PCE-containing liquid and then PCE volatilizing from the outer edge of the pipe into the soils
5. By penetrating the sewer pipe as a gas

The literature indicates that all sewer lines leak to some extent. According to Metcalf and Eddy, Inc., "When designing for presently unsewered areas or relief of overtaxed existing sewers, allowance must be made for unavoidable infiltration..." (6). If the soils become saturated and liquids can infiltrate, then a conclusion can be made that liquids on the inside of the pipe can exfiltrate when soils are not saturated.

Below is a brief description of the five methods.

Methods 1 and 2

Methods 1 and 2 are similar in that leakage of liquid is caused by a failure of the sewer pipe system. The failure could be catastrophic, causing large volumes of liquids to leave the system, or could consist of many small leaks causing constant smaller flow. These discharged liquids then would move down through the vadose zone to the ground water. Methods 1 and 2 also apply to PCE in vapor form which can move easily through breaks, cracks, joints, and other connections.

Many of the sewer lines have low spots in which liquids accumulate. These low spots are caused by settlement or poor construction which causes the sewer line to bend. Sewer pipes are brittle, so when the line bends, fractures are likely to occur, increasing the leakage of the pipe. Since PCE is heavier than water (1.63 times the weight of water at 20°C), it tends to collect in these low spots and then flow through the pipe fractures into the vadose zone.

At pipe joints and other connections, PCE can move out of the sewer as liquid or gas. Also, as the pipes shift after installation, they could separate at the joints, allowing PCE to discharge even more easily to the vadose zone. Current gasket technology and reduction in leakage factors of pipes by the industry has reduced discharges at this point. But most commercial and retail districts in the cities of the Central Valley have pipes that predate this technology.

Method 3

By this method, PCE-containing wastewater or PCE liquid penetrates a sewer pipe without any breaks. In this case liquid leaves the pipe and enters the vadose zone (Figure 23). Sewer pipe is not impermeable to water or PCE. When liquid collects in a low spot of the sewer pipe, it cause an increase in the hydraulic head in the line. This extra head provides a larger driving force downward through the pipe.

From sewer sampling we know that PCE-containing sludges and/or liquids collect on the bottom of the sewer line. Video taping of sewer mains have shown that almost all lines have low points where liquids and sludges collect. Because PCE is heavier than water and is attracted to organic matter, it would have a tendency to collect in these low spots. Also, PCE viscosity is less than that of water (0.9 for PCE versus 1 for water), making it flow easier through a pipe wall than water. This makes the pipe more permeable for PCE.

Method 4

This is similar to Method 3 except that the hydraulic head in the pipe is not large enough to force liquid

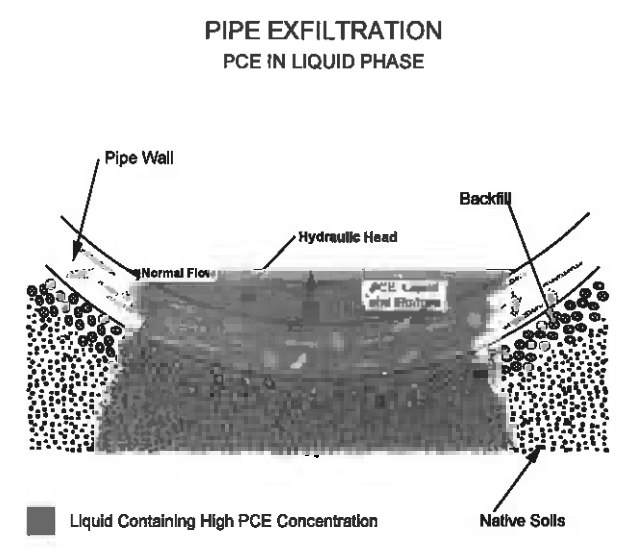


Figure 23

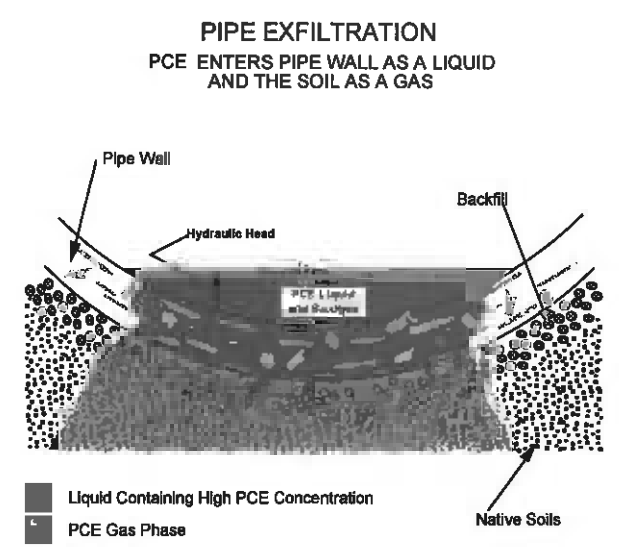


Figure 24

into the vadose zone. In this method, the pipe walls still have a high concentration of PCE-containing liquids (Figure 24). Being volatile, PCE turns into a gas at the liquid-soil vapor interface at the outer edge of the pipe. Since the vapor density of PCE is 5.83 times greater than air, the PCE gas in soil vapor would sink towards ground water, causing ground water degradation.

Method 5

In this method, PCE volatilizes inside the pipe and moves as a gas through the sewer pipe wall (Figure 25). The piping material is not designed to contain gas. The concentration of PCE gas in the pipe is greater than in the surrounding soils causing a concentration gradient. This causes a dispersion through the sewer pipe to the less concentrated area.

Another reason gas will penetrate the pipe is due to pressure. The gasses inside the pipe may increase the pressure above atmospheric. This would cause a pressure gradient from higher pressure in the pipe to lower pressure in the vadose zone. The gradient would force PCE gas into the vadose zone. As described above, PCE gas is heavier than air and so would tend to sink towards ground water.

Summary of Methods

Methods 3, 4 and 5 probably occur in all piping. They would cause a constant influx of PCE into the vadose zone downgradient from a dry cleaner. This liquid containing PCE or PCE in gas form then moves downward and eventually degrades the ground water.

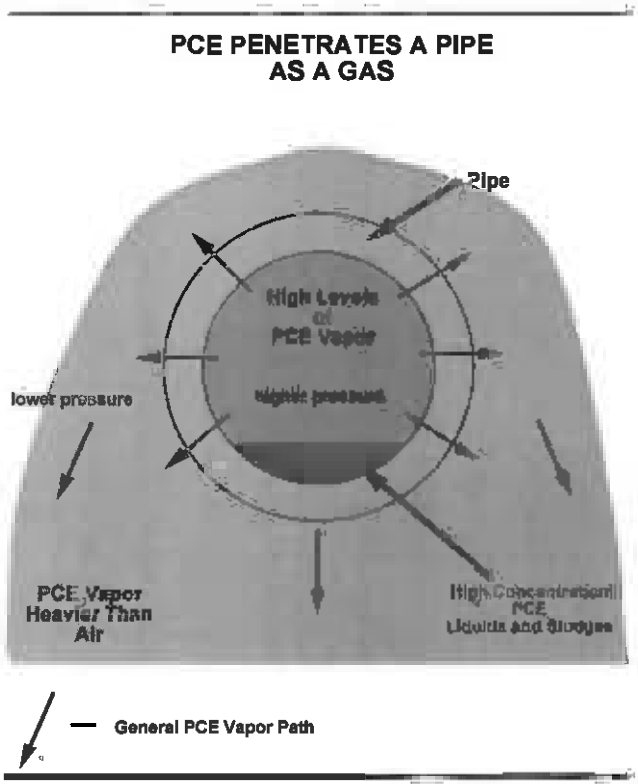


Figure 25

Leakage through small fractures in Method 1 is likely in most of these brittle pipes as they settle. Small fractures occur causing an increase in the permeability of the pipe. This would cause a constant leakage. These small fractures cannot be seen by video taping the inside of the sewer pipe.

CONCLUSION AND RECOMMENDATION

The Board has identified the potential sources of PCE in 21 wells, and 20 of those are affected by one or more dry cleaners. Because of the location of the remaining wells (i.e. in residential and retail areas), the staff expects that the majority of the wells with PCE will have dry cleaners as the source.

The evidence from five years of investigations shows PCE has been found in the ground water and vadose zone near dry cleaners throughout the Central Valley. In most dry cleaners, the only liquid discharge of PCE-containing wastewater is to the sewer line. The substantial evidence collected by dry cleaners' consultants, muncipalities, and staff, shows or demonstrates that PCE has discharged from the sewer lines directly into the vadose zone. The PCE then migrates through the unsaturated subsurface to the ground water. Based on information collected from operators of dry cleaners, dry cleaning literature and staff site inspections, the dry cleaning equipment at most facilities is designed to discharge to sewer lines.

Presently, all the dry cleaners investigated in a well source investigation have been identified as sources of PCE in the ground water. All of the dry cleaners that have drilled monitoring wells have had shallow ground water contamination well above the MCL of 5 ppb set by the State Department of Health Services (monitoring well levels range from 120 - 32,000 ppb). With approximately 285 dry cleaners in the cities of Sacramento, Chico, Lodi, Modesto, Turlock, Stockton and Merced, and numerous more in other cities, staff expects that many more wells will be degraded by PCE in the future.

In conclusion, the PCE discharges from dry cleaners to sewer laterals, then to sewer systems and then to soils have caused soil and ground water degradation.

Two major issues need to be resolved on the dry cleaners' PCE discharges:

1. Who should define the extent of ground water degradation and do the cleanup?

2. How do we prevent further degradation of the ground water by dry cleaners?

Ground water cleanup is required so that water supply agencies can continue to provide safe water. Deciding who should investigate and cleanup ground water is a complex political/legal issue since the PCE discharges from the dry cleaners were all approved, standard practice and those from the sewers were unsuspected. Because most dry cleaners are small businesses, which may not have the financial capability to define the contamination plume and conduct cleanup, other resources may be needed. A statewide cleanup fund may be appropiate. If no one else cleans

up the ground water, water supply agencies will have to do it by default.

To prevent further degradation, the most obvious solutions are to set a limit for PCE discharge levels to the sewer line that will protect ground water or to disallow all future discharges to the sewers from dry cleaning. Two possible ways to accomplish this:

1. State legislation to set limits or prohibit discharge of PCE from dry cleaning facilities to sewer systems.

2. City ordinances to set limits or prohibit any discharge of PCE from a dry cleaning facility to the sewer line.

Since dry cleaners exist throughout the state a state-wide policies are needed.

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EXHIBIT C

EXHIBIT C

SOURCE AREAS IN NORTHERN NEIGHBORHOOD AND NEAR CHEVRON SITE

1) Neighborhood Area

a) Source Area Near the Intersection of Shirley Drive and Cynthia Drive

There was a release of CVOCs from the Central Contra Costa Sanitary District ("CCCSD") sewer near the intersection of Shirley Drive and Cynthia Drive. The release source is identified by soil vapor data obtained during investigations completed by Gregory Village Partners, L.P. (see Erler & Kalinowski, Inc.'s *Off-Site Property-Specific Soil Vapor and Sub-Slab Vapor Investigation Report*, dated 19 January 2011). The soil vapor results show that the concentrations of PCE are high in the vicinity of Shirley Drive and Cynthia Drive, near manhole M54, i.e., MSVP-6 = 52,100 micrograms per cubic meter ("ug/m^3"), SVP-15 = 35,000 ug/m^3, SVP-16 = 38,000 ug/m^3, and SVP-25 = 21,000 ug/m^3, and that this area is distinguished from areas of lower concentrations that surround it (Exhibit 8 attached).

Importantly, soil vapor samples taken on Cynthia Drive in a line perpendicular to the sewer line demonstrate that the locations of highest vapor concentration are closest to the sewer with diminishing concentrations moving away from the sewer (Exhibit 9 attached). The separation in areas of higher CVOCs in soil vapor concentration between the Shirley Drive / Cynthia Drive area and the P&K Cleaner Site, and the diminishing concentrations of CVOCs in soil vapor with distance from the sewer, both point to the existence of a release from the CCCSD sewer in this area which explains the detected vapor profile.

b) Source Area Near Manhole M46

Both groundwater and soil vapor data establish that there is a source of PCE and other CVOCs in the vicinity of CCCSD manhole M46. The sanitary sewer that enters manhole M46 from the south received waste from both the Chevron Site and the P&K Cleaner Site. Also, this sewer is located at or below the water table and thus any release of CVOCs from it would result in detecting CVOCS at the highest levels in soil vapor nearest to the water table. Of the three soil vapor sample depths at MSVP-17, which is located near manhole M46, the soil vapor sample nearest to the sewer and to the water table had the highest PCE concentration. PCE was detected in a grab groundwater sample at a concentration of nearly 2,000 micrograms per liter ("ug/L"), which is the

highest PCE concentration measured to date in groundwater north of the P&K Cleaner Site. Lower PCE and CVOC concentrations near Doray Drive, i.e., between the P&K Cleaner Site and the manhole M46 area, indicate that a separate release or contribution of PCE to groundwater occurred near that manhole (Exhibit 2 attached). In addition, PCE concentrations in soil vapor are higher in the vicinity of manhole M46 (extending to the Shirley Drive and Cynthia Drive area) than in the area between manhole M46 and the P&K Cleaner Site, i.e., within the Doray Drive area (Exhibit 8 attached). The best explanation for the detections of CVOCS near M46 is that there was a CVOC release from the sewer in that area.

2) Linda Drive Adjacent to Chevron Site

a) Source in Linda Drive Near the Sewer

The highest concentration of PCE in groundwater anywhere at the Chevron Site is in Linda Drive near the CCCSD sewer at former monitoring well EA-3 located cross-gradient from the Chevron Site. Chevron's investigations show very high concentrations of PCE and other CVOCs in soil, soil vapor, and groundwater on the Chevron Site and in Linda Drive near the sewer line (*Report of Investigation* by EA Engineering, Science and Technology, Inc., 3 February 1989, and *Additional Site Investigation Report and Site Conceptual Model* by Conestoga-Rovers & Associates, Inc., 2 March 2012). At monitoring well EA-3 in Linda Drive, Chevron detected PCE in soil at 328 micrograms per kilogram from a sample that would have been collected from above the groundwater table and thus resulted from sewer leakage. PCE was detected in groundwater at 5,000 ug/L (Exhibit 10 attached), the highest concentration detected anywhere at Sites 1 and 2, at the same location. A 1977 CCCSD sewer inspection report for Linda Drive describes the sewer as "in very poor shape has lots of cracks," but the replacement apparently did not occur until 10 years later (see Firestone 7/3/2012 letter to B. Wolfe (see Exhibit 23 to that letter)).

Exhibit 8

Separate Areas of High PCE Concentrations in Soil Vapor Indicate Separate Releases

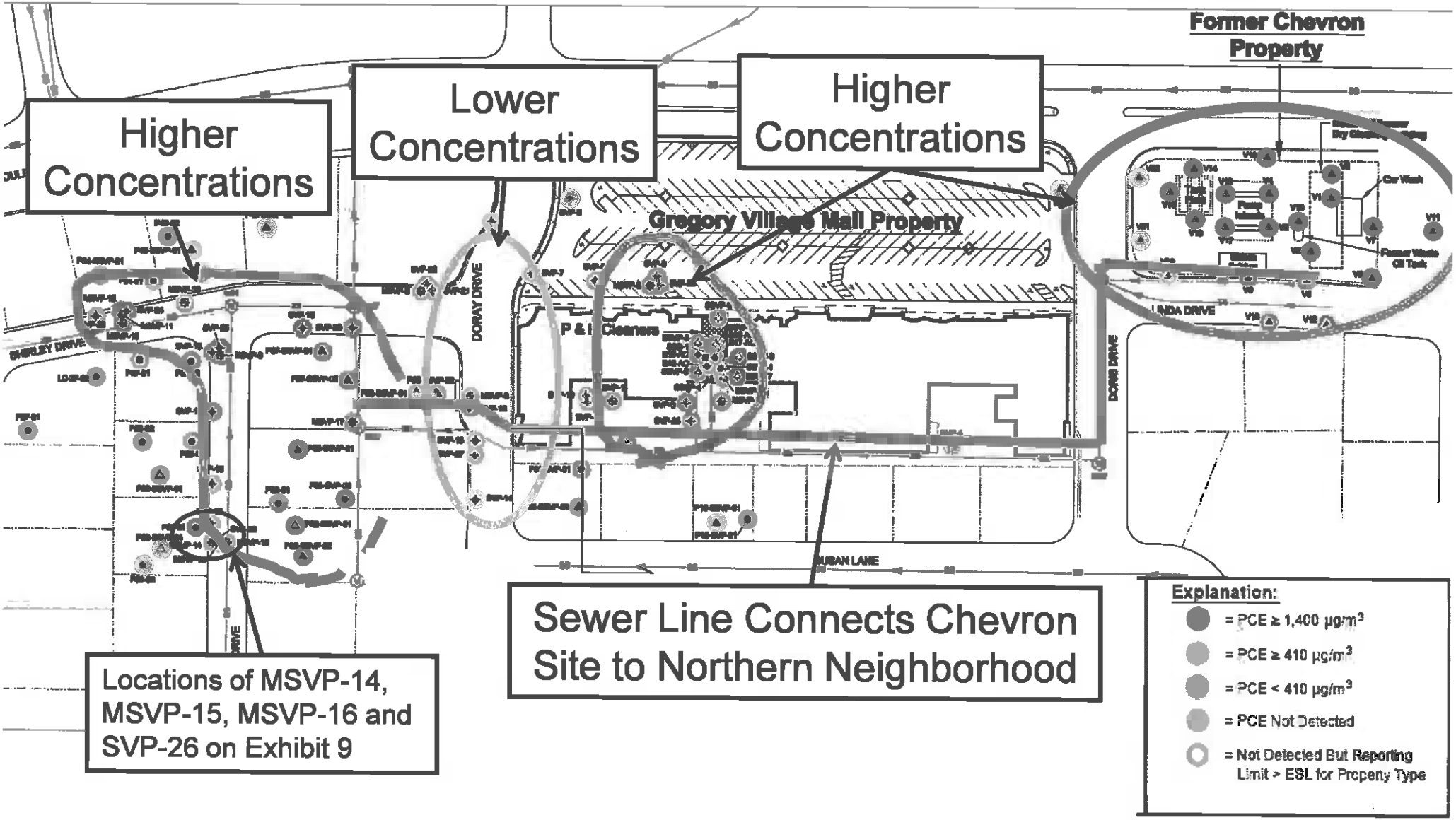


Exhibit 9

CVOC Concentrations In Soil Vapor are Highest Near the Sewer

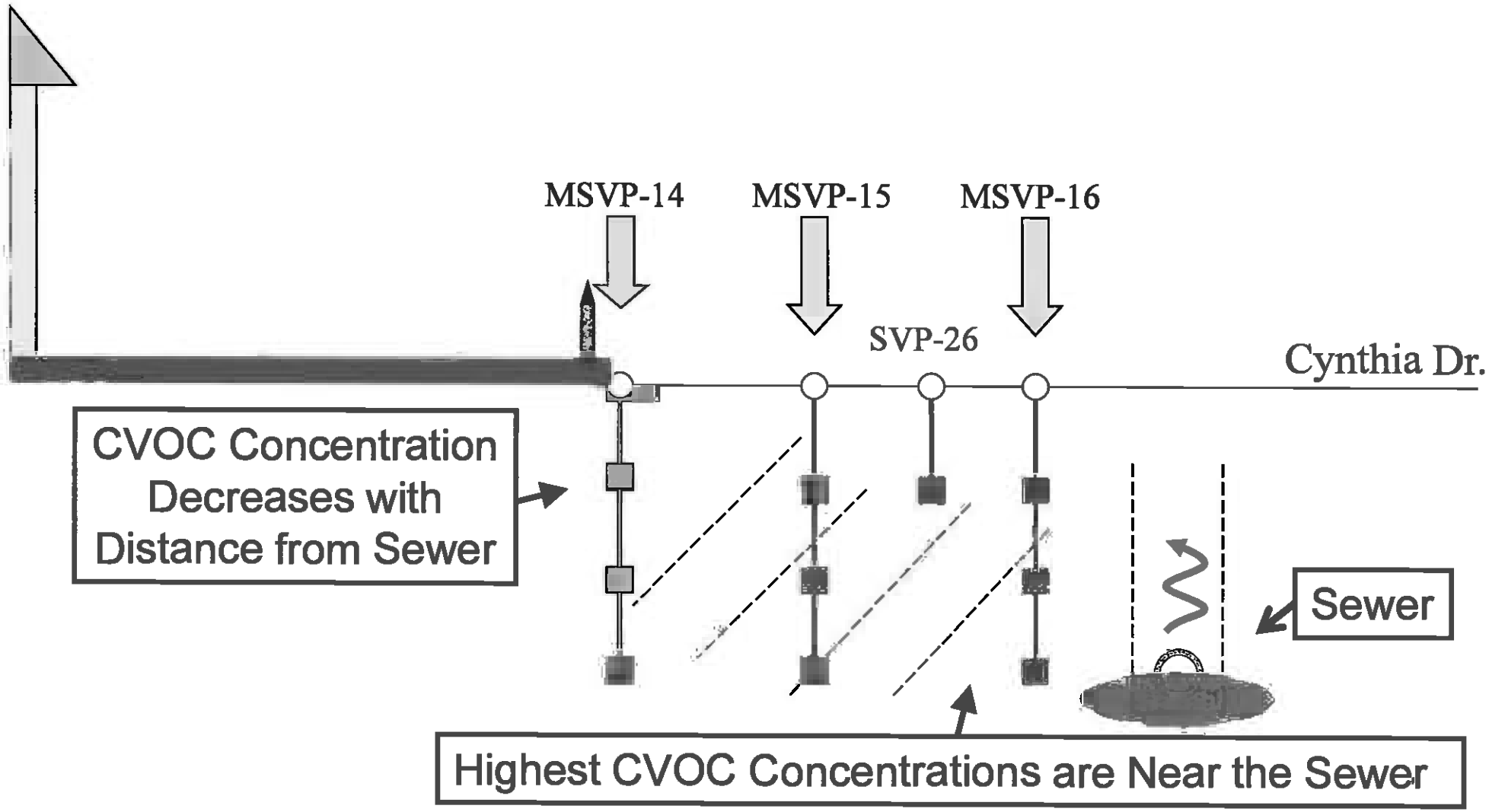
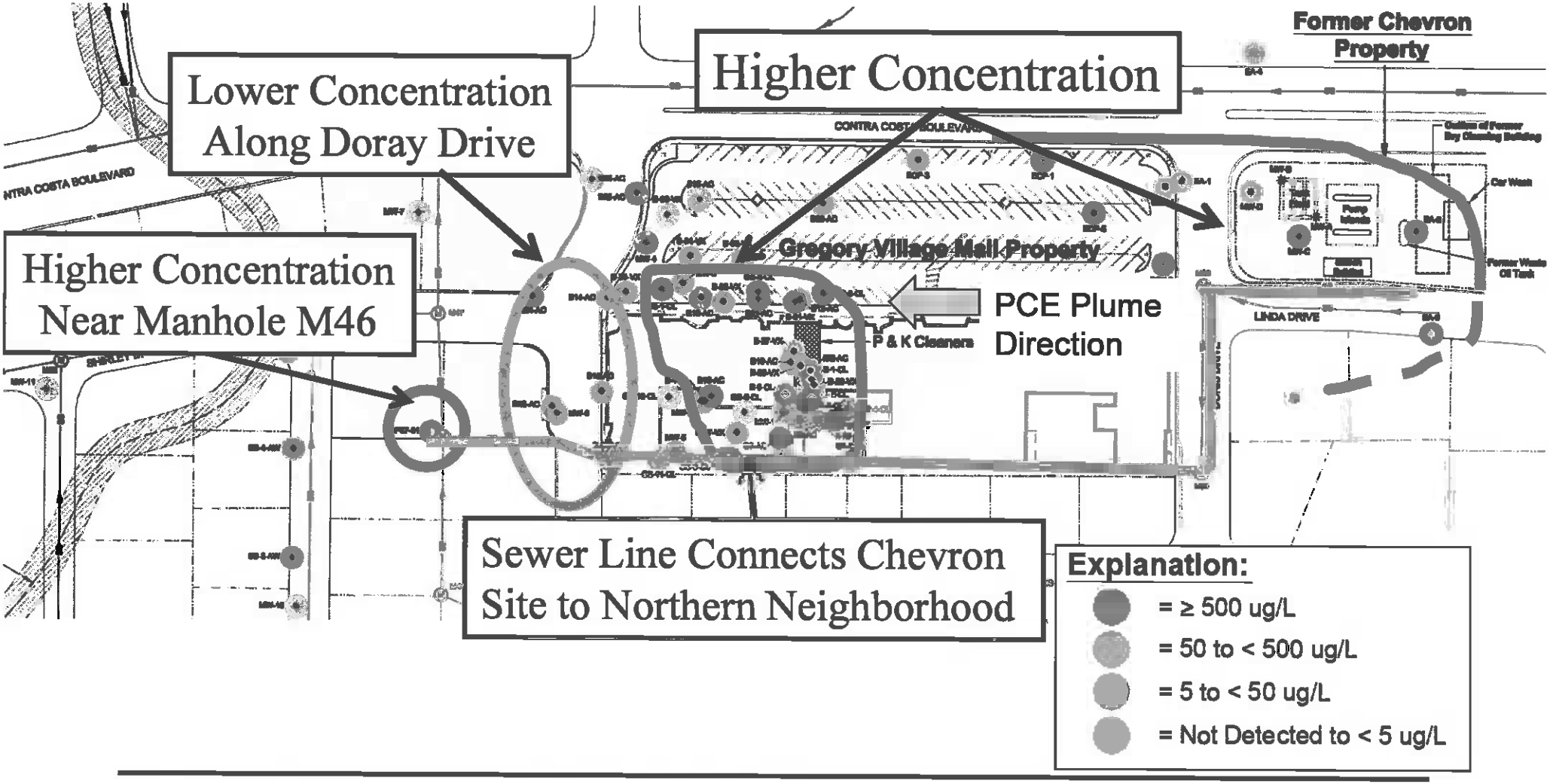


Exhibit 2

Separate Areas of High PCE Concentrations in Groundwater Indicate Separate Releases



PCE in Groundwater in Linda Drive Cross-Gradient from Chevron Site Indicative of a Sewer Leak

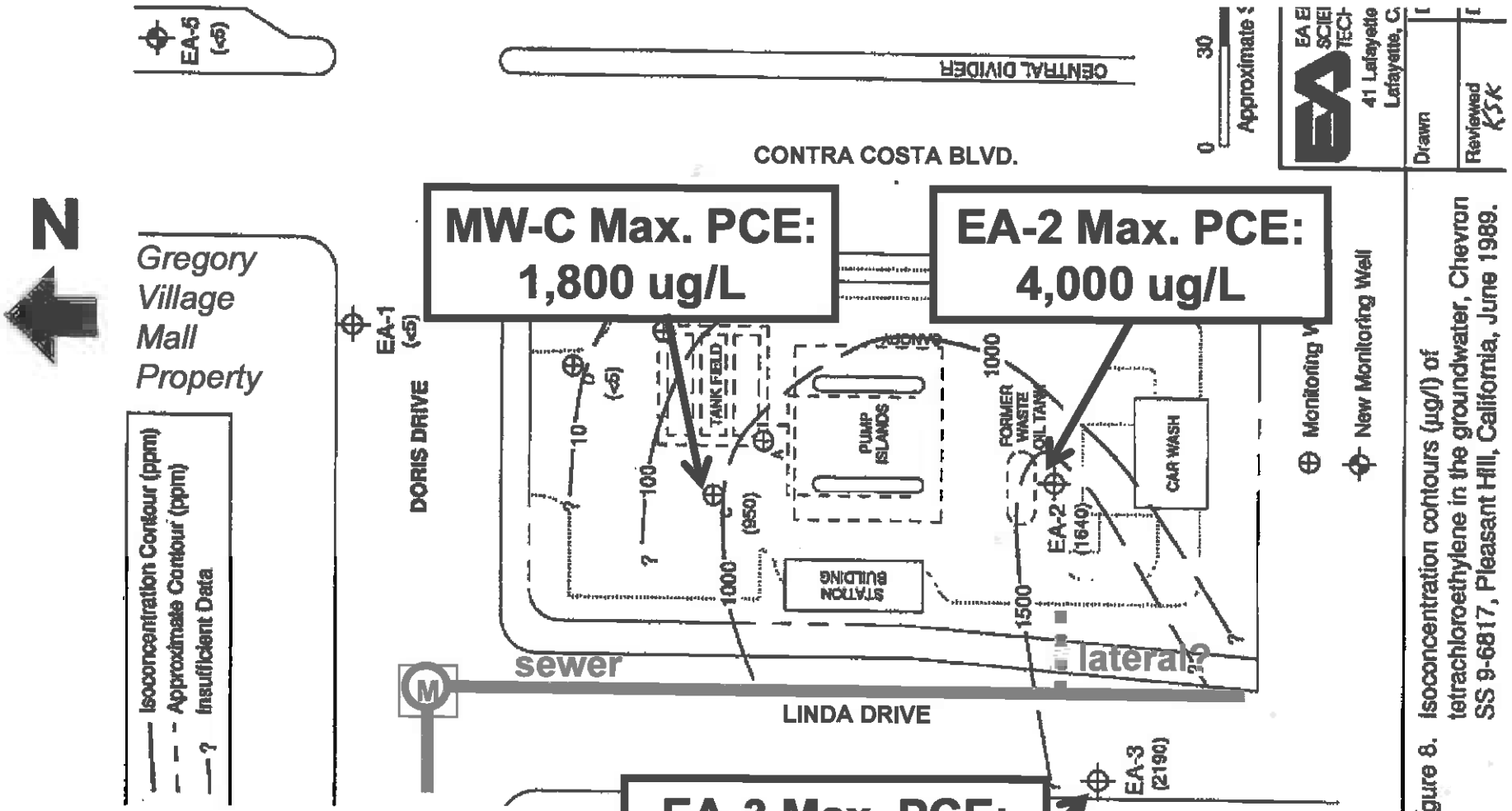


Figure 8. Isoconcentration contours (µg/l) of tetrachloroethylene in the groundwater, Chevron SS 9-6817, Pleasant Hill, California, June 1989.

Background image is from *Report of Investigation, Soil Vapor Contaminant Assessment, Chevron SS 9-6817, 1705 Contra Costa Boulevard, Pleasant Hill, California,* prepared for Chevron U.S.A, Inc., by EA Engineering, Science, and Technology, Inc., dated 9 August 1989.

EXHIBIT D

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Bonneau Dickson, P.E.

Consulting Sanitary Engineer

DECLARATION OF BONNEAU DICKSON, PE

I, BONNEAU DICKSON, P.E., do declare and state as follows:

1. I am currently a Registered Professional Engineer in the State of California in the area of Civil Engineering. I have over 40 years of experience in the field of Sanitary Engineering. I have participated in the design and/or construction management of approximately 300 water, wastewater and stormwater projects, ranging in size from a single septic tank or well to a 120 MGD pure oxygen wastewater treatment plant and I was the project manager on many of these projects. I have served as a forensic technical consultant, expert witness or claims analyst on over 100 legal cases. Approximately 50 of my cases involved sanitary sewer overflows (SSOs) and approximately ten of my cases have involved PCE contamination.

2. I have a Bachelor of Science Degree in Civil Engineering and a Master of Science Degree in Sanitary Engineering from the Georgia Institute of Technology. I also have a Master of Arts Degree in Sanitary Engineering from Harvard University and a Master of Business Administration from the Harvard Business School. I have been employed by several engineering firms in various engineering capacities. I have been self-employed as a consulting sanitary engineer since 1993.

3. I am a member of the:

Water Environment Federation.
California Water Environment Association.
American Water Works Association.
WateReuse.
Pipe Users Group Of Northern California.
National Onsite Wastewater Association.
California Onsite Wastewater Association.

4. After being retained as an expert consultant in this matter, I have reviewed, among other things, the following documents:

"Off-Site Property-Specific Soil Vapor and Sub-Slab Vapor Investigation Report", Erler & Kalinowski, 1/19/2011

"Updated Conceptual Site Model For Gregory Village", PowerPoint presentation to the San Francisco Bay Regional Board by Erler & Kalinowski, 2/17/2011.

The letter from Edward A Firestone, Esq. to Bruce Wolfe, Executive Director of the San Francisco Bay Regional Water Quality Control Board, 7/3/2012.

The letter from Leah S. Goldberg, Esq. of Meyers/Nave to Bruce Wolfe, Executive Director of the San Francisco Bay Regional Water Quality Control Board, dated 8/10/2012, responding to Ed Firestone's letter of 7/3/2012.

The letter from Edward A. Firestone, Esq. to Bruce Wolfe, Executive Director of the San Francisco Regional Water Quality Control Board, dated 12/8/2012, responding to Ms. Goldberg's letter of 8/10/2012.

The letter from Mary Haber, Esq. of Gregory Village Partners, L. P. to Bruce Wolfe, Executive Director of the San Francisco Regional Water Quality Control Board, dated 5/28/2013, responding to specific questions posed by the Regional Board.

The letter from Tim Potter of the Central Contra Costa Sanitary District (CCCSD) to Bruce Wolfe of the San Francisco Regional Water Quality Control Board, dated 5/28/2013, responding to specific questions posed by the Regional Board in a letter dated 2/25/2013.

The letter from Curtis W. Swanson, of the Central Contra Costa Sanitary District (CCCSD) to Chuck Headlee of the San Francisco Regional Water Quality Control Board, dated 12/18/2013, responding to specific questions posed by the Regional Board.

The San Francisco Regional Water Quality Control Board Tentative Orders, Self Monitoring Plan, and Cleanup Team Staff Report, July 2, 2014.

"The Evolution Of Jointing Vitrified Clay Pipe", Evans, Jack and Spence, Marlene N., Advances in Underground Pipeline Engineering, Pipeline Division, ASCE/Madison, WI/ August 27-29, 1985.

"Dry Cleaners--A Major Source Of PCE In Ground Water", Victor Izzo, Regional Water Quality Control Board, Central Valley Region, CA, March, 1992.

5. Based upon my experience and my review of documents in this matter, I have developed the following opinions:

LIST OF OPINIONS

Opinion 1. Gravity sewers never were and still are not designed or constructed to be free of leaks.

Opinion 2. Immediately after the sewers were installed in the area of the Gregory Village site and the Chevron site ("sites"), it is likely that the sewer lines sagged and the joints failed.

Opinion 3. The sewers in and around the sites are certain to have had significant infiltration of groundwater and exfiltration of waste from inside the sewers beginning from the time they were built through this day.

Opinion 4. The design and installation of the CCCSD sanitary system in the area of the two sites makes sewer maintenance and sewer cleaning difficult.

Opinion 5. The sanitary sewer industry generally accepts as true the mechanisms described in the Izzo Report relating to the release of PCE from sewer lines.

Opinion 6. The CCCSD operation and maintenance ("O&M") program always was and still is designed to keep the wastewater flowing through the sewers but not to prevent leaks from the sewer system, unless the leaks are significant or catastrophic.

Opinion 7. Varying flows of waste due to minor or major blockages in the CCCSD sewer system could have forced chlorinated volatile organic compounds (CVOCs), either in a pure or dissolved state, upstream into other branches of the sewer system.

Opinion 8. Vapor in the sewer lines, including PCE vapor, can move preferentially upstream in sewers and/or in the backfill around the sewers.

OPINION DETAILS

Opinion 1. Gravity sewers never were and still are not designed or constructed to be free of leaks.

The evidence I have reviewed indicates that the CCCSD sewers in the vicinity of 1643 Contra Costa Boulevard, Pleasant Hill, CA were built no later than the early 1950s and that they are mostly made of vitrified clay pipe ("VCP"). With the exception of a segment in Linda Drive and a segment across Doray Drive, the current configuration of the sewer system has not changed since it was originally built. The configuration of the sewer system and the manhole (MH) numbering system are shown in Exhibit i of this declaration, which was Exhibit 7 of the Firestone 7/3/12 letter.

Leakage problems from sewers that were built with vitrified clay pipe (VCP) in the 1940s-50s are well known among cities and sewerage agencies. The joints of the sewer therefore are likely to be cement mortar or a poured bituminous material, both of which tend to be brittle. See Exhibits 8, 9 and 10 to the Firestone 7/3/12 letter attached here as Exhibits ii, iii, and iv. This type of joint frequently breaks if there is any movement, such as from an earthquake or the passing of a heavy vehicle. Moreover, 8-inch clay pipe usually was furnished in lengths of 3-feet in the 1940s and 1950s, so there are many joints.

Problems with VCP pipes during the 1940s and 1950s are discussed in "The Evolution Of Jointing Vitrified Clay Pipe", Evans, Jack and Spence, Marlene N., Proceedings, Advances In Underground Pipeline Engineering, Pipeline Division, ASCE/Madison, WI/August 27-29, 1985, which is included as Exhibit v of this declaration. At least one of the authors of this article worked for a manufacturer of clay pipes. The article obviously was intended to tout the virtues of VCP, but the discussion of the problems with earlier jointing methods and materials is revealing.

The article discusses that little attention was paid to leakage in sewers until after World War II. On the fourth page, the article says, "Early studies of sewers found problems of infiltration to be widespread. The difficulties and expense encountered with the treatment of this extraneous flow into sewer systems lent a bad name to vitrified clay pipe." On the same page, it is noted that the first ASTM specification for VCP joints with resilient properties was not issued until 1958. (See the underlining). Elastomeric joints for VCP did not become available in California until around 1965. Although the writers were discussing "infiltration", obviously if water can enter the sewer through the pipe from the outside, water and CVOCs can leave the pipe as "exfiltration".

Opinion 2. Immediately after the sewers were installed in the area of the Gregory Village site and the Chevron site ("sites"), it is likely that the sewer lines sagged and the joints failed.

Beginning in the 1950s when the sewers were installed, defects and failures in the sewer system were likely similar to the defects and failures reported by CCCSD during the period of 1994 to 2014.

While it is true that sewer systems do tend to deteriorate over time, it is likely that many of the defects that were observed in recent years also existed much earlier.

It is well known in geotechnical engineering that most of the settlement of re-compacted soil takes place in the first year after construction. As discussed above, the type of joints used on VCP sewers during the era when the sewers were built were brittle and would crack and leak if there was the slightest movement of the pipes. Thus it is likely that many of the joints opened very shortly after the initial construction. It is also likely that sags developed shortly after the initial construction.

Moreover, tree roots very rapidly search out sewer pipes as a source of water and nutrients. In many sewer systems, it is necessary to cut out or chemically treat tree roots every two to three years. Thus it is likely that there was significant root intrusion into the pipes within a few years after they were initially laid.

Opinion 3. The sewers in and around the sites are certain to have had significant infiltration of groundwater and exfiltration of waste from inside the sewers beginning from the time they were built through this day.

Factors that would have caused the sewers around the site to leak include: a high leakage allowance at the time of installation; the fact that the sewers were made of vitrified clay pipes (VCP), which comes in short lengths and thus has numerous joints; the brittleness of VCP; the requirement that the clay pipes be unglazed, which allows vapor to pass through the walls more easily than for glazed pipe; and the poor gasketing materials. These factors are summarized well starting on Page 5 of the Firestone 7/3/12 letter. Exhibit ii of this declaration (Exhibit 8 to the Firestone 7/3/2012 letter) presents CCCSD sewer specifications from around 1950 that allowed an exfiltration rate of up to 1,400 gallons per day per inch of diameter per mile. Later versions of the CCCSD specifications also included exfiltration and/or infiltration tolerances, although at lesser rates than the earlier specifications.

To this day, the latest version of the CCCSD specifications (the 2011 Edition) allows some leakage into (and out of) the sewers.

For example, in CCCSD's current specifications, the last paragraph on Page 32, section 4-01 B., (Design Standards) discusses that a groundwater infiltration (GWI) rate of 170 gpd/acre shall be used in estimating the wastewater flow rate for design. Obviously this means that even new sewers are expected to leak. Section 15.02730 3.4 of the current CCCSD specifications discusses air and hydrostatic testing of sewers. Sewers larger than 17-inches in diameter must be tested hydrostatically, i.e. by how much exfiltration occurs.

CCCSD reduced the exfiltration and/or infiltration tolerances over the years, likely due to the infiltration of large volumes of groundwater and stormwater that adversely impacted the wastewater treatment plant.

The topography of the site is relatively flat, so the slopes of the sewers were small to minimize the depths of the sewers. As discussed in the Firestone 7/3/2012 letter, the slopes of the sewers are less than the current standard of 0.0077.

The flat slopes result in low velocities and long residence time in the sewers. The low velocities allow solids to strand, creating small dams. The pools behind these small dams allow undissolved PCE to collect at the bottoms of the pools because undissolved PCE is denser than water. Where there are leaks at the bottoms of the pipes, PCE will leak out even more than water.

Opinion 4. The design and installation of the CCCSD sanitary system in the area of the two sites makes sewer maintenance and sewer cleaning difficult.

A factor that undoubtedly affects maintenance of the sewer system in the area of the sites is the excessive distances between manholes. The longer the distance between manholes, the more difficult it is to clean the sewer segment. The sewer rodding machines or the hydroflushing hoses must be extended out long distances and are more and more difficult to control effectively as they get farther out.

The current CCCSD design standard for manholes requires that the distance between manholes be not more than 500-feet. The sewer segment between MH59 and MH46 is 706-feet long. See Exhibit i of this declaration.

Moreover, this sewer segment has a peculiar jog in alignment where it crosses Doray Drive. Good practice would have been to place manholes at these changes in direction such as was done between MH28 and MH29 on the backlot sewer line between Doris Drive and Kathryn Drive. It is understood that the "jog" part of this segment was replaced with iron pipe rather than VCP when the original pipe collapsed but details of why this was done have not been found.

It is also noted that some of the defect reports noted difficulties in trying to video and/or clean the pipe to and through the jog.

Some of the sewer segments in Luella, Cynthia, Margie, Hazel, Doris, Vivian and Mazie Drives exceed 400-feet in length and some cases are well over 600-feet in length. Maintenance of the sewers in these streets is also made more difficult because many of the sewers are only 6-inches in diameter. Current practice requires a minimum diameter of 8-inches. Accumulations of solids in these sewer lines would eventually move downstream, where they would likely contribute to additional blockages.

A CCCSD record from 1977 describes the original sanitary sewer in Linda Drive as "very poor shape has lots of cracks" (see the Firestone 7/3/2012 letter (see Exhibit 23 to that letter)). Based on the available records, it appears that that line was not replaced for at least ten years after problems in the line were noted. As at the jog at Doray Drive, the older VCP was replaced with iron pipe.

Opinion 5. The sanitary sewer industry generally accepts as true the mechanisms described in the Izzo Report relating to the release of PCE from sewer lines.

The Izzo report is attached as Exhibit B to the Firestone letter dated 8/4/14. Izzo identified five likely methods by which PCE can escape from a sewer line. These were:

1. Through breaks or cracks in the sewer pipes.

2. Through pipe joints and other connections.

3. By leaching in liquid form directly through sewer lines into the vadose zone.

4. By saturating the bottom of the sewer pipe with a high concentration of PCE-containing liquid and the PCE volatilizing from the outer edge of the pipe into the soils.

5. By penetrating the sewer pipe as a gas.

Page 19 of the Izzo report states, "The literature indicates that all sewer lines leak to some extent...allowance must be made for unavoidable infiltration...if...liquids can infiltrate, then a conclusion can be made that liquids on the inside of the pipe can exfiltrate...."

Opinion 6. The CCCSD operation and maintenance ("O&M") program always was and still is designed to keep the wastewater flowing through the sewers but not to prevent leaks from the sewer system, unless the leaks are significant or catastrophic.

The CCCSD sewer maintenance program consists of cleaning the sewers at various intervals, responding to blockages and sanitary sewer overflows (SSOs) when they occur, and repairing defects when they are found if the defects are deemed to be significant and to require repair. Root penetrations usually are corrected by cutting out the roots or by chemically treating the roots. These methods of getting rid of the roots do not get rid of the openings through which they entered the pipes, i.e. the maintenance procedures are aimed at restoring flow in the sewers but not at stopping leakage from the sewers. As stated by T. Potter, Environmental Compliance Superintendent, CCCSD, in his letter dated 5/2813 to B. Wolfe at the Regional Board (p. 5): "The goal of routine cleaning is keep [sic] the sewer lines clear of obstructions to retain their capacity to convey wastewater to the District's treatment plant." Nothing in this statement discusses a goal of correcting leakage.

Cleaning the sewers tends to reduce the number of blockages that occur but does nothing to stop the sewer pipes from leaking. Similarly, clearing blockages merely clears the sewer pipe, but does not address leaks. As noted in Opinion 4, the length of the pipe segments in the area and location of jogs makes maintenance and cleaning difficult.

As discussed the Firestone 7/3/2012 letter, CCCSD's repairs of defects often were not made until years after the defects were discovered. Thus whatever leakage was caused by the blockages or exacerbated by the blockages went on over extended periods of time.

As noted in the Cleanup Team Staff Report (Staff Report), the CCCSD ordinances allowed PCE to be discharged to the sewer system but the CCCSD operation and maintenance program did not prevent leaks of the PCE from the sewer system.

On Page 13 of the Staff Report, the first sentence under Section 1 says, "While there is evidence of incidental leakage from the sanitary sewer lines, there is no direct evidence the leakage contributed substantially to the creation of the CVOC comingled groundwater plume." This statement ignores the fact that a leak in a sewer pipe releasing only a small quantity of PCE is all that is required to create the PCE detected in groundwater in the area. The commingled plumes likely contain only a few dozen gallons of PCE.

The pipe specifications in effect around 1950 would have allowed exfiltration of as much as 2 gallons per day per linear foot of 8-inch pipe. The sewers from Linda Drive to Doray Drive are about 1,000-feet long. Thus the amount of leakage from these segments of the sewers could have been as much as 2,000 gallons per day.

The dry cleaners that used PCE were in operation for approximately 30 years. Many dry cleaning machines piped their separator water directly to the sanitary sewer. As noted by the Staff Report, under CCCSD's regulations, PCE was allowed to be discharged into the sewers. Separator water from dry cleaners contains up to 150,000 ppb of PCE, which is the amount of PCE that can be dissolved in water. Often pure PCE was contained in the separator water if the operator was not careful in the separation. Over the thirty or so years that both cleaners operated, substantial amounts of separator water went into CCCSD's sewers. Given the concentrations of PCE in the separator water, it would not take much of it to leak out to create the concentrations detected in the groundwater in the area.

Opinion 7. Varying flows of waste due to minor or major blockages in the CCCSD sewer system could have forced chlorinated volatile organic compounds (CVOCs), either in a pure or dissolved state, upstream into other branches of the sewer system.

It is likely that blockages occurred in the sewers in the area of the sites because of the flat slopes of the sewer lines or inability to completely clear blockages due to the length of the pipe segments and location of jogs. Such blockages could have surcharged the sewer system until enough depth of water was built up to break the blockages loose. Such occurrences might not have resulted in an overflow to the surface or into buildings or residences; thus no one would be aware that they had occurred. As a result of the blockages, PCE contained in the blocked waste can flow "upstream" in the sewer line to other branches.

Opinion 8. Vapor in the sewer lines, including PCE vapor, can move preferentially upstream in sewers and/or in the backfill around the sewers.

PCE vapor can and does move upstream through gravity sewers and through the backfill in the sewer trenches, which is always more permeable than the surrounding native soil because it was disturbed when the trench was dug. This would be true even if the native soil contained considerable amount of clay. As the sewers slope downward and go below the water table, vapor can no longer pass through the saturated backfill and may preferentially move toward the higher parts of the sewer system either through

the pipes or through the unsaturated backfill. Thus, PCE could be detected in soil vapor "upstream" of a sewer line leak or penetration.

For example, in a case in Arizona that I was a consultant on, there were two side-by-side strip malls, separated by a wide driveway and walkway area, but connecting to a common manhole in the driveway area between them. Hydrogen sulfide gas was being generated in the far end of one of the strip malls. This hydrogen sulfide gas made its way down the gravity drains and sewer from the first strip mall, then up the sewer and drains of the second strip mall over a distance of several hundred feet.

