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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 9

In The Matter Of:	)
	)
SAN GABRIEL VALLEY SUPERFUND SITE, AREA 1	)
SOUTH EL MONTE OPERABLE UNIT	)
	)
Aircraft Stamping, Inc.	)
Albert Alfieri	)
Frank J. Alfieri	)
Eddie L. Allee	)
Leta N. Allee	)
Allegheny Technologies	)
Astro Seal, Inc.	)
Rudy Barbee	)
Chemrite Corporation	)
Chevron Research and Technology Company	)
Norma M. Clayton	)
Compressor Parts & Repairs, Inc.	)
CraneVeyor Corporation	)
Dyanco Inc.	)
Aerojet-General Corporation	)
JCI Environmental Services	)
Claudean Mullins Kawie	)
Tan Lam	)
La Victoria Foods	)
Lee Pharmaceuticals	)
Don Linderman	)
Mammoet Western, Inc.	)
Manufacturers Development	)
M & T Company	)
New Air Incorporated	)
One Dollar Cleaner	)
Palmer Battery Company	)
Plastic Dress-Up Company	)
Plastic Engineered Components, Inc.	)
Quaker Chemical, Inc.	)
Ram Steel	)
Seachrome Corporation	)
L. E. Tepfer Company, Inc.	)
Time Realty Investments, Inc.	)
Tonks Properties	)
Tri-Fitting Mfg. Company	)
Robert Vandervoch	)
Waymire Drum Company	)
Art Weiss	)

West Coast Metal Finishing Barry Zwahlen	)	
Respondents.	)	U.S. EPA Docket No. 2003-17
Proceeding Under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9606(a), and under Section 7003 of the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6973	)	

ADMINISTRATIVE ORDER
FOR REMEDIAL DESIGN AND REMEDIAL ACTION

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ATTACHMENTS

Attachment 1 Map showing location of the South El Monte Operable Unit

Attachment 2 South El Monte Operable Unit Record of Decision

Attachment 3 Statement of Work for Administrative Order 2003-17

I. INTRODUCTION AND JURISDICTION

1. This Order directs Respondents to perform a remedial design for the remedy described in the Interim Record of Decision for the South El Monte Operable Unit ("SEMOU") of the San Gabriel Valley Superfund Sites dated September 29, 2000 and to implement the design by performing the remedial action. This Order is issued to Respondents by the United States Environmental Protection Agency ("EPA") under the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), and was further delegated to EPA Regional Administrators on September 13, 1987 by EPA Delegation No. 14-14-B. This authority was further delegated to the Director of the Superfund Division, EPA Region 9, by an Order dated September 29, 1997. This Order is also issued under the authority vested in the Administrator of EPA by Section 7003 of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6901 et seq. (the "Act"), which authority has been duly delegated to the Regional Administrator of EPA, Region IX, and further delegated to the Director of the Superfund Division.

II. FINDINGS OF FACT

2. The SEMOU Area is an area of groundwater contamination which covers a surface area of approximately eight square miles in and near the cities of South El Monte, Rosemead, and El Monte in Los Angeles County, California, and depicted generally on the map attached as Attachment 1. The contamination results from the improper handling and/or disposal of various chemicals, including but not limited to the following: perchloroethylene (PCE),

trichloroethylene (TCE), and 1,1-dichloroethane (1,1-DCA). Known degradation products of PCE and TCE, including cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE) are also present in the groundwater. TCE and PCE are known as volatile organic compounds (VOCs) or chlorinated solvents and were used in large quantities at industrial facilities in South El Monte and surrounding areas from the 1940s through the 1980s for degreasing, metal cleaning and other purposes. These chemicals were released to the ground by on-site disposal, careless handling, leaking tanks and pipes, and other means. Other chemicals found in the SEMOU are perchlorate, N-nitrosodimethylamine (NDMA), and 1,4-dioxane. Perchlorate is used in solid rocket fuel, NDMA has been found in liquid rocket fuel, and 1,4-dioxane has been used as a stabilizer in chlorinated solvents. More than one-quarter of the approximately 366 water supply wells in the San Gabriel Valley have been found to be contaminated with one or more of the above chemicals.

3.A. Respondent Aircraft Stamping Company ("Respondent Aircraft") has operated a facility at 1924 North Chico Avenue, South El Monte. California ("the 1924 North Chico property") since 1952, manufacturing precision sheet metal. Chemical use at the facility includes MEK, stoddard solvent, kerosene, and sulphur based cutting oils. In 1986, Respondent Aircraft removed a 1000 gallon gasoline underground tank.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCA, 1,1-DCE, cis 1,2-DCE, and trans 1,2-DCE have been detected in soil, soil gas, and/or groundwater at the 1924 North Chico property. In 1989, a soil investigation showed maximum concentrations of acetone of 56 ug/kg, and PCE of 180 ug/kg at one foot below ground surface (bgs), and acetone of 105 ug/kg and PCE of 36 ug/kg at five feet bgs near the drum storage area. In 1992, PCE of 147 ug/kg was detected in the soil matrix to five feet bgs at the drum storage area. In the same year soil

remediation was performed at the drum storage area. An area of approximately 5x5 square feet was excavated to a depth of about 10.5 feet bgs. Soil samples were collected from walls and floors of the excavation pit. PCE of 685 ug/kg was detected to 8.5 feet bgs. In 1992, a soil gas survey in the drum storage area showed maximum concentrations of 1,1-DCA of 2 ug/l, cis-1,2-DCE of 11 ug/l, PCE of 5 ug/l, and TCE of 6 ug/l in the soil gas to 24 feet bgs.

C. A groundwater monitoring well installed in 1989 near the drum storage area has been sampled since 1989 through 1997. Maximum concentrations of PCE of 78 μg/l, TCE of 48 μg/l, 1,1-DCA of 93 μg/l, 1,1-DCE of 10 μg/l, trans-1,2-DCE of 5 ug/l, cis-1,2-DCE of 204 ug/l, and 1,1,1-TCA of 9 μg/l were detected in the groundwater. Depth to groundwater was measured at approximately 42 feet bgs in September, 1990.

4.A. Respondent Albert Alfieri is the current owner of the property at 1828 Belcroft Avenue in South El Monte, California ("the 1828 Belcroft property"). Respondent Ram Steel Company, hereinafter referred to as "Respondent Ram Steel", has operated a facility at the 1828 Belcroft property since 1989. The operations consist of fabricating light steel products including commercial fences, bumper poles, and hand rails. Chemical use at the facility includes paint, thinners, and solvents.

B. In subsurface investigations, PCE, TCE, and 1,1,1-TCA have been detected in soil, soil gas, and/or groundwater. In January 1990, a soil investigation was performed at the 1828 Belcroft property. Four 5-foot soil borings were drilled near the UST farm and the drum storage area. Maximum concentrations of PCE of 1,400 ug/kg, TCE of 110 ug/kg, and 1,1,1-TCA of 460 ug/kg were detected to one foot below ground surface (bgs). PCE of 280 ug/kg, TCE of 28 ug/kg, and 1,1,1-TCA of 97 ug/kg were detected to five feet bgs. In June 1990, a soil and groundwater investigation was performed. One monitoring well was installed

near the USTs. PCE of 2,400 ug/kg was detected to five feet bgs in the soil. In 1997, a soil gas survey was performed and five 5-foot and one 15-foot probes were installed. Maximum concentrations of PCE of 36 ug/l, TCE of 10 ug/l, and 1,1,1-TCA of 22 ug/l were detected in the probes. Higher concentrations were detected near the former UST farm.

C. The groundwater monitoring well installed in 1990 was sampled once that same year and three times in 1997. Maximum concentrations of PCE of 24 ug/l, TCE of 29 ug/l, and 1,1,1-TCA of 7.5 ug/l were detected in the groundwater. Depth to groundwater was measured in 1997 at approximately 21 feet bgs.