August 4, 2014

Bonneau Dickson

BONNEAU DICKSON, P.E.

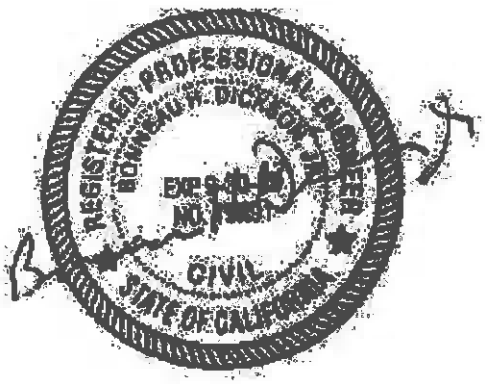
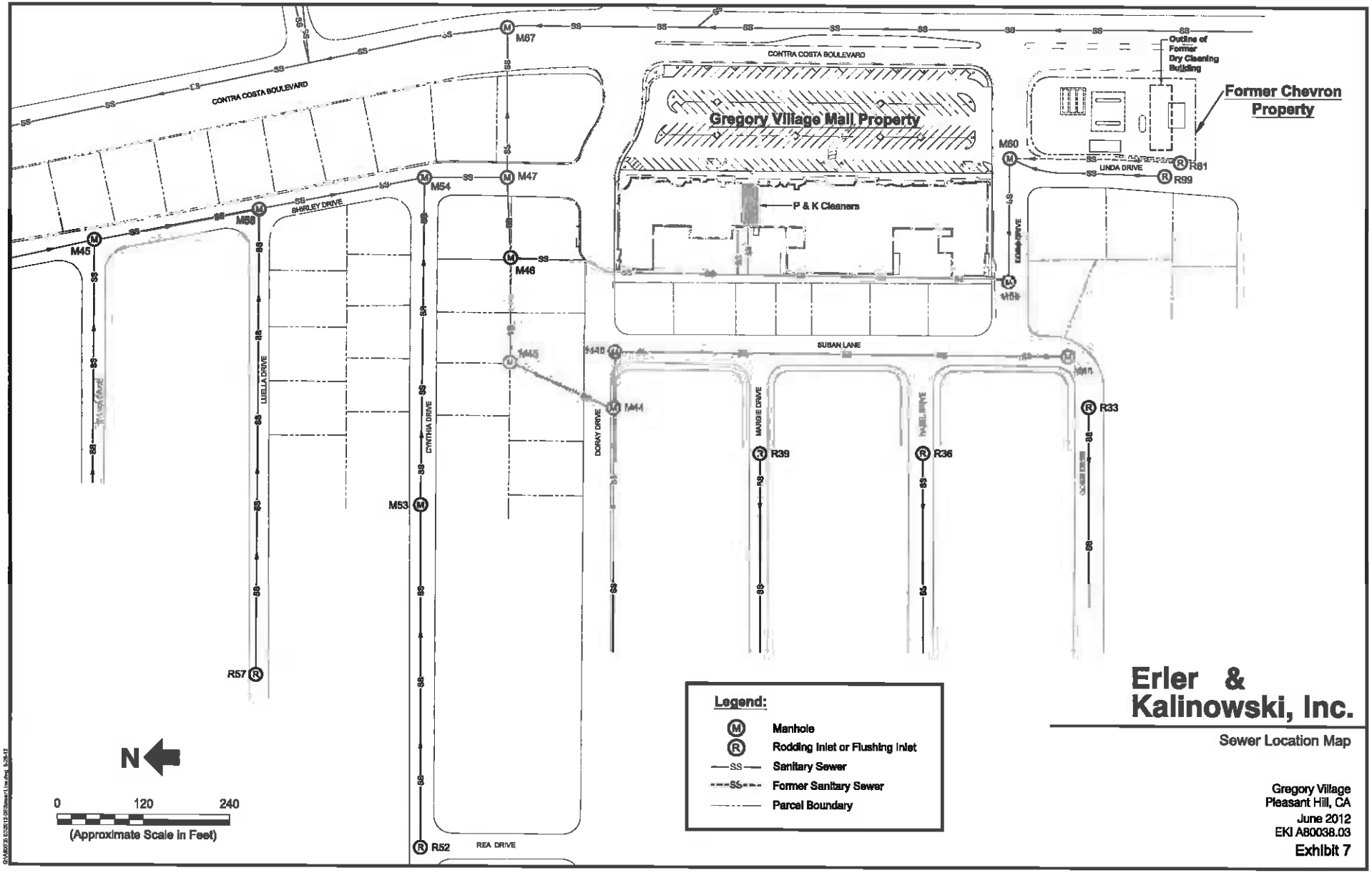


Exhibit i



Erler & Kalinowski, Inc.

Sewer Location Map

Gregory Village
Pleasant Hill, CA
June 2012
EKI A80038.03
Exhibit 7

Exhibit ii

SPECIFICATIONS FOR SEWERING

MAIN LINES

SUBDIVISIONS

SIDE SEWERS

IN THE

Central Contra Costa Sanitary District

3022 MOUNT DIABLO BOULEVARD

WALNUT CREEK, CALIFORNIA

Telephone Walnut Creek 6727

PRICE 50¢

scribed by the Industrial Accident Commission of the State of California. Sheet piling and other timbering shall be withdrawn in such a manner as to prevent caving of the walls of excavations or damage to piping or other structures. No sheathing or timbering shall be left in the trench. Ladders of sufficient length and number shall be provided to facilitate inspection of the sewer work.

The Contractor shall remove all water which may accumulate in the excavation during the progress of the work so that all work, except the laying of vitrified clay pipe with a rubber compression fitting (or approved equal), can be done dry. Trenches shall be kept free from water while the pipe or other structures are installed, until the joint or structure material is set, and until backfill has progressed to a sufficient height to anchor the work against possible flotation or leakage. Water shall be disposed of in such a manner as to cause no injury to public or private property, or be a menace to the public health. Underdrains shall be installed in trenches as necessary to prevent dangerous accumulation of ground water.

Excavated material shall be laid alongside of the trench, and kept trimmed up so as to cause as little inconvenience as possible to public travel and the normal use of adjacent properties. Free access must be provided to all fire hydrants, mail boxes, water gates, meters and private drives, and means shall be provided whereby storm and waste water can flow in the gutters uninterruptedly.

All material excavated from streets, roadways and rights of way, not required for backfilling, shall be immediately removed and disposed of in a manner satisfactory to the Engineer.

All utility conduits must be properly supported where lying along or crossing the trench. Damaged utility conduits must be reported to the proper utility company immediately by the Contractor.

PIPE FOR SEWERS, WYE BRANCHES, DROP CONNECTIONS, FLUSHING INLETS, ET CETERA

Pipe and wye branches shall be designated by their interior diameter. All pipes for sewers, wye branches, drop connections and flushing inlets shall be first quality, unglazed vitrified clay sewer pipe, sound and well burned throughout their thickness, and shall conform in all respects to the Tentative Specifications for Standard Strength Clay Sewer Pipe, of the American Society for Testing Materials, Serial Designation C13-44T, with subsequent amendments.

VITRIFIED CLAY SEWER JOINT COMPOUNDS

The bituminous sewer joint compound shall be CPI-2 Sewer Joint Compound, manufactured by the Koppers Company (or specifically approved equal) or JC-60 Sewer Joint Compound, manufactured by the Atlas Mineral Products Company (or specifically approved equal). When directed by the Engineer, the pipe joints shall be primed with the proper primer in an approved manner. A sewer joint compound to be acceptable must conform to the performance standards as set by the National Clay Pipe Manufacturers Institute (N.C.P.M.I.) Laboratory.

LAYING PIPE, MAKING JOINTS

The CPI-2 or JC-60 Sewer Joint Compound for the pipe joints shall be heated in a container of sufficient size to hold material for pouring of not less than twenty-five (25) joints for eight (8) inch pipe; said container to be so constructed as to insure a uniform temperature throughout. During the period of melting, the joint compound shall be stirred frequently to prevent local heating. The temperature of the joint compound in the container shall be maintained at from 430 to 460 degrees Fahrenheit for JC-60, and from 375 degrees Fahrenheit in warm weather to 425 degrees Fahrenheit in cold weather for CPI-2. At all times of pouring joints the contractor shall have on the job a thermometer suitable for the above work.

Each section of pipe must be laid to the correct line and grade and the sockets of the pipe shall be laid in the cross-cuts previously cut in the trench. The sewer line shall be laid without break upgrade from structure to structure with the socket or bell end forward, unless otherwise permitted by the Engineer. A string line in the bottom of the ditch shall be used for line and grade.

The pipe must be pressed along into the sockets so that the spigot end will be butted against the shoulder of the socket. After the pipe is properly on grade and line, a gasket of dry untreated jute or oakum shall be tightly caulked into the joint, by use of an approved caulking iron, leaving a depth of not less than two-thirds (2/3) of the bell for the joint compound. This gasket shall be of sufficient length to reach entirely around the pipe and of such thickness as to bring the inverts of the two (2) lengths of pipe to the same grade. A runner treated to prevent adhesion with the joint compound shall then be put around the pipe and forced securely up against the bell to prevent the joint compound from running out of the joint. It shall be clamped at the top so as to leave a small triangular opening through which the joint shall be poured.

PAVEMENT REPLACEMENT

Where repaving of trenches is to be accomplished the repavement shall be equal to that taken out, with the following minimum conditions of replacement applying:

(1) The minimum base shall be a six (6) inch crusher base properly compacted with an eight (8) to ten (10) ton roller.

(2) The pavement wearing surface shall be a three (3) course armor coat or two and one-half (2½) inch plant mix as used by the Contra Costa County Road Department.

Repaving of any trench cut in which the backfill has been consolidated by jetting or puddling shall not be done prior to fifteen (15) days after the backfill has been consolidated, nor later than thirty (30) days after consolidation.

Repaving of any trench cut in which the backfill has been consolidated by mechanical tamping or power rolling may be done at any time after the backfill has been consolidated, but not later than forty-five (45) days after installation.

HYDROSTATIC LEAKAGE TEST

If, in the course of thoroughly jetting the sewer trench, as hereunder prescribed, no leakage is observed or if the sewer grade is very steep, the line may not, in the judgment of the Engineer, be given the following described leakage hydrostatic test:

Unless excessive ground water is encountered, each section of the sewer, between two (2) successive structures, shall be tested by closing the lower end of the sewer to be tested and the inlet sewer of the upper structure with stoppers, and filling the pipe and structure with water to a point four (4) feet above the invert of the open sewer in the above structure. However, in no case shall the head of water exceed nine (9) feet, and if such would be the case due to the grade of the sewer, intermediate wyes or tees between successive structures shall be installed and used as testing points.

The allowable leakage will be computed by the formula:

$$Q = 1400\ g\ L/Day$$

in which Q is the allowable leakage in gallons per inch of diameter, L is the length of the sewer being tested in miles, and does not include the length of house connections entering the sewer being tested, H is the difference in elevation, in feet, between the invert of the closed sewer in the lower structure and the surface of water in the upper structure or intermediate wye or tee.

If the leakage as shown by the test is greater than allowed by the formula, the pipe shall be overhauled, and relaid if necessary, until the joints satisfactorily hold this test. All tests must be completed before trench or street is resurfaced.

Where grades are very steep, if the above test is waived by the Engineer, the Contractor shall "ball" the joints with cement mortar.

TESTS FOR INFILTRATION

If, in the construction of a section of the sewer between structures, excessive ground water is encountered, the test for leakage, described herein, shall not be used, but instead the end of the sewer at the upper structure shall be closed sufficiently to prevent the entrance of water; and pumping of the ground water shall be discontinued for at least three days after which the section shall be tested for infiltration. The infiltration shall not exceed 1400 (fourteen hundred) gallons, per inch of diameter, per mile of main line sewer being tested and does not include the length of house connections entering that section.

Where any infiltration in excess of this amount is discovered before completion and acceptance of the sewer, the sewer shall be immediately uncovered and the amount of infiltration reduced to a quantity within the specified amount before the sewer is accepted.

Should, however, the infiltration or hydrostatic test be less than the specified amount, the Contractor shall stop any individual leaks that may be observed when ordered to do so by the Engineer.

The Contractor shall, at his own expense, furnish all materials for making the tests required under direction of the Engineer.

All tests must be completed before street or trench is resurfaced.

FINAL INSPECTION OF SEWER LINE

Before accepting the sewer line it will be inspected by District personnel with a representative of the Contractor. The line shall be flushed, and where possible, a rubber ball or bladder of proper size passed through the sewer line.

SECTION II

SIDE SEWER SPECIFICATIONS

TRENCHES

Trenches for lateral sewers shall be excavated and backfilled and the pavement restored in the streets in accordance with the laws, ordinances and regulations of the State

Exhibit iii

CENTRAL CONTRA COSTA SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA

STANDARD SPECIFICATIONS

GERRY A. HORSTKOTTE, JR.
ENGINEER

MARCH 1956

PRICE 1.00

CLASS 1. Mortar or grout shall be a one to one mixture of sand and cement.

CLASS 2. Mortar or grout shall be CLASS 1 mortar or grout containing fifteen (15) percent Pozzolan. The Pozzolan shall be of the calcined reactive siliceous type.

CLASS 3. Mortar or grout shall be CLASS 1 mortar or grout containing twenty-five (25) percent Embeco.

Grout shall be composed of mortar diluted with water to flow readily.

No mortar or grout shall be used later than thirty (30) minutes after the water has been introduced into the mix.

2-06. CASTINGS. Castings shall conform to ASTM A-48, Class 30, or better.

2-07. PIPE. All pipe shall be of the size and material shown on plans and as specified herein. The use of new pipe products shall be determined by the Engineer and authorized in writing.

All pipe sizes refer to inside diameter of pipe.

All pipe and pipe joints between structures shall be of the same material and design, unless otherwise specified.

a. Vitrified clay pipe shall be new, first quality bell and spigot, conforming to Federal Specification SS-P-361a extra strength, unglazed pipe and ASTM C-200, except that pipe fittings shall be of a quality equal to the straight pipe.

All pipe and fittings to be installed with rubber rings shall be marked to identify its use with rubber ring joints.

b. Cast iron pipe and fittings for main sewers shall be bell and spigot Class 150 and shall conform to the following specifications: Federal Specification WW-P-421 with Amendment 3 thereto, ASA A 21.6 and ASA A 21.8.

Cast iron pipe and fittings for side sewers shall be new, first quality bell and spigot pipe. The pipe shall withstand not less than forty-three (43) pounds per square inch water-working pressure. The pipe fittings shall be of a quality equal to,

The cement lining shall extend to the ends of the pipe.

The cement coating, if required, shall be held back three (3) inches from each end of the pipe.

The ends of pipe shall be clean of all concrete, grease, scale and dirt and ready for making field joints by welding.

A protective shop coating shall be applied to the exposed metal portions of the pipe.

2. CL & C Pipe with rubber gasket type of pipe joints shall conform to Federal Specification SS P 381.

f. Smooth lined corrugated metal sewer pipe shall conform to Armco Specifications for smooth lined asbestos bonded corrugated metal sewer pipe.

g. Corrugated metal pipe fabrication and material shall conform to Section 47 of the State Standard Specifications. The gauge shall be as specified on the plans.

h. Black steel pipe shall be standard weight black seamless steel pipe conforming to ASTM A-120.

2-08. JOINT MATERIALS. Joint materials, as hereinafter referred to, are to be used in conjunction with the jointing of pipe for which the materials or devices were designed. All pipe joint materials shall be as specified herein, unless otherwise specified, and the use of new products or materials for joints shall be submitted to the Engineer and authorization for use be specified by the Engineer in writing.

Rubber rings and/or couplings for pipe joints shall be purchased from or through the firm supplying the pipe.

a. Vitrified clay pipe joint materials are as follows:

1. Hot poured joint compound shall comply with Specifications for Clay Pipe Jointing Compound CPI 2 of the National Clay Pipe Manufacturers Inc., JC 60 Sewer Joint Compound as manufactured by the Atlas Mineral Products Co., or approved equal.

Priming materials for pipe shall be as recommended by the joint compound manufacturer. For joint compound JC 60, use a No. 60 primer. For joint compound CPI 2, use a Bitumastic No. 50 primer.

All caulking yarn used with vitrified clay pipe shall be Sealite Caulking Yarn. Caulking yarn shall be installed in accordance with the manufacturer's prescribed installation procedures. Caulking yarn for pipe shall be one-sixteenth (1/16) inch larger in size than the annular space of the pipe bell. For pipe sizes twenty-one (21) inch through thirty-nine (39) inch, the caulking yarn shall be one-eighth (1/8) inch larger in size than the annular space. The annular space shall be measured at a point one-half (1/2) inch from the bottom of the bell socket. All bell and spigot pipe which is to be laid with hot poured joints shall be primed.

2. Rubber rings for vitrified clay pipe shall be Brant Rings manufactured by R. J. Brant, Inc., or their licensed representative.

3. Tubular joints shall be of the two valve type and shall conform to the design as specified by the Clay Pipe Institute.

b. Cast iron pipe joint materials shall be hot poured lead conforming to ASTM B-29 for pig lead, Grade III common.

Caulking yarn for all bell and spigot cast iron pipe joints shall be approved braided or twisted jute packing yarn of uniform quality and free from tar.

c. Asbestos-cement pipe joint materials shall conform to Johns-Manville Ring-Tite Coupling for sewers when used on main line sewers, or Ring-Tite Couplings for House Connections when used on side sewers.

d. Reinforced concrete pipe joint materials are as follows:

1. The concrete bell and spigot pipe joint material shall consist of a rubber gasket conforming to Section 3.4 of the AWWA C 302.

2. The concrete double spigot pipe joint material shall consist of an approved steel joint sleeve, two rubber gaskets conforming to Section 3.4 of the AWWA C 302, and CLASS 2 mortar

shall be a fire hydrant or a water tank with a pressure of sixty (60) pounds per square inch. All "bridges" in backfill shall be completely broken down during the jetting process. Jet points along the line of the ditch shall be staggered from side to side at intervals not to exceed six (6) feet center to center or as necessary to insure that the backfill takes full possible subsidence while water is being introduced into it through the jet pipe. When this method of consolidation is to be used, the backfill shall be placed in lifts or steps not exceeding ten (10) feet in height and then jetted prior to placement of each succeeding lift.

3-17. CLEANING AND TESTING. The work under this section includes cleaning and testing of sewer lines. This work shall be completed within the fifteen (15) day cleanup period. Any further delay will require the written permission of the Engineer.

All cleaning and testing shall be done in the presence of the Engineer.

Tools, materials, and appurtenances required for testing the sewers as specified shall be furnished by the Contractor.

a. Prior to acceptance of sewer lines, other than side sewers, the Contractor shall clean all lines with a Wayne Sewer Cleaning Ball or approved equal. Any stoppage or foreign matter shall be removed in a manner satisfactory to the Engineer.

b. The allowable leakage or infiltration in any individual section or in the entire sewer job shall not exceed five hundred (500) gallons per inch diameter per mile of pipe per day. If the leakage or infiltration exceeds the allowable amount, the test section shall be removed and replaced.

1. Hydrostatic Test. The hydrostatic test shall be made prior to acceptance by closing the lower end of the sewer line to be tested and the inlet or inlets of the next upstream structure with stoppers and filling the sewer line and structure with water to a point four (4) feet above the crown of the open sewer in the structure. The hydrostatic head shall be maintained between a minimum of five (5) feet and a maximum of eighteen (18) feet while testing.

ALLOWABLE INFILTRATION CHART

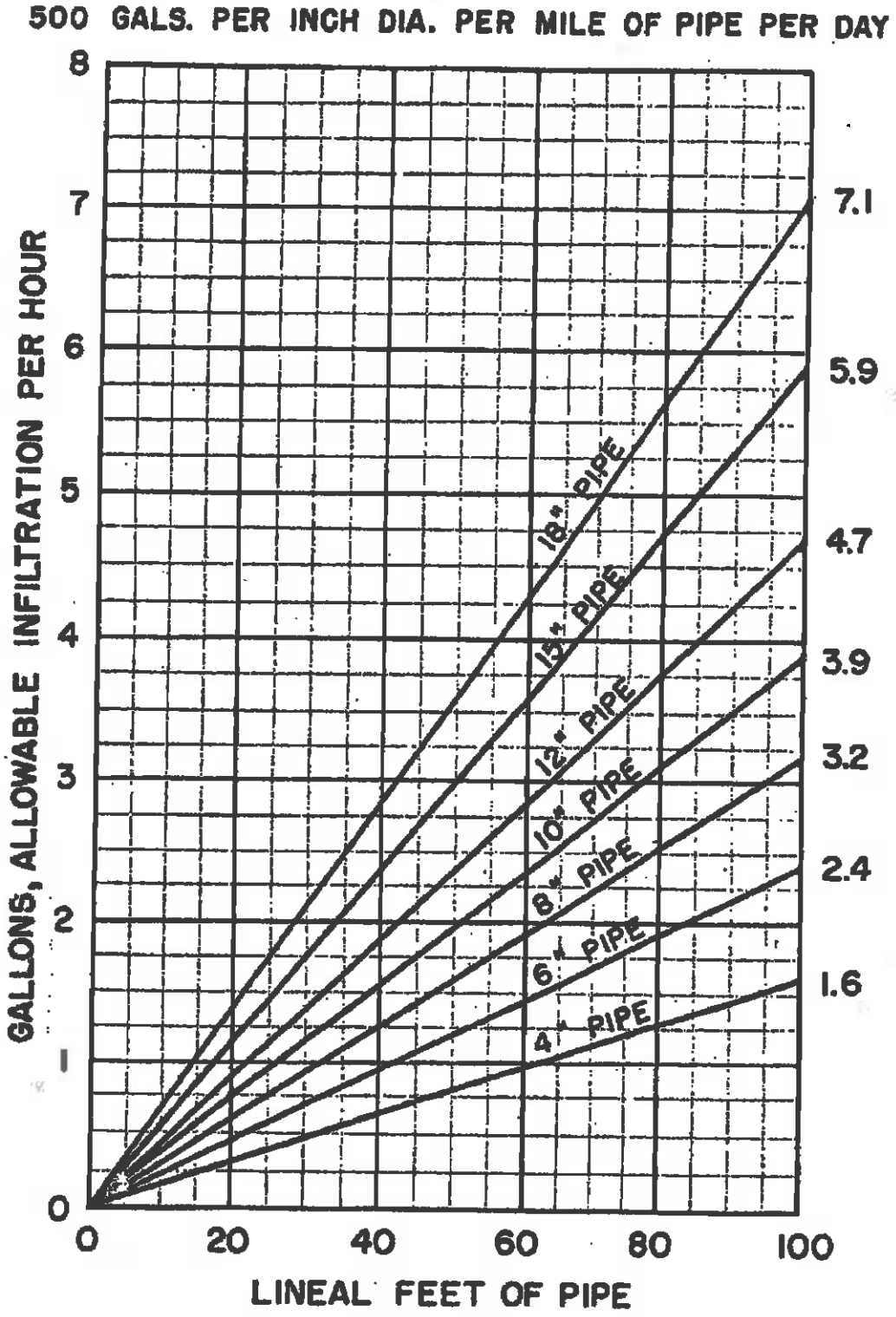


Exhibit iv

CENTRAL CONTRA COSTA SANITARY DISTRICT
WALNUT CREEK, CALIFORNIA

STANDARD SPECIFICATIONS

GERRY A. HORSTKOTTE, JR.
ENGINEER

1959

14-02. PIPE BEDDING FOR SEWERS OTHER THAN CAST IRON

Main sewers and side sewers other than cast iron shall be embedded in compacted TYPE I backfill material from a level two (2) inches below the barrel of the pipe to a level six (6) inches above the barrel of the pipe. Earth trench dams shall be placed at locations designated by the Engineer. Special pipe bedding for trunk sewers will be as specified in the special provisions or as determined by the Engineer.

14-03. CAST IRON PIPE

All cast iron pipe shall be laid with the barrel of the pipe on firm, undisturbed trench bottom. Pipe bedding around and over cast iron pipe is not required, except where specified for special cover conditions, backfill, or road conditions.

14-04. PAYMENT

Full compensation for performing all work and furnishing all bedding material as specified above shall be considered as included in the prices paid for the various contract items of work in place.

SECTION 15

SEWER PIPE LINES

15-01. DESCRIPTION

Sewer pipe lines shall be installed as shown on the plans or ordered by the Engineer and in accordance with the following provisions:

15-02. MANUFACTURE OF MATERIALS

A. Pipe- All pipe shall be of the size and material shown on plans and as specified herein. The use of new or unapproved pipe products shall be determined by the Engineer and authorized in writing.

All pipe sizes refer to inside diameter of pipe.

All pipe and pipe joints between structures shall be of the same type, design and size unless otherwise specified.

The Contractor shall submit at his own expense shop and material details of all special pipe for approval, before the pipe shall be manufactured or used on the work. All pipes and fittings shall be marked with the trade or brand name of the manufacturer, and inventory identification marks.

1. Vitrified clay pipe and fittings shall be new, first quality pipe and shall conform to ASTM C-200 extra strength, unglazed, except that pipe fittings shall be of a quality equal to the straight pipe.

2. Cast iron pipe and fittings for main sewers shall be bell and spigot Class 150 and shall conform to Fed. Spec. WW-P-421a, and shall include pipe made with Tyton or mechanical joints.

Cast iron pipe and fittings for side sewers shall be new, first quality bell and spigot pipe. The pipe shall withstand not less than forty-three (43) pounds per square inch working pressure.

The cement coating shall be held back three (3) inches from each end of the pipe, unless otherwise specified.

The ends of the pipe shall be clean of all concrete, grease, scale and dirt and ready for making field joints by welding.

A protective shop coating shall be applied to the exposed metal portion of the pipe.

Field replacement of coating at joints shall be to manufacturer's specifications or as directed by the Engineer.

b. Fabrication of CL & C pipe or CL pipe for underground or syphon beams shall conform to the steel cylinder thickness, class, and joints called for on the plans. Concrete lining and/or coating for pipe under twelve (12) inches in diameter shall conform to the above requirements for suspended crossing pipe, except that the minimum cylinder gauge shall be ten (10) gauge.

Special fittings shall be fabricated as shown on the plans and shall have a maximum deflection of fifteen (15) degrees at any one angle break within the fitting.

6. Smooth lined corrugated metal sewer pipe shall conform to Armco Specifications for smooth lined asbestos bonded corrugated metal sewer pipe.

B. Joint Types and Materials- Joint materials, as hereinafter referred to, are to be used in conjunction with the jointing of the pipes for which the materials or devices were designed. All pipe joint materials shall be as specified herein, and the use of new or unapproved products or materials for joints shall be determined by the Engineer and authorized in writing. Care will be exercised in the intermixing of different shipments of materials to insure well-fitted joints. All rubber gaskets and/or couplings for these pipe joints shall be purchased from or through the firms supplying the pipe.

Joint Types- Unless otherwise specified, the approved types of joint materials used with various pipes and fittings shall be as follows:

Types of Pipe	Joint Materials	Types or Trade Names
MAIN SEWERS (6 through 15 inches in diameter)		
Vitrified Clay	Plastisol Gaskets	Plastisol Joint
	Rubber Couplings	Ceramicweld Coupling
Cast Iron (Class 150)	Rubber Gaskets	Tyton Joint
	Rubber Gaskets	Standard Mechanical Joint
TRUNK SEWERS (18 inches and larger in diameter)		
	Plastisol Gaskets	Plastisol Joint
Vitrified Clay	Hot Poured Compounds	CPI 2 Joint Compound
	Hot Poured Compounds	JC 60 Joint Compound
	Rubber Couplings	Ceramicweld Coupling
Reinforced Concrete	Rubber Gaskets	Rubber Joint
SIDE SEWERS (4 inches and larger in diameter)		
Vitrified Clay	Plastisol Gaskets	Plastisol Joint
	Rubber Gaskets	Mechanical Compression
	Rubber Couplings	Ceramicweld Coupling
Cast Iron (Soil-Class 40)	Lead	Lead Joints
Cast Iron (Class 150)	Rubber Gaskets	Tyton Joint
	Rubber Gaskets	Standard Mechanical Joint

Types of Pipe	Joint Materials	Types or Trade Names
Asbestos-Cement	Rubber Gaskets	Ring-Tite or Fluid-Tite Coupling

BY SPECIAL APPROVAL for Main or Trunk Sewer unless otherwise specified above.

Concrete Steel Cylinder Reinforced Concrete Asbestos-Cement Smooth Lined Corrugated Metal	)	Joints for these pipes shall be individually approved.

Joint Materials-

1. Plastisol Gaskets- Plastisol gaskets for bell and spigot vitrified clay pipe shall consist of an approved type of resilient, interlocking, mechanical compression joint formed on the pipe at the factory. The gaskets formed on the pipe shall be made of plastisol conforming to specifications established by the National Clay Pipe Research Corporation.

2. Rubber Couplings- Rubber Couplings used to join plain end vitrified clay pipe shall conform to the requirements set up by Pacific Clay Products for "Ceramicweld Couplings."

3. Rubber Gaskets-

a. Rubber gaskets used for jointing cast iron pipe having Tyton joints shall conform to the requirements set up by U. S. Pipe and Foundary Company.

b. Rubber gaskets used for jointing cast iron pipe having Standard Mechanical joints shall conform to the requirements of Fed. Spec. WW-P-421a, Section 3.12.

c. Rubber gaskets used for jointing asbestos-cement pipe with Ring-Tite or Fluid-Tite couplings shall conform to the requirements established by Johns-Manville or Keasbey and Mattison.

d. Rubber gaskets used for jointing reinforced concrete pipe with bell and spigot ends shall conform to Section 3.4 of AWWA C-302. Rubber gaskets conforming to ASTM C-362 require prior written approval of the Engineer.

e. Rubber gaskets used for jointing reinforced concrete pipe with double spigot ends and approved steel joint sleeves shall conform to Section 3.4 of AWWA C-302.

4. Hot Poured Compounds- Hot poured compounds used for jointing vitrified clay bell and spigot pipe shall conform to specifications for Clay Pipe Jointing Compound CPI 2 as established by National Clay Pipe Manufacturers, Inc. or to specifications for JC 60 Sewer Joint Compound as established by Atlas Mineral Products, Co.

All pipe to be jointed with hot poured compound shall be primed prior to being used. Priming materials shall be as recommended by the joint compound manufacturer. When using compound CPI 2, prime with Bitumastic No. 50 primer and when using compound JC 60, prime with No. 60 primer.

All caulking yarn used with vitrified clay pipe shall be 310R Sealite Caulking Yarn. Caulking yarn shall be installed in accordance with the manufacturer's prescribed installation procedures. Caulking yarn for pipe sizes up to twenty-one (21) inches shall be one-sixteenth (1/16) inch larger in size than the annular space of the pipe bell. For pipe sizes twenty-one (21) inches through thirty-nine (39) inches, the caulking yarn shall be one-eighth (1/8) inch larger in size than the annular space. The annular space shall be

1. The Hydrostatic test shall be made by closing the lower end of the sewer line to be tested and the inlet or inlets of the next upstream structure with stoppers and filling the sewer line and structure with water to a point four (4) feet above the crown of the open sewer in the upstream structure. The hydrostatic head shall be maintained between a minimum of four (4) feet and a maximum of eighteen (18) feet while testing. The test period for sewers of reinforced concrete pipe shall be no less than four (4) hours and the pipe shall be filled with water fifteen (15) hours prior to test.

Test tees the full size of the sewer line shall be used when the hydrostatic test cannot be satisfactorily made through pressure relief wyes. The tees shall be kept open until the line meets the requirements of this Section. The hydrostatic test shall be made only after a section of line is complete and has a minimum of three (3) feet of backfill over it. The method of plugging the lines shall be approved by the Engineer prior to testing.

Measured quantities of water shall be added to maintain the level in the test tee or structure to determine the rate of leakage.

2. The Air Pressure Test shall be performed by inserting stoppers and applying regulated air pressure to the section being tested after completion of paving or final backfilling. Maximum permissible drop in pressure related to time and pipe volume shall be determined by the Engineer. Preliminary air loss tests prior to backfilling of pipe shall be made in a similar manner when ordered by the Engineer.

3. Jetting Test- During the normal process of jetting, which shall conform to Section 12, a check shall be made by the Engineer to determine the amount of infiltration through each section of sewer line. The amount of infiltration shall be within the limits prescribed below.

C. Allowable Leakage- The allowable leakage or infiltration in any individual section or in the entire sewer job shall not exceed five hundred (500) gallons per inch of diameter per mile of pipe per day or equivalent air loss. If the leakage or infiltration or air loss exceeds the allowable amount, the test section shall be removed and replaced, or approved corrective measures taken.

D. Cleaning- Prior to acceptance of sewer lines, other than side sewers, the Contractor shall clean all lines with a Wayne Sewer Cleaning Ball, or an approved equal cleaning device, in a manner prescribed by the manufacturer. Any stoppage or foreign matter shall be removed in a manner satisfactory to the Engineer from all lines, including side sewers.

15-06. MEASUREMENT AND PAYMENT

The final determination of the quantity of sewer pipe laid in accordance with the plans and specifications shall be by the following method of measurement.

Sewer lines shall be measured horizontally along the center line of the sewer from the center of structure to the center of structure, without deduction for structure, unless otherwise specified in the special provisions.

The price paid per linear foot for sewer pipe lines in place shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved in furnishing and installing the sewer line complete in place as herein specified, including excavation, backfill, compaction, cleaning, testing, paving, and any specified or required connections to existing sewers.

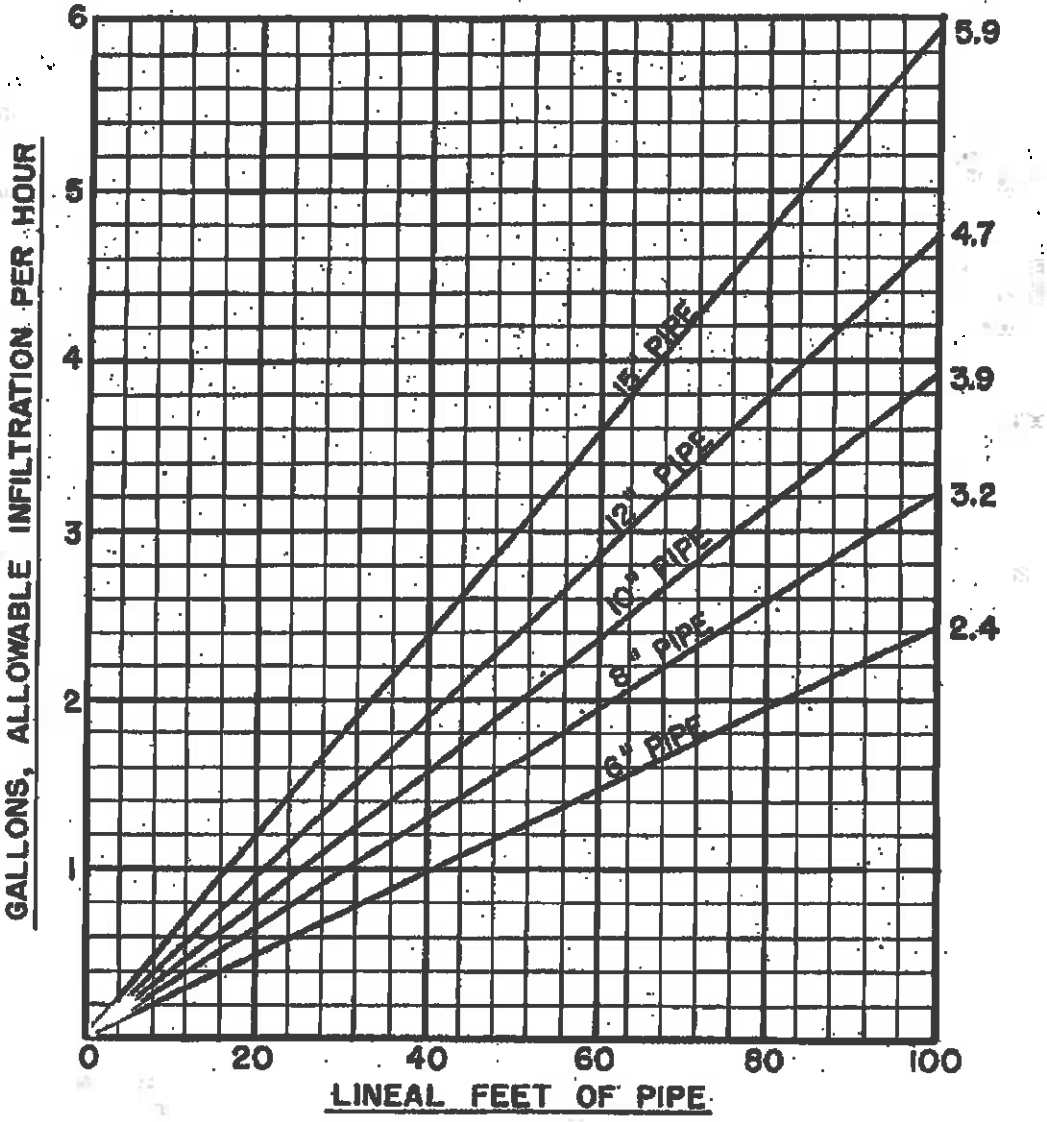
CENTRAL CONTRA COSTA SANITARY DISTRICT

WALNUT CREEK, CALIFORNIA

ALLOWABLE INFILTRATION CHART

FOR MAIN SEWERS

ALLOWABLE LEAKAGE- 500 GALS. PER INCH DIA. PER MILE OF PIPE PER DAY



CONVERSION TABLE

DIAMETER OF PIPE OR M.H. IN INCHES	GALLONS PER FOOT OF DEPTH IN PIPE OR M.H.	GALLONS PER INCH OF DEPTH IN PIPE OR M.H.
6 PIPE	1.5 GAL./FT.	.125 GAL./IN.
8 "	2.6 "	.217 "
10 "	4.1 "	.342 "
12 "	5.9 "	.492 "
15 "	9.2 "	.766 "
48 M.H.	94. "	7.83 "
60 "	147. "	12.25 "

Exhibit v

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The Evolution of Jointing Vitrified Clay Pipe

Jack Evans*
Marlene N. Spence**

Abstract

Advances made in the jointing of vitrified clay pipe during the last half century, illustrate the concern of the clay pipe industry to provide top quality jointing methods. Prior to this, the lack of standards for joint integrity meant testing for infiltration and exfiltration was seldom implemented. Sewers were often designed simply to convey surface water, excessive groundwater and untreated sewage to area lakes, rivers, streams, estuaries and bays. Leakage was even designed into the system for cleaning purposes associated with high flow rates.

Early 19th century clay pipe jointing often utilized a field applied cement mortar, or other specialty jointing materials. The watertightness of these rigid joints depended on many factors including the skill of the work force and the stability of the bedding materials.

The need to replace rigid joints to provide a degree of flexibility in the pipe system caused a variety of flexible materials such as tars and mastics to come into use. However, they were not always successful in eliminating infiltration/exfiltration problems.

After World War II, increased population density along with economic and health considerations led to a rise in separate storm and wastewater systems. It was at this time that the watertightness of sewer lines became a requirement.

The clay pipe industry endeavored to meet the challenge of joint integrity. The development of polymers yielded a broad variety of new materials applicable for use in jointing vitrified clay pipe.

Today the clay pipe industry offers choices of many excellent jointing methods. Factory applied compression joints adhere to strict performance standards. The introduction of low profile plain end pipe led to the development of additional jointing alternatives. These along with reducer couplings, adaptors, repair collars, and o-rings are a few of the methods available from the clay pipe industry to meet today's needs of minimal infiltration/exfiltration, ease of installation flexibility, durability and to prevent root intrusion.

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**Research and Development Analyst, Dickey Company, 826 East Fourth Street, Pittsburg, Kansas 66762

History of Jointing Vitrified Clay Pipe

Prior to 1940 the disposal of sewage in most cities was performed by the most expedient method available. Metcalf and Eddy in American Sewerage Practice, reported; "As late as 1924, 88 percent of the population in cities of 100,000 or over in the United States disposed of their sewage by dilution without prior treatment." The design of sewers was concerned with the conveyance of sewage, surface drainage and in some instances as an acceptable method of eliminating excessive ground water. Infiltration was designed into some systems to increase flow and dilute the contents. Many cities had combined sewers and it was common practice for sewer outfalls to discharge directly into lakes, rivers, streams, estuaries and bays.

It is not surprising; therefore, that the subject of jointing materials for sewer pipe was not high on a list of priorities. Testing for infiltration was not a major factor and when it was exercised, allowances as high as 1500 gallons per inch diameter, per mile, per day were common.

Prior to World War II the most common and probably the first type or class of jointing clay pipe was with oakum and cement mortar. The joints produced were rigid and not resistant to earth movement. The joints were made in the trench by the workmen and the workmanship could be excellent or it could be poor. Water testing was infrequent, air testing and televising lines unknown.

After World War II rapid population growth and the attendant increase in sewage flow opened new horizons in the design of sewerage systems. The construction of separate sewers was a matter of economic necessity, and sewage treatment plants were a must. It was not long before it was apparent that the increased flows and excessive infiltration would tax the capacities of treatment plants and pumping stations and greatly increase operating costs.

The clay pipe industry was approached by the engineering profession to undertake a study to come up with an improved method of jointing clay pipe. The request did not fall upon deaf ears and the National Clay Pipe Institute made this its number one priority.

The second type or class of joints for vitrified clay pipe was a group known as "Hot-Pour Compounds" put on the market in a number of varieties by numerous compound manufacturers. Recognizing that some of these compounds were failing to fulfill the objective for which they were intended, the Research Laboratory of the National Clay Pipe Manufacturers, Inc., undertook a complete survey of all hot-pour compounds and evaluated them on their ability to meet the following permanent performance requirements:

1) Tightness
2) Root resistance
3) Flexibility
4) Corrosion resistance

All of the compounds examined failed in one or more of the essentials forcing the Research Laboratory to direct its efforts towards developing a compound which would meet all the necessary requirements to qualify as a satisfactory and acceptable hot-pour compound. Such a compound was ultimately developed and its specification made available to all manufacturers of compound material. The name brands most commonly used were bitumastic compounds, CPI-2, GK, and JC-60, a plastic base sewer joint compound.

Hot-pour joints were made by the installer in the trench but were considerably more difficult than the cement mortar joint. It was essential that the kettle for heating the compound be thoroughly cleaned before using. This was particularly true if the kettle had been previously used for sulfur-bearing compounds. The compound was heated to a temperature of from 350 degrees to 450 degrees F, depending upon which compound was used, and the temperature maintained. Before pouring, the joint surfaces had to be clean and dry and a gasket of dry twisted jute caulked in the annular space.

After the joint was properly yarned a suitable runner was placed and the joint poured in a single pour so that the compound ran around the pipe, completely filling the annular space. The compound must (1) melt and flow freely at the pouring temperature, (2) adhere firmly to the surface of the sewer pipe and (3) have sufficient flexibility to permit a slight movement of the pipe without injury to the joint. It was very necessary that the compound be properly heated in order to assure getting a satisfactory joint.

Another joint for bell and spigot pipe introduced to the market about that time was the Tubular Joint which consisted of a specially designed hollow, collapsed, rubber ring capable of fitting within the annular space of a bell and spigot pipe, and of being inflated with a suitable grout mixture (Portland cement, TJ-41 and water) to a pressure of 50 to 60 psi, so as to produce a tight, flexible joint. The gasket (tube) had only one opening, a short tubing, similar in shape to the valve-stem of an inner tube, but of such size as to readily admit the grout mixture. Although the tubular joint had considerable merit it was a slow and cumbersome method of operation involving a relative high labor cost.

Although vast improvement was made over the cement mortar joint, results were still far short of the ultimate goal insofar as requirements for flexibility were concerned.

On the West Coast a rubber ring was introduced; but its success depended on the manufacturer supplying select pipe having both spigot and bell dimensions within small tolerances; it was not found to be economically feasible.

There was considerable activity throughout the entire industry and soon two new types of joint material were made available. The first had a plastic ring bonded to both the bell and spigot, while the second had a rectangular shaped rubber gasket mounted on a bonded plastic spigot ring.

Still not satisfied, the clay pipe industry engaged in further research for a jointing system that would be:

1) factory applied to perform to close tolerances.
2) flexible enough to be unaffected by possible earth movement.
3) resistant to sewer acids.
4) easily assembled.
5) tight enough to eliminate infiltration/exfiltration problems and root penetration.

A plastisol resin ring molded in the bell and on the spigot end was developed. This factory fabricated compression joint came very close to meeting all the performance requirements. Prefabricated compression joints quickly became the standard of the industry. In 1958 the adoption of ASTM C 425, The Tentative Specification for Vitrified Clay Pipe Joints Using Materials Having Resilient Properties, introduced a means to test compliance of joints to both end - users' and manufacturers' requirements.

Early Jointing Systems

There has been confusion about the quality of vitrified clay pipe jointing systems brought on by studies of inflow and infiltration required by the Environmental Protection Agency. In order for many cities to be eligible for sewer grant money from the EPA, there must be compliance with EPA requirements. Early studies of sewers found problems of infiltration to be widespread. The difficulties and expense encountered with the treatment of this extraneous flow into sewer systems lent a bad name to vitrified clay pipe. The erroneous and undeserved correlation of infiltration problems and vitrified clay pipe was to a great extent due to two things. First, as stated earlier, early sewer systems represented the state-of-the-art in their day and were, in many cases not designed to prevent infiltration. Second, since the majority of sewers in the country were vitrified clay pipe, it stood to reason that more problems would be found with clay than any other material.

Modern Jointing of Vitrified Clay Pipe

The development of a prefabricated compression joint underwent many stages of evolution. Various materials and designs were evaluated in research sponsored by members of the National Clay Pipe Manufacturers' Institute. The factory applied compression joint has continued to have widespread industry acceptance.

Today's modern vitrified clay sewer pipe adheres to stringent requirements outlined by the American Society for Testing and Materials. Many manufacturers also have a set of quality standards they follow, as well as those standards set by municipalities across the United States.

ASTM standards were developed to aid in the elimination of infiltration problems. ASTM C 425 addresses several currently used basic joint designs. All are compression joints. One type has sealing elements bonded to the bearing surfaces. Others have independent sealing elements. Elastomeric components used in joints must pass tests of chemical resistance, showing no weight loss when exposed to solutions of sulfuric acid and hydrochloric acid. Rubber components must pass the chemical tests and also meet requirements of tensile strength, ozone resistance, oven aging, water absorption, compression set and hardness. Any metal parts introduced into the joint must be resistant to corrosion.

After the individual materials used in jointing systems are tested for adherence to all specifications, completed joints are tested for performance. In 1958, infiltration of 500 gallons per inch of nominal diameter per mile of line per day, was an acceptable rate. The rate most commonly used today is 60 percent less or 200 gallons per inch diameter per mile per day. Representative specimens of pipe must pass plant tests performed under hydrostatic, misalignment, shear load and combination conditions. Pipe and joints must withstand an internal pressure of 4.3 psi without leaking. A shear load of 150 pounds per inch of nominal diameter with the same internal pressure must also be passed. Misalignment, or deflection, is based upon pipe diameter and length of the specimen. The test is also performed while maintaining hydrostatic pressure. ASTM testing of vitrified clay pipe joints was designed to insure earth loads, pipe line settling and certain degrees of improper bedding would not allow exfiltration of the sewer contents as well as infiltration of excessive amounts of ground water.

Vitrified clay pipe lines are also examined after installation. Air tests, infiltration tests and/or television checks are standard practice.

Types of Prefabricated Joints

There are a variety of joints available from vitrified clay pipe manufacturers that adhere to the strict requirements of ASTM. Traditional bell and spigot pipe is available with several jointing materials. Through the use of a factory cast polyurethane elastomer, bell and spigot compression joints are formed by an interference fit. A bead molded onto the bell casting insures a tight compression assembly. The assembly of the joint is simply a matter of applying a manufacturer supplied lubricant to the elastomer and pushing the pipe home.

Another system available on bell and spigot pipe is a polyester and o-ring joint. The polyester resin is cast onto the bell portion of the pipe with a lead in taper. The spigot end is cast with a groove or gland. At the job site, the o-ring, a flexible gasket, is positioned into the spigot groove. Joint lubricant is applied and the pipe can be shoved home.