5.A. Respondent Frank Alfieri is the current owner of the property at 1850 Belcroft Street in South El Monte, California ("the 1850 Belcroft property"). Respondent Dyanco, Inc., hereinafter referred to as "Respondent Dyanco", has operated at the 1850 Belcroft property since 1970. Chemical use at the facility includes TCE and 1,1,1-TCA.

B. In subsurface investigations, PCE, TCE, and 1,1,1-TCA have been detected in soil, soil gas, and/or groundwater. In 1988, a soil assessment was performed and a 3.5-foot soil boring was drilled. Maximum concentrations of PCE of 980 ug/kg, TCE of 1,500 ug/kg, and 1,1,1-TCA of 970 ug/kg were detected. In the same year, additional soil assessment was performed and five soil borings to a maximum depth of 40 feet below ground surface (bgs) were drilled. Maximum concentrations of PCE of 200 ug/kg, TCE of 700 ug/kg, and 1,1,1-TCA of 360 ug/kg were detected in the soil to three feet bgs. In 1990, a soil assessment was performed and seven soil borings to a maximum depth of 40 feet bgs were drilled. VOCs were not detected at the detection limits of 10 ug/kg. In 1994, a soil gas survey was performed and ten 5-foot probes were installed. Maximum concentrations of PCE of 2 ug/l, TCE of 120 ug/l, 1,1-DCA of 0.8 ug/l, and 1,1-DCE of 2.4 ug/l were detected in the probes. In 1996, a soil gas survey was

performed and three probes to a maximum depth of 20 feet bgs were installed. Maximum concentrations of TCE of 21 ug/l and 1,1,1-TCA of 4.5 ug/l were detected in the probes.

C. In 1988 and 1990, two monitoring wells were installed at the 1850 Belcroft property. Sampling of the monitoring wells showed maximum concentrations of TCE of 16 ug/l and 1,1,1-TCA of 17 ug/l in the groundwater. Depth to groundwater was measured at 25 feet bgs in 1996.

6.A. Respondent Eddie L. Allee and Respondent Leta N. Allee are the current owners of the property at 11077 Rush Street in South El Monte, California ("the 11077 Rush property"). Respondent Plastic Dress-Up Company, hereinafter referred to as "Respondent Plastic Dress-Up", has operated at the 11077 Rush property since 1973. Respondent Plastic Dress-Up is a plastic injection molder that coats plastic components for trophies. Chemical use at the facility includes a variety of hydrocarbon fuels.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, TPH and xylenes have been detected in soil, soil gas, and/or groundwater. In 1985, during a tank removal, excavated soil samples were analyzed and contained xylene of 74,000 ppb and TPH of 4,900 ppm. In 1987, four shallow borings to depths of 40 feet below ground surface (bgs) were installed at the 11077 Rush property. PCE of 23 ug/kg and TCE of 1.6 ug/kg were detected at a depth of 5 feet bgs. In 1992, a total of 50 probes to a maximum depth of 15 feet bgs were installed . Maximum concentrations of PCE of 45 ug/l and TCE of 7 ug/l were detected in the probes. In 1993, a monitoring well/nested soil gas probe was installed. Analytical results indicated PCE of 3,928 ug/l and TCE of 7 ug/l at 40 feet bgs. The nested probes were resampled in 1994 and the results were PCE of 9 ug/l and TCE of 1 ug/l.

C. There are four groundwater monitoring wells at the 11077 Rush property. The highest VOC concentrations in groundwater samples are PCE of 51 ug/l, TCE of 3.6 ug/l, and 1,1,1-TCA of 230 ug/l. Depth to groundwater ranges from 30 feet to 55 feet bgs.