Both the polyurethane and the polyester/o-ring joint are designed and manufactured under rigid dimensional control. Resins of the highest quality are incorporated to yield lasting joints. Both systems have the advantages of being factory applied using thermo-setting resins. Cure is induced by combining two components. In some instances, heat is added to economically speed cure of slow catalysts.

Other jointing systems have also been developed. A new low profile joint is based on principles in a design used over 2,000 years ago in ancient Ephesus. Plain end pipe, as it is known, has been made with diverse coupling systems. Fiberglas-reinforced polyester (FRP) bells have been wound directly onto pipe as large as 36 inch inside diameter. Spigots were poured with urethane. These low profile plain end pipe allow longer lengths to be produced.

In some areas, FRP bells have been replaced with a more economical PVC (polyvinyl chloride) collar. Since the load in the ditch is carried by the vitrified clay pipe and not the PVC, ring deflection is not a problem. The PVC collars are cut from extruded tube stock and heat formed to close diametric dimensions. Interference beads are molded during this process. Both ends of the plain end pipe are cast with urethane couplings. The PVC collar is installed with an air bladder and cylinder device on the factory end. The field end is sized to allow ease of field installation through the use of joint lube and a pipe puller or hand shove.

Another type of plain end pipe uses a urethane spigot and PVC bell. In this joint the urethane on the spigot end contains the interference bead and the PVC collar is smooth. The PVC collar is attached to the bell end of the pipe through the combined use of an adhesive and the heat shrinking of the collar.

A system that is in use for both normal installation and repair work of VCP is a flexible rubber coupling with heavy duty shear rings. For normal installations, the pipe is delivered with the factory end of the coupling in place. Stainless steel take up clamps on both ends allow a tight, but flexible, compression seal. This coupling can also be utilized as a repair sleeve with a split stainless steel shear ring around the outside diameter replacing the interior shear ring. This coupling simplifies branching of existing lines.

Connections into existing lines of dissimilar materials have been facilitated through the production of a wide range of fittings, adaptors and transition joints.

The joints in use in today's modern sewer systems provide many benefits. Limited infiltration and exfiltration reduce sewage treatment plant loads, and prevent contamination of ground water supplies. The durable, high compression joints inhibit root penetration, thus reducing maintenance costs. The ease of assembly due to factory prefabrication reduces labor costs in the field, and lessens the possibility of poor field installation. The flexibility of today's vitrified clay pipe joints adjusts to minor trench settlement and pipe movement.

Dedication and modern methodology within the industry have resulted in a tremendous improvement in the jointing of clay pipe. Commitment by the industry continues as research into new jointing elastomers is conducted. Like the profession it serves, vitrified clay sewer pipe joints have advanced from the pre-treatment days to today's scientific age of sewage treatment.

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Vitrified Clay Pipe Engineering Handbook, National Clay Pipe Institute, 1982

EXHIBIT E

MAILING ADDRESS P.O. BOX 5266
WALNUT CREEK, CALIFORNIA 94596
TEL. 934-6727 AREA CODE 415

July 18, 1975

For more information call:
G. A. Horstkotte, Jr.
General Manager-Chief Engineer
934-6727

PLUMBING PROBLEMS

Plumbing problems? Instead of calling a plumber, you might save yourself bundle by dialing the Central Contra Costa Sanitary District.

Central San is responsible for most of the collector sewage lines that run down central Contra Costa streets. "If the problem is traced to one of these lines, we will make the repairs free," said Bob Hinkson, maintenance chief for the District.

"We have never made it a secret that we offer this service. In fact, we ev advertise in the Yellow Pages, yet many people neglect to call us when they get a collector line problem."

Headquartered in Walnut Creek, Central San serves about 300,000 people in th communities of Danville, Alamo, Martinez, Pleasant Hill, Clayton, Walnut Creek, Orinda, Mor ga and Lafayette. Concord sends its sewage to Central San for treat ment, but maintains its own lines.

"Most problems occur within the household system," Hinkson continued. "Her the resident will have to fix the pipe or remove the obstruction, or cal a plumber."

Hinkson listed the following as signs of collector line problems:

--some or all of the drains in a household back up.

--several homes along a block experience sewage problems.

--if you flush the toilet or wash the dishes and the drainage bubbles up t the bathtub or at some other point.

"If you just suspect you have a problem related to the collector lines, gi us a ring," Hinkson advised. "We have a crew on call 24 hours a day, seven day a week, and we will check free anything suspicious. At the least, the resident will know where the problem isn't."

District headquarters are located at 1250 Springbrook Road, phone number 934-6727.

Central San has a fleet of 56 assorted vehicles, including backhoes and du trucks, and 43 people in the maintenance division.

The District services, maps and maintains an 845-mile collection system wo $97.5 million. This figure does not include the $72.8 million treatment plant District is building north of Concord.

"When repairs have to be made, we try to do them as quickly as possible wi the least in convenience to the property owner," Hinkson said.

"Roots are our biggest headache. They get in between the pipe joints and the lines.

"Next comes grease, mainly the slurry from sink grinders. It coagulates i the lines and catches debris and pretty soon you have a blockage.

"Then there are objects dropped accidently in the toilet or down the drain hair, which can be a real problem. Sometimes kids will drop something down a m hole and cause problems, but we have had relatively little vandalism.

"Occasionally a pipe will just collapse, either because of a flaw or becau it has been eroded by the hydrogen sulfide gas found in sewer lines," Hinkson explained.

"A good rodding solves most of our problems. Sometimes we'll have to dig a line.

→ they clear the line but don't fix the damage to the pipe

"Since 1970 we have been using a small television camera to inspect sewer lines and this has enabled us to head off many small problems before they grow into major ones."

Hinkson emphasized that residents should have no hesitancy about calling the District. "We are a public agency. When we come out to do a job, we are merely doing what you are paying us, through your taxes, to do."

EXHIBIT F

George Deukmejian
Governor

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1111 JACKSON STREET, ROOM 6040
OAKLAND 94607

Phone: Area Code 415
464-1255

File No. 2119.1008 (FHD)pmh

March 1, 1983

Mr. Roger Dolan, General Manager - Chief Engineer
Central Contra Costa Sanitary District
P.O. Box 5266
Walnut Creek, CA 94596

Dear Mr. Dolan:

This office has been contacted by several residents within the District who claim to have suffered substantial property damage as a result of sewage backing up into their homes from the District collection system. A resident of the District appeared before the Regional Board during the February 16, 1983 meeting public forum and described such a problem and I have been instructed to submit a report at the Board's April 1983 meeting. We request that you provide the Board with information on the following by March 18, 1983:

1. An estimate of the number of homes affected by backups in the last five years and their general locations, and the cause of these backups ie., whether caused by wet weather flows or blockages.

2. A description of the District's program for the prevention of each of these kinds of backups. We understand that this program includes both maintenance of the collection system to minimize blockages and notification of vulnerable residences. We would like details on these programs. If the backups are caused by wet weather flow surcharges, you are requested to report on the District's plans and time schedules for eliminating these problems.

3. A discussion of the nature, extent of use, and effectiveness of backflow devices in use within the District. We are especially interested in your response to a complaint that the device recommended by the District is unreliable.

We wish to make it clear that under the terms of Section F.2 of the District's self-monitoring program, overflows from the collection system whether they are backups into peoples homes or could enter waters of the State that are reported to the District should in turn be reported to the Regional Board.

Please contact me if you have questions.

Sincerely,

FRED H. DIERKER
Executive Officer

J. J. CARNIATO
Counsel for the District
Tel. (415) 283-1552
CLYDE M. HOPKINS
Secretary

CENTRAL CONTRA COSTA SANITARY DISTRICT

5019 BOROFF PLACE
MARTINEZ, CALIFORNIA 94553
(415) 689-3000

ROGER J. DOLAN
General Manager—Chief E
DAVID G. NILES
Deputy General Mana

April 12, 1983

California Regional Water Quality Control Board
San Francisco Bay Region
Fred H. Dierker, Executive Officer
1111 Jackson Street, Room 6040
Oakland, CA 94607

Dear Mr. Dierker,

Roger Dolan, General Manager-Chief Engineer, of Central Contra Costa Sanitary District, has asked me to prepare the following information for you regarding the complaints to your office from several residents of suffering substantial property damage as a result of sewage backing into their homes from the District's system.

I trust this will be of assistance to you in preparing a report for your Board on the matter.

Yours very truly,

R. H. Hinkson

R. H. Hinkson,
Manager, Collection System Operations

RHH/vg

Enclosure

Central Contra Costa Sanitary District

In the past five years, the District has paid 44 claims for damages as a result of a sewage backup in a residence or building. This averages out to be 8.8 claims per year. The total paid for damages was $75,560. This amounted to an annual claims bill to the District of $14,999, at an average cost per claim of $1,717.

This includes $15,240.55 paid to date to Mr. Ray Horne of 25 Rheem Blvd., in Orinda, who described his problem at your February board meeting. Mr. Horne is suing the District for $50,000 in general damages.

In a large collection system with many small diameter lines such as Central San's, it is not cost effective to maintain the system to a standard of zero overflows. For example, it is not clear that the District could provide a fail-safe system even if the collection system maintenance effort were doubled from 1.8 million to 3.6 million dollars per year. This, assuming it would be possible, would cost over $200,000 per eliminated overflow damage claim. The fail-safe approach is, therefore, difficult to justify from a public funding standpoint when each overflow damage claim now costs less than $2,000.

QUERY #1 An estimate of the number of homes affected by backups in the last five years and their general locations, and the cause of these backups i.e., whether caused by wet weather flows or blockages.

In the last five years, 55 homes or buildings (44 resulted in damage claims) out of the 70,169 connected to the District system were affected by backups. Fifty-three of them were the result of pipeline blockages. On 49 occasions these were caused by root intrusion and on 4 occasions by grease and solids depositions. The final 2 were the result of direct wet weather surcharges. Wet weather has additional influence since most backups occur in those months, 36 of the 55, and the increased flow is a factor in the severity of the property damage. The backups generally take place in the tree covered hills of Walnut Creek, Orinda, Lafayette, Pleasant Hill, and Martinez. (See Figure I)

The reason for this is terrain. In hill areas the sewer main serves the homes on both the high and low sides of the street, a stoppage in that line can result in sewage backup in the low side home. Expansive soil prevalent in central Contra Costa County often fractures rigid pipe joints, roots need no further invitation to penetrate the sewer line than a small crack and if not removed will plug it. Almost 90 miles of District clay pipelines are heavily root intruded now. We face the same potential for stoppage in the remaining 290 miles of 6" and 8" clay system in the District. This possibility makes it essential that the District maintain an effective stoppage prevention program.

QUERY #2 A description of the District's program for the prevention of each of these kinds of backups. We understand that this program includes both maintenance of the collection system to minimize blockages and notification of vulnerable residences. We would like details on these programs. If the backups are caused by wet weather flow surcharges, you are requested to report on the District's plan and time schedules for eliminating these problems.

We have an extensive wastewater collection system maintenance program at C.C.C.S.D.. Its most important goal is to minimize pipeline stoppages, to minimize property damage, and to minimize the public's exposure to health hazards.

The maintenance program employs pipeline cleaning by mechanical, hydraulic, and chemical means; pipeline inspection by the C.C.T.V. system; and pipeline correction by repair and replacement.

Since the overwhelming majority of sewage backups are the result of stoppages caused by root intrusion, and to a lesser degree, grease and solids deposition, the program's major component is pipeline cleaning.

This effort is concentrated in our 844 miles of 6" and 8" main line pipes; these sizes are most prone to plug and to which most of the District's homes connect. It is further concentrated on those parts of the system affected by the major source of blockages -- roots and grease.

One thousand, seven hundred, and twelve (1,712) individual sewer mains involving 89.3 miles are heavily intruded by roots and are scheduled for cleaning by mechanical means as frequently as every three months.

We use a chemical root control on 26 miles of the most heavily root intruded pipeline on an annual, bi-annual, and tri-annual basis.

11% of the District's main line system is effected by root intrusion. In 1982, 139 miles of the year's cleaning production (596 miles) was in root lines.

The same basic schedule is maintained for the 48 miles of pipeline affected by grease and solids deposition. This represents another 5% of the main line system. In 1982, grease line cleaning (95 miles) represented 16% of the year's cleaning total.

In the past five years, we have cleaned 2,590 miles of District pipelines. Of those miles cleaned, 1,036 were scheduled root and grease lines. The other 1,554 miles were cleaned in a systematic "routine" manner in order to detect potential blockages due to roots, grease, or pipe defects.

In preventing stoppages and backups, we use C.C.T.V. inspection to tell us the general condition of the pipeline; to identify potential stoppages; to tell us the cause of an actual stoppage; and to assist in establishing repair or replacement priority. In the past five years, we have televised 100 miles of District pipelines.

In some cases, the ultimate solution to a pipeline prone to stoppage is to repair or replace it. We have corrected seven miles by this method in the last five years.

As to the success of the program, only 55 (44 resulted in damage claims) residences had sewer backups in five years, an average of 11 per year. This equates to one residential backup for every 6,379 residential connections in the District.

In order to minimize the public's exposure to health hazards, we have worked with Contra Costa County health authorities to determine clean-up and disinfection techniques to use in homes where sewage backup has taken place. Through this joint effort, the following procedures were developed.

All liquid waste is picked up by wetvac's and disposed of in the sewer system.

Any carpeting not replaced with new, by the District, is professionally cleaned and sanitized.

All floors affected by the spill are throughly cleaned and disinfected with Virex, particular effort is given to flooring seams, baseboards, mouldings, and other difficult to clean areas.

The success of these methods can be measured by the fact that no health related incident as a result of sewage backup or spill has ever been reported to the District.

We are currently pilot testing a public notification program involving handout material, (See Figure II), that describes the potential for damage to the building from sewage backup, and the procedures to follow to prevent it. The warning notice is hand delivered to the occupant of a home or attached to the door latch after department personnel, through a field check at the site, have determined that the home is susceptible to damage from backed up sewage. We estimate the cost to the owner for installing a protective device to run from a low of $75 to a high of $950, and that the median, based on the use of the backwater overflow device, to be $250. Previous experience has shown us that property owners are reluctant to pay the expense of installing a backwater protection device because the odds of it ever being needed at their homes are extremely remote (currently 6,379 to 1).

We believe this program has a better chance for success than any other notification course we might have undertaken. At this time, it's still too early to assess its worth.

A study of two backups caused by wet weather surcharges is underway. There does not appear to be major obstacles to alleviating the surcharge problems which should be corrected by December 1, 1983.

QUERY #3 A discussion of the nature, extent of use, and effectiveness of backflow devices in use within the District. We are especially interested in your response to a complaint that the device recommended by the District is unreliable.

The District allows the use of two backwater overflow devices. (See Figure III) One is an overflow system and the other is a backwater check valve and shut off system. The overflow device is a domed fitting that can be screwed into the top of a building cleanout and has a ball float for odor prevention. The overflow system is required when the floor level of a house to be connected to the main sewer is below a point 12 inches above the top of the nearest upstream sewer manhole or other structure and where sewage can, without serious property damage, overflow.

The other is a backwater check valve and shut off system that uses two cleanouts, a gate valve, and a backwater check valve. This system is reguired where sewage cannot overflow without serious damage. It should be considered for installation wherever additional protection is desired.

In regards to the number of each device in current use, it is my estimate that the overflow device would number in the thousands and the backwater check valve and shut off system in the hundreds.

As to their effectiveness, they are very effective, we have witnessed the backwater overflow device successfully protecting residences and buildings in the District on many occasions, for over 25 years. Of the thousands installed, we know of only three locations where they gave less than total protection. We do not know of any location where they provided a home no protection whatsoever.

The use of this practical and inexpensive device has spread to other sewage agencies in the Bay Area, the State of California and in many other states throughout the country. However, the District makes no claim that either of its backflow prevention systems will provide absolute protection.

As to its reliability, we have just testified to the effectiveness of the overflow devices. The device is as reliable as it is effective but does not guarantee absolute fail-safe protection. We would appreciate more specific evidence of its unreliability, than that of supposition and theory, in order to respond reasonably to this complaint.

We have routinely advised the CRWQCB of sewage spills which were significant in terms of quantities and location. We are willing to consider a reporting system which would inform the CRWQCB of all known instances of sewage overflows should you wish.

The District is acutely aware of the distress, discomfort, and financial burden its residents may suffer as a result of sewage backup in their homes. The District's principal response to the problem has been through its collection system maintenance program.

The department has a 45 person staff, 37 are assigned to field operations, the remainder to shop and administrative tasks. There are 11 field crews, 6 of which have full time pipeline cleaning assignments. They are equipped with 2 power rodders; 2 hydraulic pressure cleaners, with a 3rd on order; a vaporoot chemical applicator; and assorted other hand and power tools. The District's capital investment in C.S.O. department vehicles, equipment, and tools it needs to perform its mission is $1,200,000. Its Springbrook Rd. maintenance facility in Walnut Creek, a complex of offices, shops, warehouse, storage dock, vehicle service facility, parking lot, and pipe yard, is valued at $1,750,000.

Department personnel have been course instructors in the E.P.A. financed Collection System Maintenance Educational Program. They also played an instrumental role in the development of the Sacramento State College course for collection system workers. This is better known as the Professor Ken Kerri course and is the model for the industry.

The District's C.S.O. department staff is experienced, capable, well trained, thoroughly competent, and totally familiar with the District's terrain and pipeline system. They take particular pride in their ability to provide fast and responsive service in emergencies and have received numerous commendations from District residents.

The department's concept of a preventative maintenance program received national recognition in 1981, when the department manager, Robert H. Hinkson, was awarded the Water Pollution Control Federation's Collection System Award for outstanding contributions to the state-of-the-art of wastewater collection.

EXHIBIT G

EXHIBIT G

Gregory Village Partner's Comments, including Erler & Kalinowski, Inc.'s comments, on Tentative Orders Related to the Properties at 1643 Contra Costa Boulevard and 1705 Contra Costa Boulevard, Pleasant Hill, California

- Tentative Order – Site Cleanup Requirements for 1643 Contra Costa Boulevard ("P&K Cleaner Site" or "Site 1"),
- Tentative Order – Site Cleanup Requirements for 1705 Contra Costa Boulevard ("Chevron Site" or "Site 2"), and
- Cleanup Team Staff Report for File Nos. 07S0132 and 07S0204 ("Staff Report").

1) Comments on Order for 1643 Contra Costa Boulevard ("Site 1")

a) Order Finding 3 - Named Dischargers

i) *Discharger Not Named (item 3, third paragraph, page 3):* The Order broadly states that it is "common knowledge that releases occurred during routine dry cleaner operations involving chlorinated solvents" but fails to point out that it is also common knowledge to State of California agencies that dry cleaner operations routinely discharged contaminated wastewaters to sanitary sewers and that it is common knowledge that sewers leak (Exhibit B to Firestone letter to Bruce Wolfe dated 4 August 2014 - *Dry Cleaners – A Major Source of PCE in Groundwater*, by Victor Izzo, dated 27 March 1992). This paragraph in the Order should be modified to add these two points. Both of these points highlight the role of the sanitary sewers and, as explained below, the responsibility of the Central Contra Costa Sanitary District ("CCCSD") for releases from the sewers.

ii) *Sewer Leaks Contributed to the Off-site Groundwater Plume (page 3, item 3, third paragraph):* This paragraph states that the dry cleaner pollutants "are present in groundwater at and downgradient of the former dry cleaner in concentrations that generally diminish with distance" from the P&K Cleaner Site. This statement ignores the fact that groundwater at sewer manhole M46 (sample GGP87-01) had the highest detected concentration of tetrachloroethene ("PCE") in groundwater in the off-site northern neighborhood and higher than the levels found at the well furthest downgradient on the P&K Cleaner Site, a concentration that is due to a sewer leak near manhole M46 (Exhibits 1 and 2). This paragraph in the Order should be modified to acknowledge that sewer leaks are "additional releases" of PCE and have "contributed" to the pollutant plume in groundwater in the

northern neighborhood, as well as upgradient of Site 1 in the vicinity of Linda Drive from discharges from Site 2 of PCE containing wastewater to the old sewer in Linda Drive, which was subsequently replaced by CCCSD.

b) Order Finding 4 – Regulatory Status. Although the Site is not subject to a Regional Water Board order, it was voluntarily entered into the Spills, Leaks, Investigations and Cleanup (SLIC) Program in March 2002. This fact should be noted in this paragraph.

c) Order Finding 9 - Nearby Sites

   i) *Joint Investigation Needed (page 6, item 9, first paragraph):* The last sentence states that the petroleum and chlorinated volatile organic compound ("CVOC") releases from the Chevron Site have commingled with the CVOC plume from the P&K Cleaner Site. We agree with this RWQCB conclusion and thus a single order should be issued to require the responsible parties for both the P&K Cleaner Site and the Chevron Site to jointly investigate and remediate the commingled plume, including in the northern neighborhood. At a minimum, as stated below, the Order for Site 2 should include Tasks with the same specificity as provided in the Order for Site 1, e.g., requirements for installation and sampling of monitoring wells, soil vapor probes, sub-slab and indoor vapor concentrations, and a deep groundwater investigation, and inclusion of a Self-Monitoring Program for Site 2. In addition, it should be noted that the Chevron Site discharged waste, including dry cleaner separator water containing CVOCs, into the CCCSD sanitary sewer, which is located next to the Chevron Site in Linda Drive and continues north, then east and then north again, adjacent to the Gregory Village Shopping Center (Exhibit 1). P&K Cleaners used the same sewer line for its wastewater disposal. These discharges of wastewaters from both dry cleaners to the same sewer line, which then entered manhole M46 (Exhibit 1) should be noted in this paragraph of the Order.

d) Clarifications and Corrections

   i) *2. Site History (first sentence at top of page 2):* CVOCS and benzene were detected in the indoor air at "two" houses not "several."

   ii) 7. Remedial Investigation (page 5, table summarizing maximum detected concentrations): The data identified as "Maximum Concentration Detected" include results for chemicals in vapor samples that are listed as not detected with the maximum laboratory report limit shown. Where detected, the

maximum concentrations for trichloroethene ("TCE"), cis-1,2 dichloroethene ("cis-1,2-DCE") and vinyl chloride in soil vapor were 6,240 micrograms per cubic meter ("ug/m^3"), 947 ug/m^3, and 188 ug/m^3, respectively.

iii) *Self- Monitoring Program, 2. Monitoring:* The current monitoring program at the P&K Cleaner Site includes semi-annual measurement of groundwater elevations, not quarterly. The SMP should continue semi-annual measurement of groundwater elevations in available monitoring wells.

e) B. Tasks

i) The Staff has created unrealistic dates for Tasks 1, 2, and 3. Significant preparatory work needs to be completed in coordination with other responsible parties prior to initiating these tasks. New, appropriate dates need to be negotiated with the Staff, with particular recognition to the facts that the P&K Cleaner Site parties have limited resources and that Gregory Village Partners, L.P. ("GVP") has already voluntarily performed significant work in the neighborhood and on the P&K Cleaner Site in cooperation with the Regional Board. The unrealistic time schedule is punitive and unnecessary, especially in light of the fact that GVP has voluntarily investigated and mitigated potential human health risks in the neighborhood and on the P&K Cleaner Site without assistance from other potentially responsible parties for several years. In addition, the tasks in this tentative order are different than the tasks in the tentative order for the Chevron Site (Site 2). As noted below, there should be a single order for both sites. In the absence of a single order, all task paragraphs and schedules for tasks should be identical in orders for Site 1 and Site 2 with respect to common issues, i.e., deeper groundwater, the northern residential neighborhood, etc.

2) Comments on Order for 1705 Contra Costa Boulevard ("Site 2")

a) Order Finding 3. Named Dischargers: The Chevron Site discharged wastes, including dry cleaner separator water containing CVOCs, into the CCCSD sanitary sewer which is located next to the Chevron Site in Linda Drive. The evidence from the monitoring well on Linda Drive shows that CCCSD's sewers leaked in this area; thus CCCSD should be named as a discharger on this order. This should be noted in this paragraph.

b) Order Finding 7 – Remedial Investigation

i) *Plumes Are Commingled (page 4, item 7, first paragraph):* This paragraph states ambiguously that Chevron Site releases have "likely" commingled with the CVOC groundwater plume associated with the P&K Cleaners Site. However, the Staff Report (Section V) provides clear evidence that Chevron Site plume has traveled onto and through the P&K Cleaner Site and commingled with the P&K Cleaner Site plume and that this commingled plume has migrated to the residential neighborhood north of the P&K Cleaner Site. Because of this fact, the Regional Board should issue a single order for both Sites. In the event it does not do so, the Order for Site 2 should be changed to remove any ambiguity regarding the comingling of the plumes, and it should require that the parties responsible for the Chevron Site participate in any and all investigations and remediation associated with the commingled groundwater plume, including soil vapor that may emanate from it, i.e., Tasks 1 through 6 should read the same in both Orders. Furthermore, CCCSD's sewer leaks have also commingled with both the Chevron Site plume upgradient of the P&K Cleaner Site and commingled with both the Chevron and P&K Cleaner plumes in downgradient areas.

ii) *Many Significant Data Gaps (page 4, item 7, last paragraph):* The RWQCB states that there are several data gaps for the investigation of the Chevron Site with regards to the "vertical and lateral distribution of CVOCs in soil, soil vapor, and groundwater, both on-Site and off-Site." At a minimum, the most important of these data gaps should be identified in the Order and include a) the lack of data regarding CVOCs in soil vapor that may have migrated under the Gregory Village Mall building from releases at Site 2, b) the complete absence of monitoring wells to further assess CVOCs in shallow and deep groundwater from releases on Site 2 on the Gregory Village Mall Property and in the vicinity of Linda Drive, c) an understanding of CVOCs in groundwater and soil vapor in the residential neighborhood areas adjacent to the Chevron Site and upgradient of the P&K Cleaners Site, and d) a requirement that the parties responsible for the Chevron Site participate in the shallow and deep groundwater investigation in the commingled plume area on the Gregory Village Mall Property and in the northern neighborhood.

c) Order Section B, Tasks

i) *Lack of Specific Survey Requirement (page 10, Section B, Task 1):* In Task 1, the RWQCB requires that a sensitive receptors survey and conduit study be conducted but omits this very specific requirement that is included in the P&K

Cleaner Order. Because the RWQCB acknowledges that the Chevron Site plume is commingled with the P&K Cleaner Site plume, the Order for Site 2 should state the same requirements as in the P&K Cleaner Order, which should include the same requirement that "A door-to-door well survey shall be completed in the residential subdivisions to the north and west of the shopping plaza." We also recommend that such a survey be completed by the parties responsible for the Chevron Site in the adjacent residential neighborhood areas and upgradient of the P&K Cleaners Site.

ii) *Lack of Specific Investigation Requirements (page 10, Section B, Task 3):* In Task 2, unlike the P&K Cleaner Order which requires that specific investigations be conducted, the Chevron Order does not identify any specific investigations that must be conducted. A 2011 investigation at the Chevron Site found PCE at 2,500,000 ug/m^3 in soil vapor (VP-1) and the highest detection of PCE in soil (20 mg/kg) was at the deepest depth sampled at the Chevron source (approximately 35 feet bgs at CPT-14) (Exhibit 3.) These data strongly suggest the need to delineate the extent of vapor migration and the impact to deep groundwater, both on and off the Chevron Site. The Chevron Order should specify certain required investigations, including assessment of CVOCs in soil vapor that may have migrated under the Gregory Village Mall building, the installation of monitoring wells to further assess the lateral and vertical extents of CVOCs in shallow and deep groundwater migrating onto the Gregory Village Mall Property and in the vicinity of and downgradient of Linda Drive, and the investigation of shallow and deep groundwater in the commingled plume area on the Gregory Village Mall Property and in the northern neighborhood.

iii) *No Requirement for a Self-Monitoring Program:* Chevron Site releases have significantly impacted groundwater but surprisingly the Chevron Site has no groundwater monitoring wells except for one off-site shallow monitoring well that is located in the wrong place, i.e., so-called "compliance point" well EA-5, which is not located within the path of the CVOC contaminant plume that has migrated from the Chevron Site (Exhibit 4). The Order for Site 2 should require new shallow and deep groundwater monitoring wells that are routinely monitored in accordance with an appropriate Self-Monitoring Program.

3) Comments on Staff Report

a) Report Section III, Substantial Evidence of CVOC Releases from the Former Steel Waste Oil UST and Former Dry Cleaner at Site 2

i) *Extent of Chevron Plume on Gregory Village Mall Not Delineated (page 10, fourth paragraph):* In the Staff Report, the discussion that provides justification for reopening the RWQCB case on the Chevron Site, includes a comment stating that that the groundwater plume from the Chevron Site underlies the eastern part of the shopping center. It is important to point out that the only investigation to date by the parties responsible for the Chevron Site plume on the shopping center property has been on the eastern side of the Gregory Village Mall Property. No investigation of the groundwater plume has been conducted under or on the western side of the mall building, or along the southern side of the building along Doris Drive, even though PCE from the Chevron Site was found at 3,380 micrograms per liter in groundwater on the Mall property a short distance east of the Mall building (sampling location ECP-2 on Exhibit 4). In addition, there has been no investigation by Chevron of soil vapor under the southern end of the Mall building or elsewhere on the southern end of the Gregory Village Mall Property in the areas where the Chevron site plume is known to have migrated onto the Mall property or where likely to have done so.

b) Report Section IV, Basis for Naming Chevron Under The Water Code as a Discharger at Site 2;

i) *Chevron was the Former Landowner Where the Dry Cleaner Operated (page 8).* In addition to the precedent of State Water Board Orders, there are CERCLA precedents to naming Chevron. In this case, Chevron purchased the dry cleaner property and subsequently built a car wash on that property while it owned it. Chevron's activity was not passive. Chevron graded the dry cleaner property, moved soil, dug utility trenches, excavated for footings and poured foundations in the subsurface. [Note that Chevron analyzed groundwater samples for CVOCs as early as 1988 and was thus aware of significant groundwater contamination during most of the period it owned the property.] Chevron moved that soil around the Site. 42 U.S.C §9607(a)(2) states that a responsible party is "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of." CERCLA defines "disposal" through the Solid Waste Disposal Act. See 42 U.S.C. § 9601(29) and 42 U.S.C. § 6903(3). The definition in its entirety reads: "The term "disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the

environment or be emitted into the air or discharged into any waters, including ground waters." Courts have held that that the movement or spreading of contaminated soil to uncontaminated portions of the property is a disposal under CERCLA. Chevron is thus a responsible party under CERLCA. See *Carson Harbor Village, Ltd. v. Unocal Corp. 270 F.3d 863 (9th Cir. 2001), Kaiser Aluminum v. Catellus Dev. 976 F.2d 1338 (9th Cir. 1993), Tanglewood East Homeowners v. Charles-Thomas, Inc. 849 F.2d 1568 (5th Cir. 1988), PCE Nitrogen Inc. v. Ashley II of Charleston LLC, 714 F3. 161 (4th Cir. 2013).* [Note that CCCSD dug up and replaced the sanitary sewer in Linda Drive adjacent to the Chevron Site apparently in about 1988. CCCSD moved PCE contaminated soil during its excavation and pipe replacement making it a responsible party under CERCLA.]

c) Report Section VI, Central Contra Costa Sanitary District is Not a Discharger

i) *Very Limited Sewer Records When Dry Cleaners Operated (page 12, Section VI, second paragraph):* The Staff Report asserts that the sewer lines in the Gregory Village area are in "good condition." However, there is no basis for such a statement that can be relevant to the time when dry cleaner wastewater discharges were occurring from Sites 1 and 2 because the CCCSD has extremely little information concerning the condition of the sewers or how well they were operated and maintained prior to the mid-1990s, which is a data gap of nearly 50 years from the time the sewers were constructed (Exhibit 5). Given the period of dry cleaner operations at the P&K Cleaners Site (approximately 1964 to 1991) and at the Chevron Site (approximately 1956 to 1986), the claims made by CCCSD regarding the conditions of the sewers since the mid-1990s are irrelevant. (See B. Dickson Declaration - Exhibit D to Firestone letter to Bruce Wolfe, dated 4 August 2014.)

ii) *Evidence of Pollutant Releases and Contributions to Plumes from Sewer Leaks (page 12, Section VI, fifth paragraph extending to top of page 13):* The Staff Report states that there is no direct evidence that leaking sewer lines caused or contributed significantly to groundwater contamination. That is not a true statement. On the contrary, there is abundant evidence that such contamination has occurred and the CCCSD should be required to investigate its contributions to pollutant plumes. Evidence shows that a) under its regulations, CCCSD accepted PCE in its system with a temporal, rather than a concentration limit to the discharge, b) both dry cleaner operations discharged to sanitary sewer lines, and c) local CCCSD sewers had cracks, sags, root intrusions, and joints at which leaks undoubtedly occurred. Further, it is clear

that the local sewer lines were constructed near, at or below the groundwater table (Exhibit 6). Thus, it is no surprise that soil vapor concentrations have been found to increase with sampling depths nearer to the groundwater table.

iii) *Evidence of Pollutant Releases and Contributions to Plumes from Sewer Leaks (page 13, Section VI, at top of page):* Investigation results to date provide evidence of leaks of PCE from sewer lines, with particular attention to the evidence near Manhole M46, the intersection of Shirley Drive and Cynthia Drive, and in Linda Drive (Exhibit 5). As pointed out in the Staff Report (page 4, regarding Groundwater Data), "high groundwater concentrations generally reflect a specific release point/area", and such is the case at manhole M46 where the highest off-site concentration of PCE in groundwater was detected at nearly 2,000 ug/L. Thus, it is inconsistent for Staff to state that high concentrations reflect releases / sources on Sites 1 and 2 but not at the "single data set" at manhole M46, for example (Staff Report at top of page 14).

iv) *Evidence of Pollutant Releases and Contributions to Plumes from Sewer Leaks (page 13, Section VI, at top of page) :* The technical evidence in all available groundwater sampling data and multiple depth soil vapor sampling data shows that there are two contributors to the CVOCs detected in the groundwater and soil vapor plumes in the northern neighborhood area: a) migration of CVOCs in shallow groundwater and b) sewer leaks. In all of our collective past experiences with similar plume conditions at sites overseen by the RWQCB, there is sufficient evidence to name all three parties as dischargers and to task them with the joint responsibility of investigating, remediating, and sharing liability for pollutant plume conditions.

d) Report Section VI.1, No Evidence that the Sewer System Contributed to the Groundwater Plume

i) *Assertion That Sewers Are In Good Condition Is Not Supported by CCCSD's Records (page 13, Section VI.1, second paragraph):* The Staff assertion that the sewer lines have been well maintained and were, by inference, in generally good condition – in the past – is unsupported by CCCSD records because there are no or sparse records regarding sewer maintenance or conditions over a nearly a 30-year period during which dry cleaning operations resulted in wastewater discharges to the sewers. More to the point, the reason the sewers needed to be in "maintained" is that they have been found to have cracks, sags, root intrusions, and joints that leak. Further, these sewers in the 1940s and 1950s were designed and constructed with a tolerance for leaks (Exhibit

5) even before there were cracks or root penetrations. See the Dickson Declaration in Exhibit D to Firestone letter to Bruce Wolfe, dated 4 August 2014.

ii) *Modeling Does Not Confirm the Source of Contaminants in Groundwater (page 13, Section VI.1, third paragraph):* The Staff Report states that the transport modeling conducted by PES Environmental, Inc. on behalf of the CCCSD "adequately demonstrates that the levels and locations of contamination in the environment resulted from the releases of CVOCs directly from past dry cleaning operations and automotive repair businesses, including releases from private sewers laterals, but not directly from the sewage conveyance system owned and operated by the CCCSD."

This conclusion is an over reach. PES used a relatively simple analytical tool that made broad assumptions regarding general soil properties and that does not preclude other possible and more likely explanations for the presence of PCE in groundwater in the northern neighborhood. The calculations by PES were simple groundwater velocity and retarded pollutant migration velocity estimates calculated assuming uniform soil properties and other generalized hydrologic parameters, i.e., a simple plume velocity under these simplified assumptions. Such calculations are typically highly uncertain and are thus capable of only stating in broad ranges information concerning pollutant releases. For example, such assumptions and calculations produce such a broad range of results as to provide vague or meaningless conclusions: e.g., that the pollutant releases happened 5 to 50 years ago or that the plume migrated 100 to 1000 feet in some assumed period. This calculation does nothing to refute that sewer leaks contributed additional amounts of CVOCs to the plume, e.g., the elevated 2,000 ug/L of PCE found near manhole M46. Thus, the explanations for the CVOCs found in shallow groundwater in the northern neighborhood, i.e., that detected concentrations resulted from both 1) leaks of CVOCs from the CCCSD's sewers and 2) the migration of CVOCs from the releases from sites that that had dry cleaning operations and automotive repair businesses, is completely consistent with PES' calculations.

The following comments elaborate on the limitations to this "modeling" approach:

(1) PES's "fate and transport modeling" is actually only a back-of-the-envelope type calculation using an over simplification of Site hydrogeology and stratigraphy that does not reflect the well-documented geologic complexity found at the Site. Actual site data, however, indicate

a significantly heterogeneous subsurface, both vertically and horizontally, with bedded sands, silts and clays that are laterally and vertically complex.

(2) PES calculates a Darcy-equation analytical seepage velocity that treats the entire subsurface from south of Doris Drive to north of Luella Drive as a uniform fine sand. These calculations assume an ideal homogeneous and isotropic porous media and, based on several assumptions and generalizations, provide an average transport velocity for the "center of mass" of an assumed "slug" of dissolved-phase PCE moving in groundwater.

(3) PES calculation appears to assume a slug of dissolved-phase PCE in groundwater noting a "peak concentration" (a rise, followed by decline) moving past monitoring well MW-8 in approximately 2007 or 2008. The PES figure titled "MW-8 VOC/MTBE Concentrations and Groundwater Elevations" is a logarithmic concentration-versus-time plot over the short period of October 2006 to late 2012 of the aqueous concentrations in monitoring well MW-8 of several chemicals in groundwater more than a decade after both dry cleaning operations ceased. PES interprets these limited data to show "the PCE center of mass migrating through it [the well location] in the 2007-2008 timeframe". However, the actual time series plot referenced does not support PES' interpretation, rather it shows a general decline of detected PCE concentrations over the graphed time span. The data are consistent with natural attenuation of dissolved PCE in the groundwater, not a slug of PCE passing through well MW-8.

iii) *CVOC Release from Sewers At or Near Manhole M46 (page 13, Section VI.1, second bullet):* GVP believes that the available data for the manhole M46 area are sufficient for the RWQCB to require the CCCSD to investigate contributions of CVOCs leaked from sewers to the pollutant plume in this area.

(1) The Staff Report points out that the soil gas concentrations near manhole M46 are higher near the water table than at shallow depths and concludes that CVOCs in soil vapor in this area originated from groundwater. However, CVOCs leaked from the sewer to groundwater at or near this location because the sewer and bottom of manhole M46 are located at or below the groundwater table in this area (Exhibits 6 and 7). Leakage of wastewater containing CVOCs from the sewer system in this area would contribute directly to the detected, elevated pollutant concentrations in shallow groundwater and, therefore, the measured CVOC soil vapors are,

at least, in part a consequence of sewer leaks. The potential for CVOCs from a sewer leak entering the groundwater in this area is particularly plausible because wastewaters from both dry cleaners at Site 1 and Site 2 drain directly to manhole M46 (Exhibits 1, 2 and 8).

(2) The Staff concludes that the concentrations of CVOCs in groundwater near manhole M46 are from plumes that have migrated from the P&K Cleaner Site and Chevron Site, dismissing the potential for a separate additional release from the sewer system near manhole M46. As described in prior submittals to the RWQCB (EKI's *Off-Site Property Specific Soil Vapor and Sub-Slab Vapor Investigation Report*, dated 19 January 2011 and Exhibit 5), there is a general separation in the specific areas of higher CVOC concentrations in groundwater and soil vapor between the manhole M46 vicinity and upgradient source locations. This separation is evident based on both groundwater data (Exhibit 2) and soil vapor data (Exhibit 8) that is evidence of a separate release / contribution of CVOCs to groundwater and soil vapor near M46.

(3) Regarding the presence of CVOCs detected at the parcels in soil vapor and groundwater between manholes M44 and M46, the Staff Report should also acknowledge migration of CVOCs in soil vapor through sewer pipes and in groundwater from the vicinity of manhole M46 through more permeable backfill associated with the sewer pipe between the two manholes, and hence to downgradient areas under residences.

iv) *CVOC Release from Sewers Near the Intersection of Shirley Drive and Cynthia Drive (page 13, Section VI.1, first bullet):* As previously reported to the RWQCB, investigations in the vicinity of this intersection provide evidence of a release from sewers in this area (EKI's *Off-Site Property Specific Soil Vapor and Sub-Slab Vapor Investigation Report*, dated 19 January 2011 and Exhibit 5).

(1) The CCCSD should investigate the occurrence of CVOC releases or migration along permeable backfill material along the sewer, which is nearly flat in this area of Shirley Drive.

(2) The leakage of wastewater containing CVOCs from sewers and the migration of CVOC vapors from sewers is supported by the results of a multi-depth vapor sampling investigation conducted in several locations by GVP. For example, as illustrated on Exhibit 9, soil vapor samples taken on Cynthia Drive in a line perpendicular to the sewer line

demonstrate that the locations of highest vapor concentration are closest to the sewer with diminishing concentrations moving away from the sewer. If the source of the CVOC vapors were only a plume in the groundwater, equivalent CVOC levels would be detected horizontally above the groundwater across the plume. Here, however, the data correlates to a release in the middle of Cynthia Drive and the sewer line located in the middle of Cynthia Drive.

v) *CVOC Release from Sewers in Linda Drive (page 14, Section VI.1, third bullet):* A CCCSD record from 1977 describes the sanitary sewer in Linda Drive as in "very poor shape has lots of cracks" (Exhibit 5 (see Exhibit 23 to that letter)). The dry cleaner and Chevron, both at Site 2, used this sewer line to discharge their waste. The Chevron Site is a site known to have high concentrations of CVOCs in soil, soil vapor, and groundwater due to releases from dry cleaner and auto repair operations, as well as elevated concentrations of PCE and TCE on the far western side of Linda Drive as early as 1988. Groundwater at former monitoring well EA-3 located on the western side of Linda Drive near the sewer, and cross gradient from Site 2, was found to have the highest PCE concentration (5,000 ug/L) of all groundwater samples collected for the early investigations of the Chevron Site (Exhibit 10). The proximity of location EA-3 to the sewer and on the opposite side of the street is evidence that that the sewer leaked waste containing CVOCs. The potential for releases for a sewer line described as having many cracks appears high, and such releases should be investigated by CCCSD and the parties responsible for the Chevron Site. The Staff Report notes the need for investigation of CVOCs in and downgradient of Linda Drive, but the Order for Site 2 fails to specify any such required investigations nor is there any current requirement for CCCSD to do so.

e) Report Section VI.2, No Evidence of the Sewer Operator's Knowledge that the Sewer System is Leaking or Needs Repair

i) *There is Evidence of Sewer leaks Despite Sparse CCCSD Records (page 14, Section VI.2):* The Staff Report states that CCCSD asserts it has no knowledge that its sanitary sewer system leaked significantly in the past. First, with respect to CVOCs, small leaks can create high concentrations of CVOCs in groundwater and extensive plumes. The use of the word "significantly" thus must be called into question. Second, the only arguable evidence to support for this supposed "lack of knowledge" is the lack of records describing the sewer conditions for a period of approximately 50 years, i.e., spanning the years when both dry cleaners discharged wastewater

to this sewer system as noted above. Where CCCSD records are available, there are several instances where cracks, sags, root intrusions, and/or potentially leaky joints have been reported, with some repaired many years after discovery. Gregory Village has provided the RWQCB staff with information that describes several potential sewer leaks that CCCSD should be required to investigate (Exhibit 5 and Firestone letter dated 18 December 2012).

ii) *There is Evidence of Sewer leaks Despite Sparse CCCSD Records (page 14, Section VI.2):* Again, the CCCSD qualification that its knowledge regarding "significant" leaks apparently dismisses leaks it considers insignificant. Given the very low concentration thresholds for CVOCs allowed by the tentative Orders (i.e., drinking water standards and the RWQCB's Environmental Screening Levels), all leaks are potentially significant. The Staff Report points out that there are "many instances were minor leaks in the sewer mains were detected and repaired." It should be noted that not all minor leaks were repaired – tree roots were cleared but the penetration was not repaired. In addition, any repairs would have been made after the leaking condition was discovered, and based on CCCSD records since the mid-1990s, there typically was an interval of a number of years between inspections.

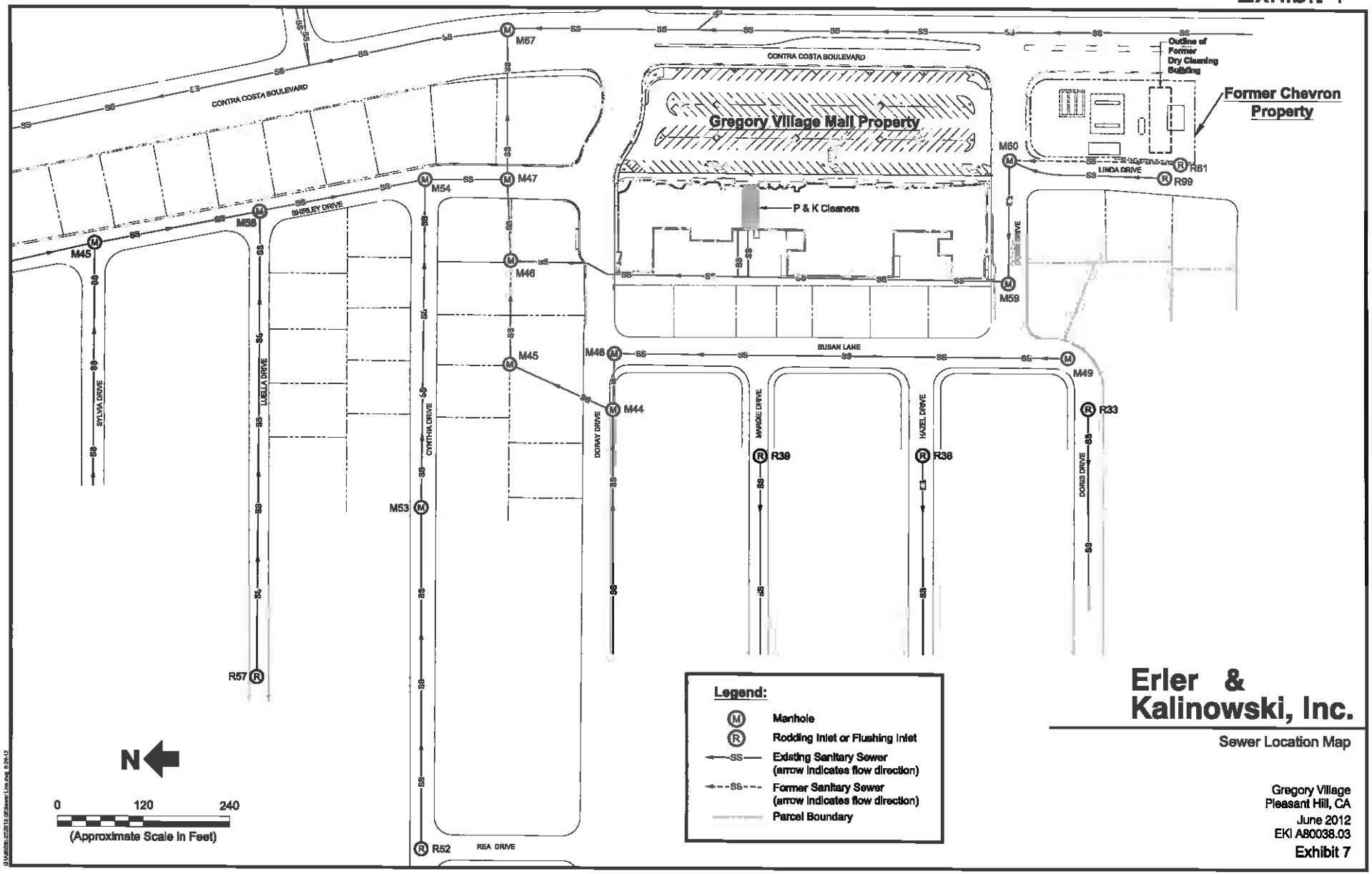
iii) *Lack of Records Does Not Establish That There Were No Leaks (page 15, item V.2):* The Staff Report appears to ignore the significance of the lack of CCCSD records prior to the mid-1990s. The Staff Report responds to two instances that GVP identified as illustrating the poor condition of the sewers (Exhibit 5). As noted in the Izzo Report, sunken or low spots in sewers are locations where PCE leaks from sewer pipes. Instance 1, a sunken spot in the sewer in Shirley Drive at Luella Drive, was repaired in 2003, even though a CCCSD inspection noted the problem in 1994. It thus could have been leaking at that location for more than 9 years! Surprisingly, the Staff Report says this instance suggests reasonable sewer maintenance. Instance 2 is the sewer in Linda Drive next to Chevron site that had many cracks in 1977 as mentioned above. The Staff Report states that the Linda Drive location needs to be investigated, but the RWQCB does not specifically require Chevron or CCCSD to do it.

f) Clarifications and Corrections

i) Groundwater Data (page 4, second paragraph): The January 1989 concentrations of PCE and TCE in groundwater at monitoring well EA-2 were 1,700 micrograms per liter ("ug/L") and 2,900 ug/L, respectively. At the

same time, monitoring well EA-3 located in Linda Drive was sampled and had PCE and TCE in groundwater at 5,000 ug/L and 750 ug/L, respectively.

Exhibit 1



Erler & Kalinowski, Inc.

Sewer Location Map

Gregory Village
Pleasant Hill, CA
June 2012
EKI A80038.03
Exhibit 7

Separate Areas of High PCE Concentrations in Groundwater Indicate Separate Releases

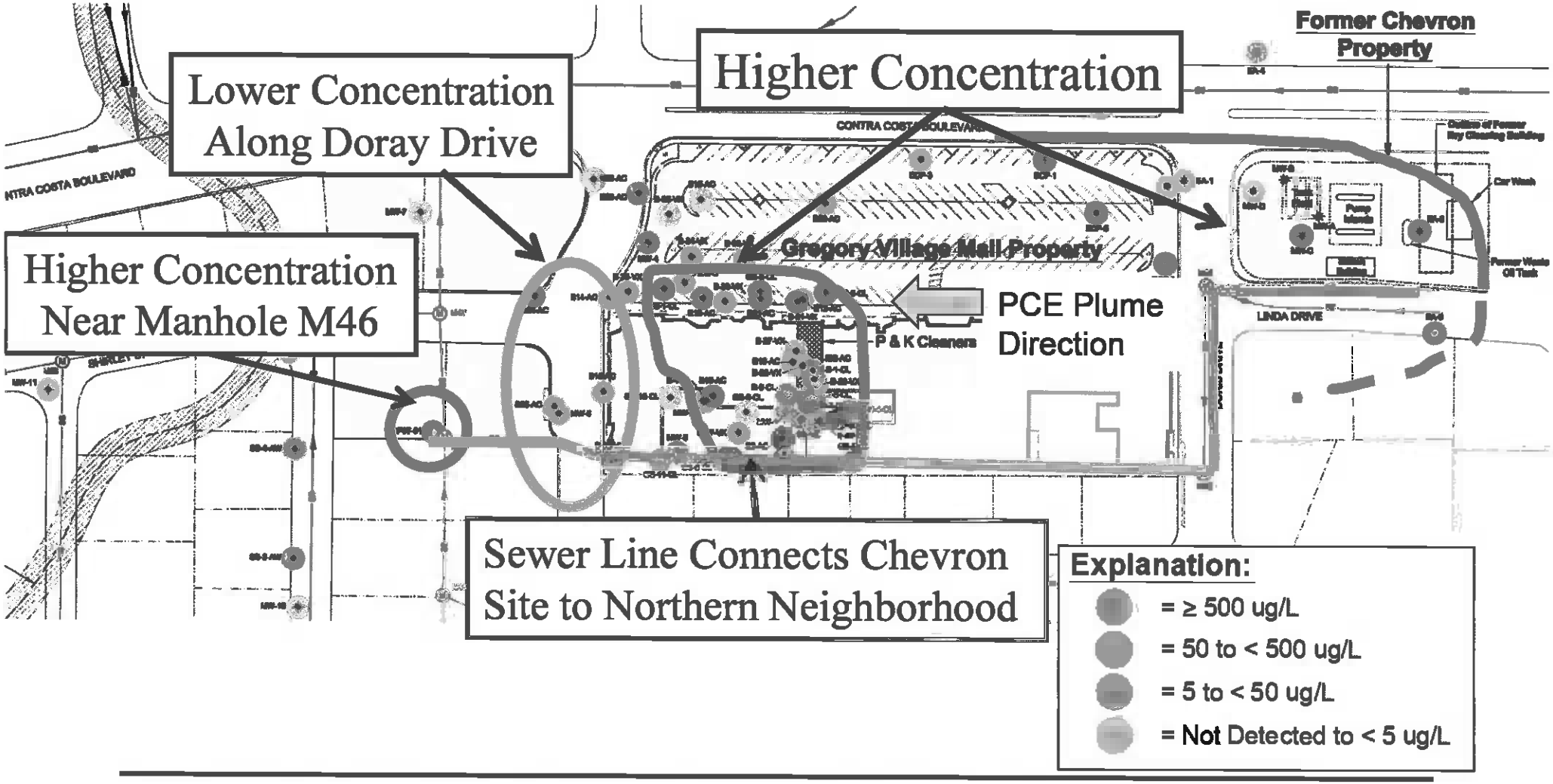


TABLE 2

SOIL ANALYTICAL DATA
CHEVRON SERVICE STATION 96817
1705 CONTRA COSTA BOULEVARD
PLEASANT HILL, CALIFORNIA

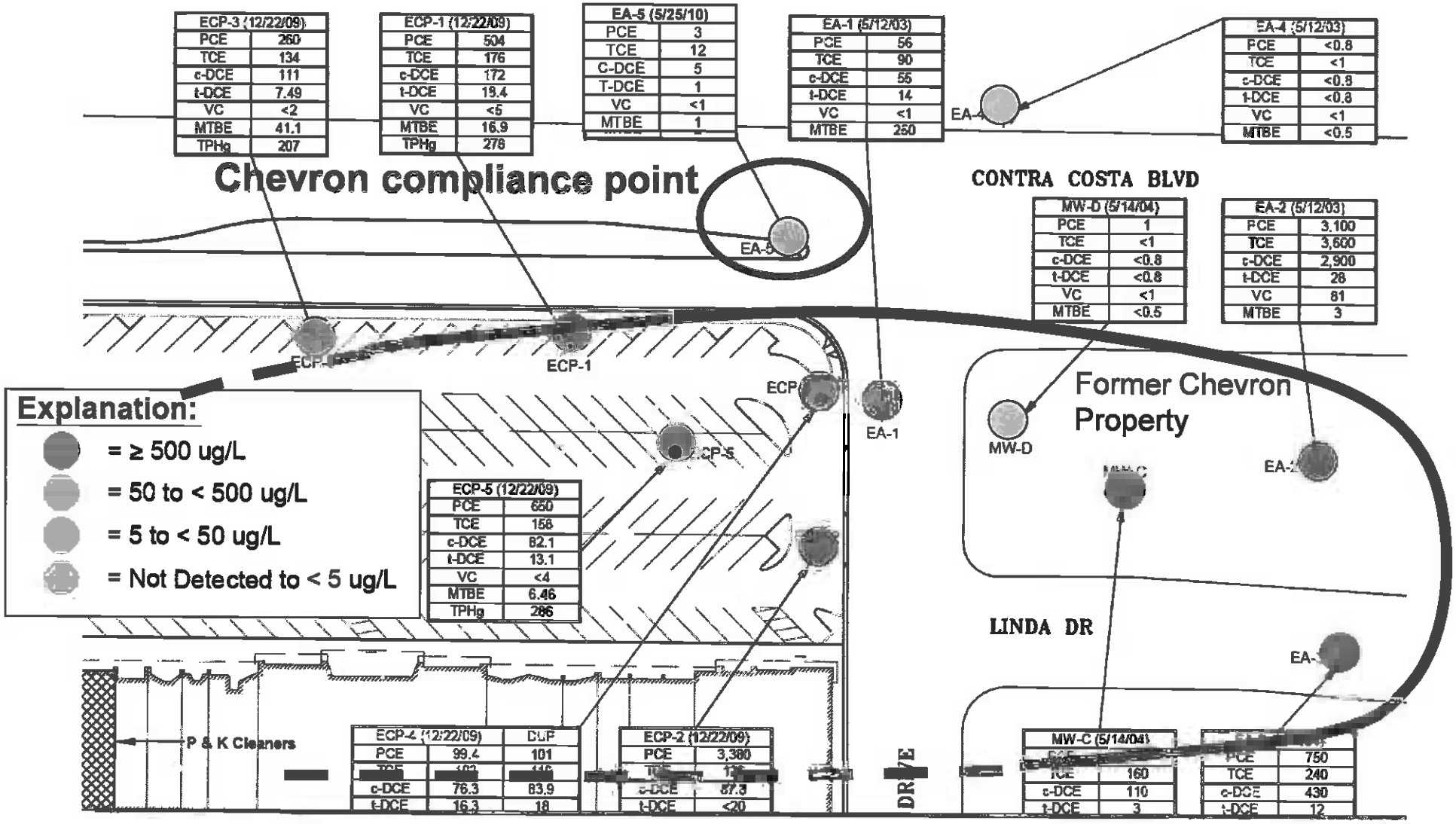
			HYDROCARBONS	PRIMARY VOCS											ADDITIONAL VOCS									PAHS
Location	Date	Depth	TPH-GRO	B	T	E	m&p-Xylenes	o-Xylene	MTBE by SW8260	TBA	DIPE	ETBE	TAME	EDB	1,1-DCE	1,2-DCA	CHB	CF	c-1,2-DCE	PCE	t-1,2-DCE	TCE	VC	Naphthalene
	Units	ft	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CPT-13	12/20/2011	9.5	<1	<0.0005	<0.001	<0.001	<0.001	<0.001	0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.18	0.34	0.009	0.21	<0.001	<0.001
CPT-13	12/20/2011	20	<1	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	0.002	<0.001	<0.001
CPT-13	12/20/2011	29.5	<1	<0.0005	<0.0009	<0.0009	<0.0009	<0.0009	<0.0005	<0.019	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.004	0.002	<0.0009	0.002	<0.0009	<0.0009
CPT-14	12/19/2011	10	7.5	<0.024	<0.048	<0.048	<0.048	<0.048	<0.024	<0.96	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	0.24	19	<0.048	0.27	<0.048	<0.048
CPT-14	12/19/2011	20	<1	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.014	<0.001	<0.001	<0.001	<0.001
CPT-14	12/19/2011	34.5	6.2	<0.023	<0.047	<0.047	<0.047	<0.047	<0.023	<0.94	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	20	<0.047	0.085	<0.047	<0.047
CPT-15	12/16/2011	10	44	<0.025	<0.050	<0.050	<0.050	<0.050	<0.025	<0.99	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.090
CPT-15	12/16/2011	19.5	<10	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
CPT-15	12/16/2011	34.5	<1	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.009	<0.001	0.004	<0.001	<0.001
CPT-16	12/19/2011	12	390	0.23	<0.047	0.39	<0.047	<0.047	<0.024	<0.95	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	<0.047	0.46	<0.047	<0.047	<0.047	4.2
CPT-16	12/19/2011	20.5	<1	0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.0005	<0.019	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.069	<0.0009	0.005	<0.0009	<0.0009
CPT-16	12/19/2011	34.5	<0.9	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.15	<0.001	0.042	<0.001	<0.001

TABLE 4

SOIL VAPOR ANALYTICAL DATA
CHEVRON SERVICE STATION 96817
1705 CONTRA COSTA BOULEVARD
PLEASANT HILL, CALIFORNIA

		HYDROCARBONS	PRIMARY VOCS						VOCS													
Location	Date	TPH-GRO	B	T	E	m&p-Xylenes	o-Xylene	MTBE	EDB	1,1-DCE	1,2-DCA	CHB	CF	C-1,2-DCE	PCE	T-1,2-DCE	TCE	VC	Naphthalene	Ethanol	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane
	Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
VP-1	12/13/2011	<420,000	<6,500	<7,700	<8,800	<8,800	<8,800	<7,300	<16,000	<8,100	<8,200	<9,400	<9,900	410,000	2,500,000	19,000	2,100,000	<5,200	<43,000	<15,000	<11,000	<14,000
VP-1-DUP	12/13/2011	<320,000	<5,000	<5,800	<6,700	<6,700	<6,700	<5,600	<12,000	<6,100	<6,300	<7,100	<7,600	350,000	2,200,000	10,000	1,900,000	<4,000	<32,000	<12,000	<8,400	<11,000
VP-2_5	12/13/2011	23,000	<2.7	7.0	<3.7	6.7	14	<3.1	<6.6	<3.4	<3.5	7.2	22	<3.4	<5.8	<3.4	<4.6	<2.2	<18	<6.5	<4.7	<5.9
VP-2_7.5	12/13/2011	20,000	4.9	33	4.0	5.9	24	<2.9	<6.2	<3.2	<3.2	25	31	<3.2	21	<3.2	16	<2.0	<17	<6.1	<4.4	<5.5
VP-3_5	12/13/2011	<1,200	<19	<23	<26	<26	<26	<22	<47	<24	<25	<28	<30	<24	14,000	<24	850	<16	<130	<46	<33	<42
VP-3_7.5	12/13/2011	<4,200	<66	<78	<89	<89	<89	<74	<160	<82	<83	<95	<100	<82	53,000	<82	2,200	<53	<430	<160	<110	<140

Chevron Compliance Point and Only Well is NOT in the Chevron Plume



Note: Except at the Chevron compliance point (existing well EA-5), the color dots are one time grab sample locations or wells that have been destroyed by Chevron.

Exhibit 5

Edward A. Firestone
Attorney at Law
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Palo Alto, CA 94301
Tel. No. (650) 327-0277
Cell No. (650) 269-4561

July 3, 2012

Mr. Bruce Wolfe, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Central Contra Costa Sanitary District Sanitary Sewer
In Vicinity of 1601-1699 Contra Costa Boulevard
Pleasant Hill, California
Regional Board File No. 07S0132

Dear Mr. Wolfe:

This letter is in response to California Regional Water Quality Control Board, San Francisco Bay Region's ("RWQCB") decision not to issue a Water Code Sec. 13267 letter ("13267 letter") to the Central Contra Costa Sanitary District ("CCCSD") that would request a report regarding the release(s) of hazardous materials from CCCSD's sanitary sewer system in the vicinity of the Gregory Village Mall ("GV Mall") in Pleasant Hill, California ("Site"). Further, should the RWQCB determine that it will issue a Cleanup and Abatement Order ("CAO") for the Site, this letter serves to provide information to support the naming of CCCSD to such a CAO.

It is Gregory Village Partners, L.P.'s ("GVP") understanding that the RWQCB's determination not to issue a 13267 letter was based on discussions with individuals in the Central Valley Regional Water Quality Control Board, Sacramento Office ("Central Valley Board") and information presented by CCCSD to RWQCB staff on March 28, 2011. In what the RWQCB staff reported to us about its discussions with the Central Valley Board, we understand that staff learned that, from the Central Valley Board's perspective, unless a sewer district's behavior is egregious or there is willful misconduct, a sewer district should not be deemed to be a discharger for releases of hazardous materials from its sewer system under the Porter-Cologne Water Quality Control Act, Water Code Secs. 13000, et seq. ("Porter-Cologne"). Based on those conversations with the Central Valley Board and the information provided by CCCSD, the RWQCB decided not to issue a 13267 letter to CCCSD.

However, if what we understood the RWQCB staff's report to us is true, the Central Valley Board's unwritten policy is contrary to law and is in conflict with one of its own issued orders. Additionally, as a result of GVP's research, GVP has learned that CCCSD's representatives made statements to RWQCB staff in its meeting with the staff that were either false, incomplete or misleading concerning whether and when it prohibited tetrachlorethene ("PCE") discharge to its sewers. Further, CCCSD omitted a considerable amount of unfavorable information concerning the construction, operation and maintenance of its sanitary sewer system near the Site. Consequently, GVP requests that the Regional Board reconsider its position.

As discussed in more detail below:

1. Porter-Cologne provides for strict liability for dischargers, and there is no legal basis for treating CCCSD differently from any other discharger regarding the standard required to hold it as a "discharger";

2. Based on the materials provided by CCCSD pursuant to a Public Records Act request, CCCSD regulations appeared to specifically allow the discharge of PCE from dry cleaners into the sewer system until apparently 2007 and apparently continue to allow such discharges from other sources today;

3. CCCSD's specifications for sewer construction by their very nature allowed/permitted the significant discharge of materials* from the sewer into the subsurface (including groundwater);

4. According to CCCSD's own records, the sewers were maintained (or improperly maintained) such that there were various failures of the sewers in the vicinity of the Site; and

5. Groundwater and soil vapor testing results clearly show chlorinated hydrocarbons was released into the waters of the state from the sewer system consistent with findings regarding CCCSD's construction specifications and maintenance procedures.

This letter is based primarily on documents produced by CCCSD as a result of a California Public Records Act request made by GVP, a copy of which is attached for your convenience as Exhibit 1. In all likelihood there is more information that would support GVP's position in that (a) there are likely relevant documents in CCCSD files that CCCSD was not required to produce in order to comply with a Public Records Act request; (b) information needed to interpret the documents (such as the meaning of abbreviations and codes) was not provided; (c) a considerable amount of the information is not legible due to age of documents and copying constraints; and (c) few inspection or maintenance records prior to the mid-1990s were made available.

Strict Liability Under Porter-Cologne

Porter-Cologne states that "any person who has discharged or discharges waste into the waters of the state in violation of any waste discharge requirements or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state," is responsible for the investigation, clean up and abatement of same.[i] The statute expressly includes "districts" in the definition of person, making it clear that the legislature fully intended these semi-governmental agencies to be held to the requirements of the statute.[ii]

CCCSD is a discharger because it operated, and continues to operate, a sewer system that leaks sewage and its constituents into the subsurface as discussed in more detail below. Further, CCCSD knowingly accepted, and continues to accept, hazardous substances, such as PCE, into its sewer system[iii] and permitted those substances to leak into the waters of the state from its pipes. In fact, while CCCSD banned PCE discharges from dry cleaners in 2007, it apparently continues to accept such discharges of chlorinated hydrocarbons from other operations.[iv] Finally, CCCSD is a discharger merely because it owns the sewers, whether or not its actions caused the discharge. State Water Resources Control Board ("SWRCB") and RWQCB orders have long stated that owners of property from which a discharge has

* Trichloroethene (TCE) has also been detected at various concentrations in the vicinity of the Site. The source of TCE is either the result of PCE degradation or TCE that has been discharged into the environment/sanitary sewers by TCE users or a combination of both. TCE and PCE are both chlorinated hydrocarbons and behave similarly in sewers and the environment.

occurred are dischargers because they owned the property during and after the time of the activity that resulted in the discharge, had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge.[v]

While the Central Valley Board appears to have an unwritten policy that it will not hold a sewer district liable as a discharger chlorinated hydrocarbon wastes unless there has been egregious behavior or willful misconduct, which the RWQCB appears to be adopting, there is no legal basis for treating CCCSD any differently than any other potential discharger. Such a policy contradicts express provisions of the Water Code and its application likely violates provisions of California administrative law as well. It is, however, of interest to note that the CAO in which the Central Valley Board found the City of Lodi to be a discharger does not require egregious behavior or willful misconduct.[†] Of additional note is that, even if there were a legal basis for the Central Valley Board's unwritten policy, an examination of the facts surrounding CCCSD's sewer system near the Site, as discussed in more detail below, establishes that CCCSD's behavior was both egregious and willful in allowing releases of dry cleaning waste from the sewer system.

Based on current law, (a) given CCCSD's active operation of the sewers, (b) its ability to have prevented the discharges, (c) it's ability to investigate and remediate the releases from the sewers, and (d) its control over the sewer system, the RWQCB should conclude that CCCSD is a discharger.[vi] Further, CCCSD: (a) knowingly accepted PCE into its system from dry cleaners until 2007, (b) constructed a sewer system that allowed for significant exfiltration of liquids (and release of gasses), (c) failed to repair significant known leaks, and (d) knowingly permitted PCE and other chlorinated hydrocarbons to leak from its sewers into

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[†] *In re City of Lodi*, CAO No. R5-2004-0043. According to the CAO, the City of Lodi owned and operated the City's sanitary sewer system. A portion of the sewer line ran into an alleyway and received PCE waste from a dry cleaner and printer. Groundwater near the sewer contained PCE and its degradation products in excess of water quality objectives. In addition, soil in the vicinity of the sewer line contained PCE that threatened groundwater quality. PCE vapor intrusion to indoor air was documented in two buildings and threatened in others. The City of Lodi was named a discharger. The CAO states as follows:

> 2. The City of Lodi is the owner and operator of Lodi sanitary sewer system, of which the alleyway sewer line is a part. The City of Lodi operates its sanitary sewer system pursuant to an NPDES permit, # CA0079243, issued by the Regional Board. The City of Lodi is subject to this Order because as owner and operator of a waste disposal conveyance system the City has caused or permitted waste to be discharged to waters of the state where it has created and threatens to create a condition of pollution or nuisance. The City has had actual or constructive (legally presumed) knowledge of discharges from its sewers, and the ability to prevent further sewer discharges, since at least 1992.
>
> 12. Regional Board staff also requested that the City of Lodi repair the leaking, sagging sewer line in the area of the pure phase liquid PCE release in the Central Plume pollution source area. Although PCE is not currently being discharged into the sewer in this area, the repair was necessary to prevent sewer leakage from causing further migration of PCE already present in the soil. In response to the Regional Board staff's request, the City recently slipped-lined that section of the sewer.

Nowhere in the CAO is there a provision that states that the City of Lodi is being named because its behavior is in any way egregious or there is willful misconduct. Rather, the CAO simply states:

> 23. Based on the facts stated herein and the evidence referenced in the Staff Report, including the Exhibits attached to the Staff Report, the testimony presented at the hearing, and the technical reports submitted with regard to investigation of the sites subject to this Order, the Regional Board finds that City of Lodi... [has] caused or permitted, or [is] causing or permitting, waste, i.e., PCE, to be discharged or deposited where it is, or probably will be, discharged into the waters of the state, specifically the groundwater beneath the central area of the City of Lodi, and [has] created, or threaten to create, a condition of pollution or nuisance, as provided in Water Code Section 13304.

The fact pattern involving CCCSD at the Site is almost identical to the fact pattern involving the City of Lodi. Under California law, it is only necessary to establish that there has been a discharge and that the entity is a discharger; the behavior of the party is neither relevant nor appropriate for a Regional Board to consider in determining a party's status as a discharger.

the environment. Thus, even if the RWQCB were to follow this misguided unwritten policy of the Central Valley Board, CCCSD would still qualify as a discharger.

CCCSD Regulations Expressly Allowed for the Discharge of PCE Until 2007

In its slide presentation on March 28, 2011, CCCSD representatives informed the RWQCB that "CCCSD has excellent source control program – PCE discharge prohibited" (slide 2); "Adopted ordinance in 1963 prohibiting discharge of harmful substances into the sewer system (e.g. PCE); Further strengthened ordinance in 1974 to address specific pollutants including chlorinated hydrocarbons; Ordinance revisions in 1981 and 1991 to further prohibit discharges such as PCE and TCE into sewers" (slide 8); and "CCCSD acted prudently and has a strong history of: Source control prohibitions, Pollution prevention programs, Excellent sewer maintenance" (slide 21). These statements are false, incomplete or misleading.

At all times during the operation of the dry cleaners at the GV Mall (i.e., until 1992), CCCSD did not prohibit the discharge of PCE from dry cleaners to its sewers. Based on the records provided by CCCSD, it apparently did not put such a prohibition in place until 2007. CCCSD quoted general provisions of its code to the RWQCB in its March 28, 2011 Power Point presentation and ignored specific provisions of its regulations that expressly allowed for the discharge chlorinated hydrocarbons into the sewer. Under rules of statutory construction, all language in a statute must be given meaning and should be read whenever possible so as not to create a conflict between the provisions. The only way to interpret the CCCSD code under this rule is that chlorinated hydrocarbons, in general, and PCE specifically, did not fall within the definitions of prohibited substances prior to 2007. A more detailed discussion of specific regulations follows.

From the 1950s through 2007, CCCSD ordinances are either silent on the issue of PCE discharges or expressly allow anyone, including dry cleaners, to discharge PCE into the sewers.[vii] GVP does not have a copy of the 1963 ordinance referenced in the Power Point materials (slide 8) from CCCSD's presentation to the RWQCB. The 1974 ordinance referenced in those materials, contrary to the assertion of the CCCSD, expressly allows the discharge of chlorinated hydrocarbons within certain concentrations.[viii] The 1981 and 1991 ordinances also provide for and permit the discharge of chlorinated hydrocarbons in general and PCE specifically.[ix] It appears that CCCSD did not prohibit the discharge of PCE from dry cleaners to its sewers until 2007 and it appears that CCCSD continues to permit the discharge of PCE from other sources.[x] (Copies of the ordinances referenced in this paragraph and elsewhere in this letter are provided for the RWQCB's convenience as Exhibit 2.)

In addition, CCCSD itself interpreted its regulations to allow for the discharge of PCE into the sewer. Evidence of this includes a letter sent to all dry cleaners in June 1992 that notifies the dry cleaners of the establishment of a PCE discharge limit of 0.5 parts per million (ppm). Interestingly, CCCSD also notes, "[a] recent study[xi] of groundwater and soil contamination in the Central Valley has shown that perchlorethylene exfiltration from sewer lines may cause contamination of the soil and groundwater." (A copy of this letter and applicable portions of the study ("Izzo Report") are attached for your convenience as Exhibits 3 and 4, respectively.) Thus, in direct contradiction to the statements it made to the RWQCB, CCCSD allowed the discharge of PCE to its sewers, even after it was well aware that sanitary sewers were an important source of PCE detected in the environment.

Finally, additional evidence that the CCCSD allowed discharge of PCE into its sewers can be found in the Annual CCCSD Pretreatment Program Reports (copies of which will be provided upon request) which indicate that the CCCSD knew of, tested for, and consistently found measurable PCE concentrations in influent and/or effluent sampling from 1986 to 2010[xii] (excluding only 2005).

CCCSD Knowingly Built a Leaking Sewer System

CCCSD plans show that the sanitary sewers in the vicinity of the GV Mall were constructed by the 1950s. A Plan of Sanitary Sewers for the Gregory Gardens residential development located adjacent to the GV Mall is dated 1949 and notes that 1) sewers will be clay pipe as specified by the Contra Costa County Sanitation District and 2) all work to be done to Central Contra Costa Sanitary District Specifications (Exhibit 5). Also, a 1950 Plan and Profile of Sanitary Sewer shows the sewer extending from Linda Drive, through Doris Drive and the alley behind the GV Mall to manhole M46 (Exhibit 6). See Exhibit 7 for a map showing locations of streets, manholes ("M"), and rodding inlets ("R") referred to in this letter.

Sewer Specifications, which are undated but appear to be from the early 1950's or earlier, expressly provide for an exfiltration tolerance of 1400 gallons per inch of diameter for the length of the sewer in miles per day (Exhibit 8). The sewer line serving the Linda Drive area through the GV Mall to the northern neighborhood (i.e., R61 to M60 to M59 to M46) is 8-inches in diameter (Exhibit 6). The sewer down pipe of M46 to M67 in Contra Costa Boulevard is 15-inches in diameter. The sewer from M44 to M46 to M47 to M67 is 15-inches in diameter and was in existence in 1949 (Exhibit 5). Applying the specifications to these sewer lines, up to two gallons per day per foot of 8-inch diameter pipe and nearly four gallons per day per foot of 15-inch diameter pipe are allowed to exfiltrate into the subsurface. Subsequent specifications in 1956 (Exhibit 9) and 1959 (Exhibit 10) also expressly allow exfiltration. Later specifications do not provide allowed exfiltration amounts but discuss infiltration allowances and allowable air leaks during testing of up to one pound per square inch during a two minute test period – meaning that, by permitting leakage, the system design requirements still allow exfiltration. Based on these regulations, CCCSD intentionally and knowingly built a sewer system that leaked.

Some sewer pipes appear to have been constructed relatively flat, which increases the potential for the accumulation of waste material as well as leakage and/or back-flow through the pipes. The 8-inch diameter sewer from M58 to M47 in Shirley Drive is shown by plan (Exhibit 11) to have a slope of 0.003 feet/foot (0.3%) and the 8-inch diameter sewer behind GV Mall is shown by plan (Exhibit 6) to be at a slope of 0.005 feet/foot (0.5%); both are less than the current CCCSD recommendation of 0.0077 feet/foot (0.77%) (Exhibit 12).

Additionally, the early Sewer Specifications require all pipes for sewers, wye branches, drop connections and flushing inlets to be "un-glazed vitrified clay sewer pipe (Exhibit 8, 9, and 10)." Bituminous (i.e., asphalt) joint compound was used and gaskets were specified as jute or oakum (Exhibit 8, 9 and 10). The Izzo Report found that PCE was released from sewer pipes including intact pipes, stating "Work done by the City of Merced shows that intact sewer lines can and have discharged PCE to the soil" (Izzo, p. 11). The Izzo Report further states: "In this method, PCE volatilizes inside the pipe and moves as a gas through the sewer pipe wall…The piping material is not designed to contain gas" (Izzo, p. 20). The Izzo Report comments: "Sewer pipe is not impermeable to water or PCE" (Izzo, p. 19). Thus, sewer pipes allow PCE vapor to be transported anywhere along their length where it (and wastewater) can migrate from the pipe into the environment.

In addition, the Izzo Report found that older pipe joints and other connections are one of the five likely methods by which PCE can penetrate the sewer line: "At pipe joints and other connections, PCE can move out of the sewer as liquid or gas. Also, as the pipes shift after installation, they could separate at the joints, allowing PCE to discharge even more easily to the vadose zone. Current gasket technology and reduction in leakage factors of pipes by the industry has reduced discharges at this point. But most commercial and retail districts in the cities of the Central Valley have pipes that predate this technology." (Izzo, p. 19). Also the Izzo Report states "Sewer pipes are brittle, so when the line bends, fractures are

likely to occur, increasing the leakage of the pipe. Since PCE is heavier than water (1.63 times the weight of water at 20°C), it tends to collect in these low spots and then flow through the pipe fractures into the vadose zone" (Izzo, p. 19). The potential for leakage is increased where there are low spots in sewer pipes and PCE collects in the low spots (Izzo, p. 19).

CCCSD Operated a Failing Sewer System and Failed to Inspect and/or Maintain the Sewer System in an Appropriate Manner

From the perspective of strict liability for a discharge (as specified by the Water Code), the question of whether a) the sewer system simply failed or b) the failure was due to poor maintenance, are not relevant. But given the RWQCB's reliance on an unwritten policy respecting a sewer district's behavior, CCCSD's records provide evidence that it knowingly operated a failing, leaking sewer system and failed to maintain it properly. Note that this information is based on the limited files that CCCSD provided in response to a Public Records Act request. That request sought records, specifically including maintenance records, from the beginning of CCCSD operations. However, in its response, CCCSD provided sparse information concerning maintenance in early operational timeframes even though the sewers in the area were constructed in the late 1940s and early 1950s. Thus, despite the positive representations of CCCSD in its meeting with RWQCB staff, GVP has little information concerning how well or how poorly the system operated or how well or how poorly CCCSD inspected and maintained the system near the Site prior to the mid-1990s – a gap in history of close to fifty years.

The following information establishes that the sewer system near the Site was not only failing and leaking, but that CCCSD failed to maintain or repair it in a timely fashion. The locations of the sanitary sewer sections discussed below are displayed on Exhibit 7. Copies of the referenced materials are attached, except where noted.

Louella Drive (between R57 and M58; see Exhibit 13)

- A Collection System Operations ("CSO") Maintenance Report for the time period from 1994 through February 2011 for pipes in Louella Drive reflects significant gaps in maintenance including no inspections between February 1995 and October of 1997 and October of 1997 and February of 2003.
- A CSO Work Order reflects knowledge of root intrusion caused by cracked pipes in Shirley Drive ten feet upstream of M58 on October 28, 1997, with the work to repair the cracked pipes not completed until May 22, 2003, over 5½ years from the initial discovery.
- A January 25, 2007 CCTV inspection also reports root penetrations at 19 locations along this sewer.

Shirley Drive (between M45 and M58; see Exhibit 14)

- January 19, 1979 CCCSD inspection notes identify a sunken spot in Shirley Drive at Luella Drive.
- A CCCSD TV Inspection report from 1994 identifies locations with cracks and roots and a low section.

Shirley Drive (between M54 and M58; see Exhibit 15)

- The CSO Maintenance Report for 1985 through 2011 for the pipe on Shirley Drive between Cynthia Drive and Luella Drive reports a trench failure, cracks, and sunken area in 1994 as well as a crack in 1997.

- A CCTV Pipeline Inspection Report performed on December 12, 2006 states that the pipe in Shirley Drive between Luella and Cynthia Drives sags from position 3 to 191.1 and that the camera was underwater from position 8.4 to 191.1.
- An open joint and cracked pipes were discovered in this area and farther north on Shirley Drive in January 13, 1994 along with roots but the CCCSD report remarks "not urgent repairs." Another TV Inspection Daily Work Report of cracks and a "dropped joint" is dated October 10, 1997 and appears to be at the same locations as noted in 1994. The cracks in existence in 1994 do not appear to have been fixed until May 22, 2003, over 9 years after the discovery.

Shirley Drive (between M47 and M54; see Exhibit 16)

- The CSO Maintenance Report establishes that this sewer has required increasingly frequent maintenance by hydroflushing; from once each 4 years from 1994 to 2002, to once each year from 2002 to 2008, then once each 6 months from 2008 to 2010.

Shirley Drive to Contra Costa Drive (between M47 and M67; see Exhibit 17)

- The CSO Maintenance Report identifies only two maintenance events for this sewer, in 1998 and 2006.
- An inspection video for December 19, 2006 shows root penetration at 97 ft from M47.

Cynthia Drive (between R52 and M53; see Exhibit 18)

- CCTV pipeline inspections of the sewer were conducted on March 22, 2004, January 27, 2005, and January 23, 2007 that identified root penetrations into the sewer and an offset joint. No report of sewer repair was received.
- Multiple logs reference sunken trench areas as a result of deteriorating sewer pipes in this area. An April 1, 2005 report indicates that soil was excavated and recompacted but there is no indication of sewer pipe repair.

Cynthia Drive (between M53 and M54; see Exhibit 19)

- The CSO Maintenance Report from 1994 through 2011 indicates no maintenance between August 23, 1996 and March 22, 2004. Additionally, "sunken areas" related to problems with the sewer pipe are recorded on July 23, 1996, March 22, 2004, April 26, 2006, October 13, 2006, and February 23, 2007.
- CCTV Pipeline Inspection Reports indicate separated joint and/or root intrusions on January 27, 2005 and January 23, 2007.
- An inspection on March 22, 2004 indicated sunken trenches all over the street.
- Multiple repairs along this line have occurred including on or about April 26, 2006, March 7, 2007, April 1, 2008, and February 25, 2008. These repairs appear limited to excavation and recompaction of soil, no repair to the pipeline is identified.

Sewer between Doray Drive and Cynthia Drive near Shirley Drive (M44 to M45 to M46 to M47)

- No inspection, maintenance or repair records prior to 2006 were provided by the CCCSD for these sections of pipe.

Doray Drive (between M44 and M48; see Exhibit 20)

- A February 15, 2006 CCTV inspection report found a hole in the sewer pipe. The report states ""Hole in Pipe" was found around the manhole ring. It was not found in the previous inspection (see below). Therefore, this is not a potential source of contamination." The prior inspection referred to was conducted on May 27, 2005.

Alley Parallel to Susan Lane (between M59 and M46; see Exhibit 21)

- There is a May 3, 2000 CCCSD TV inspection report that states: "pipe out at bend," referring to the bend in the sewer pipe at the south edge of Doray Drive (558 feet down pipe from M59).
- This report also identifies infiltration, roots and/or cracks at four other locations, at 122, 132, 401, and 406 feet down pipe (north) from M59. There is no record for repair of these sections of the pipe.
- Also on May 3, 2000, a CCCSD TV inspection was conducted from M46 south to Doray Drive where a bend in the sewer alignment prevented the inspection from including the pipe under Doray Drive. The inspection report states that at the north edge of Doray Drive (106 feet south of M46) there is a "severe bend and cracks." In addition, the report says that an 11 feet long section of pipe with cracks is located 83 to 94 feet south of M46. There is no record that this cracked pipe was repaired.
- A May 9, 2000 notation on a CCCSD Work Order states that a repair was completed in Doray Drive, on the south side of the street.
- A December 18, 2006 CCTV Pipeline Inspection Report identifies that a "sag begins" at 416 feet from M59. In addition, the video from this inspection shows that a change in pipe material (from vitrified clay to galvanized iron) begins at about 77 feet south of M46 and extends to at least Doray Drive where the video stops due to a bend in the pipe. The change in pipe material suggests that a repair of the sewer pipe was needed and completed, extending approximately 30 feet north of Doray Drive.

Doris Drive (between M59 and M60; see Exhibit 22)

- The CSO Maintenance Report from 1994 to 2010 indicates no maintenance from May 1994 to July 2004. Additionally, an almost three and half year gap exists between February 2005 and July 2008.
- A December 11, 2006 report indicates a sag in this line and that the line is partially under water.

Linda Drive (between M60 and R99/R61; see Exhibit 23)

- The CSO Maintenance Report provided for this area consists solely of the 2004 to 2009 time period.
- A March 10, 1977 Daily Maintenance Report describes the condition of the sewer main in Linda Drive during the installation of a tee connection. The line at the tee connection located "153' up from M.H. at Linda Dr and Doris Dr" is described as "in very poor shape has lots of cracks."
- The CSO Maintenance Report states that the main was replaced in on April 9, 2004. However, the CCCSD also prepared a Sewer Relocation plan, dated March 3, 1988, that has a Record Drawing date of September 12, 2008, more than 20 years later. It is not clear based on the available information whether sewer replacement work was implemented when planned in 1988 or not until much later in 2004, or if there was a need to replace the sewer in both 1988 and 2004.
- A December 12, 2006 CCTV inspection video and a September 2, 2008 CCTV inspection report provide somewhat different results. The 2006 video indicates a sag of approximately 120 feet in this line. The 2008 report does not mention a sag.

Groundwater and Soil Vapor Data Shows Sewers Leaked

Groundwater and soil vapor investigations conducted by GVP identify at least three suspected sewer leakage locations that have resulted in chlorinated hydrocarbon releases and detections in the subsurface. A summary of environmental sampling data that implicates the sewers as a source of chlorinated hydrocarbons to the subsurface follows.

Apparent Source Area Near the Intersection of Shirley Drive and Cynthia Drive

A discussion of this leak area is provided in Section 4.1 of Erler & Kalinowski, Inc.'s ("EKI's") *Off-Site Property-Specific Soil Vapor and Sub-Slab Vapor Investigation Report*, dated 19 January 2011. The data suggest a source and release of PCE and other chlorinated hydrocarbons from the sewer line in the proximity of Shirley Drive and Cynthia Drive, as follows:

- The soil vapor results for sampled off-Site properties and streets indicate that concentrations of PCE and other chlorinated hydrocarbons are high in the vicinity of Shirley Drive and Cynthia Drive, near manhole M54. PCE was measured at high concentrations at several sampling locations in this area; MSVP-6 (at 6 feet below ground surface ("bgs")) = 52,100 micrograms per cubic meter ("ug/m^3"), SVP-15 = 35,000 ug/m^3, SVP-16 = 38,000 ug/m^3, and SVP-25 = 21,000 ug/m^3. This area of higher PCE concentration is distinguished from generally lower concentrations (i.e. below RWQCB Environmental Screening Levels ("ESL")) east of Shirley Drive and north of Cynthia Drive, with the exception of parcel P67 located at the intersection of Shirley and Cynthia Drives. South of the intersection, the subsurface vapor data show a sharp decline in PCE concentrations moving southward on parcel P55, i.e., south of the east-west trending sanitary sewer line that traverses parcel P55/P87. This finding provides support for a separation between elevated soil vapor concentrations detected on-Site at the location of the former P&K Cleaners and the elevated PCE concentrations in subsurface vapor observed in proximity to the suspected off-Site sanitary sewer lines to the north. This separation is illustrated on Figure 5 of the January 2011 EKI report (see Exhibit 24) by the general demarcation of the area found to contain subsurface vapor above the ESL for PCE along the sewer line that traverses parcel P55/P87 and that runs at the southern boundary of parcels P38 and P82.

Apparent Source Area in the Vicinity of Manhole M46

A discussion of the leak area near M46 is also provided in EKI's 19 January 2011 report. The environmental sampling data suggest a source of PCE and other chlorinated hydrocarbons in close proximity to M46 and generally north of the sewer line that runs between M45 and M47, approximately halfway between Cynthia Drive and Doray Drive. This sanitary sewer receives the wastewater flow (at M46) from the sewer lines that serve the GV Mall and the surrounding commercial and residential properties, including the Chevron property located at 1705 Contra Costa Boulevard (locations of former dry cleaning and auto repair facilities). High concentrations of PCE are present (a) in soil vapor and in shallow groundwater near M46 and (b) in soil vapor sampled near the segment of sanitary sewer that is located between M45 and M46 (see Exhibit 24). Data supporting these findings are summarized as follows:

- Concentrations of PCE in soil vapor samples collected from MSVP-17 located near M46 increase with depth, which indicates that chlorinated hydrocarbons found in shallow groundwater are the source of chlorinated hydrocarbons in soil vapor in this area, and the sanitary sewer at this location is generally at the depth of, or just below, the groundwater table.
- The PCE concentration (1,960 micrograms per liter, "ug/L") measured in the grab groundwater sample (GG-P87-01) collected approximately five feet north of MSVP-17 and approximately 13 feet north of M46 is the highest concentration of PCE measured to date in groundwater in the off-Site area north of the GV Mall.
- Coupled with elevated sub-slab and soil vapor concentrations of PCE measured at parcels P38 and P82 located adjacent on the northern side of the sewer from M45 to M46 and the observed lower subsurface vapor concentrations at parcel P55 south of M46, these recent sampling data

indicate the proximity of PCE and chlorinated hydrocarbon releases near M46 with additional releases or migration of chlorinated hydrocarbons along the segment of sewer line and its associated backfill from M46 to M45.

- The sanitary sewer line from M44 to M46, which runs along the back (southern side) of these residential properties is located in the uphill direction from the segment of sanitary sewer entering from the south and into which the former P&K Cleaners discharged; the confluence of these two sewer lines is at M46. The slope of the sewer line between M45 and M46 is relatively shallow, i.e., approximately 0.04 feet per foot. Flow backed up within this segment of sewer line or preferential migration of chlorinated hydrocarbons in shallow groundwater or in vapor phase along the sewer line backfill are plausible explanations for the elevated concentrations of PCE measured in the SSVP samples at parcel P82 and in the soil vapor at P38-SVP-02.
- The soil vapor sample at P38-SVP-02 (PCE = 2,800 ug/m^3) was collected at a depth of approximately 5 feet bgs in a location in the back yard approximately 10 feet north of the sewer line between M45 and M46. The soil vapor sample at P38-SVP-01 (220 ug/m^3 PCE) was collected at a depth of approximately 5 feet bgs in a location in the front yard, approximately 75 feet north of the sewer line between M45 and M46.

Suspected Source Area in Linda Drive Along Sewer

As presented in Chevron site investigation reports dated in 1989 and 2012 (Exhibit 25 and the *Additional Site Investigation Report and Site Conceptual Model Report* by Canestoga-Rovers & Associates, dated 2 March 2012), very high concentrations of chlorinated hydrocarbons have been found on the Chevron property in soil vapor (maximum PCE = 3,250,000 ug/m^3) and in groundwater (maximum PCE = 4,000 ug/L) and high concentrations have migrated off the Chevron property onto the adjoining streets (Linda Drive and Doris Drive) and onto the GV Mall property. In a Chevron site investigation report dated 3 February 1989 (Exhibit 25), groundwater and soil sampling data were reported at former monitoring well EA-3 located in Linda Drive near the sanitary sewer directly west of and across the street from the Chevron site. Chevron reported that PCE and TCE were present in 1988 soil samples collected at location EA-3 at concentrations of 328 micrograms per kilogram ("ug/kg") and 86 ug/kg, respectively, which would have been above the groundwater table at this location and thus may have resulted from leakage from the sewer. Groundwater sampled in monitoring well EA-3, on 3 January 1989, had a reported PCE concentration of 5,000 ug /L and a TCE concentration of 750 ug/L providing further data suggesting a source of PCE and other chlorinated hydrocarbons in the proximity of sewer line in Linda Drive and extending along Linda Drive to the GV property. High concentrations of chlorinated hydrocarbons have migrated in groundwater from the area of the Chevron property onto the GV Mall property (maximum PCE = 3,380 ug/L; EKI's *Quarterly Groundwater Monitoring Report*, Fourth Quarter 2009, dated 16 February 2010).

As shown by the sewer inspection reports provided by the CCCSD, there are many sewer leak locations in Linda Drive, Doris Drive and along the sewer in the alley behind the GV Mall building that would act as release locations for chlorinated hydrocarbons discharged to the sewer from the Chevron property by former dry cleaning and auto repair operations. To summarize, these damaged sewer locations are as follows:

- *Linda Drive (between M60 and R99/R61):* A 1977 report describes the condition of the sewer main in Linda Drive as "in very poor shape has lots of cracks." A 2006 inspection identifies a sag in the sewer line. The sewer line in this area was replaced by CCCSD. The records provided by CCCSD do not discuss why this line was replaced.

- *Doris Drive (between M59 and M60):* A 2006 report identifies a sag in the sewer line.

- *Alley Parallel to Susan Lane (between M59 and M46):* In 2000, inspection reports identify infiltration, roots and/or cracks at 122, 132, 401, and 406 feet down pipe from M59 and "pipe out at bend" at the south edge of Doray Drive at 558 feet from M59. The reports also identified a "severe bend and cracks" at the north edge of Doray Drive (106 feet south of M46) and an 11 feet long section of pipe with cracks located 83 to 94 feet south of M46.

Conclusion

The California legislature expressly intended that districts be strictly liable under the Porter-Cologne Water Quality Control Act for releases from their facilities. CCCSD owns and operates the sewer pipes from which sewage leaks occur or have occurred into the subsurface. In addition to being strictly liable, by designing a system that in its very specifications permitted leakage, in operating a failing system, and in failing to repair the system in a timely manner, CCCSD actively discharged waste into the waters of the state. As such, CCCSD must be named as a discharger.

Please call if you have any questions.

Sincerely,

Edward A. Firestone

Enclosures

cc: K. Alm, Esq. (with enclosures)

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[i] Water Code Secs. 13267 and 13304.

[ii] Water Code Sec. 13050(c).

[iii] The fact that such activity may have been permitted under the laws at the time does not alleviate CCCSD of responsibility for addressing the current issues. *In the Matter of the Petitions of Aluminum Company of America; ALCOA Construction Systems; and Challenge Developments, Inc,* WQ Order No. 93-9.

[iv] Currently, we understand that the discharge of PCE to the sanitary sewer is apparently allowed from some non-dry cleaner operations so long as the amount of Total Toxic Organics ("TTO"), which include PCE, do not exceed 2.10 milligrams per liter. A copy of the "CCCSD List of Total Toxic Organic (TTO) Pollutants Subject To TTO Local Limit Or TTO Management Plan" is the last page of Exhibit 2.

[v] A partial list of the numerous cases supporting this proposition include: *In re Zoecon*, Order No. WQ 86-2 (2/20/86); *In Petition of Southern California Edison Co.* WQ Order 86-11 (7/17.86); and *In the matter of Wenwest, Inc. et al*, Order No. 92-13 (10/22/92); *Ford Aerospace, et al.*, SFRWQCB Order No. R2-2007-0022.

[vi] See v.

[vii] A partial list of ordinances addressing this issue is as follows:

1. Ordinance 23 –Adopted June 4, 1953, prohibits the discharge of any substance other than human excrement in the sewers *unless under permit from CCCSD.*

2. Ordinance 99 – Adopted July 11, 1974 amends Article 4 of Chapter 8 of the Code of the CCCSD relating to Control of Industrial Waste. This amendment permits the discharge of chlorinated hydrocarbons provided that the concentrations not exceed 0.002 mg/l 50% of the time and 0.004 mg/l 10% of the time. Hence, it appears that CCCSD permitted higher concentrations of chlorinated hydrocarbons to be discharged to the sanitary sewer, so long as the time restrictions for such discharges were not violated. Sec 8-403.B(12).
3. Ordinance 147 – Adopted August 27, 1981 replaces the prior Source Control Ordinance. This ordinance expressly allows for the disposal of specific toxics into the sewer within specified limits. Sec 8-402.A4 and D (limit on total chlorinated hydrocarbons plus PCE listed in Appendix A as a toxic for which an effluent limit will set.)
4. Ordinance 147 – Adopted August 27, 1981 replaces the prior Source Control Ordinance. This ordinance expressly allows for the disposal of specific toxics into the sewer within specified limits. Sec 8-402.A4 and D (limit on total chlorinated hydrocarbons plus PCE listed in Appendix A as a toxic for which an effluent limit will set.)
5. Ordinance 176 – Adopted April 18, 1991, provides for the disposal of specific pollutants with specified constituent levels. Sec. 10.80.70. Resolution 91-024 allows for the discharge of Total Identifiable Chlorinated Hydrocarbons with a discharge limit of 0.5 mg/l.
6. Source Control Ordinance, Title 10, Effective July 12, 1991 as amended April 2, 1992, August 3, 1992 (Ordinance 183), August 1, 1996 (Ordinance No. 198), February 15, 2007 (Ordinance 242) and October 2, 2008. A review of the assorted amendments between 1991 and 2008 show that the discharge of PCE into the sewer system by dry cleaners was not prohibited until 2007. (See Sec. 10.080.040.P first added in 2007.)

[viii] See vii 2.

[ix] Ordinance 147 – Adopted August 27, 1981 replaces the prior Source Control Ordinance. This ordinance expressly allows for the disposal of specific toxics into the sewer within specified limits. Sec 8-402.A4 and D (limit on total chlorinated hydrocarbons plus PCE listed in Appendix A as a toxic for which an effluent limit will set). Ordinance 176 – Adopted April 18, 1991, provides for the disposal of specific pollutants with specified constituent levels. Sec. 10.80.70. Resolution 91-024 allows for the discharge of Total Identifiable Chlorinated Hydrocarbons with a discharge limit of 0.5 mg/l.

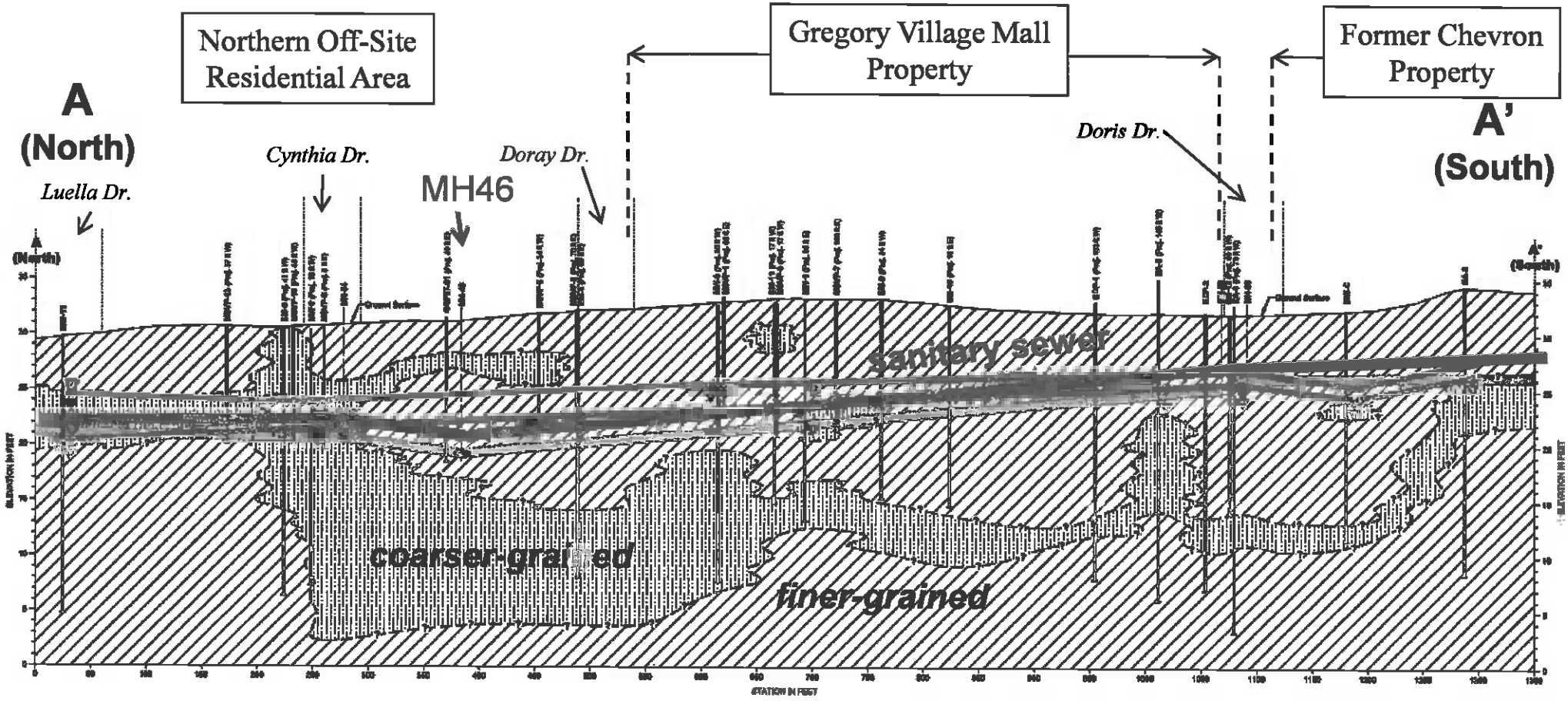
[x] Source Control Ordinance, Title 10, Effective July 12, 1991 as amended April 2, 1992, August 3, 1992 (Ordinance 183), August 1, 1996 (Ordinance No. 198), February 15, 2007 (Ordinance 242) and October 2, 2008. A review of the assorted amendments between 1991 and 2008 show that the discharge of PCE into the sewer system by dry cleaners apparently was not prohibited until 2007. (See Sec. 10.080.040.P first added in 2007.)

[xi] "Dry Cleaners – A Major Source of PCE in Ground Water", V. I. Izzo, 27 March 1992, p.2 ("Izzo" and "Izzo Report").

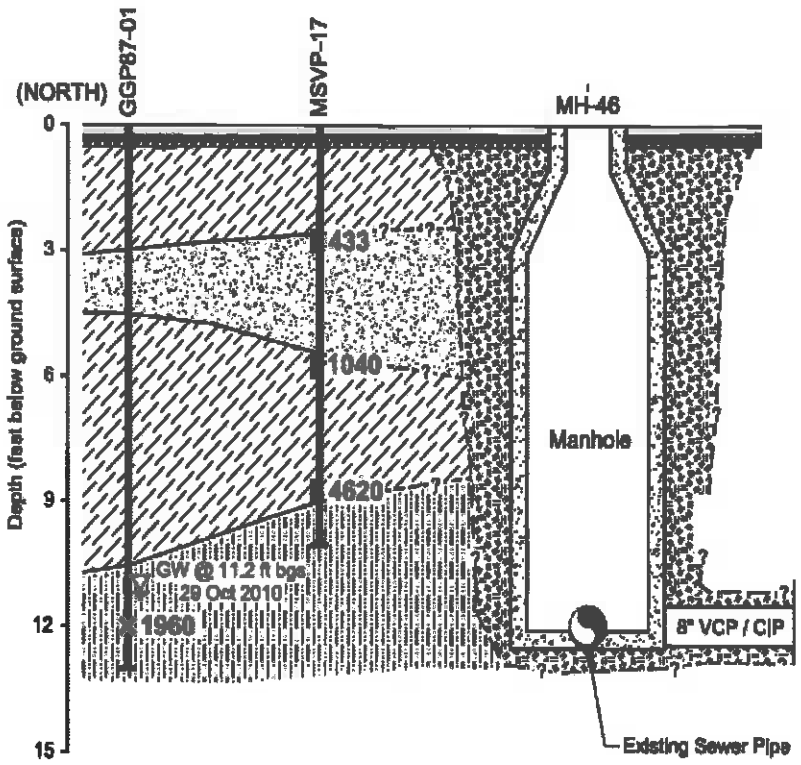
[xii] Years 1990-1992 not provided by CCCSD, so cannot verify for that time period.

Exhibit 6

CCCSD's Sanitary Sewer is Installed Near or Below the Water Table



PCE in Soil Vapor and Groundwater Near Manhole M46 is Consistent with a Sewer Leak



Sewer line and bottom of manhole M46 are at or below the water table

Exhibit 8

Separate Areas of High PCE Concentrations in Soil Vapor Indicate Separate Releases

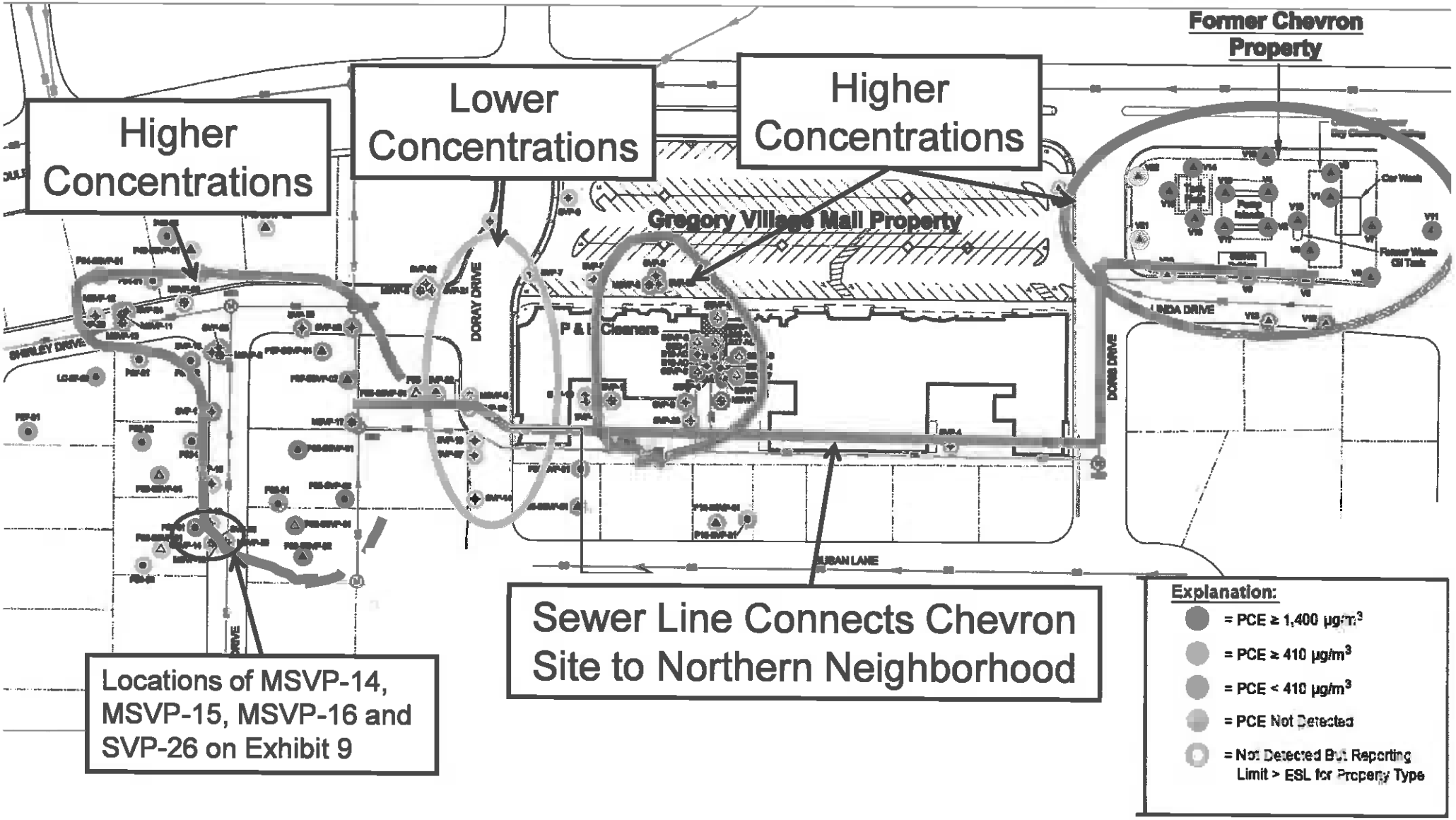
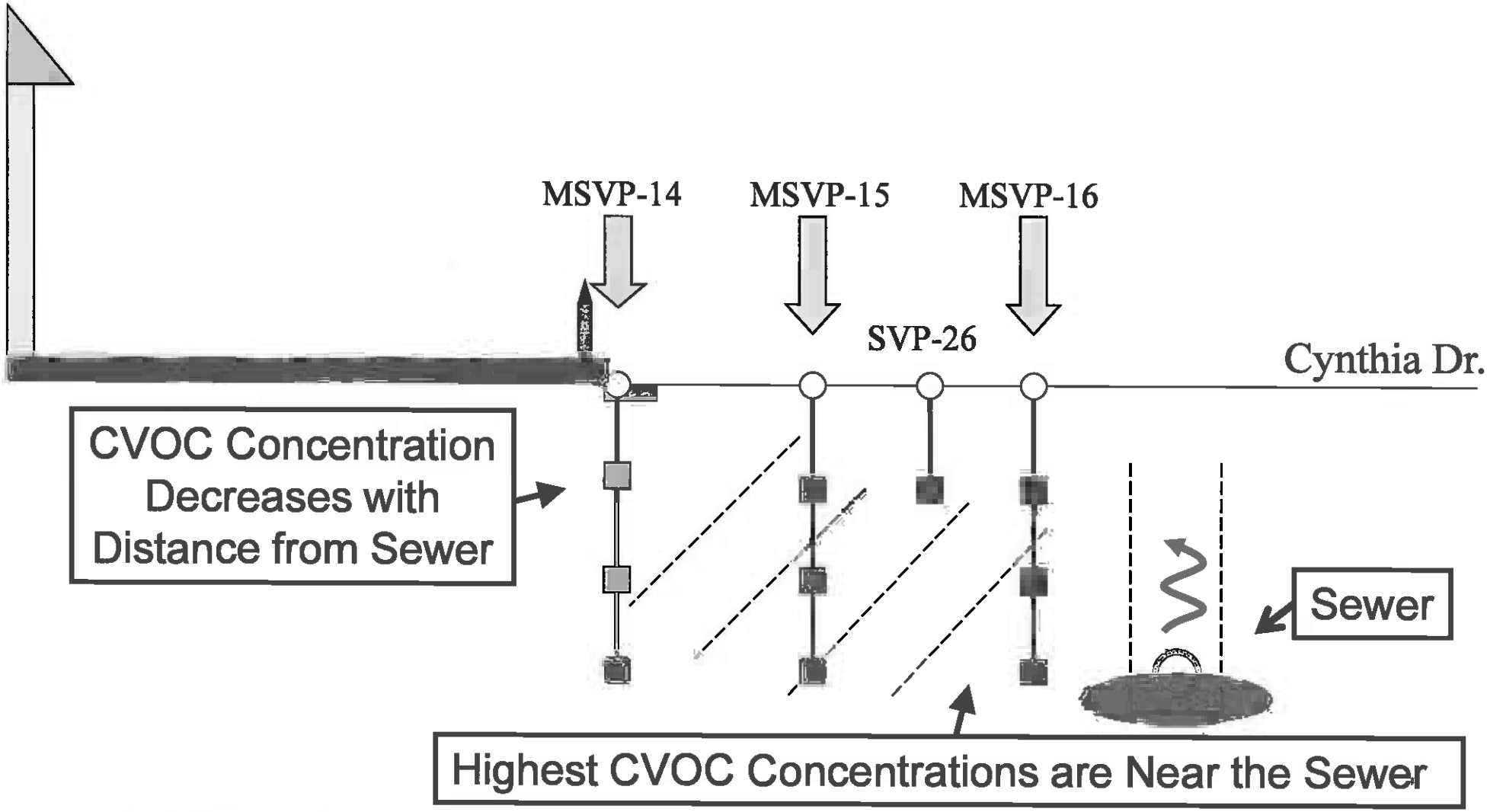


Exhibit 9

CVOC Concentrations In Soil Vapor are Highest Near the Sewer



PCE in Groundwater in Linda Drive Cross-Gradient from Chevron Site Indicative of a Sewer Leak

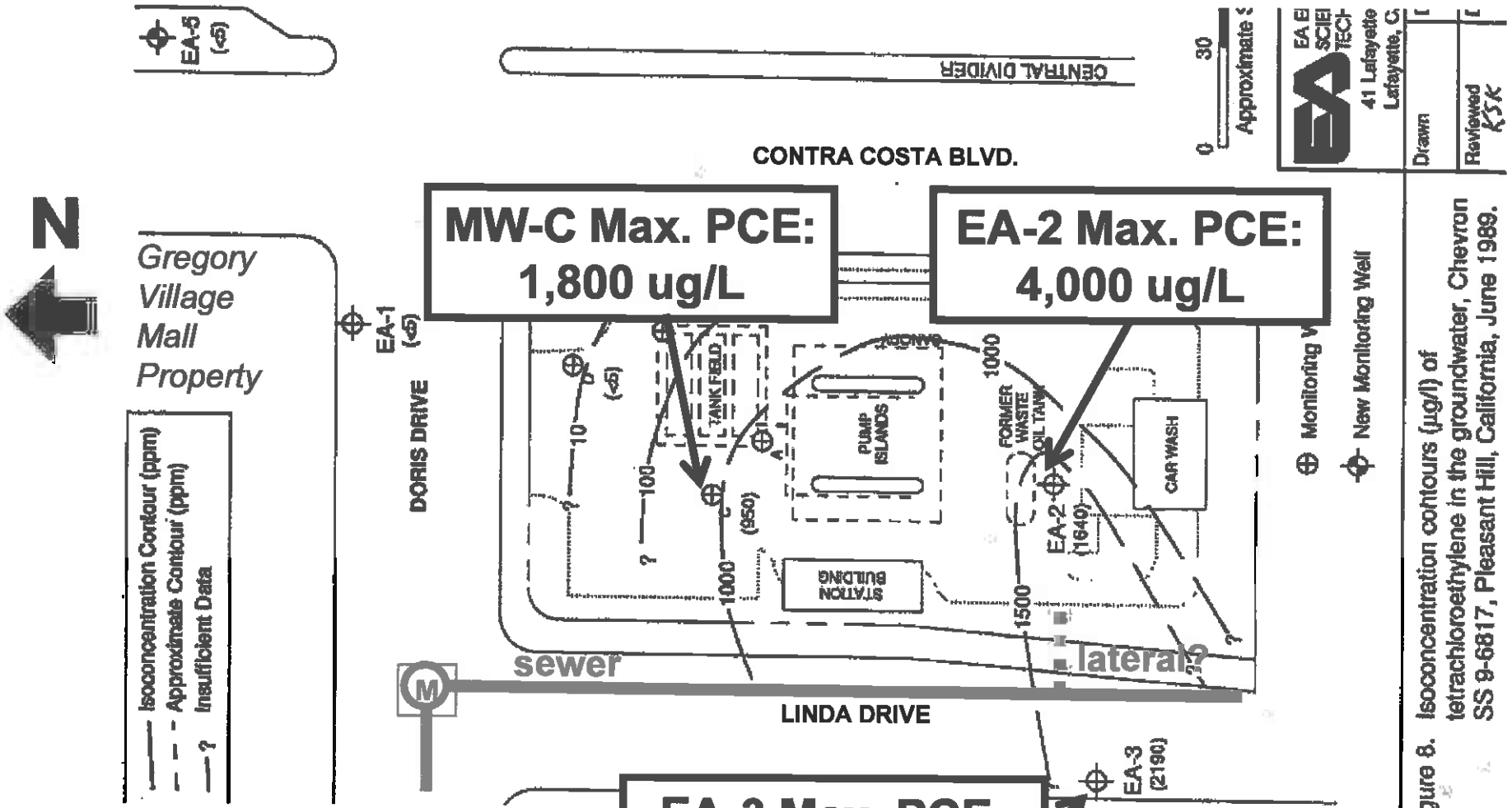


Figure 8. Isoconcentration contours (µg/l) of tetrachloroethylene in the groundwater, Chevron SS 9-6817, Pleasant Hill, California, June 1989.

Background image is from *Report of Investigation, Soil Vapor Contaminant Assessment, Chevron SS 9-6817, 1705 Contra Costa Boulevard, Pleasant Hill, California,* prepared for Chevron U.S.A, Inc., by EA Engineering, Science, and Technology, Inc., dated 9 August 1989.

Attachment G

Central Contra Costa Sanitary District
Protecting public health and the environment 5019 Imhoff Place Martinez, CA 94553-4392

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ROGER S. BAILEY
General Manager

KENTON L. ALM
Counsel for the District
(510) 808-2000

ELAINE R. BOEHME
Secretary of the District

August 4, 2014

Via E-mail & U.S. Mail

Mr. Bruce Wolfe
SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: STAFF REPORT AND TENTATIVE ORDERS - SITE CLEANUP REQUIREMENTS FOR 1643 CONTRA COSTA BOULEVARD AND 1705 CONTRA COSTA BOULEVARD, PLEASANT HILL CONTRA COSTA COUNTY

Dear Mr. Wolfe:

Central Contra Costa Sanitary District (CCCSD) appreciates the opportunity to comment on above-referenced Tentative Site Cleanup Requirements for 1643 and 1705 Contra Costa Boulevard (Tentative Orders) and associated Staff Report.

CCCSD supports the findings and requirements in the Tentative Orders in their entirety and recommends that the Regional Board adopt the Tentative Orders as drafted. In addition, CCCSD recognizes the Regional Board staff's thoughtful and reasoned consideration of the issues in Section VI of the Staff Report. CCCSD appreciates and agrees with staff's determination that CCCSD should not be named as a discharger on either Tentative Order.

CCCSD has a few suggestions to augment the conclusions in Section VI of the Staff Report. In addition to the technical evidence supporting why CCCSD's sewers did not contribute to the groundwater plume, we recommend that the Board expound upon the policy reasons why CCCSD should not be named as a discharger.

- It is not in the public interest to require a sewer agency charged with providing an essential public health service to investigate and clean up environmental contamination that it did not cause, merely because it provides sewer service to the businesses known to have caused the contamination.

- Naming CCCSD as a discharger on the Tentative Orders would have serious implications for CCCSD and other sewer agencies in the state, as well as for their ratepayers. It is now well-known that the historic discharge of volatile organic compounds from dry cleaners has contaminated soil and groundwater across the state. It is also well understood that where there are drycleaners, there are typically public sewers serving them and these sewers use traditional non-plastic sewers that invariably develop some cracking and other imperfections over time. If the mere presence of these anticipated imperfections results in Regional Boards' naming the sewer agencies in clean up orders, this approach would inculpate nearly every urban public sewer agency, even those that diligently repair and maintain their sewers at or above industry standards for high performing agencies.

- Public sewer agencies statewide would face enormous liability for such contamination events without regard to traditional legal theories concerning fault. Ultimately the burden of paying for many cleanups would fall on the purported "deep pocket" of these agencies' largely anonymous ratepayers. Surely it is not sound public policy to place the financial responsibility for responding to contamination from commercial business operations on the public ratepayers merely because sanitary sewer service was provided Public sewer agencies should not bear the burden of remediating contamination from private parties unless there is a substantial showing that an agency failed in its basic obligation to properly operate and maintain its sewer collection and treatment facilities.

CCCSD respectfully requests that the Regional Board consider these issues and incorporate public policy considerations in its Staff Report to support the important decision in these Tentative Orders. If you have any questions or would like to discuss any of these comments, please feel free to contact Environmental Compliance Superintendent Tim Potter at 925-229-7380 or tpotter@centralsan.org.

Sincerely,

Roger S. Bailey
General Manager

cc: Kent Alm
Jean-Marc Petit
Danea Gemmell
Tim Potter

Attachment H

Central Contra Costa Sanitary District
5019 Imhoff Place, Martinez, California 94553-4392

ROGER J. DOLAN
General Manager
Chief Engineer

KENTON L. ALM
Counsel for the District
(510) 938-1430

JOYCE E. MURPHY
Secretary of the District

June 10, 1992

Dear Dry Cleaning Industry Representative:

PURPOSE

The purpose of this letter is to inform you of specific wastewater discharge requirements for your dry cleaning facility. The District has evaluated the need to regulate perchlorethylene in wastewater discharges from dry cleaning establishments. Perchlorethylene that comes into the District's treatment plant is either released into the air or passes through the treatment plant and is discharged to the Bay. Perchlorethylene is of concern to the District because of state and federal discharge limits on toxic substances. Based on our evaluation, the District has established a perchlorethylene discharge limit of 0.5 parts per million (ppm) and is specifically limiting the sources of wastewater which dry cleaners can discharge to the sanitary sewer since these wastes contain perc in excess of the discharge limit.

GROUNDWATER CONTAMINATION

A recent study of groundwater and soil contamination in the Central Valley has shown that perchlorethylene exfiltration from sewer lines may cause contamination of the soil and groundwater. In the study, both cooling water and separated condensate (separator water) from various types of dry cleaning equipment contained perchlorethylene in concentrations of up to 1100 ppm in separated condensate and up to 4 ppm in cooling water.

Monitoring wells installed adjacent to dry cleaners have shown perchlorethylene levels in the groundwater of up to 32 ppm. The Maximum Contaminant Level set by the Department of Health Services for drinking water is .005 ppm.

An analysis of soil and groundwater along the sewer lines has caused the Central Valley Regional Water Quality Control Board to conclude that perchlorethylene in discharges to the sewer from dry cleaners may exfiltrate through the sewer lines into surrounding soil and groundwater.

1108

AIR TOXICS

In addition to the concern about perchlorethylene exfiltration to groundwater, there are significant air quality concerns. Currently, perchlorethylene accounts for about 2% of the District's overall facility cancer risk. If the California Air Resources Board adopts a regulatory amendment identifying perchlorethylene as a Toxic Air Contaminant, as they are expected to do, then the potency factor used in Health Risk Assessments will increase and perchlorethylene emissions would then account for about 20% of the District's overall facility cancer risk.

Dry cleaners will also be directly affected by the public notification provisions of AB2588 and the proposed Toxic Air Contaminant Reduction Plan of the Bay Area Air Quality Management District, which is scheduled for implementation in the fourth quarter of 1992.

DISCHARGE PROHIBITION

Because of the significant risks of continued discharge of perchlorethylene, the District is announcing a prohibition on the discharge of wastewater containing perchlorethylene to the sanitary sewer where the wastewater is in excess of the District limit of 0.5 ppm for chlorinated hydrocarbons. This prohibition is effective immediately.

Specific sources of wastewater that are <u>not allowed</u> to be discharged to the District's sanitary sewer collection system include those from:

- Recovery dryers (reclaimers)
- Distillation stills
- Separators
- Condensers
- Muck cookers (earth cookers)
- Cooling towers
- Sniffers (vapor recovery units)
- Air vacuum systems
- Spills
- cleaning or flushing water from equipment
- Any other equipment which uses perchlorethylene either alone or in combination with water, detergent or other solvents
- steam sweeping or stripping discharges

In addition to the above prohibited sources, the District prohibits the discharge to the sanitary sewer of waste perc, still oil and sludge, filter cake, cartridge filter drainings, and waste from spot cleaning operations.

Wastewater from the above sources and any other source of water which may be contaminated with perchlorethylene can be disposed of in several ways. Separator water can be reused to make up pre-spotting solutions.

Wastewater contaminated with perchlorethylene can be containerized and off-hauled by a hazardous waste treatment or recycling company. The companies which now dispose of dry cleaners' still bottom oils and filter cartridges can be contacted regarding transportation and disposal of wastewater from these sources. Receipts from the waste hauler must be kept on file for three years and are subject to inspection by the District.

Dry cleaners <u>are</u> allowed to discharge to the sanitary sewer wastewater from the following sources only:

- Domestic waste from rest rooms (toilets and sinks)
- Water from cleaning operations (mopping floors, etc.) as long as any spills of perchlorethylene have first been properly cleaned up and disposed of
- Water from clothes washing machines that use water and/or non-chlorinated solvent cleaning products
- Non-contact cooling water

The District will conduct random inspections of dry cleaning businesses. Violators are subject to enforcement actions as described in Sections 10.16.060 and 10.16.065 of District Code. Examples of possible enforcement actions include fines of up to $5,000 per day and/or disconnection of sewer service.

If you would like additional information please contact the District's Source Control Section at (510) 229-7288.

Attachment I

PRESENTATION TO REGIONAL WATER QUALITY CONTROL BOARD –

GREGORY VILLAGE MALL

MARCH 28, 2011

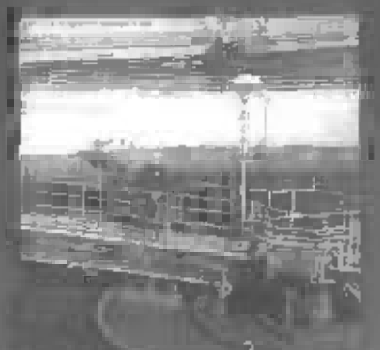
Central Contra Costa Sanitary District

CCCSD SHOULD NOT BE NAMED IN A CLEANUP AND ABATEMENT ORDER

- Dry cleaner source of VOCs, not sewers
- CCCSD has excellent collection system maintenance program – sewers are well constructed and maintained
- CCCSD has excellent source control program – PCE discharge prohibited
- Groundwater flow carried pollutants off-site to the north
- CCCSD and sewers not an appreciable contributor to discharge or migration of pollutants

CCCSD MISSION

WE PROTECT PUBLIC HEALTH AND ENVIRONMENT BY



- Collecting and treating wastewater
- Recycling water reuse
- Pollution Prevention Program

3

CENTRAL CONTRA COSTA SANITARY DISTRICT OVERVIEW

Public Agency established in 1946
Elected Board of five
145 sq. mile service area
Serve 455,000 residents and 5,000+ businesses

Operate sewer system
Treats 41.1 MGD
Wet weather capacity 240 MGD

13 years of Total Compliance with NPDES Permit

Pollution Prevention Program
- Source Control
- Household Hazardous Waste Collection Facility
- Educational Program

4

CCCSD COLLECTION SYSTEM

1,500 miles of sewer
137,000 connections
35,000 manholes
18 pumping stations

5

CCCSD RECOGNIZED FOR COLLECTION SYSTEM MAINTENANCE EXCELLENCE

- CWEA Large Collection System of the Year in California in 2007, 2002, 1992 & 1988
- CWEA Collection System Person of the Year in the Bay Section in 1997, 1996, 1995, 1994 and 1992
- CWEA Collection System Person of the Year in California in 1992

6

CCCSD PRETREATMENT PROGRAM

(Industrial/Commercial Source Control)

7

CCCSD PRETREATMENT PROGRAM HISTORY

- Adopted ordinance in 1963 prohibiting discharge of harmful substances into the sewer system (e.g. PCE)
- Further strengthened ordinance in 1974 to address specific pollutants including chlorinated hydrocarbons
- Federal Pretreatment Program regulations issued in January 1981
- Current pretreatment program adopted by District Board of Directors in August 1981 and approved by EPA September 22, 1982
- Ordinance revisions in 1981 and 1991 to further prohibit discharges such as PCE and TCE into sewers

8

CCCSD PRETREATMENT PROGRAM HISTORY (cont'd)

- Program evolved to include inspections and regulation of commercial users
- Around 1992 BAAQMD began an aggressive inspection program for dry cleaners and CCCSD coordinated with the BAAQMD regarding enforcement of CCCSD ordinances
- In 1994 CCCSD took over performing of inspections of dry cleaners when BAAQMD deemphasized their dry cleaner program
- Local Discharge Limits of CCCSD adopted in September 2007 to further clarify zero discharge of PCE from dry cleaners

9

CCCSD PRETREATMENT PROGRAM RECOGNIZED FOR EXCELLENCE

Awards from USEPA's CWA Recognition Program in the Pretreatment Program Excellence Category

- 2005 – 1st Place – national
- 2001 – 1st Place – national
- 1998 – 1st Place – national
- 1993 – 2nd Place – national

(Awards started in 1989 and were discontinued after 2008)

10

GREGORY VILLAGE MALL CONTAMINATION: THE PROBLEM

- Multiple sources of VOCs and other pollutants
- Dry cleaners, gas stations and other potential sources of pollutions have been present for up to 50 years
- High levels of PCE/TCE detected in groundwater monitoring for 10+ years
- Contaminated plume, including high levels in soil vapor, have migrated north into residential area
- Indoor air monitoring has detected VOCs in indoor air

11

GREGORY VILLAGE MALL POLLUTION SOURCES

- P&K Cleaners discharged PCE/TCE from 1965 to 1991
- One Hour Martinizing (Chevron Site) Cleaners discharged PCE/TCE from 1956 to 1986
- Chevron Station operated for 50 years to present with onsite vehicle maintenance/repair until 1987
- Phillips Gas Station at 50 Doray Drive operated up through 1970's
- Unocal Station at 1690 Contra Costa Blvd. operated for many years until 1998
- Several other small business are potential sources of pollution within mall and immediate area

12

CCCSD INVOLVEMENT TIMELINE

- Prior to 2009 no knowledge of groundwater contamination
- June 2009 District employee accompanied EKI to assess sewer and manhole condition (Sewers in good condition, no contamination found; information provided in EKI report but not covered in power point presentations to RWQCB)
- September 2010 RCRA letter from Stanzler Law Group that Gregory Village Partners, L.P. intends to file suit under RCRA for PCE/TCE contamination
- January 2011 RCRA letter from Paladin Law Group

13

CCCSD PROACTIVELY RESPONDS TO PROTECT PUBLIC HEALTH

CCCSD responded to the RCRA notices and indoor air sampling results by initiating contact with

- The Regional Board
- The City of Pleasant Hill
- The Contra Costa County Health Department

14

FATE AND TRANSPORT OF VOCs

- Review location and levels of contaminants
- Review flow and direction of flow in sewers
- Discuss groundwater modeling
- Conclude: Off-site contamination can be explained by natural groundwater flow

15

ALLEGATIONS THAT DISCHARGE FROM SEWERS CAUSED OR CONTRIBUTED TO REGIONAL PLUME

Contend sewers contributed to groundwater contamination by:

1. Sewer trench backfill acted as a preferential pathway for PCE/TCE migration
2. Sewer overflows contributed to spread of PCE
3. Sewer surcharging resulted in leakage from sewer
4. Damaged sewer mains leaked while the dry cleaner(s) were in operation
5. Flat sewers on Shirley Drive contributed to the spread of PCE/TCE contamination

16

RESPONSE TO SEWER CONTRIBUTION ALLEGATIONS

1. Sewer trench backfilled with native soils
2. Any PCE discharged to sewer main would be highly diluted by the existing flow
   - PCE discharge to sewer main in concentrated form unequivocally illegal
3. No record of recurrent or major overflows around site
4. Sewer main surcharging rare and only occurs with infiltration (not ex-filtration)
5. No evidence sewer main near MW8 required repair during use periods of PCE
6. Slope of sewer mains near site did not contribute to spread of PCE
7. Entire sewer lateral responsibility of property owner

17

OWNERSHIP OF SEWER LATERAL

- Private ownership of sewer lateral extending to sewer main
- Responsibility for maintenance and repair of entire sewer lateral remains with the private property owner
- Code Section 9.10.040 – Ownership, maintenance and connection of side sewers:

"A side sewer is a private facility. The property owner shall be responsible for constructing, repairing and maintaining the entire side sewer between the building and the public sewer (including both the lateral and building sewers, and the tap, saddle or wye connection to the public main sewer). ..."

18

RELEASE FROM P & K CLEANERS OPERATIONS

- Reports replete with references to probable substantial contribution from private lateral behind P&K Cleaners:
  - Clayton Environmental Consultants, Limited Subsurface Investigation dated September 26, 1997 "The highest concentrations of PCE in soil and groundwater occur in the vicinity of the rear entrance to P&K's Cleaners (1643 Contra Costa Boulevard), indicating that a release of PCE has occurred, most likely from the drainlines at P&K's Cleaners, and likely over a long period of time."
  - ACC Environmental Consultants, Subsurface Site Investigation, dated April 2, 2003 "ACC concluded that soil impacted by PCE was localized beneath the former dry cleaning machine and immediately adjacent to the sanitary sewer line exiting the back of P&K Cleaners"

NO JUSTIFICATION TO NAME CCCSD ON CAO

- Evidence shows P&K Cleaners and Chevron site as primary sources
- Highest levels of VOCs around P&K Cleaners and Chevron in soil and groundwater
- Private property owners responsible for maintenance of sewer laterals on their property
- Natural groundwater flow transported VOCs downgradient of P&K Cleaners into the residential area over applicable time periods

NO JUSTIFICATION TO NAME CCCSD ON CAO

- Public sewering agencies should not be named on CAO's on dry cleaning sites absent strong basis
- No strong basis at Gregory Village Mall site to name CCCSD. CCCSD acted prudently and has a strong history of:
  - Source control prohibitions
  - Pollution prevention programs
  - Excellent sewer maintenance

NO JUSTIFICATION TO NAME CCCSD ON CAO

- Responsible public agencies and the tax paying and rate paying public should not be made primarily responsible for investigation and clean up of pollution caused by private for profit enterprises or emanating from commercial investment properties.

CONCLUSION

- District has met every industry standard and exercised due care and should not be named by RWQCB as a party to the clean-up abatement order
- Questions?
- Discuss next steps

Attachment J

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ELAINE R. BOEHME
Secretary of the District

September 10, 2014

Mr. Bruce Wolfe
CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

TENTATIVE ORDERS FOR SITE CLEANUP REQUIREMENTS FOR 1643 CONTRA COSTA BOULEVARD AND 1705 CONTRA COSTA BOULEVARD – PLEASANT HILL

Dear Mr. Wolfe:

On July 2, 2014, the San Francisco Bay Regional Water Quality Control Board (RWQCB) transmitted Tentative Site Cleanup Requirements for 1643 and 1705 Contra Costa Boulevard (Tentative Orders). The deadline for submitting written comments was August 4, 2014, and the Central Contra Costa Sanitary District (District) filed general comments on that date. On August 25, 2014, the RWQCB authorized a second written comment period to allow interested parties an opportunity to provide additional comments or to rebut any previously submitted comments by other parties. The District therefore submits this letter to rebut technical comments submitted by Gregory Village Partners, LP (GVP) on August 4, 2014. A separate letter from District Counsel is being submitted to rebut GVP's legal comments as well.

After more than one year of reviewing extensive documentation filed by both the District and GVP, the RWQCB staff determined that there is insufficient data to support naming the District as a discharger on the Tentative Orders. In its August 4, 2014 comments, GVP repeated old technical arguments in order to criticize the RWQCB staff's analysis in the Staff Report. Although the District believes the evidence it previously submitted to the Regional Board speaks for itself, the District finds it pertinent to correct and clarify these issues for the Regional Board prior to the hearing scheduled for November 11, 2014. As explained herein, the RWQCB staff's determination to forgo naming the District as a discharger was technically justified.

The RWQCB staff identified four criteria to consider whether to name the District in the two Tentative Orders and correctly found that the four criteria were not met when they decided not to name the District in the Orders at the two Sites. Firestone claims that all four criteria were met without providing any new information to base this claim. The four criteria are presented below.

1) ***There was a release from the sewer main that contributed to the plume.***

The records and data document that the sanitary sewer system serving the two Sites did not release any significant quantities of perchloroethylene (PCE) or other chlorinated volatile organic compounds (CVOCs) that substantially contributed to the plume. However, the data does document known releases from the dry cleaning operations at the two Sites; the off-site migration is consistent with these known release sources and the groundwater direction and rate. The District is not saying that sanitary sewer systems have never leaked, but the condition of the sewer system serving the two Sites is rated at good to excellent and there is no substantial evidence in the record that it contributed as a material factor to the releases causing the environmental contamination.

2) ***The sewer owner/operator knew of leaks and failed to repair them.***

The District responded to conditions observed within the sanitary sewer system in a timely manner. Furthermore, there is no evidence that the District had knowledge of leaks and failed to respond appropriately.

3) ***The sewers were in poor condition and/or were not maintained.***

No reliable evidence has been produced that the sewer system serving the two Sites were either in poor condition or not properly maintained. To the contrary, all reliable information suggests that during all relevant times, the sewers in question were at a minimum in good condition, if not in excellent condition. Furthermore, the Ten Year Progress Report summarizing the District's collection system maintenance practices for the period from 1973-1982 present in the RWQCB's files, documents a proactive collection system maintenance program with performance measures that exceed the current level of service for many sanitary sewer collection system operators. (Attachment 1)

4) ***The sewer owner/operator was aware of/or permitted discharges into a leaking sewer.***

There is no evidence that the District was aware of any discharges or permitted any discharges into leaking sewers. Since 1953, the District's ordinances established narrative and numeric limits to control discharges of significant concentrations of PCE and other CVOCs into its sanitary sewer system. The standard wastes generated by dry cleaning operations would significantly exceed the numeric discharge limits and violate the narrative limits as well. If the two dry cleaning operations at the two Sites discharged wastewater in compliance with the ordinance standards, any incidental releases of wastewater from the District's system could not have significantly contributed as a material factor to the releases to the environment.

Rebuttal to August 4, 2014 letter submitted on behalf of GVP by Edward Firestone

Firestone and the GVP consultants continue to misrepresent the District's sanitary sewer maintenance and regulatory programs to characterize the District in unfavorable light. These efforts attempt to shift the cost burden of investigating and remediating the release of PCE from its property to the District's ratepayers.

Primarily, the additional information provided by GVP is the declaration by Bonneau Dickson, a Registered Professional Engineer, who identified that his opinions were based on reviewing specified documents provided by GVP. In general, Dickson uses generic statements about what could happen in a sanitary sewer collection system to implicate that it did happen in the District's sanitary sewers serving the two Sites. In essence this repeats the unsubstantiated claims previously made by GVP representatives in prior submittals.

In his declaration, Bonneau Dickson did not accurately identify the District staff who submitted the May 28, 2013 Response to 13267 Letter Questions. Mr. Dickson identifies the letter he reviewed was from Tim Potter, who was signatory to the letter, but he fails to identify that Curtis Swanson also signed and stamped the May 28, 2013 letter with his Professional Engineer stamp. Curt Swanson is a Registered Professional Engineer, who retired from the District in March 2014, with more than 33 years of experience with the District working on sanitary sewer collection system design, construction, maintenance and operations, as well as responsibility for the development of the District's Standard Specifications while serving in the Environmental Services Division. He worked for the State Water Resources Control Board for three years prior to joining the District. Curt Swanson is at least as experienced as Mr. Dickson; however his conclusions are decidedly different.

Dickson Opinion #1 – Gravity sewers never were and still are not designed or constructed to be free of leaks.

To summarize Dickson's opinion, he focuses on the joints of vitrified clay pipe (VCP) and refers to an article discussing problems with VCP during the 1940s and 1950s. Dickson states that "little attention was paid to leakage in sewers until after World War II" and "that problems of infiltration is widespread." This argument seems to imply evidence that sewer systems made of VCP leaked and that infiltration equates to exfiltration of water and CVOCs.

Properly installed sanitary sewer pipes using VCP create an effective gravity sanitary sewer system to convey wastewater to the treatment plant. Properly installed VCP joints establish a liquid tight seal to support this conveyance. The seal of the VCP joints is documented during the pressure testing of the system, before the District accepts the installation of new pipes into its system (addressed below). The District is not saying that VCP joints do not fail, but the available evidence demonstrates that the VCP pipes from the original installation, have not failed. The sewers serving the dry cleaning operations in the two Sites were not built before World War II therefor the referenced article is not relevant. The issue of infiltration versus exfiltration is addressed in response to Dickson Opinion #3 below.

Dickson Opinion #2 – Immediately after the sewers were installed in the area of the Gregory Village site and the Chevron site ("sites"), it is likely that the sewer lines sagged and joints failed.

Dickson's opinion is based on three generic concepts. The first is that "it is well known in geotechnical engineering that most of the settlement of recompacted soil takes place in the first year after construction"; the second that "the type of joints used.:. during the era when the sewers were brittle and would crack and leak if there was the slightest movement of the pipes"; and third that "tree roots very rapidly search out sewer pipes as a source of water and nutrients."

Based on the District's extensive experience installing, maintaining and repairing sanitary sewer pipes, the District does not concur with Dickson's opinion that defects and failures that are currently present in a sewer system are likely to have occurred within one to three years after their original installation. As recorded in the District's prior submittals, more than sixty years after their installation, the sanitary sewer lines serving the two dry cleaning operations at the two Sites are currently rated as being in good to excellent condition with few minor defects. The recorded defects include two minor sags, hairline cracks, and only one failure that apparently occurred after a GVP contractor attempted to drill a bore hole in September 1997 that damaged the District's sanitary sewer pipe. The truism presented by the District in the 5/28/13 submittal that sanitary sewer are in the best condition when they are newer is important when considering the current good to excellent condition of the District's lines serving the dry cleaners.

Defects and failures of sanitary sewer pipes occur for a variety of reasons (e.g. environmental, chemical, anthropogenic); some are short-term in their formation while others take many years to form. Settlement of re-compacted native soil used as bedding material will occur but to assume that it does so in a manner that causes all VCP joints to fail within a year is unfounded and does not consider the current condition of the District's pipes serving the two dry cleaning operations at the two Sites. Finally, there is no evidence of root intrusion. In fact by looking at a map, it is clear that these sewer lines are predominantly in the street and parking areas, under impervious surfaces. Based on the current CCTV records, root penetrations into the VCP pipe is minimal or non-existent.

Dickson Opinion #3 – The sewers in and around the sites are certain to have had significant infiltration of groundwater and exfiltration of waste from inside the sewers beginning from time they were built through this day.

Dickson's opinion is that the pipes were installed with a high leakage allowance due to the District's allowance for infiltration when designing the capacity of sanitary sewer lines. It also references many VCP joints, the nature of VCP as brittle, use of poor gasketing material, and unglazed VCP would allow vapors to pass through the pipe walls. The opinion also claims the slope of the sanitary sewer lines serving the Sites are flat resulting in build-up of solids damming the wastewater flow.

The hydrostatic and air testing methods used by the District, and other wastewater collection system agencies, are pressure tests of new lines to ensure proper construction. The pressures created during these tests do not exceed the pressures occurring during operations of a gravity sewer system. Routine peak flows through sanitary sewers is approximately half the liquid

level used for the construction testing and exerts minimal pressure on the pipe walls. Even when a pipe is surcharging, it will not experience the same pressures used in the pressure tests because the lines will overflow through manholes and other outlets before the additional head used in hydrostatic testing is realized. In summary, to claim that the pressure tests' tolerance levels used by the industry to assess the integrity of new pipes represents a leakage rate during use misinterprets the application of the test procedure and is in error.

Early District Standard Specifications reference infiltration, although the allowance was for an inflow/infiltration (I&I) rate for the design of sanitary sewer collection system capacity. It is prudent engineering practice to allow for I&I and can be considered as a factor of safety in the sizing criteria and recognition that over time there will be I&I in the system. Allowing for infiltration in design capacity does not mean that infiltration will occur for all sanitary sewer pipes at that rate. Infiltration frequently occurs when pipes are below groundwater and where water percolates past the pipe and the seal of the pipes are significantly compromised (e.g. off-set joints, significant cracks/breaks). Industry estimates of 30-50% for I&I allowance is due to private laterals that are connected to the sewer collection system and for which the District is not responsible.

Equating infiltration to exfiltration oversimplifies the conditions present in sanitary sewer lines and is not accurate. Water flows in the path of least resistance. For example, when pipes experiencing infiltration are submerged under groundwater, pressure from outside the pipe forces water into the sanitary sewer pipe so the wastewater inside the pipes will typically not flow out of the pipes through these same openings. When these same pipes are not submerged in groundwater (e.g. lower water table during dry season), the previous pressures, present from the outside when they were submerged, do not exist with the wastewater flowing by gravity inside the pipes.

Medium to high volume and velocity in the collection system will affect the tendency for wastewater to leak through significant breaks in the seals of the collection system pipes (e.g. off-set joints, significant cracks). No such conditions are present in the line segments serving the two Sites.

While there are cracks present in the sanitary sewer pipes serving the two Sites, they are hairline cracks located above the standard flow level of wastewater and they do not pose a threat to the structural integrity of the pipes. The presence of hairline cracks will not result in wastewater leaking out of the pipes under standard conditions. Even larger cracks located above the standard flow level in the pipe will not leak under standard conditions. A properly designed and maintained gravity system provides a path inside the pipe to enable wastewater to flow to the treatment plant and not leak to the environment. The path of least resistance is inside the pipe which is not under pressure to leak out of the pipe.

The experience of the District's Collection System Operations staff when responding to a repair of a significantly damaged sanitary sewer pipe, is that the soil around pipes being repaired is often dry, or moist for only several inches to feet around the pipe indicating that despite the need for an emergency repair the amount of sewage leaking from the damaged pipe is relatively minimal. This empirical observation is made when there's been a significant failure in the line prompting the emergency repair so to assert that properly functioning sanitary sewer lines routinely leak wastewater and wastes is without merit.

The opinion's claim that PCE vapors are prone to passing through the walls of vitrified clay pipes is theoretical and does not consider the conditions of a gravity sewer system. A gravity sewer system is open and has flowing liquid present during most of the day. In order for PCE vapors to pass through the pipe material, the pressure of the PCE vapors would need to build up so that pressure is created to force the PCE vapors to permeate the pipe material. As long as there is open space in a sanitary sewer collection system (as is the case with a properly functioning gravity sewer system), the PCE vapors will fill that space before enough pressure is built up to leak into the environment. The flow of water in the gravity sanitary sewer system also creates a draft of air that would evacuate any accumulated PCE vapors that were present, which would not allow the PCE vapors to accumulate and build up pressure.

If vapors passively pass one way through a pipe material, they would passively pass the other way through the pipe material. GVP's consultant's,(EKI) documents record the presence of PCE vapors in the environment near the sanitary sewers serving the two Sites which would result in the vapors passing through the pipe walls into the District's pipes if Dickson's opinion were valid. EKI conducted an assessment of the condition and operations of the District's sanitary sewer system in 2009. This assessment including measuring the atmosphere inside the manholes of the sanitary system serving the Sites and the nearby neighborhoods for CVOCs, including the areas subsequently documented to have soil vapors containing high levels of PCE. As recorded in the report filed by EKI, these atmospheric monitoring results were all non-detect indicating that the PCE vapors do not readily penetrate the walls of VCP of the District's sanitary sewer system serving the two Sites and the surrounding neighborhoods.

The claim that the slope of sanitary sewers serving the two Sites are flat which would result in accumulation of solids creating small dams in the system does not reflect the actual conditions in the District's collection system. The sewers serving the two Sites have slope and they function properly. As-built plans show half a percent slope for the sanitary sewer pipes in the area. Closed Circuit Television (CCTV) records show that wastewater flows unobstructed through the pipes serving the two sites. The maintenance frequency set for routine cleaning intervals for the lines serving the two Sites is scheduled at the least frequent cleaning interval which reflects standard operating conditions and not a buildup of solids or obstruction of these lines.

Dickson Opinion #4 – The design and installation of the CCCSD sanitary system in the area of the two sites makes sewer maintenance and sewer cleaning difficult.

Dickson's opinion is the length and jog in the District's sanitary sewer segment between MH59 and MH46 is longer than current District standards and could hamper maintenance. The opinion also references a 1977 District maintenance record for the line segment in Linda Drive that was subsequently abandoned.

This assertion is unfounded and there is no institutional history to support the claim. The District operates a high quality, effective sanitary sewer collection system operation and maintenance program. The program's performance exceeds most industry standards which is reflected in the extensive program and individual awards received over the past 26 years The District's commitment to operating an excellent collection system maintenance program preceded the time period when the award processes were started.

Many older line segments of the District's sewer system do *not* meet all current standards (e.g. longer distances between manhole structures). While longer sewer lines are not desirable, our cleaning crews have not had problems cleaning this line by accessing from the upstream and downstream manholes. Such lines are periodically evaluated and scheduled for replacement or spot repair (e.g. installation of manhole structures) if there are any problems with operations or access to conduct routine maintenance. These lines serving the two dry cleaning operations including the line between MH59 and MH46, have not experienced operational problems nor posed problems with access to conduct routine maintenance so they have not needed replacement or spot repairs to install additional manholes.

Although Dickson's reference to the 1977 maintenance record is not related to the opinion's content on the design and installation of the District's sanitary sewer system, it illustrates the District responsiveness to repairs based on site conditions. The 1977 maintenance record assigned a construction crew to *in*stall a "T" to allow a customer from across Linda Drive to con*n*ect to the District system running along the western edge of the Chevron property. The work order notes the condition of pipe and records the repair of six feet of pipe as part of the job. It is the District's routine practice when conducting spot construction to existing lines is to chase up the line until good pipe is reached to ensure the work performed was connecting to good pipe. Based on the record's dimensions, work would have been under the sidewalk where the old sewer line was located. It is not clear when the damage to the pipe noted in 1977 occurred. This repair does not represent substantial evidence that the condition of the pipe was a material factor causing release to the environment.

Dickson Opinion #5 – The sanitary sewer industry generally accepts as true the mechanisms described in Izzo report relating to release of PCE from sewer lines.

Dickson's opinion is not clearly established. The opinion cites the five mechanisms for potential releases of PCE from sanitary sewers presented in the Izzo report and quotes a phrase from the report regarding the author's assessment regarding infiltration in sanitary sewer pipes can result in exfiltration.

The sanitary sewer industry does not accept as true the five mechanisms for PCE to release from sanitary sewers identified in the Izzo report. Such blanket acceptance would result in sanitary sewer collection system operators being liable for cleaning up all PCE releases from sites that have a co*n*nection to a sanitary sewer system, as GVP is attempting to do in this case. The Izzo report was useful in describing situations in a few Central Valley communities to respond at that time to relatively recently discovered PCE releases that were impacting critical drinking water wells for the communities. Although the Izzo report identified that PCE could be released from sa*n*itary sewers via five mechanisms, this does not demonstrate a PCE release from sanitary sewers, absent the conditions present in the communities evaluated as part of the study. The condition of the District's sanitary sewer system serving the two dry cleaning operations at the two Sites does not have the same structural defects found in the systems evaluated in the Izzo report. In addition, the Dist*r*ict's maintenance program was significantly more prophylactic tha*n* those operated by the Central Valley communities evaluated in the Izzo report.

Dickson Opinion #6 – The CCCSD operations and maintenance ("O&M") program always was and still is designed to keep the wastewater flowing through the sewers but not to prevent leaks from the sewer system, unless the leaks are significant or catastrophic.

Dickson's opinion claims that a maintenance program that strives to keep wastewater flowing through the pipes is not oriented toward fixing leaks in sewers, claiming that defects in the system equate to blockages. The opinion goes further to claim that the District allowed PCE from dry cleaners to be discharged that could account for concentrations of PCE in the environment.

This opinion misses the point regarding the purpose of a repair and maintenance program, Keeping the sewers flowing through the system to the treatment plant by correcting defects and cleaning pipes results in elimination of conditions that may lead to the greater opportunity for leakage. A proper operating sewer system minimizes the potential for blockages resulting in overflows of untreated sewage that can pose a public health threat or result in property damage claims. As previously noted, a sewer system with flowing wastewater is not prone to leaking, absent major structural defects, which are not present in the sanitary sewer lines serving the two Sites. The District's collection system maintenance program historically conducted prophylactic cleaning procedures to ensure wastewater flows through the sewer pipes without obstruction, as much as possible and continues with this emphasis. The District would be remiss if it did not operate its collection system maintenance program in this manner.

Dickson's opinion does not accurately reflect the CCCSD maintenance records on file. Conditions that result in defects that could leak wastewater from the pipe segments are addressed in a timely manner. The District has used CCTV, since it was available for use by the sewer industry in the early 1970s, to assess the condition of potential problem lines. The District responded to identified problems by either conducting spot repairs using the Collection System Operations' crews or scheduling the lines for replacement or upgrade through the District's Capital Project program. Using the Ten Year Progress Report data, the District regularly completed spot and structural repairs to ensure the system continued functioning properly.

The opinion makes a simple claim that defects noted in the GVP July 3, 2012 letter resulted in blockages of the system causing leakages without any data to support the opinion. The GVP letter was based evaluation of the District's maintenance records and there were no defects recorded that resulted in blockages of the lines serving the two Sites in these maintenance records. The incident involving the line under Doray Drive occurred many years after the dry cleaners at the two Sites ceased on-site dry cleaning operations and was apparently caused by GVP's contractor (see response to opinion # 2 above). None of the other defects referenced in the maintenance records for the lines serving the two dry cleaners at the two Sites would result in blockages.

The District acknowledges that the numeric discharge limits present in the different ordinances from 1953 to present do allow very low concentrations of PCE and other CVOCs to be present in wastewater discharged to the District's system. The discharge limits were set at such low levels that a discharger would have to treat the wastewater (e.g. activated carbon) to meet them or the source would have to from an incidental exposure of the wastewater to the CVOC. The District has consistently identified that the concentration of PCE present in all wastes and

wastewaters generated by dry cleaning operations would exceed all the discharge limits and violate all the narrative prohibitions present in all the District ordinances beginning in 1953.

Dickson correctly identifies the solubility constant for PCE to be 150,000 ug/L (ppb or 150 ppm) and he also correctly identifies that this concentration would likely be present in the separator water generated by dry cleaners which would be the least contaminated waste generated. Using the highest discharge limit in effect during the dry cleaners operations at the two Sites (0.5 ppm PCE), a discharge of separator water with a concentration of 150 ppm PCE would exceed by more than 150 times the District's discharge limit. Using the more conservative discharge limit in effect during 1974 (0.002 ppm), the separator water would exceed the limit by 75,000 times. Discharging pure PCE would exceed the discharge limits by even more orders of magnitude.

In addition, District ordinances required dischargers, of such pollutants as CVOCs, to obtain wastewater discharge permits to authorize the discharge of process wastewater to the sewer system. No dry cleaners, including the two dry cleaning operations at the two Sites, applied for, nor were issued, such permits. Because the discharge of all dry cleaning wastes would have been illegal under the District's ordinances, the District has used the term "prohibited" to describe the regulatory standards in place to control discharges of CVOCs during the time period the two dry cleaning operations at the two Sites were open for business.

The opinion hypothesizes a scenario of dry cleaners discharging illegal concentrations of PCE from the two Sites to the District's system and then using the hydrostatic pressure test's tolerance rate (addressed in response to opinion #3 above) to assume a leakage rate for all these solvent discharges to release from the sewer pipes to opine that the District's sanitary sewer pipes could be responsible for the environmental concentrations identified to date. The opinion does not evaluate any specific data available for the two Sites when offering this hypothesis. Keith O'Brien, a Registered Geologist with extensive experience investigating and remediating groundwater contamination incidents, provided a comprehensive assessment of the environmental contamination at the two Sites which was included in the District's May 28, 2013 letter as Attachment A. O'Brien concludes that all the environmental data is consistent with the off-site migration of contaminated plumes from the known releases of the two dry cleaning operations. O'Brien further concludes that the available environmental data does not demonstrate the District's sanitary sewer collection system contributed to the release of PCE and other CVOCs analyzed.

Moreover, Opinion 6 contradicts Dickson Opinions 1 and 3 which claim sewers are designed to leak. If sewers were actually designed to leak and a sewer maintenance program was supposed to prioritize repairing leaks, then sewer maintenance programs would need to replace sewer lines as soon as they were installed. In fact, none of these opinions are accurate with regards to sewer collection systems generally and the District's collection system design, construction, and maintenance standards and programs specifically.

Dickson Opinion #7 – Varying flows of waste due to minor or major blockages in the CCCSD sewer system could have forced chlorinated volatile organic compounds (CVOCs), either in pure or dissolved state, upstream into other branches of sewer system.

Dickson's opinion is based on hypothetical conditions qualified by the use of "likely" and "could have" in the discussion. It is overly simplistic and not based on the actual conditions present in the sewer system. In order for a blockage in the pipes to result in a backup of wastewater from the two Sites into the northern neighborhoods, the blockage would have to be either, the relatively short length of 15 inch pipe downstream of the pipe coming from Shirley Drive before it enters the larger pipe in Contra Costa Boulevard, or a blockage in the pipe in Contra Costa Boulevard downstream of the 15 inch pipe serving the two Sites and the surrounding neighborhoods. Blockages in pipes 15 inch and larger is rare and considered major events, since the volume of wastewater and the number of customers involved is significant. There are no records or historic knowledge of such backups occurring in these lines.

Even if such blockages did occur, the speculation that CVOCs would be transported into the northern neighborhoods would require conditions to exist that contradict the specific site conditions present in the CCCSD collection system serving the area. The line serving the northern neighborhood enters the 15 inch line well above the level of standard flow (approximately 4-6 inches from the standard wastewater flow level). Any pure CVOC product will be heavier than water and remain in the bottom of the pipe while the pipe would fill due to blockage downstream. This drop would preclude pure product from reaching the level of the pipe coming in under Shirley Drive. Additionally if pure product were present in the 15 inch line under a blockage condition, it would start to back up in the bottom of the 15 inch line putting the neighborhoods to the west at risk of a release, before it could start flowing into the sanitary sewer lines serving the northern neighborhoods. There is no existing environmental data identified of such a release in the western neighborhoods.

Dissolved CVOCs could theoretically be present in liquid that would back up into the northern neighborhoods causing the liquid level to rise in the 15 inch pipe above the level of the pipe entering from Shirley Drive. This concentration would be very dilute, as a result of mixing with uncontaminated wastewater from all upstream sources of the northern and western neighborhoods. Therefore, the same theoretical contaminated wastewater could fill the pipes throughout most of the northern and western neighborhoods, creating the same risk of leakage throughout the area. Again, existing environmental data does not identify any leakage occurring.

Dickson Opinion #8 – *Vapor in the sewer lines, including PCE vapor, can move preferentially upstream in sewers and/or in the backfill around the sewers.*

This opinion identifies a condition that can exist in sewer systems generally but does not identify the specific conditions of the sanitary sewers serving the two Sites. The physical conditions associated with the presence and movement of PCE vapors in sewer pipes is identified in the response to Opinion #3 above. The opinion does not consider the GVP consultant findings in 2009 that no CVOCs were detected in the manholes assessed throughout the area, including areas near where high soil vapor concentrations were subsequently recorded. The opinion does not consider that the presence of detected soil vapor

results are all within the contaminated plume migrating from the known dry cleaning operations' releases as reported by Keith O'Brien.

In conclusion, the District has always and continues to take its responsibility seriously to operate a highly quality, effective sanitary sewer collection system and treatment plant that meets or exceeds industry standards. There is no substantial evidence in the record that demonstrates the District's operation and maintenance of the sanitary sewer system was a material factor for releases from the two Sites. Even under the most extreme hypothetical circumstances regarding significant leakage from the District's collection system, the levels of contamination present at the two Sites could not have been caused from the District's system if all discharges complied with the District's strict ordinance requirements. The RWQCB staff affirmed this position when they determined that there is insufficient data to support naming the District as a discharger on the Tentative Orders. The District appreciates the sound professional judgment by the RWQCB staff in assessing this complicated issue. Please contact Danea Gemmell at (925) 229-7118 or Tim Potter at (925) 229-7380 if you have any questions or would like more information on this case.

Sincerely,

Timothy Potter
Environmental Compliance Superintendent

Danea Gemmell, P.E.
Environmental Services Division Manager

FOR

Roger S. Bailey, P.E.
General Manager

Attachment – CCCSD Ten Year Progress Report to RWQCB

cc: Kent Alm, District Counsel
Kevin Brown, RWQCB

Attachment K

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September 10, 2014

Via E-mail and U.S. Mail

Mr. Bruce H. Wolfe
SAN FRANCISCO BAY
REGIONAL WATER QUALITY CONTROL BOARD
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Tentative Orders for 07S0132 and 07S0204
Site Cleanup Requirements for 1643 Contra Costa Boulevard and 1705 Contra Costa Boulevard, Pleasant Hill, California, Contra Costa County

Dear Mr. Wolfe:

On July 2, 2014, the San Francisco Bay Regional Water Quality Control Board ("Regional Board") transmitted Tentative Site Cleanup Requirements for 1643 and 1705 Contra Costa Boulevard ("Tentative Orders"). The deadline for submitting written comments was August 4, 2014, and the Central Contra Costa Sanitary District ("District") filed general comments on that date. On August 25, 2014, the Regional Board authorized a second written comment period to allow interested parties an opportunity to provide additional comments or to rebut any previously submitted comments by other parties. The District therefore submits this letter to rebut legal comments previously submitted by Gregory Village Partners, LP ("Gregory Village") on August 4, 2014. A separate letter is being submitted to rebut Gregory Village's technical comments as well.

After more than one year of reviewing extensive documentation filed by both the District and Gregory Village, the Regional Board staff determined that there is insufficient data to support naming the District as a discharger on the Tentative Orders. In its latest comments, Gregory Village raised new legal theories in order to criticize the Regional Board staff's analysis in the Staff Report. The District therefore finds it pertinent to correct and clarify these issues for the Regional Board prior to the meeting. As explained herein, the Regional Board staff's determination to forgo naming the District as a discharger was legally justified.[1]

[1] Please also note that the discussion below should not be construed as any admission of the District's liability or fault. The following legal arguments merely address those raised by Gregory Village.

I. Gregory Village's Assertion that Strict Liability Principles Require the Regional Board to Name the District is Unfounded.

Gregory Village argues that Water Code section 13304 is a strict liability statute, and therefore all "persons" that may fall within the breadth of the statutory definition for "discharger" must be included within the cleanup order. This simplified assertion fails for several reasons. Gregory Village's reliance on strict liability as a requirement for "mandatory joinder" of all known dischargers suggests that the Regional Board has little or no discretion in selecting which potential dischargers to name on a 13304 order. Such result stands in direct contravention of State Water Resources Control Board ("State Water Board") Policy, which expressly states that "[i]t is not necessary to identify all dischargers for the Regional Water Board to proceed with requirements for a discharger to investigate and clean up." (*Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code section 13304*, Resolution No. 92-49, § I(B).) The State Water Board has also noted, "It is not the responsibility of the Regional Board to track down all possible contributors to the groundwater pollution and apportion their share of the responsibility for treating a point source discharge." (*Santa Clara Transportation Agency*, WQ Order No. 88-2.)

Furthermore, and as explained *infra*, while Gregory Village is correct in observing that "strict liability" in a general sense means liability without fault, it does not ever mean liability without causation. Indeed, causation is an explicit requirement set forth in the statutory text; for liability to attach under Water Code section 13304, subdivision (a), the Regional Board must find that the discharge at issue "creates, or threatens to create, a condition of pollution or nuisance . . . ." The evidence in the record before the Regional Board will not support a finding that alleged discharges from the District's sewer pipes created or threatened to create the solvent plume, so there is no basis to name the District.

Gregory Village's reliance on a memorandum from then-Chief Counsel William Attwater, dated April 27, 1992, to support its argument that the District is strictly liable is not well taken. The memorandum concludes that public agencies that own or operate a sanitary sewer system *may* be ordered to clean up discharges of waste from their collection and treatment systems under section 13304. Although this memorandum uses the example of PCE discharged into the sewer system from dry cleaning operations, the conclusion offers little support to Gregory Village's argument because (1) its focus is largely on whether the owner or operator of a POTW can be responsible for releases from the sewer; (2) it assumes causation; and (3) it predates the majority of State Water Board precedent that requires a finding of substantial evidence to name a discharger. The District does not dispute its ownership and operation of its collection system. However, the District has submitted a considerable amount of documentation to the Regional Board to prove that its sewer lines

did not contribute to the solvent plume, and both Gregory Village and the Regional Board staff lack substantial evidence to prove otherwise.[2]

Even under CERCLA, which establishes a strict liability scheme, the U.S. EPA is not obligated to name every potentially responsible party ("PRP") on a given administrative order. For example, when issuing a unilateral administrative order ("UAO") pursuant to CERCLA section 106(a), the U.S. EPA takes into account, *inter alia*, each PRP's financial viability and technical capability to perform the response action, as well as the PRP's relative contribution to the contamination. (See, e.g., U.S. EPA, *Guidance on CERCLA Section 106(a) Unilateral Administrative Orders for Remedial Designs and Remedial Actions*, Direction # 9833.0-1a, March 7, 1990; U.S. EPA, *Documentation of Reason(s) for Not Issuing CERCLA §106 UAOs to All Identified PRPs*, Aug. 2, 1996; see also 40 C.F.R. § 300.415(a)(2) [requiring the lead agency to determine whether known PRPs "can and will perform the necessary removal action promptly and properly."].) Courts have also rejected plaintiffs' attempts to join all necessary and indispensable parties in a section 107(a) cost recovery action, because CERCLA allows defendants to file contribution claims against other PRPs not named by the government to recoup a portion of their costs. (See, e.g., *U.S. v. Kramer* (D.N.J. 1991) 757 F. Supp. 397, 423 ["The Government is not required to sue all PRPs in a section 107(a) cost recovery action."]; *U.S. v. Dickerson* (D. Md. 1986) 640 F. Supp. 448, 450 ["The courts have consistently rejected attempts by CERCLA defendants to compel the government to round up every other available defendant, noting that defendants can protect themselves through the impleader provision of Rule 14."].) The Supreme Court has further recognized that "[o]nce an entity is identified as a PRP, it may be compelled to clean up a contaminated area or reimburse the Government for its past and future response costs." (*Burlington Northern & Santa Fe Ry. Co. v. U.S.* (2009) 556 U.S. 599, 609 [emphasis added].) In other words, just because a statute may hold persons strictly liable does not mean that the regulatory authority is required to seek redress from every known responsible party.

II. The Regional Board Staff's Analysis is Legally Supported.

A. The Staff Report's Conclusions are Based Upon Substantial Evidence and There is No Substantial Evidence to Support Naming the District as a Discharger.

Gregory Village argues that Regional Board staff's application of four criteria to determine whether the District should be named as a discharger has no basis in California law. According to Gregory Village, staff improperly "adopt[ed] some concept of CERCLA defenses as a justification for not naming CCCSD as a discharger." (GV Letter, p.6.) These are specious arguments that only undermine Gregory Village's claims. On the contrary, the

[2] See the District's technical rebuttal to Gregory Village's comments, dated September 10, 2014.

Regional Board staff's determination is supported by controlling California appellate decisions and longstanding State Water Board precedential orders and policies.

It is well settled that the Regional Board must have substantial evidence in the record to support a finding that a party is responsible for the detected contamination. (See, e.g., *In the Matter of the Petition of Chevron Products Co.*, WQ Order No. 2004-0005 ["[T]he Regional Board must show substantial evidence to support naming a party in a cleanup order"]; *In the Matter of the Petition of Larry and Pamela Canchola*, WQ Order No. 2003-0020 ["There must be substantial evidence, however, to support a finding of responsibility."].) Given the dubious quality of the "evidence" offered by Gregory Village, it is worth noting the familiar rules describing what does and does not qualify as substantial evidence. The State Water Board has opined that, "In reviewing an action of a Regional Board, we look at the record to determine whether, in light of the record as a whole, there is a reasonable and credible basis to name a party." (*U.S. Cellulose and Louis J. and Shirley D. Smith*, WQ Order No. 92-04.) The State Water Board has not prescribed any specific criteria that a Regional Water Board must apply in order to justify a finding of substantial evidence. However, in other decisions where the same standard is applied, the State Water Board has offered definitions of the substantial evidence requirement.

> It has been said that if the word "substantial" means anything at all, it clearly implies that such evidence must be of ponderable legal significance. Obviously the word cannot be deemed synonymous with "any" evidence. It must be reasonable in nature, credible, and of solid value; it must actually be "substantial" proof of the essentials which the law requires in a particular case.

(*In The Matter Of Application 27868, Enviro Hydro, Inc., et al.*, WR Order No. 85-3, 1985 WL 20020 (Order Denying Petition for Reconsideration of Decision 1605) [quoting *Bank of America N.T. and S.A. v. State Water Resources Control Board* (1974) 42 Cal.App.3d 198] (some internal quotations omitted).) Furthermore, rank speculation and conjecture cannot be substantial evidence: "Inferences may constitute substantial evidence, but they must be the product of logic and reason. Speculation or conjecture alone is not substantial evidence." (*Cal. Assn. of Med. Prod. Suppliers v. Maxwell-Jolly* (2011) 199 Cal.App.4th 286, 308 [quoting *Roddenberry v. Roddenberry* (1996) 44 Cal.App.4th 634, 651].)

Without substantial evidence, the State Water Board will reverse the Regional Board's decision. For example, in *Chevron*, the State Water Board granted the petitioner's request to be removed from a 13267 order, because it found that Chevron was not responsible for and had no part in the discharge of contamination on or emanating from the site:

> There is not substantial evidence in the administrative record to support the Regional Board's finding that high concentrations of gasoline constituents

> detected in soil and groundwater at the former Chevron site are a result of discharges from the Chevron facility. The weight of evidence indicates that the contamination originates from the Opal Cliffs site....Under these circumstances, we are unable to conclude that the Regional Board appropriately named Chevron as a party responsible for the ongoing investigation and remediation of a plume originating off-site.

(WQ Order No. 2004-0005.) Otherwise stated, the evidence offered against Chevron did not meet the substantial evidence requirement needed to support a finding of responsibility.

Here, the Regional Board staff reviewed an extraordinary record of information and evidence filed both by the District and Gregory Village. As one way of gauging the adequacy of this evidence, Regional Board staff likely evaluated more specific factors to help determine whether substantial evidence supported naming the District on the Tentative Orders. The Regional Board staff considered whether (1) there was a release from the sewer main that contributed to the plume; (2) the sewer owner/operator knew of leaks and failed to repair them; (3) the sewers were in poor condition and/or were not maintained; and (4) the sewer owner/operator was awate of/or permitted discharges into a leaking sewer. Applying the four criteria, the Regional Board staff concluded the following: The District has a robust sewer maintenance program; there is no evidence of major leakage or deferred maintenance of the sewer lines during the time when dry cleaners would have disposed of separator wastewater; the District had no specific knowledge that PCE-laden wastewater in excess of the District's Ordinance's levels was being discharged into the sewer system; and there is no direct evidence that incidental leakage from the District's sewer contributed substantially to the creation of the groundwater plume.

Gregory Village attacks the staff's reliance upon this specific set of criteria as being without legal basis. The District disagrees. According to the Staff Report, this specific set of criteria is based upon the *only* Regional Water Board order that names a sewer owner/operator, the City of Lodi, as a responsible party for cleanup of soil and groundwater contamination that originated from dry cleaning operations.[3] Due to the shortage of State and Regional Water Board guidance for naming sewer districts on administrative orders, Regional Board staff acted well within its discretion to consider this set of criteria to lend further support to its conclusion that the District is not a discharger. Without analyzing the quality and maintenance of the District's sewers or whether the sewers leaked and contributed to the plume, the Staff Report's conclusions would be unsubstantiated and meaningless. Gregory Village does not offer an alternative method for determining substantial evidence, because there is none.

[3] The Staff Report notes on page 12, "Staff is only aware of one instance which a Regional Water Board named a sewer owner/operator as a discharger, and in that case there was evidence to support each of [ ] the [four] criteria."

Moreover, as will become apparent from the discussion in the next section, the factors considered by the Regional Board staff are entirely consistent with binding appellate authority on the law of causation under Water Code section 13304. The Regional Board staff acted within its discretion to consider the available evidence in light of relevant factors that apply to a sewer district. Based upon the four criteria and the totality of the evidence submitted, there is no substantial evidence to support naming the District on the Tentative Orders.

B. Controlling Appellate Decisions Support the Staff Report's Conclusions and Demonstrate a Lack of Causation for Allegations Against the District.

The Regional Board Staff's determination is further supported by state and federal appellate court decisions concerning the application of Water Code section 13304. Liability under Water Code section 13304 follows the law of public nuisance, which requires active, affirmative, or knowing contribution to the specific nuisance condition. (*City of Modesto Redevelopment Agency v. Superior Court* (2004) 119 Cal.App.4th 28, 40-41; *Redevelopment Agency of the City of Stockton v. BNSF Railway Co.* (9th Cir. 2011) 643 F.3d 668, 675.) In *City of Modesto*, the City brought an action against dry cleaning solvent and equipment manufacturers and distributors as responsible for directing dry cleaners to discharge chlorinated solvents into the public sewer and sought cost recovery under the Polanco Act. Because Water Code section 13304(a) supplies the definition of "responsible party" for the Polanco Act, the issue before the Court of Appeal was whether the prevailing defendants were responsible parties under section 13304. The Court of Appeal noted that the Porter-Cologne Act is harmonious with the common law of nuisance and considered the definition of "responsible party" in light of these principles. (119 Cal.App.4th at 36-38.) In analyzing the type of conduct that would give rise to nuisance liability, the Court held:

> [T]hose who took affirmative steps directed toward the improper discharge of solvent wastes—for instance, by manufacturing a system designed to dispose of wastes improperly or by instructing users of its products to dispose of wastes improperly—may be liable under that statute, but those who merely placed solvents in the stream of commerce without warning adequately of the dangers of improper disposal are not liable under that section [13304] of the Porter–Cologne Act.

(*Id.* at 43 (citing *Leslie Salt Co. v. San Francisco Bay Conservation etc. Com.* (1984) 153 Cal.App.3d 605, 619).)

The *City of Modesto* court accepted and applied the common-law nuisance rules that a party can only be liable for a nuisance if its actions or inactions were a substantial factor that created or assisted in the creation of the nuisance. (119 Cal.App.4th at 38-40.) *City of Modesto* carefully analyzed and, as relevant to this matter, adopted the reasoning of the court of appeal in *Selma Pressure Treating Co. v. Osmose Wood Preserving Co.* (1990) 221 Cal.App.3d

1601. Thus, the applicable law establishes different standards of nuisance liability for parties that dispose of their own waste on land they control on the one hand (Gregory Village, in this case), and parties alleged to have somehow affected that disposal on the other hand (allegedly, according to Gregory Village, the District). For the first group of parties, nuisance liability is truly strict. For the second group of parties, however, the normal strict liability rule is supplanted by a consideration of factors regarding the relative knowledge of the parties and the foreseeability of harm.

> The Court of Appeal [in *Selma*] concluded the cross-complainants had pled, or could plead, facts showing the cross-defendants might be liable for the nuisance—specifically, that the installer of the equipment recommended creation of an unlined dirt pond for disposing of the waste products; that it knew or should have known that such disposal could threaten the safety of the water supply; that the cross-complainants did not know of the danger; and that the installer failed to warn of that danger. The court reasoned that this kind of direct involvement in the design and installation of the disposal system, coupled with the installer's knowledge and the user's lack of knowledge of the dangers, could support a finding that the designer/installer created or assisted in the creation of a nuisance.

(*City of Modesto*, 119 Cal.App.4th at 40 [emphasis added]; see also *Redevelopment Agency of the City of Stockton v. BNSF Railway Co.* (9th Cir. 2011) 643 F.3d 668, 675 [holding that nuisance liability under Water Code section 13304 requires active, affirmative, or knowing conduct].)

The evidence establishes that any alleged discharges from District sewer pipes were not a substantial factor in the creation of the solvent plume. Gregory Village can certainly demonstrate that the District owned and operated its collection system, but Gregory Village has failed to point to any evidence demonstrating that the District actively, affirmatively, or knowingly created or assisted in the creation of the plume. If anything, the District took active and affirmative steps to proactively maintain its sewer system, oftentimes more than what the industry standard requires. As Regional Board staff noted, the District has an aggressive source control and sewer maintenance program that "include[s] video inspections, regular cleaning of the sewer pipes, and spot repairs, to identify and address problem areas." (Staff Report, p. 14.)

Moreover, even if it were assumed that releases of PCE from District pipes were a substantial factor in the creation of the contamination plumes (something the District disputes and which has not been shown), Gregory Village has not, and cannot, demonstrate that the District created or assisted in the creation of a nuisance. There is no evidence in the record that the District knew or should have known that Gregory Village would violate the

restrictions on PCE discharges in the District's ordinances[4] or that the District knew there was any danger a nuisance could be created by the specific PCE discharges through the specific pipes at issue here. Similarly, there is no evidence, nor could there be, that the District had superior knowledge to Gregory Village as to the dangers presented by Gregory Village's own unlawful discharges of PCE. Absent evidence of the District actively, affirmatively, or knowingly contributing to the contamination, there is simply no legal basis to name the District on the Tentative Orders.

III. Gregory Village's Assumption that Liability Insurance is Available to Pay for the District's Cleanup Costs is Both Improper and Mistaken.

Gregory Village asserts that the District's burden of paying investigation and remediation costs would fall upon the insurance companies rather than the taxpayers and ratepayers because the District likely has "general liability insurance coverage from the pre-1986 period that could be triggered to help pay" for these costs. (GV Letter, fn 12.) Gregory Village's suggestion is both inappropriate and incorrect for two reasons.

First, evidence that a person or entity has insurance is irrelevant to the question of liability. If Gregory Village suggested that the District was covered by insurance in court, such evidence would be inadmissible under Evidence Code section 1155[5] and may even constitute reversible error. (See, e.g., *Neumann v. Bishop* (1976) 59 Cal.App.3d 451, 469; *Schaefer/KARPF Productions v. CNA Ins. Companies* (1998) 64 Cal.App.4th 1306, 1313.) Evidence that a defendant is insured against liability is also prejudicial, because a jury might unfairly view the defendant as a "deep pocket" and inflate its award of damages to the plaintiff. (*Mercury Ins. Group v. Superior Court* (1998) 19 Cal.4th 332, 350-51; *Bell v. Bayerische Motoren Werke Aktiengesellschaft* (2010) 181 Cal.App.4th 1108, 1122.) The fact that the District may have insurance is thus entirely irrelevant to the Regional Board's determination of whether to name the District on the Tentative Orders. Moreover, the fact that Gregory Village even raised the issue of insurance in an attempt to further inculpate the District was improper and should be disregarded.

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4 Indeed, in 1974 the District only permitted solvent concentrations in amounts less than 0.002 mg/L for 50% of time and not exceeding 0.004 mg/L for 10% of time in Ordinance No. 99, and in 1981, only permitted amounts less than 0.50 mg/L in Ordinance No. 147. As the Regional Board Staff correctly explained, these limits "were far lower than what would be expected in PCE-impacted wastewater, which would be on the order of 150,000 µg/L." (Staff Report, p. 16.) Assuming the District were responsible for the plume, then millions of gallons of PCE well above the permitted limits would have needed to be discharged into the District's sewers in order to create the plume. There is no evidence in the record that this ever occurred.

5 Evidence Code section 1155 provides: "Evidence that a person was, at the time a harm was suffered by another, insured wholly or partially against loss arising from liability for that harm is inadmissible to prove negligence or other wrongdoing."

Second, Gregory Village's assumption that insurance would pay for cleanup costs required by a Regional Board order is incorrect as a matter of law. The California Supreme Court has held that an insured's liability for cleanup costs pursuant to an administrative cleanup order is not entitled to indemnity or defense under most comprehensive general liability ("CGL") policies. (See *Certain Underwriters at Lloyd's of London v. Superior Court* (2001) 24 Cal.4th 945 [no duty to indemnify]; *Foster-Gardner, Inc. v. National Union Fire Ins. Co.* (1998) 18 Cal.4th 857 [no duty to defend].) Rather, the insurer's duty to indemnify and defend is limited to civil actions prosecuted in court; it does not extend to expenses required by an administrative agency. (*Certain Underwriters at Lloyd's of London*, 24 Cal.4th at 964, 966; *Foster-Gardner*, 18 Cal.4th at 878-888.) Although the express wording used in the insurance policies is ultimately determinative of coverage, the prevailing rule in California is that an administrative cleanup order does not trigger an insurance company's duty to indemnify or defend under a typical CGL policy. (See *Powerine Oil Co., Inc. v. Superior Court* (2005) 37 Cal.4th 377, 383 [specific language in nine excess/umbrella policies unambiguously included indemnification coverage for environmental cleanup costs ordered by an administrative agency]; but see *County of San Diego v. Ace Property & Cas. Ins. Co.* (2005) 37 Cal.4th 406, 421 [specific language in the insuring clause did not cover environmental cleanup costs to implement administrative orders].) Gregory Village is therefore wrong to assume that the District's pre-1986 CGL policies will unquestionably cover costs to implement the Tentative Orders. The Regional Board should disregard Gregory Village's reliance upon the District's insurance policies to provide coverage for investigation and remediation costs.

The District prospectively thanks you and your staff for taking into consideration the legal authorities and factual references included in this letter.

Very truly yours,

Sarah N. Smith FOR

Kenton L. Alm
Attorney at Law

Enclosure
cc: See attached Interested Party List (by email only)

LIST OF INTERESTED PARTIES

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Attachment L

San Francisco Bay Regional Water Quality Control Board

Tentative Site Cleanup Requirements
1643 & 1705 Contra Costa Blvd.
Pleasant Hill, Contra Costa County

November 12, 2014

Why Are We Here?

- General proposition by other named parties that all sewer pipes leak; that the dry cleaners in these cases were connected to sewer; ergo CCCSD caused the plume.
- This is only a hypothesis.
- A mere hypothesis does not justify being named as a Discharger.

CCCSD should not be named as a Discharger

- CCCSD supports staff criteria and decision
- Board Staff correctly concluded CCCSD is not a Discharger based on the extensive records on file for these cases.
- Basis for naming CCCSD must be demonstrated with substantial evidence
- No such demonstration has been made

Four Criteria used by Staff (re-ordered)

1. *Did District know about leaks and fail to repair them?*
2. *Were District's sewers in poor condition and not well maintained?*
3. *Were discharges of PCE into leaking sewers foreseeable?*
4. *Did a release from sewer materially contribute to plume?*

Bottom line –

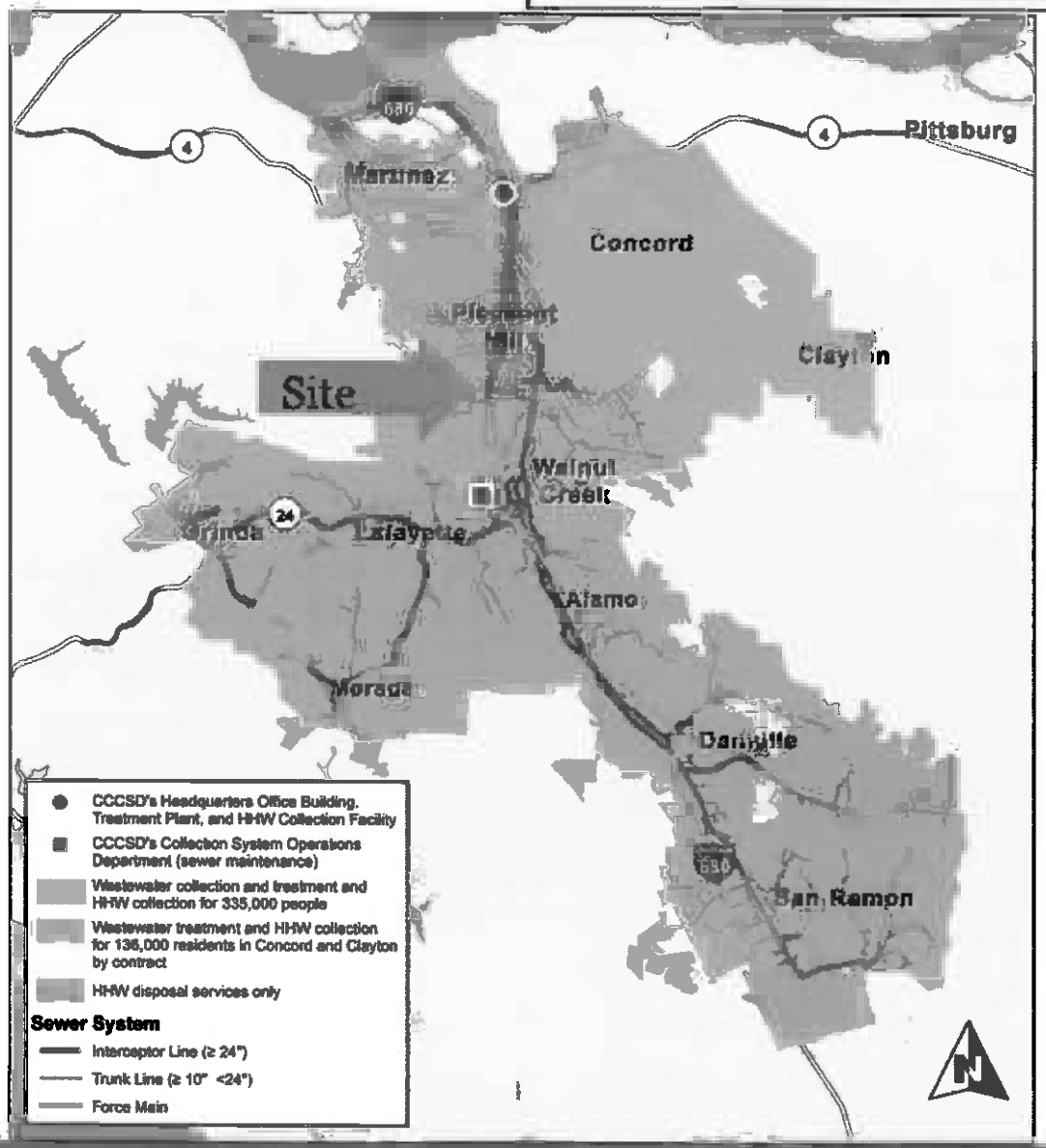
Does record demonstrate sewer leaks materially contributed to plume?

Presentation Outline

- Service area
- Site conditions and local sewer system
- CCCSD maintenance program
  - Criteria 1 and 2
- CCCSD pretreatment ordinances
  - Criteria 3
- Legal analysis
  - Criteria 4
- Policy considerations

Background
Service Area

- Serves more than 465,000 residents
- Maintains more than 1,500 miles of mainline sewers
- Actively regulates more than 4,000 businesses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Concord
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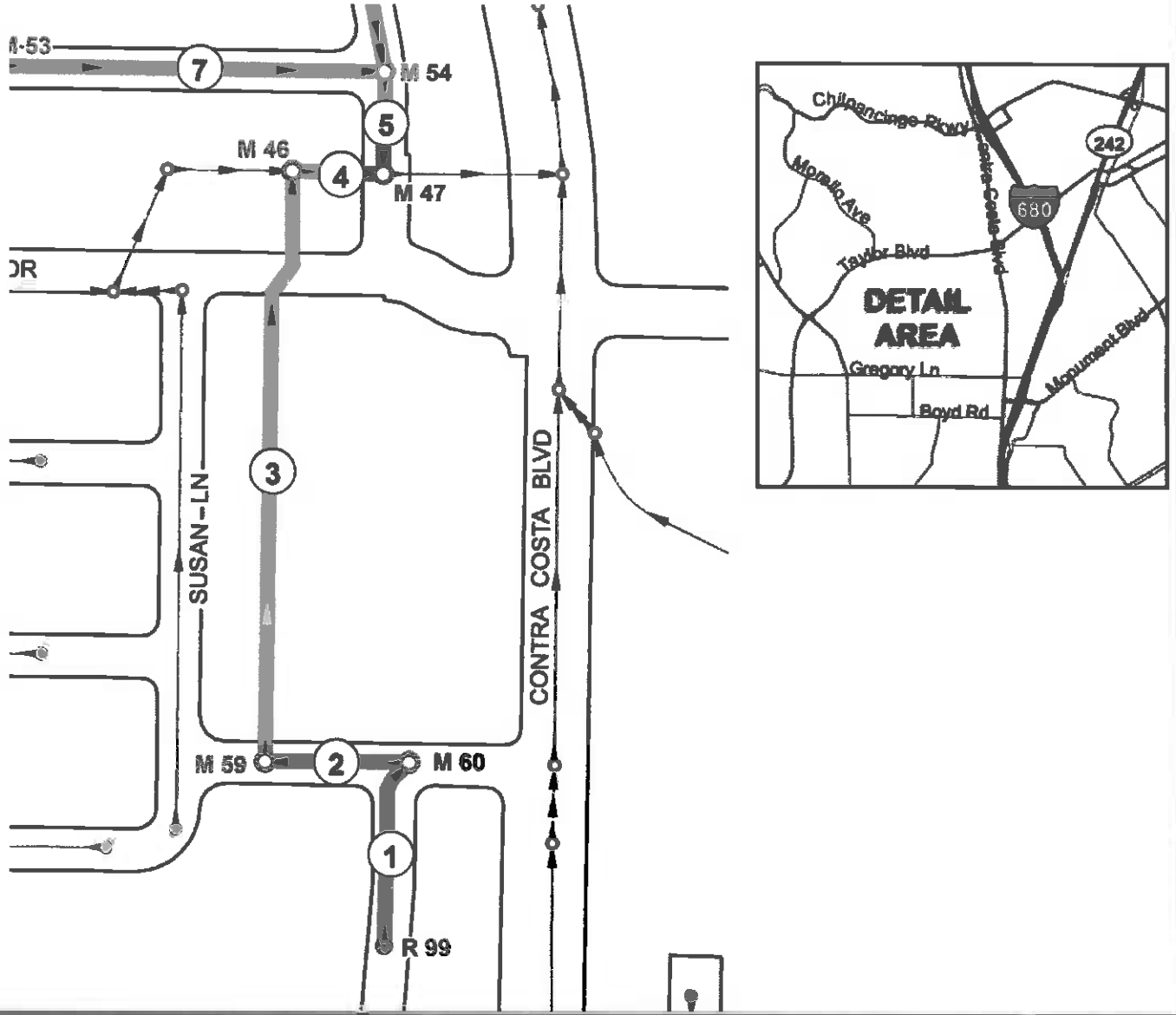
Walnut Creek
Lafayette
Orinda
Alamo
Moraga
Danville
San Ramon
CCCSD's Headquarters Office Building, Treatment Plant, and HHW Collection Facility
CCCSD's Collection System Operations Department (sewer maintenance)
Wastewater collection and treatment and HHW collection for 335,000 people
Wastewater treatment and HHW collection for 136,000 residents in Concord and Clayton by contract
HHW disposal services only
Sewer System
Interceptor Line (≥ 24")
Trunk Line (≥ 10" <24")
Force Main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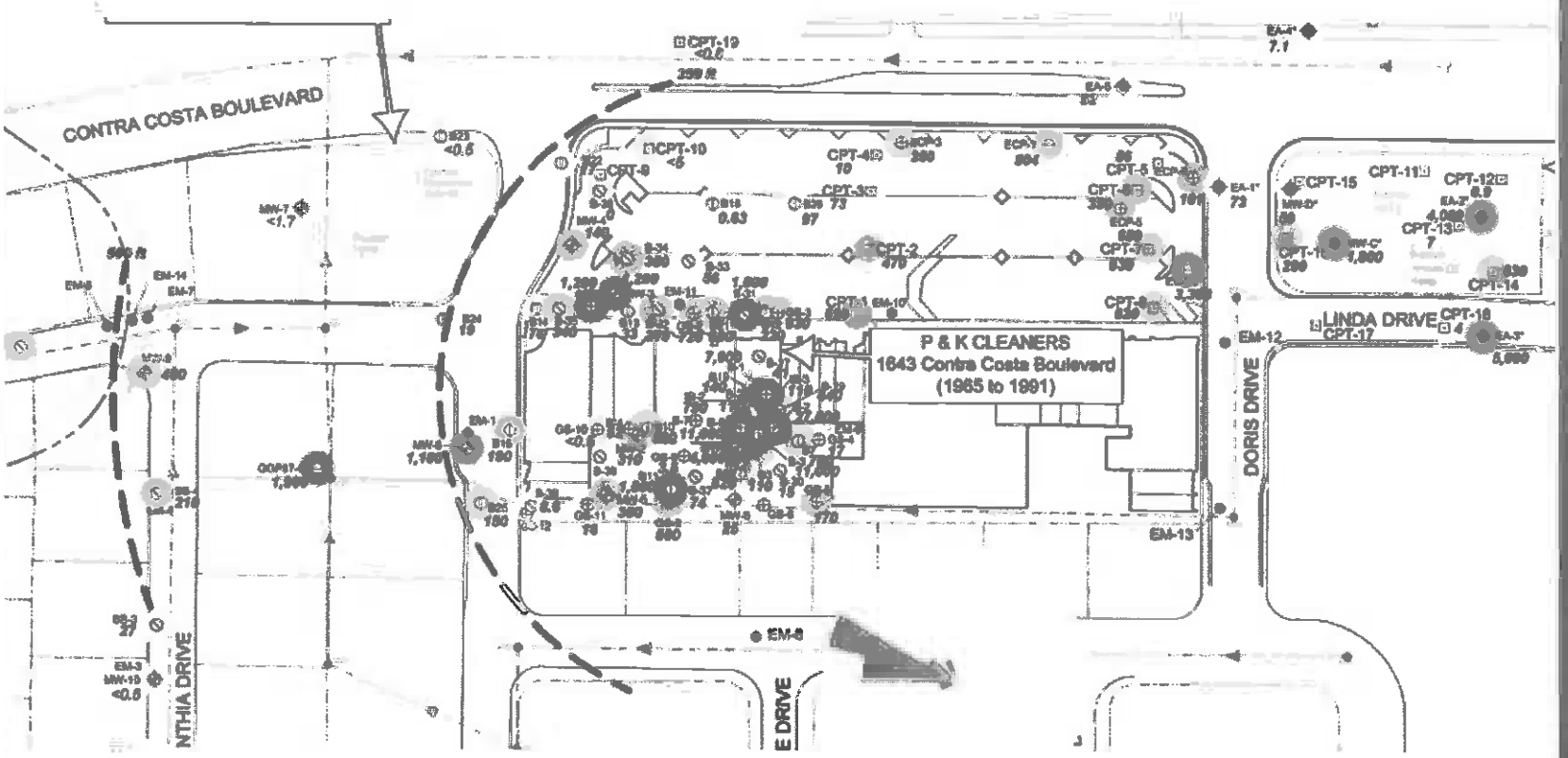
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PCE Fate and Transport

- PES Environmental, Inc.'s closing statement
- "Using these transport rates (appx 18 to 33 feet/year) and the locations of sources of chlorinated solvents on the 1601-99 Contra Costa Boulevard & 1705 Contra Costa Boulevard properties, the distribution of chlorinated solvents in the GV area can be explained through contaminant transport mechanisms i.e., advection and dispersion without any measurable contribution from alleged leakage of chlorinated solvents from the CCCSD sanitary sewers."

Criteria 1 and 2

1. *Did District know about leaks and fail to repair them?*

2. *Were District's sewers in poor condition and not well maintained?*

Sewer Maintenance – Criteria 1 and 2

Practices Met or Exceeded Industry Standards

- Proactive line cleaning
- Proactive condition assessment (CCTV)
- Timely response to problems identified
- Spot repairs (line segments and structures)
- Line rehabilitation/replacement (asset mgmt)

Award Winning
Sewer Maintenance

California Water Environmental Association

- ★ Bay Section Large Collection System of the Year
  2013, 2012, 2008, 2007, 2002, 1997, 1988
- ★ California Large Collection System of the Year
  2013, 2008, 2007, 2002, 1997
- ★ Bay Section Collection System Person of the Year
  1997, 1996, 1995, 1994, 1995, 1992
- ★ California Collection System Person of the Year 1992

★ 1989 EPA Operations and Maintenance Award, Collection System Ops

★ 1988 CWPCA California Best Large Collection System Operations

★ 1980 WPCF National Collection System Operations Award

Sewer Maintenance

10 Year Progress Report (1973-82) Obtained from RWQCB Files

SEWER SERVICE CALLS	1973	1974	1975	1976	June, 1977	June, 1978	June, 1979	June, 1980	June, 1981	June, 1982	TOTAL
Special	134	120	184	191	186	192	169	147	108	95	1,526
Plug Sewer Calls	405	372	466	488	480	400	306	319	393	534	4,163
Plugged Sewers	303	223	177	255	275	233	180	217	212	294	2,369
TOTAL:	842	715	827	934	941	825	655	683	713	923	8,058
SEWER CLEANING FOOTAGE											
Hand Rod Footage	98,411	182,090	75,727	52,816	99,181	161,233	97,524	109,175	161,012	227,881	1,265,050
Sewer Rodder Footage	400,555	546,354	488,888	501,890	529,179	716,149	542,131	930,928	1,261,665	1,047,135	6,958,874
Bucket Footage	12,197	59,738	17,423		58,573	2,011			8,803	7,471	166,216
Root Line (Hand)	160,622	115,313	117,114	75,871	110,250	86,550	61,003	71,116	63,433	141,239	1,002,311
Root Line (Rod)	419,077	359,438	608,729	676,763	576,217	627,837	505,887	537,999	436,084	583,001	5,331,032
Hydroflush	692,970	973,248	906,882	1,039,314	808,610	918,849	961,177	917,024	1,079,518	1,071,813	9,369,405
Balling		901									901
Vapo-Root Footage	11,981				2,695		33,579	62,067	17,650	25,261	153,233
TOTAL:	1,795,813	2,237,082	2,214,763	2,346,654	2,184,705	2,506,629	2,201,301	2,828,309	3,028,165	3,103,801	24,247,222
REPAIRS & REHABILITATION											
Structure Repairs	214	264	325	417	415	370	378	477	711	222	3,793
Line Repairs	127	145	162	159	169	116	106	63	81	130	1,258
New Structures	20	22	14	20	17	9	16	4	4	3	129
Sewer Connections	325	306	274	351	370	307	328	251	225	176	2,913
Utility Repairs	86	53	99	74	65	90	80	56	51	61	715
MONITORING AND TESTING											
TV Inspection (Exist.)	70,609	62,311	158,793	293,205	211,823	105,625	207,186	113,540	50,661	47,682	1,321,435
TV Inspection (New)					-	194,019	164,535	211,850	180,634	142,229	893,267
Smoke Testing	205,490	139,136	156,398	213,459	234,723					57,514	1,006,720

Sewer Maintenance

Review of 10 Year Progress Report (1973-82)

- 1,051 miles (5,549,280 feet) of main lines
- Annual average >2.4 million feet of sewer cleaned
  - More than 40% of equivalent footage of entire system
  - Some line segments cleaned more than once a year
- Annual average >130,000 feet of CCTV
  - CCTV use in sewers started in early 1970s
- Spot repairs
- More extensive maintenance practices than current performance of some collection system agencies

Sewer Maintenance Summary

- Maintenance program award winning: then and now
- Condition assessment of lines serving two sites
  - Good to excellent
- Maintenance program proactive and not negligent
- No evidence to indicate sewer lines at site leaked and/or substantially contributed to plume

Criteria 3

Were discharges of PCE into leaking sewer foreseeable?

Source Control - Criteria 3
Sewer Use Ordinance

- Narrative and numeric limits in place since 1953 during operations of 2 dry cleaners at sites
- Neither dry cleaner applied for or was granted any special permit
- Highest District limit = 50 ug PCE/L (ppb) during period of dry cleaners operation
- PCE solubility = 150,000 ug/L – 300 times CCCSD limit
- Conclusion – any **legal/permitted** dry cleaning PCE discharges could not have caused this contamination

Criteria 4

Did a release from sewer materially contribute to plume?

- *Legal standard: must prove substantially contributed*

Correct Standards Applied?

- Yes. Staff's criteria legal sound.
- Staff adopted rational criteria to substantiate conclusion
  - Supported by the law of causation under Water Code 13304
  - Relies on principles of substantial evidence consistent with other prevailing laws
- Staff exercised reasonable discretion in light of totality of evidence in record

Law of Causation

- Liability under Water Code 13304 follows common law of public nuisance – Requires Causation –
- Nuisance liability does not hinge on whether defendant owns or controls property, but whether actions or inactions are a substantial factor in creation of nuisance
- Requires active, affirmative or knowing conduct
- *See* City of Modesto Redevelopment Agency v. Superior Court (2004) 119 Cal.App.4th 28; Redevelopment Agency City of Stockton v. BNSF Ry. Co. (9th Cir. 2011) 643 F.3d 668

No Substantial Evidence for Naming District

- Principles of substantial evidence apply
- Requires reasonable and credible basis
- Evidence must be of "solid value"
- Does not include speculation and conjecture
- Look to entire record

Policy Reasons

Absent substantial evidence of causation

- Ratepayers should not bear financial burden of cleaning up contamination that the sewer agency did not cause
- Protection of municipal fiscal health favors the exclusion of public sewer systems from liability for the conduct of its industrial and commercial users
- Holding sewer agencies responsible just because they diligently implement pretreatment programs would extinguish purpose of Clean Water Act § 307
- If CCCSD is a Discharger under these facts, all sewering agencies will be liable

Conclusion
District should not be named.

- Allegations are mere speculation
- No substantial evidence in record demonstrates that District actively, affirmatively or knowingly created or assisted in creation of contamination
- District's regular and proactive maintenance of sewers is better than due care; has always been above industry standard
- Staff's determination must be upheld

Attachment M

Appendix D

CLEANUP TEAM RESPONSE TO COMMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESPONSE TO COMMENTS

TO: Dyan C. Whyte
Assistant Executive Officer

Date: October 28, 2014
File Nos. 07S0132 (KEB)
07S0204 (KEB)

FROM: Kevin D. Brown
Engineering Geologist

CONCUR: Laurent Meillier
Section Leader
Toxics Cleanup Division

Stephen A. Hill
Division Chief
Toxics Cleanup Division

SUBJECT: **Cleanup Team's Responses to Comments on Tentative Orders for Site Cleanup Requirements, 1643 Contra Costa Boulevard (Site 1) and 1705 Contra Costa Boulevard (Site 2), Pleasant Hill, Contra Costa County**

This document provides the Water Board Cleanup Team's (Staff) Response to Comments received on the Tentative Orders (TOs) for the Site Cleanup Requirements for the 1643 Contra Costa Boulevard (Site 1) and 1705 Contra Costa Boulevard (Site 2), Pleasant Hill, Contra Costa County.

The TOs were circulated for a 30-day public review, which opened on July 2, 2014, and closed on August 4, 2014. The comment period was reopened between August 21 and September 10, 2014, to allow interested parties an opportunity to provide additional comments or rebut comments submitted by other parties. The table below assigns a number to each comment letter received. Herein we respond to all comments and have ordered our responses in the order listed in the table.

The Water Board received comments from the following parties. The numbering groups separate comments from the same party (e.g., 1a and 1b are both from Gregory Village Partners).

Comment letter No.	Date Received	Commenter
1a	8-4-14	Edward A. Firestone, Esq. on behalf of Gregory Village Partners, L.P.
1b	9-9-14	Gregory Village Partners, L.P. (GVP)
2	8-4-14	The Cronin Law Group (Alan R. Johnston, Esq.) on behalf of Joseph J. Lee and Grace M. Lee
3a	8-4-14	Chevron U.S.A. Inc. (Chevron)
3b	9-9-14	Chevron (A. Todd Littleworth, Esq.)
4	8-4-14	Buchman Provine Brothers Smith LLP (Horace W. Green, Esq.) on behalf of MB Enterprises, Inc.
5a	7-31-14	Barg Coffin Lewis & Trapp LLP (Donald E. Sobelman, Esq.) on behalf of Marjorie P. Robinson
5b	9-9-14	Barg Coffin Lewis & Trapp LLP (Donald E. Sobelman, Esq.) on behalf of Marjorie P. Robinson
6	9-10-14	Barg Coffin Lewis & Trapp LLP (Donald E. Sobelman, Esq.) on behalf of Jane A. Lehrman
7	8-4-14	Paladin Law Group LLP (John R. Till, Esq.) on behalf of Ryan and Anne Schaeffer
8a	8-4-14	Central Contra Costa Sanitary District (Roger S. Bailey, P.E.)
8b	9-10-14	Central Contra Costa Sanitary District (CCCSD)
8c	9-10-14	Meyers Nave (Kenton L. Alm, Esq.) on behalf of Central Contra Costa Sanitary District

Appendix C contains copies of all comments received.

1a. COMMENTS FROM EDWARD FIRESTONE (on behalf of Gregory Village Partners, L.P.)

1a.1 **Comment:** There should be one site cleanup order (not two), and the order should cover the entire area where chlorinated volatile organic compounds (CVOCs) impact soil and groundwater. The single order should name dischargers associated with both Site 1 and Site 2, since CVOCs from these two source areas are commingled in groundwater.

Response: The Water Board's standard practice when there are two distinct source areas on two separate commercial parcels, even when there are commingled plumes, is to issue separate orders. Our experience dictates that this helps streamline the regulatory process and can minimize disputes among responsible parties. The commenter does not present any compelling reason to issue one order instead of two.

1a.2 **Comment:** CCCSD should be named to the site cleanup order(s) for several reasons outlined in the July 2, 2014, Staff Report and as described in more detail below. Water Code section 13304 imposes "strict liability." If a party discharged waste then they should be named in a site cleanup order. According to Water Code section 13050(d) a waste includes: "sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal." GVP also submitted a detailed analysis of several CERCLA cases Staff cites in the TO as "useful guidance." GVP generally reiterates the point that it is *possible* to name owners and operators of sewers as dischargers.

Response: We disagree. As explained in the Staff Report, CCCSD does not meet the definition of a discharger under California Water Code section 13304. Section 13304(a) of the California Water Code (Water Code) states:

> Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

There is no evidence that CCCSD discharged CVOCs in a manner leading to soil and groundwater contamination. The Staff Report identified State Board's criteria that are commonly applied when naming a responsible party in a 13304 Order. Our analysis took into account the possibility that CCCSD's sewers leaked CVOCs following discharges to drains or private sewer laterals at Site 1 and Site 2, and considered that soils around the main sewer lines may act as a preferential pathway. We determined that CCCSD does not

meet the definition of a discharger under 13304 of the Water Code.[1] We further note that Staff reviewed GVP's submissions regarding specific data points and locations of the sewer related to the above propositions, and determined that the information submitted is not sufficient to link sewer lines to the groundwater contamination in this case.

In response to the question as to whether there is legal precedent that supports naming CCCSD as a discharger, we assert that there is not. In the sole case we are aware of in which a Regional Water Board named a sewer owner as a discharger, there was evidence indicating that a release from the sewer main contributed to the groundwater plume; the sewer owner/operator knew of leaks and failed to repair them; the sewers were in poor condition, and; the sewer owner/operator was aware of or permitted the discharges of CVOCs into the sewers. (Staff Report, section VI) These factors are similar to the criteria analyzed in the three CERCLA cases Staff referenced as "useful guidance" in a footnote in the Staff Report. While we generally agree with GVP's conclusion that it is *possible* to name a sewer owner or operator as a discharger, we do not find sufficient facts to do so in this case. In evaluating the case of *Fireman's Fund Ins. Co. v. City of Lodi, Cal.* (9th Cir. 2002) 302 F.3d 928), GVP cites the same language that Staff find compelling: "it is doubtful whether Lodi may be considered a [potentially responsible party] PRP merely as a result of operating its sewer system," but then notes that on remand to the district court, the lower court determined Lodi was a PRP because of certain admissions Lodi made in court and a Cooperative Agreement Lodi entered into with DTSC in which Lodi accepted responsibility for cleaning up the site. (*Fireman's Fund Ins. Co. v. City of Lodi, Cal.*(E.D. Cal. 2003) 296 F.Supp.2d 1197, 1207-1212.) GVP does not present any evidence of any admissions of liability or agreements that would make CCCSD a discharger in this case.

GVP notes that the sewer owner/operator in the *Lincoln Properties* case successfully proved a third party defense where there was evidence that the county exercised due care and reasonable precautions with respect to operations of a the sewer system. (*Lincoln Properties, Ltd. v. Higgins* (E.D. Cal. 1992) 823 F.Supp. 1528, 1543-44). These facts are most closely aligned with the evidence in the record concerning CCCSD and further support our recommendation to not name CCCSD.

With respect to the *Adobe Lumber* case (Adobe Lumber, Inc. v. Hellman (E.D. Cal. 2009) 658 F. Supp. 2d 1188), the court found "evidence suggesting that the City practiced 'wilful or negligent blindness' in maintaining its sewer." As discussed in Section VI of the Staff Report and in the TO, Staff finds no such similar conduct on the part of CCCSD.

GVP cites an additional case, *Westfarm Assocs. v. Washington Suburban Sanitary Comm'n* (4th Cir. 1995) 66 F.3d 669, to support the argument that a sanitary sewer owner/operator may be held liable under CERCLA for a third party's discharge of PCE into the sewer. That case was factually distinct from the circumstances here. An expert in

[1] See State Water Resources Control Board webpage: http://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

that case testified "the Tech Road Sewer was neither built in a workmanlike manner nor properly repaired." (*Id.* at p. 674.) The evidence demonstrated that portions of the sewer near the source of PCE exhibited excessive infiltration in 1977, but at the time of a 1993 video inspection had yet to be repaired. (*Id.* at p. 675.) We have reviewed the evidence and determined that CCCSD was not negligent in regard to maintaining its sewer system. We conclude that the facts in this cited case are quite different than those that pertain to CCCSD and do not support the naming of CCCSD as a discharger.

GVP cites a 1992 memo by Chief Counsel William Attwater entitled *Responsibility of Operators of Publicly Owned and Operated Sewer Systems for Discharges From Their Systems Which Pollute Ground Water.* GVP notes that this memo concludes, similar to the cases above, that a sewer owner or operator may be named as a discharger for discharges of waste from its sewer system which creates or threatens to create a condition of pollution or nuisance. GVP's analysis goes on to state that the fundamental question is whether or not sewer systems leak. Staff respectfully disagrees. The critical question is whether or not the release creates or threatens to create a condition of pollution or nuisance. Indeed, the first of the four criteria considered with respect to CCCSD is whether there was a release from the sewer main that contributed to the plume. (Staff Report, section VI.) Staff concludes that "[t]here is no direct evidence that leaking sewer lines under CCCSD ownership have caused or contributed significantly to the groundwater contamination."

Finally, GVP describes a situation in Sacramento in which the Sacramento County Sanitation District 1 "*voluntarily* led the effort to clean up PCE that leaked from its sewers" (emphasis added). Staff welcomes CCCSD's voluntary efforts to assist in cleanup in this instance, but, based upon the evidence in the administrative record and the analysis in the Staff Report, does not find sufficient information in the record to compel CCCSD to participate in the cleanup.

1a.3 **Comment:** Sanitary sewers leak, as detailed in the 1992 Central Valley Regional Water Board's "Izzo" report; CCCSD's sanitary sewer lines were installed with a substantial leakage tolerance; sanitary sewers built in the 1950s and 1960s used joint compounds that failed and leaked; over time sanitary sewer lines sag and break due to local earth movements; PCE, both as a liquid and as vapor, escapes from sanitary sewers as described in the Izzo report; and Exhibit D is a declaration from Bonneau Dickson, P.E., a sanitary sewer expert, discussing general background on sewer operations, construction practices, and how sewers leak and PCE enters the environment.

Response: We agree that the "Izzo" report is a well-cited reference for evaluating the mechanisms of chemical releases from dry cleaners, and especially the role sanitary sewers could play in the transport and distribution of PCE and other dry cleaning chemicals in the subsurface. The general statements concerning sources of sewer leaks and breaks are also well-documented. These general statements, however, are insufficient to link CCCSD to the specific soil and groundwater contamination in this case. Moreover, Staff has reviewed GVP's submissions of specific data points and locations of the sewer related to the above propositions, and determined that the information

submitted is not sufficient to link CCCSD sewer lines to the groundwater contamination in this case.

1a.4 **Comment:** Exhibit C is a short presentation of some of the data by Erler & Kalinowski, Inc. (EKI) that provides strong evidence the sewers leaked in both the neighborhood and near the Chevron site, and that these leaks are sources of PCE that is detected in soil gas and groundwater.

Response: We disagree. Please refer to the Staff Report, pages 12 through 17. The information presented in Exhibit C was previously reviewed and evaluated by Staff. In regards to the former sanitary sewer main in Linda Drive adjacent to Site 2, the Staff Report states on page 14 "There is insufficient soil and groundwater data to reach the conclusion that the older sewer line was a release point." None of the data presented in Exhibit C alters Staff's conclusions.

1a.5 **Comment:** There is evidence that CCCSD sanitary sewers in the vicinity of Site 1 and Site 2 leaked because of tree roots and cracks and sags in the pipes.

Response: We agree there is evidence of historic leaks in the main sewer lines. Sanitary sewer lines composed of vitrified clay, like most of the circa 1950 pipes in this area of Pleasant Hill, are susceptible to root intrusion, cracking, and sagging. As pointed out on Page 14 of the Staff Report, according to available records, there is no direct correlation between damage to the CCCSD-owned main sewer lines and specific discharges of CVOCs to soil and groundwater.

1a.6 **Comment:** CCCSD was not a "mere conveyor" of waste; CCCSD accepted PCE into its sanitary sewers during the period when CVOCs were being used at Site 1 and Site 2. [2]

Response: We partly agree. Past ordinances from CCCSD did not specifically prohibit PCE discharges to the main sanitary sewer lines from private sanitary sewer laterals. Based on a review of records and the distribution of PCE and other CVOCs in soil and groundwater, PCE (and other CVOCs) were likely discharged to the main sewer lines via private sewer lateral connections at both Site 1 and Site 2. Such discharges likely occurred due to the historic disposal practices of hazardous chemicals at dry cleaners and automotive repair shops. However, there is no direct evidence that PCE leaked from the CCCSD main sewer lines.

Moreover, prior to 2007, CCCSD allowed for PCE to be discharged to the sanitary sewer within specified limits. For example, Ordinance No. 99 (adopted on July 11, 1974) allowed the discharge of "Total Identifiable Chlorinated Hydrocarbons" to sanitary sewers at a concentration not exceeding 0.002 mg/L for "50% of time" and not exceeding 0.004 mg/L for "10% of time." We do not agree that prior to 1981, CCCSD allowed the

[2] Citing a number of cases, GVP also makes the argument that CCCSD could be analogized with owners of landfills who are held liable for cleanup of contamination. While staff has found some limited utility and "useful guidance" in CERCLA cases involving sewer owners/operators and PCE contamination, facts closely aligned with this TO, we are not inclined to expand the analysis to landfills which are expressly designed to store solid waste as opposed to convey liquid waste.

discharge of PCE based solely on temporal permitting limit rather than enabling discharge at specific concentration threshold for a specific time. CCCSD Ordinance No. 147 (adopted on August 27, 1981) states, "No person shall discharge wastewater containing in excess of "0.50 mg/l total identifiable chlorinated hydrocarbons." Our Staff Report further noted on page 14, "The area along Linda Drive, a street establishing the western boundary of Site 2, is an area where Staff specifically identifies a need for additional data. The original vitrified clay sewer line in this area was replaced in 1987-1988 as part of Chevron's station upgrade project, and the new cast iron line was put in a location different than the original clay line. The original sewer line served both the former Standard Oil Co. of California (Standard Oil) automotive repair station and the former dry cleaner. CCCSD has supplied several figures which show the locations of both the original and existing sewer lines. There is insufficient soil and groundwater data to reach the conclusion that the older sewer line was a release point."

CCCSD did not specifically prohibit PCE discharges to their sewer collection system until 2007. However, prior to that time, the record indicates that it allowed for low levels of PCE to be discharged within specified limits. Nonetheless, there is no evidence PCE containing waste was discharged to the sewer collection system in excess of these limits or that PCE laden sewer water was discharged from the collection system.

1a.7 **Comment:** Awards to CCCSD for exemplary sanitary sewer operations have no bearing on the operations and disposal practices when PCE was being used at Site 1 and Site 2.

Response: We conclude, based on a review of all of the evidence, that CCCSD had a proactive strategy since at least the mid-1970s to properly maintain their sewer system. This is based on a review of records indicating that CCCSD has been an exemplary sanitary sewer district for a number of years. CCCSD implemented a robust program to identify problem areas then repair those areas to maintain the overall integrity of their sanitary sewer network.

1a.8 **Comment:** The four criteria for naming sanitary sewer agencies discussed in the Staff Report are novel and are not based on any statute or regulation or the City of Lodi court order.

Response: We disagree. The three primary criteria (see Response to Comment 1a.2) considered with respect to naming CCCSD as a discharger are the same three criteria used to evaluate *any* discharger, namely, whether the party:

1) owned the property where the discharge occurred;
2) had knowledge of the discharge or activities that caused the discharge; and,
3) had legal ability to prevent the discharge.

Based upon an ordinary application of these standard criteria, Staff determined it was inappropriate to identify CCCSD as a discharger.

In addition to the standard three criteria, Staff considered the following four criteria, derived from the cases cited in the Staff Report and the sole instance we are aware of in

which a Regional Water Board named a sanitary sewer owner or operator as a discharger in a cleanup and abatement order:

i. There was a release from the sewer main that contributed to the plume;
ii. The sewer owner/operator knew of leaks and failed to repair them;
iii. The sewers were in poor condition and/or were not maintained; and,
iv. The sewer owner/operator was aware of/or permitted discharges into a leaking sewer.

These four criteria essentially interpret the standard three discharger criteria as they would apply to a sewer owner/operator as opposed to a landowner/business directly responsible for a discharge.

Criterion (i) is similar to an ordinary discharger analysis. The discharge is released from the sewer mains, the portion of the sewer system that the owner/operator can control as opposed to private laterals, which are controlled, maintained, and repaired by individual property owners. This reflects standard criterion (3) above (had legal ability to prevent the discharge).

Criteria (ii) and (iii), knowledge of leaks and failure to repair and the poor condition/failure to maintain sewers, are similar to standard criteria (2) and (3) (had knowledge of the discharge or activities and ability to prevent the discharge.

Criterion (iv) (aware of/permitted discharges into a leaking sewer) is an offshoot of standard criteria (2) (had knowledge of the discharge or activities).

A summary of our analysis for this specific case and whether CCCSD should be named in regard to these criteria is described in Section VI in the Staff Report.

1a.9 **Comment:** Assuming that the four criteria are valid, CCCSD qualifies as a discharger under those criteria. Specifically, CCCSD's sewer maintenance practices have been reactive, and the lack of evidence of poor practices should not be used to infer good practices.

Response: We disagree. Staff has reviewed each of the specific data points and sewer locations GVP provided and conclude that CCCSD's sewers were not a release point. Finally, we conclude based on Staff's review of CCCSD's sanitary sewer maintenance records and an evaluation of the specific locations and events cited by GVP, that CCCSD had a proactive strategy over the past several decades to properly maintain their sewer system, rather than a reactive approach to maintenance.

1a.10 **Comment:** Lack of evidence should not be used to CCCSD's benefit. GVP suggests that because CCCSD does not have records before 1990 the Board should accept the inference that all sewer systems leak, therefore CCCSD's sewers leak, therefore CCCSD should be named as a discharger.

Response: We disagree. We have evaluated all of the data points for soil gas, soil and groundwater provided to the Board and concluded there is no direct evidence that leaking sewer lines under CCCSD ownership have caused or contributed significantly to the groundwater contamination. Without direct evidence – data – to support a theory that CCCSD sewer lines contributed to the groundwater plume, an inference that all sewers leak and therefore CCCSD's sewer lines leaked is irrelevant to our analysis.

1a.11 **Comment:** There are policy reasons for naming CCCSD as a discharger. Naming CCCSD provides an incentive for good sanitary sewer maintenance and brings financial resources to bear. Many dry cleaner spill cases lack the necessary financial resources to accomplish cleanup. Failing to name CCCSD sends a message that sanitary districts are not liable for discharges in violation of the Water Code.

Response: We disagree, for three reasons. First, sanitary sewer agencies already have an incentive for good sewer maintenance, as they may be liable for any unauthorized discharges to surface or ground waters. Second, while we agree that many dry cleaner dischargers lack the funds to accomplish adequate cleanup, Staff still needs to establish a sufficient basis for naming parties, such as sanitary sewer agencies, who might be able to help fund the cleanup. Finally, the State Water Board and the courts provided criteria to evaluate whether to name sanitary sewer agencies. We evaluated the facts in this case against those criteria and concluded that CCCSD should not be named as a discharger (see section VI, page 12 of the Staff Report Section VI that was part of the TO package). Finally, it is worth repeating that Staff agrees that it *is possible* to name a sanitary sewer district as a discharger. However, given the facts in the administrative record in this case, as they pertain to CCCSD, we do not find sufficient evidence to do so.

1b. COMMENTS FROM GREGORY VILLAGE PARTNERS, L.P.

This second round of comments from Mary Haber, general counsel for Gregory Village Partners, L.P. (GVP), requests a reduction in the groundwater monitoring frequency at Site 1.

1b.1 **Comment:** GVP requests a modification to the TO. GVP is requesting a reduction in the sampling frequency for seven groundwater monitoring wells (from semi-annual to annual), an elimination of "Water Chemistry Constituents" for eleven monitoring wells, a reduction in the frequency of depth-to-groundwater measurements from all eleven wells (from semi-annual to annual), and modification to the reporting requirement (from semi-annual to annual).

Response: We disagree. Because it is important to observe seasonal changes in groundwater levels and potential fluctuations in the concentrations of critical contaminants, the sampling and monitoring frequency reduction proposal for groundwater monitoring wells associated with Site 1 is not acceptable at this time.

2. COMMENTS FROM THE CRONIN LAW GROUP (on behalf of Joseph J. Lee and Grace M. Lee)

2.1 **Comment:** Joseph J. Lee and Grace M. Lee should not be named as dischargers in the TO, for the reasons given in comments 2.2 through 2.5 below.

Response: As explained below, we conclude that Joseph J. Lee should be named and Grace M. Lee should not be named as a discharger in the TO.

2.2 **Comment:** Grace Lee passed away on February 17, 1997, so there is no rational basis to name her as a discharger in the TO.

Response: We agree. Ms. Lee is deceased, so it is no longer appropriate to name her as a discharger in the TO. The TO has been revised.

2.3 **Comment:** There is no substantial evidence of a waste discharge when the Lees operated a former dry cleaner at Site 1.

Response: We disagree. Based upon soil, soil vapor, and groundwater data, Staff concludes that the dry cleaner at the site used and discharged PCE. In addition, available phone books indicate a dry cleaner operated at Site 1 in the 1980s. The Lees concede that they operated the dry cleaner from 1984 to 1987. They do not deny using PCE, which was the predominant dry cleaning solvent used during this time frame. This also coincides with an era when standard dry cleaning practices included the disposal of separator wastewater and other PCE-laden waste into floor drains, sinks and toilets, or onto the ground surface behind the dry cleaner. It is commonly understood that leaks of PCE ordinarily occurred during PCE deliveries and spilled from the equipment during ordinary operations as a result of loose gaskets, boiler overflows, and other discharges from equipment. Based upon this evidence, the Lees likely discharged PCE. The improper use and/or disposal, or accidental spills of PCE during the Lees' operations at the dry cleaner likely contributed to the soil and groundwater impacts beneath and downgradient of Site 1.

2.4 **Comment:** Joseph J. Lee has no access to Site 1 and therefore cannot comply with the TO.

Response: It is immaterial whether Mr. Lee has direct access to Site 1 today. Physical access to Site 1 is not a prerequisite for naming a discharger in a site cleanup order. Please see the Responses to Comments 3a.14 and 3a.15 regarding former landowners and specifically the discussion regarding *In the Matter of John Stuart*, Order No. WQ 86-15.

2.5 **Comment:** Joseph J. Lee does not have the ability to pay for completing the tasks outlined in the TO.

Response: We have not received proof of an inability to pay cleanup costs. GVP has informed the Water Board that an insurance policy underwritten for Mr. Lee may be available for investigation and cleanup costs associated with Site 1. Therefore, if

insurance funds are available to help fund cleanup costs, it would be premature and inappropriate to release Mr. Lee from liability and the TO requirements for financial reasons.

3a. COMMENTS FROM CHEVRON U.S.A. INC.

We sorted Chevron's comments by categories listed below and present Staff responses in that order:

a. There is no evidence of a CVOC release from the former waste oil tank (WOT); the Staff Report's discussion of data about the WOT is technically deficient; and any chemical release from the WOT was minor and was adequately investigated and would meet case closure criteria.
b. Chevron should not be named as a discharger in the TO in connection with any CVOC release from the previous WOT.
c. Independent dealers, not Chevron, operated the WOT, so they, not Chevron, should be named if there has been a WOT release.
d. There was a significant CVOC release to soil and groundwater from the former dry cleaner before Chevron owned the property, with a possible contribution from upgradient dry cleaners.
e. Chevron should not be named as a discharger in the TO in connection with the CVOC release from the former dry cleaner because Chevron was not the property owner at the time of the discharge.
f. The CVOC groundwater plume originating at Site 2 has not commingled with the CVOC groundwater plume originating at Site 1.
g. CVOC releases from the sanitary sewer have contributed to the CVOC groundwater plume in this area.
h. The findings in the TO are inconsistent with the Water Board's 2005 "no further action" letter for Site 2.
i. Other

a. **Responses to 3a.1 – 3a.4 address the following general comment:** *There is no evidence of a CVOC release from the former waste oil tank (WOT; the Staff Report's discussion of data about the WOT is technically deficient; and any chemical release from the WOT was minor and has been adequately investigated and would meet case closure criteria.*

3a.1 **Comment:** A steel WOT was once located downgradient of a former dry cleaner. The petroleum concentrations detected in soil at Site 2 are minimal, and the PCE and TCE concentrations detected in 1988, 2011, and 2014 soil samples are entirely consistent with an adjacent, upgradient source of PCE (the former dry cleaner business).

Response: A previously-leaking steel WOT, associated with an automotive repair facility constructed by Standard Oil, was located directly adjacent to and north of a former dry cleaner. The dry cleaner had a prior address of 1709 Contra Costa Boulevard. The location of the former WOT in relation to the former dry cleaner corresponds to the prevailing directions of shallow groundwater flow beneath Site 2, which Staff has determined is to the north and northwest.

We disagree that the concentrations of contaminants detected were minimal. The groundwater data, including the detections of separate-phase fuel hydrocarbons ("floating product") in several historic monitoring wells, clearly demonstrates there were significant releases to soil from leaking steel USTs in the past and during Chevron's operations

and/or ownership of Site 2. There is substantial evidence that both petroleum hydrocarbons and CVOCs were released from the former steel on-site WOT, and that both petroleum and chlorinated constituents are mixed in groundwater beneath and downgradient of Site 2.

The following soil and soil vapor data support our contention that the steel WOT leaked CVOCs to the subsurface during Standard Oil's/Chevron's operations at Site 2:

- On January 6, 1988, a replacement fiberglass WOT was removed at Site 2, and the soil two feet beneath the tank pit bottom was found to contain 0.2 mg/kg of PCE and 0.035 mg/kg of TCE.
- In May 1988, very high concentrations of PCE and TCE in soil vapor (up to 470 ppmv, or 3,188,189 µg/m³, and 20 ppmv, or 135,664 µg/m³, respectively) were detected by EA Engineering, Science, and Technology, Inc. (EA). The highest concentrations of CVOCs were detected in vapor samples from probe V10, which was advanced within the former steel WOT pit.
- On December 7, 2011, a soil sample collected at five feet below ground surface during the installation of vapor probe VP-1, a boring in the former steel WOT pit, contained PCE and TCE at 1.2 mg/kg and 1.4 mg/kg respectively. It is noted that the bottom of the original 1,000-gallon steel WOT was six feet below grade.
- Soil vapor samples collected on December 13, 2011, from VP-1 at a depth of five feet contained very high concentrations of PCE and TCE; 2,500,000 µg/m³ and 2,100,000 µg/m³, respectively.
- On December 20, 2011, a soil sample collected at 9.5 feet from CPT-13, a boring advanced adjacent to/within the former WOT pit, contained PCE at 0.34 mg/kg and TCE at 0.21 mg/kg, respectively.

A May 24, 1988, report from EA to Chevron U.S.A. Inc. specific to the investigation at Site 2 states, "Since tetrachloroethylene (PCE) is the predominant solvent used in dry cleaning in the United States, there is a high probability that PCE was stored at the site while the dry cleaner existed. PCE is used as a metal cleaning solvent, may also have gotten into the waste oil tank, which although it is more probable that the tank had trichloroethylene (TCE), since this is the major chlorinated solvent used in metal cleaning."

3a.2 **Comment:** Even if there was a CVOC release from the WOT, the release was minor, properly characterized and remediated by Chevron.

Response: We disagree. Soil, soil vapor, and groundwater data indicate a significant release of CVOCs at the former steel WOT location, a release that was not sufficiently characterized and, given the residual concentrations, not appropriately remediated by Chevron. The current levels of CVOC contamination are well above regulatory and risk-based standards, and the contamination poses a significant threat to human health, groundwater, and the environment. Remediation is necessary to reduce the CVOCs and other contaminants to acceptable levels.

Automotive service stations in the 1970s and 1980s used CVOCs in their operations to clean parts and especially brakes, carburetors, and engines. Even small releases of CVOCs (i.e., PCE and TCE) from the former steel WOT could create a significant groundwater quality problem. The circa 1972 WOT was in such poor condition that it broke apart upon removal in May 1986. Several holes were also observed in the steel. In comparison, the steel fuel USTs removed in 1986 were found to be in good condition. Please refer to page 3 of the Staff Report.

3a.3 **Comment:** Isotopic analysis by ZymaX Forensics of CVOCs detected in multiple groundwater samples collected from CPT borings demonstrate TCE detected in groundwater at Site 2 is a "breakdown product" of PCE.

Response: The October 9, 2013, ZymaX Forensics report aims to support the origin of TCE as a degradation product of PCE based on isotopic fractionation (i.e., compound specific isotopic analysis or CSIA). The report states the "goal of this study was to assess whether compound specific isotope fingerprinting tools could be used to assess the potential source(s) for volatile organic compounds (VOCs) that have been detected in the vicinity of these two properties."

Ten groundwater samples were collected in December 2011 from six CPT borings and four active monitoring wells near the two former dry cleaners. Groundwater samples from several CPT borings advanced beneath Site 2 were not analyzed by ZymaX. PCE was detected in every groundwater sample at concentrations between 3.2 µg/L (CPT-18, advanced west of Site 2 in Linda Drive) and 1,200 µg/L (CPT-7, advanced directly north of Site 2 on the Gregory Village Shopping Center parcel). TCE was detected between 3.0 µg/L and 250 µg/L, with the highest concentration detected in CPT-1, advanced directly upgradient of the former P&K Cleaners site.

Several groundwater samples were not analyzed based on "low concentration and/or matrix interference." It is unclear how a low concentration sample would prevent the analytical instrument from quantifying isotopic ratios. Additionally, "certain samples were not analyzed for hydrogen CSIA upon client's request." Indeed, only 50% of the TCE samples were analyzed for hydrogen isotopes. Of these TCE samples nearly half reported an "estimated" value for hydrogen isotopes. This analysis was not conducted for PCE samples. Additionally, samples were also analyzed for carbon and chlorine isotopes for a wider suite of CVOCs: PCE, TCE, and cis-DCE.

The ZymaX report concludes the origin of TCE as a "daughter product of the released PCE, same for the other contaminants, such as cis-1,2-DCE." However, based on the limited isotopic ratio variability between CVOCs, the data does not clearly support the origin of TCE as only a "breakdown" or degradation product of PCE. Since PCE was likely released at the former WOT, the ZymaX study does not eliminate the WOT as a contributing source of CVOCs in groundwater detected north and northwest of Site 2.

3a.4 **Comment:** Investigations conducted in 1988, before interim groundwater remediation activities were initiated, found no TCE and only low concentrations of PCE in soil below the groundwater table in samples collected from boring/monitoring well EA-2.

Response: Boring/monitoring well EA-2, which Chevron only recently confirmed had been installed within the steel WOT excavation cavity, was, according to EA in 1989, installed at "the point of highest chlorinated hydrocarbons in soil gas." According to the boring log for EA-2, fill was encountered from one foot to at least eight feet below the ground surface. A layer of gravel, perhaps fill material, was encountered from eight to 13 feet below grade, and PCE was detected at a minor concentration in the gravel at 10 feet.

Before the start of interim groundwater "pump and treat" activities by Chevron in 1991 (over 4 ½ years after they purchased Site 2), TCE and PCE were detected in a groundwater sample from EA-2 on September 19, 1989, at concentrations of 2,700 µg/L and <25 µg/L, (the "<" [less than] symbol indicates there was a detection of PCE below the laboratory detection limit of 25 µg/L). Although TCE is a byproduct of PCE degradation, this data indicates there was a separate and distinct release of TCE from the previously leaking steel WOT.

b. ***Responses to 3a.5 – 3a.6 address the following general comment:*** *Chevron should not be named as a discharger in the TO in connection with any CVOC release from the former.*

3a.5 **Comment:** CVOCs were not released from the former steel WOT.

Response: As discussed above, and in detail in the Staff Report, there is substantial evidence of a CVOC release from the previously leaking steel WOT. No additional response is necessary.

3a.6 **Comment:** Chevron is not a discharger under the Water Code.

Response: The Staff Report explains the basis for naming Chevron as a discharger. Water Code section 13304 requires any person who caused or permitted any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, to clean up or abate the effects of the waste.

A former landowner that did not actually cause a discharge may nevertheless be found to have permitted waste to be discharged. Specifically, under the State Water Boards' precedential orders, former landowners and former lessees who permitted waste to be released can be named as dischargers if: 1) they owned or were in possession of the site at the time of the discharge, and 2) had knowledge of the activities which resulted in the discharge, and 3) had the legal ability to prevent the discharge from migrating. (*In the Matter of Wenwest et al.*, Order No. WQ 93-13; *In the Matter of John Stuart*, Order No. WQ 86-15.)

Furthermore, "The State Board has held that actual knowledge of contamination is not needed where it is reasonable for a person to be aware of the dangers inherent in an activity. (*In the Matter of John Stuart*. Order No. WQ 86-15.) As the former Chief Counsel for the State Water Board noted, this approach is legally supportable and good public policy: "[s]o long as the owner of a piece of land is aware of what is happening on the land (or should be expected to be aware) and has the power to regulate the conduct of which he or she is aware, the landowner, not the public treasury, should bear the costs of cleaning up pollution and nuisances that occur on the land." (Memo from William R. Attwater to State Water Board, May 4, 1987.)

In the Matter of Exxon, Order No. WQ 85-2 established that there must be substantial evidence to support a finding of responsibility. This means credible and reasonable evidence indicating the named party has responsibility. Under State Water Board Resolution 92-49, the Regional Water Board may use any evidence, whether direct or circumstantial, including, but not limited to:

a. Documentation of historical activities, waste characteristics, chemical use;
b. Site characteristics and location in relation to other potential sources of a discharge;
c. Hydrologic and hydrogeologic information;
d. Industry-wide operational practices that historically have led to discharges;
e. Lack of documentation of responsible management of wastes; and,
f. Physical evidence, such as analytical data and soil and/or pavement staining.

Applying the above standards, Chevron is a properly-named discharger. It fully owned and controlled Site 2 from 1987 to 2003. Chevron and its predecessor, Standard Oil, leased and operated at Site 2 from 1950 until 1987. Standard Oil and Chevron leased the site to independent auto repair shops/operators, an activity that is generally known to involve the use of CVOCs, including PCE and TCE, in the operations (e.g., brake repairs, engine cleaning, parts degreasing, etc.).

In addition, Chevron was fully aware of CVOC contamination from the dry cleaner when it purchased Site 2 on December 31, 1986. As noted in our July 20, 2011, letter to Chevron in September 1986, four months prior to Chevron's acquisition of Site 2, a laboratory noted that analyzed groundwater samples "May contain compounds from sources other than gasoline." In spite of suspected contamination resulting from the past dry cleaning activities, Chevron proceeded to purchase Site 2 and then completed an extensive renovation of the property in 1987 and 1988.

From August 1991 to July 1996, Chevron undertook an interim cleanup at Site 2 by pumping and treating contaminated groundwater from beneath the former WOT and, in 1992, near the fuel UST pit, but contaminated groundwater was never extracted directly below the former dry cleaner parcel.

The above facts, and those presented in the Staff Report, demonstrate that Chevron: 1) was in possession of the site at the time of the discharge, and; 2) had knowledge of the activities which resulted in the discharge, and; 3) had the legal ability to prevent the discharge from migrating, and even undertook an interim remedial measure to prevent CVOCs in groundwater from migrating offsite.

c. ***Responses to 3a.7 – 3a.9 address the following general comment:*** *Independent dealers, not Chevron, operated the WOT, so they, not Chevron, should be named if there has been a WOT release.*

3a.7 **Comment:** Independent automotive dealers operated the previous WOTs.

Response: To date, Chevron has not provided the names of previous independent dealers, who operated at Site 2 under direct lease agreements with Standard Oil and Chevron, so we cannot include operators of the previous automotive service station at this time. We do not recommend waiting to issue the cleanup order for Site 2, but we are receptive to adding additional parties as dischargers if and when we have sufficient evidence. Even if independent automotive dealers were to be named to the cleanup order, this would not justify removing Chevron from the TO with respect to historic WOT releases, since Standard Oil/Chevron was the master lessee during WOT operations and the company meets the criteria for being named as a discharger as described above.

3a.8 **Comment:** Automotive repair stations formerly located at Site 2 did not use CVOCs.

Response: We disagree. Based on soil, soil vapor, and groundwater data, and the fact automotive repair stations commonly used multiple CVOCs in their operations in the 1970s and 1980s, it is highly likely PCE and TCE were used and released during Standard Oil's/Chevron's operations at Site 2.

Additionally, a February 3, 1989, report from EA (Chevron's consultant) to Chevron contained this conclusion:

> The chlorinated hydrocarbons detected at the Pleasant Hill site are tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), trans-1,2-dichloroethylene (also DCE), vinyl chloride (VC), chloromethane, methylene chloride, chloroform, and 1,2-dichloroethane. There are two suspected sources of these compounds at the site: the former dry cleaner and the former waste oil tank.

We also note that chloromethane, methylene chloride, chloroform, and 1,2-dichloroethane are chemical constituents related to automotive fuels and other uses and are not chemicals typically associated with dry cleaners. This further supports our conclusion that the WOT, as opposed to the dry cleaner, is a source at this location.

3a.9 **Comment:** Between 1950 and 1972, the time when Standard Oil operated, there is no evidence automobiles were serviced at Site 2.

Response: Advertisements in multiple telephone books covering the time period of 1955 to 1972 describe the existence of several automotive repair and service stations at Site 2 who were involved with changing oil, repairing brakes and carburetors, etc. Site maps provided by Chevron covering the time period when a major station upgrade/remodel took place in the early 1970s, along with available building permits, describe an "existing service station." This is ample evidence automobile repairs were being conducted on the property before the construction of the large automotive repair facility in 1972.

d. ***Responses to 3a.10 – 3a.13 address the following general comment:*** *There was a significant CVOC release from the former dry cleaner before Chevron owned the property, with a possible contribution from upgradient dry cleaners.*

3a.10 **Comment:** In its "Dry Cleaners, A Major Source of PCE in Ground Water" 1992 report the Central Valley Regional Water Quality Control Board, concluded that "dry cleaning uses a large quantity of PCE solvent compared to other potential sources," and that "PCE vapor plumes" were found only near dry cleaners.

Response: So noted, nonetheless this study cannot be used to discount the available data which indicate that the WOT is a pollution source. Please refer to earlier Comment 3a.2 above. No additional response is necessary.

3a.11 **Comment:** A 2014 investigation includes additional soil data to support the past release of PCE at the former dry cleaner.

Response: We agree that recent soil data provided by Chevron provides additional evidence the former dry cleaner is a significant source of PCE in soil at Site 2. However, this data does not support Chevron's contention that the dry cleaner is the sole source of the PCE discharged at Site 2.

3a.12 **Comment:** Two former dry cleaners were located upgradient of Site 2, one at 1942 Linda Drive and the other at 1745 Contra Costa Boulevard. These sites could be the source of PCE detected in groundwater beneath and around Site 2.

Response: We disagree. There is no evidence that an upgradient source contributed any of the CVOCs detected in groundwater beneath Site 2. Chevron has not provided any groundwater data to support its hypothesis of an upgradient contributing CVOC source. A July 1956 telephone book lists a One Hour Martinizing dry cleaner at 1942 Linda Drive, a commercial site located approximately 300 feet southwest of Site 2. According to a document recently provided to Staff by Chevron ("NOTICE OF INTENDED SALE"), dated April 20, 1961, the "Gregory Village Annex Launderette" once operated at 1745 Contra Costa Boulevard, which is located approximately 200 feet south of Site 2. There is no evidence that either of these sites are upgradient sources of the CVOCs detected beneath Site 2. In fact, a launderette was defined by Merriam-Webster as "a place that has machines to use for washing and drying clothes, towels, sheets, etc.," so that location may not have even used dry cleaning chemicals such as PCE. Chevron has not provided any groundwater data, or other data, to support its hypothesis that either property released CVOCs and are upgradient contributing sources of CVOCs.

3a.13 **Comment:** Further assessment of the previous dry cleaner parcel on Site 2 is necessary.

Response: We agree, as outlined in the Staff Report and the TO.

e. ***Responses to 3a.14 – 3a.15 address the following general comment:*** *Chevron should not be named as a discharger in the TO in connection with the CVOC release from the former dry cleaner.*

3a.14 **Comment:** Regional Water Board staff ignored the scientific data supporting not naming Chevron as a discharger.

Response: We disagree. Staff has considered all available and relevant data. We also note that for many years, Chevron recognized that both the former steel WOT and the previous dry cleaner were contributing sources of the CVOC contamination detected at Site 2.

3a.15 **Comment:** The State Water Resources Control Board's Zoecon decision does not support naming Chevron as a discharger in this case.

Response: We disagree. Chevron argues that *In the Matter of the Petition of Zoecon Corporation,* Order No. WQ 86-2 (February 20, 1986) *(Zoecon)* only pertains to current owners of property and, because Chevron is not the current owner of the property, *Zoecon* is not a basis for naming Chevron a discharger.

Zoecon is relevant to address Chevron's argument that it is not responsible for any discharge from the former dry cleaner located at Site 2. The petitioner in *Zoecon* similarly argued that it had never discharged, deposited, or in any way contributed to the contamination of the property. The State Board rejected this argument, finding that there was "an actual movement of waste from soils to ground water and from contaminated to uncontaminated ground water at the site which is sufficient to constitute a 'discharge' by the petitioner." (*Zoecon* at p. 4. See also *In the Matter of the Petitions of Spitzer, et al,* Order No. WQ 89-8 (*Spitzer*) ["A long line of State Board orders have upheld Regional Board orders holding landowners responsible for cleanup of pollution on their property, regardless of their involvement in the activities that initially caused the pollution."].)

To the extent Chevron focuses on the fact that it is not the current owner of the property, the State Board has spoken on the question of former landowners as dischargers in a number of orders, including *In the Matter of the Petition of Harold and Joyce Logsdon,* Order No. WQ 84-6 (*Logsdon*). In *Logsdon*, the petitioners owned the property and leased to a tenant who discharged wood preserving chemicals. The petitioners no longer owned the property at the time of the cleanup and abatement order. The State Board focused on the property owner's "actual knowledge of the condition and an opportunity and the ability to obviate it." The evidence in the record demonstrates that Chevron was aware of the contamination from the previous dry cleaner before purchasing Site 2, and took some steps to attempt to remediate the groundwater contamination.

In addition, CVOCs beneath Site 2 continued to migrate during Chevron's ownership. From the time Chevron acquired Site 2, it took over 4 ½ years to implement an interim groundwater remedial action (pumping and treating of groundwater) to address the CVOC contamination. Chevron did not conduct any soil remediation activities to appropriately address the CVOC contamination during its ownership of Site 2 (over 16 years). In *Spitzer*, a dry cleaner operated at the site in question, but ceased operations before the time of the cleanup and abatement order. The State Board found that "The discharge continues as long as the PCE remains in the soil and groundwater." Under these facts, Chevron is appropriately identified as a discharger because a discharge occurred during Chevron's ownership of Site 2. Chevron knew of the discharge and took steps to remediate the contaminated groundwater. Because those steps were not effective, and the discharge continued, it is necessary to address the remaining contamination in the proposed TO. Chevron's "lack of present control is not relevant. Responsibility for a problem created in the past is." (*In the Matter of John Stuart Petroleum*, Order No. WQ 86-15 at pp. 8-9.).

3a.16 **Comment:** The "Wenwest" decision supports Chevron's position that, as a former owner of Site 2, Chevron cannot be named as a discharger because it did not cause the discharge and no longer owns the property.

Response: We disagree. The *Wenwest* Order is a narrowly-focused order and factually distinct from this TO. Specifically, *Wenwest* declined to include Wendy's as a discharger based on a number of specific considerations. The unique factors in the Wenwest case are:

- Wendy's purchased the site specifically for the purpose of conveying it to a franchisee.
- Wendy's owned the site for a very brief period of time.
- The franchisee who bought the property from Wendy's is named in the order.
- Wendy's did not conduct activities which caused leaks.
- Wendy's never engaged in any cleanup or other activity on the site which may have exacerbated the problem.
- While Wendy's had some knowledge of a pollution problem at the site, the focus at the time was, on a single spill, not an on-going leak.
- Wendy's purchased the site in 1984, at a time when leaking underground fuel tanks were just being recognized as a general problem and before most of the underground tank legislation was enacted.
- There are several responsible parties who are properly-named in the order.
- The cleanup is proceeding.

In *Wenwest*, the State Board held that Wendy's International, a former landowner who acquired contaminated property for the sole purpose of conveying the property to a franchisee, and who owned the property for only four months, was improperly named as a discharger. The State Board declined to hold Wendy's International responsible for ongoing pollution at the property based on the unique facts of that case.

This current case involving Chevron does not have circumstances comparable to *Wenwest*. Unlike Wendy's International, Chevron was not an "innocent" owner, but in fact owned Site 2 for over 16 years and operated at Site 2 for over 50 years. Chevron was aware of the types of operations at the site, including automotive repair facilities and the use of a WOT to store chemical products used in the auto repair trade. In fact, Chevron's predecessor, Standard Oil, constructed a new auto repair facility and installed a steel WOT at Site 2 in 1972. It is common knowledge that automotive repair facilities frequently used CVOCs. PCE and TCE have been detected in soil, soil vapor, and groundwater in the area of a former steel WOT owned and operated by Standard Oil. This data clearly supports our conclusion that CVOCs were used and released during past automotive repair activities when Standard Oil leased much of Site 2.

Staff recognizes that Chevron did not own the parcel where and when a dry cleaner operated. However, prior to Chevron purchasing Site 2, they had knowledge that the source of at least some of the CVOCs detected in groundwater originated from the former dry cleaner. In 1986, the dry cleaner building was located on the property Chevron purchased. Staff agrees that Chevron did not operate the dry cleaner. The building that housed the dry cleaner was in Chevron's possession for approximately one year before Chevron demolished the structure during renovation activities at Site 2 in late 1987. After the station renovation and car wash construction projects were completed, Chevron proceeded to conduct interim remediation of contaminated groundwater to halt the spread of the pollution, an effort that was unsuccessful, as demonstrated by historic and recent sampling data. Based on Chevron's knowledge of CVOC releases, their subsequent ownership of Site 2, and the fact that Chevron initiated clean up at Site 2, Chevron is an appropriate discharger.

A more apt order than *Wenwest* is *In re John Stuart*, Order No. 86-15. In that case, Arnold, the property owner, leased the property to John Stuart Petroleum, who in turn leased the site to several service station operators. Similar to Chevron, the site had releases and contamination associated with operations at the service station. John Stuart Petroleum never owned the site and was not a lessee or lessor at the time of the cleanup and abatement order. Nevertheless, the State Board determined that John Stuart Petroleum was an appropriate discharger:

> At all times during the lease period, petitioner had an important legal interest in the property and derived income from it. It is disingenuous for petitioner to argue that he had nothing at stake in the property. Accordingly, we find the action of naming the petitioner, along with the lessor and the sublessees, as a party responsible for the cleanup to be appropriate and proper.

The State Board went on to conclude that John Stuart Petroleum had sufficient legal control over the property to be held responsible for what took place there. Like John Stuart Petroleum, Chevron was involved in the automotive servicing activities conducted at Site 2 and presumably derived benefit from leasing the site to automotive repair shops.

f. ***Responses to 3a.17 – 3a.21 address the following general comment:*** *The CVOC groundwater plume originating at Site 2 has not commingled with the CVOC groundwater plume originating at Site 1. Chevron admits that PCE from the previous dry cleaner at Site 2 is present in the groundwater beneath the Gregory Village Shopping Center.*

3a.17 **Comment:** Isotopic analysis of chlorinated solvents at Site 2 indicates that TCE, DCE and VC are all breakdown products of PCE. USEPA determined that PCE was rarely used as a degreasing agent. There is no evidence PCE or TCE was ever used at the former automotive fueling facility. Chevron admits that PCE from the former dry cleaner located at 1709 Contra Costa Boulevard is present in groundwater beneath the Gregory Village Center.

Response: While TCE, DCE and VC are breakdown (degradation) products of PCE, DCE and VC are also independent breakdown products of TCE. Therefore, Chevron's assertion that PCE was not used in the past for automotive repair and maintenance activities, which is not backed by site-specific evidence, does not negate the probability that TCE was used.

Page 3 of the Staff Report points out that PCE and TCE were common solvents used at automotive repair and service stations. A 2006 Cal/EPA (DTSC) report cited in our Staff Report states "Historically, chlorinated solvents were extensively used in automotive aerosol cleaning products." It is likely that historic waste storage and disposal practices during the time Standard Oil operated at Site 2 resulted in the discharge of PCE and TCE to soil and groundwater.

Chevron acknowledges the presence of a steel WOT, otherwise known as a "used oil" tank, at Site 2 from 1972 to May 1986. According to the California Health and Safety Code section 25250.1, used oil is defined as "Oil that has been refined from crude oil, or any synthetic oil, that has been used, and as a result of use or as a consequence of extended storage, or spillage, has been contaminated with physical or chemical impurities." In California, since 1986, used oil has been regulated as a hazardous waste material. As noted in Response to Comment 3a.3, State Board Resolution 92-49 allows Staff to use direct or circumstantial evidence in evaluating whether the usage of certain chemicals may have occurred at a particular site. Therefore, since both PCE and TCE have been detected in the soil, soil vapor, and groundwater beneath Site 2, we logically conclude PCE and TCE were used at Site 2 in the past during automotive repair and maintenance activities.

The above conclusions are supported by data from the site as discussed in Response to Comment 3a.1.

3a.18 **Comment:** Grab groundwater data collected from open boreholes (e.g., direct-push or CPT) are less reliable than samples obtained from monitoring wells.

Response: Grab groundwater data and long-term monitoring well data have independent utility; both may be unreliable taken independently; the data from grab groundwater

samples in this case confirm other information. Typically, groundwater samples collected from direct-push or CPT holes are taken from short intervals, and the laboratory analysis of the samples are used to determine if contamination is present and to what degree. These samples may be used to "ground-truth" data from monitoring wells or they may be helpful in plume characterization. We would not necessarily rely on these types of samples for long-term monitoring of groundwater.

Monitoring wells are typically installed to characterize one or more water-bearing zones and detect changes and trends in groundwater levels and contaminant concentrations. We note that for long-screen monitoring wells, such as the ones installed by Chevron to monitor petroleum and CVOC groundwater pollution at Site 2 for nearly 20 years, sampling data may be biased low if two or more water-bearing zones are intercepted by the well screens. In other words, uncontaminated water mixing with polluted water would dilute groundwater samples and bias the sampling results.

In this case, the grab groundwater data confirms that CVOCs, and certain fuel constituents (e.g., TPH-gasoline and MTBE), are present in groundwater beneath the southern portion of the Gregory Village Shopping Center and directly upgradient of the former P&K Cleaners site; this data indicates that Site 2 is a source of these chemicals, and that the plume emanating from Site 2 has commingled with the CVOC plume from Site 1.

3a.19 **Comment:** The predominant groundwater flow direction beneath Site 2 has always been to the northeast, and a north to northwest groundwater flow direction is not supported by the historic data.

Response: We disagree. In 1986, Chevron determined that the predominant groundwater flow direction beneath Site 2 was to the northeast. This flow direction was determined due to the location of Walnut Creek and after only two monitoring wells had been installed on the gas station parcel. The two monitoring wells sited by Chevron were aligned in a northeast axis, creating a bias in determining the groundwater flow direction. It is standard practice to install a minimum of three monitoring wells to determine the direction of groundwater flow. Over time, additional groundwater monitoring wells were installed to support the original supposition that shallow groundwater flow moved toward Walnut Creek, so no monitoring wells were installed to the northwest of Site 2. It is not surprising that the groundwater data after nearly 20 years of monitoring supported a northeast flow direction. However, there were several times when the reported flow direction was north and northwest, and there was even one instance when the flow direction was calculated as southeast.

The January 3, 2005, Site Closure Summary, prepared by the Regional Water Board at the time of the UST case closure (January 14, 2005), indicates the groundwater flow direction beneath Site 2 is to the "Northwest." Chevron never contested this finding. Based on the distribution of CVOCs in groundwater north and northwest of Site 2, including the fact that CVOC concentrations in groundwater generally increase from east to west beneath the Gregory Village Shopping Center parking lot, the groundwater flow direction is to the north and northwest. In other words, the distribution of CVOCs in

groundwater supports a north to northwest groundwater flow direction, consistent with the local topography, and not to the northeast as postulated by Chevron; Chevron's original estimate that groundwater flow direction was toward a surface water body, Walnut Creek, was incorrect, so downgradient monitoring wells were not placed in the optimal locations.

Chevron never constructed any upgradient groundwater monitoring wells for Site 2. Neither EA-2, installed within the former steel WOT pit, or EA-3, a cross-gradient well installed to the west of the former dry cleaner in Linda Drive, are considered upgradient monitoring wells. This is important because upgradient wells are needed to establish background contaminant concentrations, evaluate whether upgradient sources are contributing to the groundwater pollution, and to aid in delineating groundwater flow direction and gradient. Both EA-2 and EA-3 contained significant concentrations of dissolved-phase CVOCs over their monitoring history.

Currently, there is insufficient well data to draw reliable conclusions about the predominant groundwater flow direction. Therefore, we must interpret groundwater contaminant distribution and groundwater water chemistry data to infer flow direction. New, properly-screened groundwater monitoring wells will aid in determining the true groundwater direction flow.

3a.20 **Comment:** The Gregory Village Shopping Center is not directly downgradient of Site 2.

Response: We disagree. The Gregory Village Shopping Center is downgradient of Site 2 based on the distribution of various petroleum hydrocarbons and CVOCs in groundwater beneath the southern part of Site 1, which is directly north and northwest of Site 2. The chemicals are consistent with those released and detected at Site 2. This is discussed in the detail on page 11 of the Staff Report.

3a.21 **Comment:** TPH-gasoline detected in groundwater samples beneath the Gregory Village Center is actually PCE.

Response: We disagree. Chevron has presented an unconvincing argument that TPH-gasoline detected in groundwater samples beneath the downgradient Gregory Village Shopping Center are actually false positives of PCE and are therefore unrelated to historic fuel releases at Site 2. Chevron has not provided any chromatograms related to the laboratory analyses of groundwater samples, so Staff could not independently verify if certain peaks or spikes in the chromatograms actually correspond to CVOCs (e.g., PCE and TCE) versus the standard peaks for TPH-gasoline. Even if Chevron is correct, and TPH-gasoline is actually not present in groundwater downgradient of Site 2, the fuel additive MTBE was detected in numerous groundwater samples collected by them and others beneath the Gregory Village Shopping Center main parking lot. Site 2 is the likely source of this MTBE in groundwater, further supporting Staff's conclusion that the groundwater plume from Site 2 has migrated and commingled with the plume at Site 1.

g. ***Responses to 3a.22 – 3a.25 address the following general comment:*** *CVOC releases from the sanitary sewer have contributed to the CVOC groundwater plume in this area.*

3a.22 **Comment:** There has been no investigation beneath a former main sewer line in Linda Drive that once serviced the former dry cleaning business at Site 2.

Response: We agree. However, the lack of an investigation does not, by itself, constitute evidence of a PCE release from the sanitary sewer in this location.

3a.23 **Comment:** Additional investigation is needed to confirm whether sewer lines and/or pipe backfills are sources of CVOCs in groundwater.

Response: We agree, as discussed in the Staff Report. However, this additional investigation should not delay issuance of site cleanup orders, since many tasks in the TOs are unrelated to the sanitary sewers (e.g., on-site source control).

3a.24 **Comment:** Additional investigation is needed to determine whether other sewer lines upgradient of Site 2 are discharge points for PCE from former upgradient dry cleaners.

Response: To date, the Regional Water Board has only been provided with the addresses of two former dry cleaners upgradient of Site 2. Available groundwater data does not support the conclusion that these two properties are contributing sources of the CVOCs detected in groundwater beneath and downgradient of Site 2.

3a.25 **Comment:** CVOCs detected beneath the Gregory Village Shopping Center may originate from a former CCCSD sanitary sewer line in Linda Drive.

Response: Available data does not support this hypothesis. Additional information is needed to better evaluate whether the former sanitary sewer main in Linda Drive was a possible CVOC release area.

h. ***Responses to 3a.26 – 3a.28 address the following general comment:*** *The findings in the TO are inconsistent with the Water Board's 2005 "no further action" letter for Site 2.*

3a.26 **Comment:** Chevron's past interim remedial actions were effective at Site 2.

Response: We disagree. Chevron operated a groundwater pump and treat remediation system for approximately five years (August 1991 to July 1996) as an interim remedial measure to initially mitigate high concentrations of CVOCs and, later, petroleum hydrocarbons in the first-encountered shallow groundwater zone beneath two different areas of Site 2. The system was originally designed to only utilize monitoring well EA-2, a well installed within the former steel WOT pit, with the intent to optimize the remedial efforts by adding extra wells in the future. In mid-1992, Chevron added a second well, C-1/MW-D located north of the UST pit, to the pump and treat system after free-product gasoline was detected in that well. According to Chevron, approximately 1.9 million gallons of contaminated groundwater were pumped, treated via carbon absorption, and discharged to an on-site sanitary sewer lateral and then the main sewer system under permit with CCCSD.

The interim remedial efforts described above have not been effective in remediating the CVOCs in groundwater. In an October 21, 1996, letter from Chevron, they agreed the groundwater remediation was ineffective, stating "...despite continuous remediation efforts since August 1991, no significant impact has been seen on dissolved hydrocarbons in the subsurface." The letter also states, "Levels of dissolved constituents in samples collected were consistent with previous results and groundwater flow, ..." On May 12, 2003, wells EA-1, EA-2, and EA-3 were sampled for the final time, and PCE and TCE were detected in all three wells. The highest concentrations of PCE and TCE were 3,100 µg/L and 3,600 µg/L, respectively, both from EA-2, and degradation compounds, including cis-1,2-DCE and vinyl chloride, were also detected. The analysis of groundwater samples collected on May 14, 2004, from on-site wells MW-C and C-1/MW-D and off-site wells EA-3 and EA-5 also detected PCE, TCE, and several degradation compounds.

During and after Chevron's interim remediation activities, there was little effort to characterize the vertical and lateral extent of PCE contamination in soil and groundwater associated with the former dry cleaner or WOT. Soil remediation (i.e., source removal) was not conducted at Site 2, and onsite studies conducted since 2011 indicate a significant mass of CVOCs remain beneath Site 2 and continue to migrate.

Based on the known data at the time of the 2005 case closure, and data collected on the Gregory Village Shopping Center property downgradient of Site 2, the current concentrations of CVOCs in soil, soil vapor, and groundwater pose significant risks to human health, groundwater and the environment.

3a.27 **Comment:** In 2005, the Regional Water Board believed that additional assessment and remediation was not necessary and the case was closed.

Response: We agree. This conclusion, however, was based on data and analysis from Chevron that the CVOC plume was limited in extent. Based upon more recent data, Staff has determined that site characterization was incomplete because the vertical and lateral extent of CVOC contamination in soil and groundwater was not defined. The current CVOC pollution associated with Site 2 poses a threat to human health, groundwater quality, and the environment.

3a.28 **Comment:** Case closure required the annual monitoring of EA-5, with the understanding those increasing contaminant concentrations at this "sentry well" should trigger remedial action. However, trigger levels at EA-5 have not been exceeded. According to Chevron, Conditions of the Site Management Plan have continued to satisfy the requirements of case closure based on the lack of CVOC detections at sentry well EA-5.

Response: In 2005, based on the data presented by Chevron, we agreed that EA-5 could be used as a future "sentry well" to monitor CVOCs in groundwater. A sentry well is generally defined as a monitoring well placed between a source area and an identified receptor and outside of a defined plume boundary. Sentry wells are used to determine if a groundwater plume is expanding. It is very unusual to require additional groundwater monitoring following the issuance of a case closure letter. However, the presence of a

sentry well suggests that the residual CVOCs in groundwater in 2005 were still a concern for Chevron and the Regional Water Board.

We have since determined that monitoring well EA-5 cannot act as a viable sentry well, primarily because the CVOC plume emanating from Site 2 is oriented north to northwest. It is not surprising that CVOC trigger levels have not been exceeded in EA-5, considering its location in relation to the overall CVOC plume associated with Site 2; EA-5 is located on the fringe of the plume and not within the center or core.

Based upon available data, the remaining contamination poses a threat to human health, groundwater and the environment beyond the boundaries of Sites 1 and 2 and the area. Thus, Staff reopened the closed UST case in order to require the completion of the characterization and remediation of the CVOC groundwater plume.

i. ***Responses to 3a.29 – 3a.35 address the following general comment:*** *Other*

3a.29 **Comment:** The assessor's parcel numbers referenced in the TO should be corrected as follows: 1705 Contra Costa Boulevard was 150-103-011, and 1709 Contra Costa Boulevard was 150-103-012.

Response: We agree. The TO has been revised.

3a.30 **Comment:** Historical report figures from Chevron inaccurately located essential features at Site 2.

Response: We agree. Staff recognizes that inaccurate site plans were submitted by Chevron to the Regional Water Board over many years. Since "as-built" drawings depicting the locations of the current features at Site 2 have been available for over 25 years, Staff does not understand why inaccurate site plans were submitted, especially since one groundwater monitoring well (and perhaps more) was mislocated.

An informal email communication in June 2014 from Staff informed Chevron that EA-2, a critical monitoring/remediation well, was probably mislocated on historic site plans. Chevron resurveyed the position of the well in July 2014, and determined EA-2 had been installed directly within the former steel WOT pit and was not located within the footprint of the previous dry cleaner as originally postulated. Staff believes this error points to a distinct possibility that the historic survey and groundwater elevation data for all groundwater monitoring wells could be erroneous. Therefore, groundwater flow direction data interpreted over many years could also be inaccurate.

3a.31 **Comment:** The table in the TO is misleading. The table lists groundwater data from both grab and monitoring wells samples, which is inappropriate. Also, the table should include pre- and post-remediation soil data.

Response: We disagree; the table is not misleading. The purpose of the table is to list the maximum detected concentrations of certain chemicals in groundwater, soil and soil vapor for Site 2. Including groundwater data from borings and monitoring wells is

appropriate, since essentially all of the samples collected to date are "grab" in nature. We agree the table should be improved to include new soil data provided by Chevron in early August 2014; the table has been revised. Since soil remediation has not been conducted at Site 2, we are unclear as to why Chevron thinks pre- and post-remediation soil data is appropriate.

3a.32 **Comment:** Technical reports submitted by the due dates in the TO should not be determined by the Executive Officer, at a later date, to be unacceptable. If a technical report is found unacceptable, a new due date should be created for accepting a revised report.

Response: We disagree. The TO needs to include a "yardstick" for technical report acceptability. Otherwise, dischargers could submit clearly deficient reports and suffer no enforcement consequences. We conclude that the TO provides a reasonable "yardstick" for report acceptability. First, it clearly defines the task elements to be addressed in the report. Second, it delegates to the Executive Officer the determination of whether the report adequately addresses the task elements.

3a.33 **Comment:** New CVOC soil data from July 2014 should be included in the TO.

Response: We agree. The table in the TO has been updated to include the additional soil data collected during Chevron's self-directed study in July 2014.

3a.34 **Comment:** Soil vapor was not investigated in the area of CPT-14 and CPT-23.

Response: We agree that a soil vapor assessment has not been conducted in the area of CPT borings 14 and 23; such an investigation is necessary and is required by the TO.

3a.35 **Comment:** The source of the TPH-gasoline soil vapor concentrations shown in the table in the TO should be provided.

Response: The source of the TPH-gasoline soil vapor data is the Chevron-commissioned "Report of Investigation," a technical report by EA dated February 3, 1989. According to that report, Chevron "requested that EA conduct a soil vapor contaminant assessment (SVCA) for petroleum hydrocarbons; the SVCA was conducted on 29 October 1987. The SVCA, or soil gas survey, was used to assess the extent of petroleum hydrocarbons in the soil vapor." The data shown on the table is from the EA report.

3b. COMMENTS FROM CHEVRON U.S.A. INC. (A. Todd Littleworth, Esq.)

This second round of comments from Chevron addresses four points raised by GVP.

3b.1 **Comment:** Chevron believes that a single cleanup order should not be issued for Site 1 and Site 2.
Response: We agree. Please refer to the Response to Comment 1a.1. No additional response is necessary.

3b.2 **Comment:** Chevron believes CCCSD should be named as a discharger in both TOs.

Response: CCCSD does not meet the definition of "discharger" and therefore should not be named in either TO. Please refer to the Staff Report (section VI) and the Response to Comment 1a.2. No additional response is necessary.

3b.3 **Comment:** Chevron should not be named as discharger because of construction activities undertaken at Site 2 in 1987 and 1988.

Response: Our recommendation to name Chevron as a discharger is not based on construction activities. Although Chevron demolished the building where the dry cleaner was located, and presumably disturbed the earth by removing foundations and floor slabs, utilities, etc., we concur that there is insufficient data at this time to suggest that Chevron's construction activities were or are a source area for contamination.

There are sufficient reasons for naming Chevron as a discharger apart from this point. See our response to Comment 7.1 and Section IV of the Staff Report.

3b.4 **Comment:** The tasks outlined in the cleanup order for Site 2 should not be modified, but due dates should be changed.

Response: The tasks outlined in the TO for Site 2 have not been revised. Staff has modified the due dates for the specific tasks, as necessary.

4. COMMENTS FROM BUCHMAN PROVINE BROTHERS SMITH LLP (on behalf of MB Enterprises, Inc.)

4.1 **Comment:** MB Enterprises, Inc. should not be named in the Site 2 cleanup order.

Response: We disagree. MB Enterprises, Inc. is a current landowner. Under Water Code section 13304, "any person who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into waters of the state…shall upon order of the regional board, clean up the waste or abate the effects of the waste..."

Landowners, past and current, are responsible for the discharges regardless of whether they personally caused the active discharge because they "permit" or threaten to permit the discharges. "[M]ovement of contamination, albeit slow, is still a discharge to waters of the state that must be regulated." (*In re Matter of Zoecon*, Order No. WQ 86-2.) There is sufficient evidence of ongoing migration of contamination from source areas on the property to allow the Regional Water Board to exercise its authority under the Water Code in naming MB Enterprises, Inc., as a discharger in the TO.

In addition, numerous State Board Orders note the necessity of naming a current landowner of the property as a discharger to ensure that all parties have sufficient access to the property and cooperation of the landowner to effectuate cleanup. The fact that Zoecon Corp. was the current landowner was a compelling fact in *In re the Matter of the Petition of Zoecon Corporation*:

> Yet it is this very role that puts Zoecon in the position of being well suited to carrying out the needed onsite cleanup. The petitioner has exclusive control over access to the property. As such, it must share in responsibility for the clean up.

4.2 **Comment:** The Staff Report does not establish that the CVOCs detected in soil samples are from onsite activities conducted by MB Enterprises, Inc.

Response: We agree. We are not aware of any information that suggests MB Enterprises, Inc., used or released CVOCs at Site 2. However, MB Enterprises, Inc., is named in the TO because it is the current property owner (see Response to Comment 4.1).

4.3 **Comment:** MB Enterprises, Inc. was unaware of the contamination beneath Site 2 in 2003 when they purchased the property.

Response: Whether MB Enterprises, Inc. knew or did not know about the contamination in 2003 when they purchased Site 2 is irrelevant (although the history of the CVOC contamination should have been disclosed to them). In 2003, the standard of practice was for a prospective purchaser of a gas station to retain the services of an environmental consultant to conduct a Phase I "Environmental Site Assessment" to identify environmental conditions that could affect their decision to purchase the property. We do

not know whether a Phase I evaluation was conducted by or for MB Enterprises, Inc., nor do we know what Chevron told MB Enterprises, Inc., about the residual contamination beneath Site 2.

The State Water Board addressed this same argument in *In the Matter of Zoecon Corporation*, Order No. 86-2, in which Zoecon Corporation claimed that it should not be held responsible for contamination when it purchased the property in 1972, but did not learn of the contamination until 1980. In response, the State Board stated:

> We believe that our determination that present property owners are also responsible for waste discharges will encourage potential buyers to more thoroughly examine the condition of property which they may acquire.

4.4 **Comment:** The two sources of on-Site CVOCs – the previous steel WOT and the former dry cleaner – were not present when MB Enterprises, Inc. purchased the property in 2003.

Response: While it is true the former WOT and dry cleaner were removed before MB Enterprises, Inc. purchased the property in 2003, a significant mass of CVOC contamination in soil and groundwater was present at that time and remains an ongoing source at Site 2.

4.5 **Comment:** There is no ongoing discharge of pollutants at Site 2.

Response: We disagree. There is a significant mass of CVOC contamination in soil and groundwater beneath and downgradient of Site 2. The remaining pollution is an ongoing discharge as it continues to migrate. (See Response to Comment 4.1 above, *supra*, citing *Zoecon*.)

5a. COMMENTS FROM BARG COFFIN LEWIS & TRAPP LLP (on behalf of Marjorie P. Robinson)

5a.1 **Comment:** There is no substantial evidence which supports naming Marjorie P. Robinson as a discharger. Ms. Robinson should not be named in the TO for Site 2.

Response: We disagree. The recommendation to name Ms. Robinson as a discharger is consistent with section 13304 of the Water Code and numerous State Water Board cleanup orders because she: (1) owned the property at the time of discharges; (2) had knowledge of the activities which resulted in the discharges; and, (3) had the legal ability to prevent the discharges. The fact that Ms. Robinson was an owner of Site 2 from 1965 through 1986, a time period when CVOCs likely were released, is sufficient in naming her as a discharger in the TO (as a former landowner). Ms. Robinson admits in her declaration that she recognized her signature on the deed to Site 2, and was further aware that she and her husband leased Site 2 to a gas station. She and her husband presumably benefitted from the leases of their property to the dry cleaner and service station for the 21 years they owned the property. Please see the Responses to Comments 3a.14 and 3a.15 concerning former owners, and specifically the discussion of *In Re John Stuart Petroleum*, Order No. 86-15.

5a.2 **Comment:** The burden imposed on Marjorie P. Robinson in naming her as a discharger is unreasonable.

Response: To date, proof of inability to pay toward cleanup costs has not been submitted to Staff. Moreover, because of Ms. Robinson's status as a former landowner of a UST site, there may be funds available from the UST fund to assist with investigation and remediation. Notably, the Governor recently signed SB 445 (Hill) into law; this legislation will allow a portion of the funds from the UST cleanup fund to be used to clean up contaminated sites without regard to the source of the contamination. It is therefore premature and inappropriate to release Ms. Robinson from the TO.

5a.3 **Comment:** Marjorie P. Robinson had limited involvement with Site 2 (as the spouse of a passive real estate investor), and was not involved in releasing any chemicals at Site 2.

Response: See Response to Comment 5a.1. No further response is necessary. The TO has been amended to note that Ms. Robinson is named in her individual capacity and also as the heir to the estate of her husband, Ned Robinson.

5a.4 **Comment:** No chemical releases have been identified in the time frame of 1965 to 1987, the period of time when Marjorie P. Robinson was a part owner of Site 2.

Response: There is evidence that the historic dry cleaner and former steel WOT leaked CVOCs to the subsurface before Chevron purchased Site 2 in late 1986. Moreover, standard operations, poor housekeeping, and accidents are known to have caused releases to soil and groundwater at dry cleaners and automotive service stations that operated in the 1960s, 1970s, and 1980s. For additional information related to naming a past landowner as a discharger, refer to Response to Comments 3a.6 and 3a.14-3a.16 above.

5a.5 **Comment:** The TO denotes the Robinsons and Ms. Lehrman owned the property from 1960 to 1986. However, they actually owned Site 2 from June 25, 1965, to December 26, 1986.

Response: We agree. The TO has been revised.

5a.6 **Comment:** Merle D. Hall Company and Max W. Parker were also previous owners of Site 2.

Response: We recognized that Merle D. Hall Company and Max W. Parker were previous owners of Site 2. However, our property ownership research indicates these parties were intermediaries involved with conveying the property title to Chevron. According to the comment submitted by Barg Coffin Lewis & Trapp LLP, *"The undisputed evidence cited in Part I.B, above, shows that they each were conveyed a one-half interest in the Property on December 26, 1986, which they then reconveyed the same day to Chevron."*

This is similar to a matter that came before the Water Board in December 2011 (Regional Water Board Order No. R2-2011-0088). In that case, the Board evaluated whether to name as a discharger the son of a former property owner, Scott Vincent Monroe, who was 18 years old at the time he held title to an active dry cleaner; he held title in name only, had no financial gain from his involvement with the property, and had no managerial or other duties overseeing tenants or activities on the property. This Regional Water Board determined that Scott Vincent Monroe was not an appropriate discharger. The current TO is consistent with Regional Water Board Order No. R2-2011-0088.

5a.7 **Comment:** The Regional Water Board has not provided substantial evidence of a commingled groundwater plume.

Response: We disagree. There is evidence that the CVOC plume from Site 2 migrated in groundwater to the north and northwest and beneath the Gregory Village Shopping Center, and commingled with the CVOC plume associated with Site 1. The mixed plume has migrated beneath commercial and residential properties north of Site 1. Please refer to the Staff Report and the TO for additional information.

5b. COMMENTS FROM BARG COFFIN LEWIS & TRAPP LLP (on behalf of Marjorie P. Robinson)

This second round of comments from Donald E. Sobelman, counsel representing Ms. Marjorie P. Robinson, disputes the evidence of a commingled groundwater plume.

5b.1 **Comment:** There is no evidence the groundwater plume from Site 2 has commingled with the groundwater plume from Site 1.

Response: We disagree. Please refer to the Staff Report (section V).

6. COMMENTS FROM BARG COFFIN LEWIS & TRAPP LLP (on behalf of Jane A. Lehrman)

6.1 **Comment:** Jane A. Lehrman was not provided with the TO in a timely manner.

Response: The TO was mailed to Ms. Lehrman at the address we had on file for her. We understand she has received the TO. Since the original comment period deadline of August 4, 2014, was extended, and Ms. Lehrman has provided and submitted a timely response to comments, the extension of the comment period and delay of the hearing until November has cured any prejudice in the delay in receiving the original TO.

6.2 **Comment:** Ms. Lehrman objects to being named as a discharger in the TO for Site 2.

Response: Ms. Lehrman, as a former property owner of Site 2 from June 1965 to late December 1986, meets the definition of a discharger under the Water Code. She and Ms. Robinson owned the property during the same time period, and our basis for naming her is similar to the reasoning above regarding Ms. Robinson. The letter from attorney Don Sobelman admits that Ms. Lehrman executed leases. Ms. Lehrman presumably benefitted from the leases of the property to the dry cleaner and service station for the 21 years she and her husband owned the property. Please refer to Responses to Comments 3a.14 and 3a.15 concerning former owners, and specifically the discussion of *In Re John Stuart Petroleum*, Order No. 86-15.

6.3 **Comment:** The burden imposed on Jane A. Lehrman in naming her as a discharger in the TO is unreasonable, considering she is elderly, in poor physical and mental health, and lacks the necessary finances to contribute to a cleanup of Site 2.

Response: Please see the Response to Comment 5a.2. It is premature and inappropriate to release Ms. Lehrman from the TO at this time.

6.4 **Comment:** Philip M. Lehrman, Jane Lehrman's former husband, passed away in January 2014, so it is no longer appropriate to name him as a discharger in the TO.

Response: We agree. The TO has been revised to remove Mr. Lehrman from the TO.

6.5 **Comment:** Ms. Lehrman had limited involvement with Site 2 (as the spouse of a passive real estate investor), and was not involved in releasing any chemical contaminants.

Response: Please see the Response to Comment 5a.1.

6.6 **Comment:** No chemical releases have been identified in the time frame from 1965 to 1987, the period of time when Ms. Lehrman was a part owner of Site 2.

Response: We disagree. She and Ms. Robinson owned the property during the same period and our basis for naming her is the same as for Ms. Robinson. See the Response to Comment 5a.4.

6.7 **Comment:** Ms. Lehrman's ownership interest in Site 2 was limited to 1965 to 1987.

Response: We agree. This period of time coincides with the time frame when CVOCs were likely used and released at Site 2.

6.8 **Comment:** No substantial evidence exists to support naming Ms. Lehrman to the TO for Site 2.

Response: We disagree. As outlined in the Staff Report and TO, there is substantial evidence in naming a former property owner to the TO for Site 2. Please refer to Responses to Comments 3a.14 and 3a.15 concerning former owners, and specifically the discussion of *In Re John Stuart Petroleum*, Order No. 86-15

7. COMMENTS FROM PALADIN LAW GROUP® LLP (on behalf of Ryan and Anne Schaeffer)

7.1 **Comment:** The TO for Site 2 should be revised to include additional reasons for naming Chevron. Chevron was the owner and/or operator at the property during at least two major upgrade projects that included trenching, grading, and WOT replacement, thereby disturbing and redistributing contaminated soil at Site 2.

Response: While the comment is factually correct in noting Chevron's status as an owner and/or operator during major upgrade projects, the extent to which those activities redistributed or exacerbated contamination has not been sufficiently documented to cite as a basis for naming Chevron as a discharger. We have not changed the TO in response to this comment.

7.2 **Comment:** The definition of "Site" in both TOs should be expanded to include the entire area impacted by contaminants originating at the Site 1 and Site 2 properties, including the residential area overlying the commingled groundwater plume.

Response: A change in the "site" definition is not needed. Each TO defines the "site" as the source property, but both TOs describe the migration of site contaminants into downgradient areas and both TOs require the named dischargers to clean up those contaminants wherever they happen to be situated – see finding 14 of each TO (Basis for 13267 and 13304 Order).

7.3 **Comment:** The groundwater plume extends beneath both residential and commercial properties north of the Gregory Village Shopping Center.

Response: We agree, and the TOs require remedial work in this offsite area.

7.4 **Comment:** The Regional Water Board cannot conclude that CCCSD is not a discharger, given the pattern of elevated soil gas concentrations in the vicinity of Manhole 46. Furthermore, the TOs and Staff Report fail to state that a main sewer line conveys wastewater from Site 1 and Site 2 through a network of interconnected manholes.

Response: We disagree. Please refer to Section 1 of the Response to Comments above regarding this issue.

7.5 **Comment:** The Tentative Order does not recognize that dry cleaning equipment with solvent remained at Site 1 until at least 1999. Dry cleaning equipment was present at Site 1 from March 1991 until 1999, and releases of PCE could have occurred during this time frame.

Response: We agree and revised the TO for Site 1 accordingly.

8a. COMMENTS FROM CENTRAL CONTRA COSTA SANITARY DISTRICT (CCCSD)

8a.1 **Comment:** We support the Tentative Orders and the associated Staff Report, which do not name CCCSD.

Response: Comment noted. No further response is necessary.

8a.2 **Comment:** The Regional Water Board should expand upon the policy reasons why CCCSD should not be named as a discharger. It is not in the public interest to name sanitary sewer agencies to clean up contamination it did not cause merely because it provided sewerage disposal services to polluting businesses. There would be serious financial implications for sanitary sewer agencies if they could be named to cleanup orders just because of incidental leakage from their sewers. It would be inequitable to impose major cleanup costs on sanitary sewer agencies in the many situations where the polluting businesses are unable to afford adequate cleanup and where the sanitary sewers were properly operated.

Response: We conclude that it is not necessary to expand on the reasons for omitting CCCSD as a named discharger. The Staff Report clearly identifies the criteria which must be met to name sanitary sewer agencies to cleanup orders, based on precedential State Water Board and court decisions, and shows how those criteria are not met in this instance (see Section VI of the Staff Report).

8b. COMMENTS FROM CENTRAL CONTRA COSTA SANITARY DISTRICT (CCCSD)

This second round of comments from CCCSD rebuts the August 4, 2014, technical comments from GVP (Comment 1.a above).

8b.1 **Comment:** GVP alleges there were releases of CVOCs from the CCCSD sewer mains. Although the data indicates releases of CVOCs occurred at Site 1 and Site 2, CCCSD believes the migration and location of the CVOCs in groundwater are not consistent with releases from the sewer mains.

Response: We agree. Please refer to the Response to Response to Comments 1a.4 and 1a.5 above. See also section VI of the Staff Report.

8b.2 **Comment:** GVP alleges CCCSD knew of leaks in the sanitary mains and failed to repair the leaks in a timely manner. CCCSD maintains this is not the case.

Response: We agree with CCCSD. Based on our records review, CCCSD actively inspected their sanitary sewer system since at least 1973. When line leaks were discovered CCCSD promptly fixed the problems.

8b.3 **Comment:** GVP alleges the sewers were in poor condition and not properly maintained, but CCCSD refutes this claim.

Response: CCCSD submitted records that document the implementation of a sanitary sewer maintenance program that includes inspecting and repairing damaged sewer lines.

8b.4 **Comment:** GVP alleges that CCCSD was aware CVOCs were being released to the sewer mains, but CCCSD contends that historic ordinances contained reasonable narrative and numeric objectives that were typically exceeded at dry cleaners without their knowledge.

Response: We agree with CCCSD. Please refer to Section VI, bullets 3 and 4 on pages 16 and 17 of the Staff Report.

8b.5 **Comment:** GVP's expert, Bonneau Dickson, P.E., opines that gravity sewers composed of vitrified clay pipe (VCP) are not designed and constructed to be leak free and are prone to infiltration. CCCSD asserts that properly installed VCP pipes and joints are able to transmit sanitary sewer waste successfully to the wastewater treatment plant with minimal problems.

Response: Comment noted. Even if Dickson's point were correct, we would still need case-specific evidence of a CVOC release from the CCCSD sanitary sewers before we could name CCCSD as a discharger.

8b.6 **Comment:** Mr. Dickson asserts that the sanitary sewer lines sagged and the joints failed within a few years after construction, an opinion not shared by CCCSD.

Response: We agree with CCCSD. There is no evidence the sewer lines owned and operated by CCCSD in the area of Site 1 and Site 2, constructed circa 1950, significantly sagged and failed after installation. Furthermore, root intrusion into the lines does not appear to be a problem. There is no data to suggest that the sewers caused or contributed significantly to the groundwater contamination.

8b.7 **Comment:** Mr. Dickson believes the main sewers are prone to significant infiltration of groundwater and exfiltration of waste for various reasons, that PCE vapors can leak through the pipe walls, and that the slope of the sewer lines is too flat causing solids to accumulate. CCCSD contends these theories are not supported by the evidence.

Response: We generally agree with CCCSD. In order for the sewer mains in the area of Site 1 and Site 2 to be susceptible to significant infiltration and exfiltration, the pipes must be leaking and/or the joints displaced. We do not find sufficient evidence to support these assumptions. As for the theory that PCE vapors could build up significantly within the pipes and contaminate soil and water, there is insufficient evidence to support this hypothesis as well. Finally, the slope of the sewer lines appears to be sufficient to allow sewage to flow adequately under the influence of gravity, and routine inspection and cleaning (flushing) allow the lines to remain unobstructed. In summary, there is no data to suggest that the sewers caused or contributed significantly to the groundwater contamination.

8b.8 **Comment:** Mr. Dickson alleges the as-built nature of the sewer lines results in maintenance and cleaning issues, which CCCSD believes are unsubstantiated allegations.

Response: We agree with CCCSD. There is no data to support that the original construction of the VCP pipes has led to undue maintenance issues or caused or contributed significantly to the groundwater contamination.

8b.9 **Comment:** Mr. Dickson alleges that the mechanisms of PCE releases to sanitary sewer lines as discussed in the 1992 "Izzo" report have been accepted by the sanitary sewer industry, yet CCCSD disputes this assertion.

Response: The "Izzo" report was prepared in response to dry cleaner releases to sanitary sewers and the negative impact to municipal drinking water wells in the Central Valley of California. We agree that the five mechanisms described in the report are general conditions that should be evaluated for suspected releases at dry cleaners; however, this does not mean the CCCSD sanitary sewer mains have leaked and contributed to the distribution of CVOCs in the area of Site 1 and Site 2.

8b.10 **Comment:** Mr. Dickson alleges that the CCCSD operations and maintenance program was designed to keep sewage flowing through the lines and not to prevent leaks, a contention disputed by CCCSD.

Response: We agree with CCCSD. Mr. Dickson has not provided any specific evidence that CCCSD's program failed to address sewer line leaks, and we have no reason to believe that this is the case.

Our review of the CCCSD response and available records indicates a robust operations and maintenance program has been in place for several decades. We agree with CCCSD that such a program is necessary to ensure the main sewer lines convey sewage through the lines with minimal disturbance, so the waste can reach the treatment plants.

8b.11 **Comment:** Mr. Dickson alleges if minor or major blockages in the CCCSD sewer mains occurred, CVOCs could have migrated in upstream sewer lines; CCCSD disagrees.

Response: We agree with CCCSD. Staff has reviewed no evidence to show sewer line blockages resulted in the movement of CVOCs into the "upstream" areas of the residential subdivision to the north of Site 1.

8b.12 **Comment:** Mr. Dickson alleges PCE vapors can migrate into upstream sewer lines and also within the backfill surrounding the pipes. CCCSD acknowledges that such a condition is theoretically possible, but the available data does not support the opinion.

Response: We agree with CCCSD. Assessment of several manholes by GVP's consultant in 2009 did not reveal the presence of CVOCs, something that would be expected if PCE vapors were migrating in upstream sewers or their backfill.

8c. COMMENTS FROM MEYERS NAVE (on behalf of CCCSD)

This second round of comments from Kenton L. Alm, counsel to CCCSD, rebuts GVP's August 4, 2014, technical comments (Comments 1a above).

8c.1 **Comment:** Gregory Village's assertion that strict liability principles require the Regional Water Board to name the District is unfounded.

Response: We agree. Please see the Response to Comment 1a.3.

8c.2 **Comment:** Staff's analysis is legally supported, and the conclusions in the Staff Report conclusions are based upon substantial evidence. There is no substantial evidence to support naming CCCSD as a discharger in either TO. Controlling appellate court decisions support the Staff Report's conclusions and demonstrate a lack of causation for allegations against CCCSD.

Response: We agree. Please see the Staff Report (section VI) and Response to Comments 1a.2 through 1a.10.

8c.3 **Comment:** Gregory Village's assumption that liability insurance is available to pay for the District's cleanup costs is both improper and mistaken.

Response: Comment noted. As described above in Comment 1a.2 and 1a.3, we have concluded that CCCSD is not a proper discharger. Availability of liability insurance is therefore irrelevant.