7.A. Respondent Allegheny Technologies/TDY Industries, Inc. (aka Teledyne Inc.), hereinafter referred to as "Respondent Allegheny", has owned the property at 1729-1817 Chico Avenue in South El Monte, California ("the 1729-1817 Chico property") since 1975 and operated a metal castings facility at the 1729-1817 Chico property from 1975 to 1984. Chemical use at the facility includes acids and oxidizers.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, 1,1,1-TCA, vinyl chloride, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1992, a soil investigation was conducted without an approved workplan. The results of the sampling found PCE of 310 ug/kg, TCE of 50 ug/kg, 1,1-DCA of 33 ug/kg, and cis-1,2-DCE of 100 ug/kg. Based on the results, the Los Angeles Regional Water Quality Control Board (RWQCB) staff issued a letter in September 1993, requiring additional investigation, including re-sampling of soil samples, comprehensive soil gas survey and groundwater monitoring. The subsequent workplan did not satisfy all of the RWQCB's requirements.

C. On February 28, 1994, EPA issued an Administrative Order (Order No. 94-09) to Respondent Allegheny to conduct soil, soil gas and groundwater investigations. The results of the soil matrix samples detected PCE of 190 ug/kg, TCE of 36 ug/kg, 1,1-DCA of 7.3 ug/kg, cis-1,2-DCE of 190 ug/kg, methylene chloride of 26 ug/kg, and trans-1,2-DCE of 3.4 ug/kg. The results of the soil gas samples detected maximum concentrations of PCE of 792 ug/l, TCE of 595 ug/l, cis-1,2-DCE of 386 ug/l, trans-1,2-DCE in of 4 ug/l, 1,1-DCA of 86 ug/l, 1,1,1-TCA of 18 ug/l, vinyl chloride of 395 ug/l, and methylene chloride of 2 ug/l.

D. The results from the first round of groundwater sampling detected PCE of 260 ug/l, TCE of 460 ug/l, 1,1-DCA of 62 ug/l, cis-1,2-DCE of 250 ug/l, 1,1,1-TCA of 3.2 ug/l, and 1,1-DCE of 5.5 ug/l. In 1997, ten monitoring wells (LW-1 through LW-10) were sampled quarterly. Maximum concentrations of PCE of 390 ug/l, TCE of 370 ug/l, cis-1,2-DCE of 910 ug/l, 1,1-DCA of 150 ug/l, and vinyl chloride of 15 ug/l have been detected in the groundwater. Quarterly groundwater monitoring is in progress at the site.

E. In 1996, Respondent Allegheny operated a pilot soil vapor extraction system to remove VOCs from the subsurface beneath the facility, pursuant to the LA Regional Water Quality Control Board's requirements.

8.A. Respondent Don Linderman is the current owner of the property at 9444-9452 Rush Street in South El Monte, California ("the 9444-9452 Rush property"). Respondent Astro Seal Incorporated, hereinafter referred to as "Respondent Astro Seal" operated an electrical connector and thermocouple facility at the 9444-9452 Rush property from 1972 to 1993. The facility consists of two buildings (Buildings 9444 and 9452). During their occupancy, Respondent Astro Seal used Building 9444 as the office and warehouse, and Building 9452 as the production area. Chemical use at the facility includes include PCE, acids, and oil.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, 1,1-DCE, cis 1,2-DCE and 1,1,1-TCA have been detected in soil, soil gas, and/or groundwater. In February 1989, three monitoring wells and three soil borings were drilled at the 9444-9452 Rush property. PCE of 1,600 ug/kg and TCE of 26 ug/kg were detected in the soil to 30 feet below ground surface (bgs). PCE of 570 ug/l, TCE of 75 ug/l, 1,1-DCA of 25 ug/l, and 1,1-DCE of 10 ug/l were detected in the groundwater. In September 1989, sixteen (16) 10-foot borings and four 25-foot borings were drilled. PCE

of 4,900 ug/kg and TCE of 120 ug/kg were detected to 10 feet bgs.

C. In 1990, one monitoring well was installed at the 9444-9452 Rush property. PCE of 380 ug/kg was detected in the soil to 15 feet bgs. PCE of 380 ug/l, TCE of 25 ug/l, and 1,1-DCA of 5.6 ug/l were detected in the groundwater. In February and May 1992, groundwater monitoring showed PCE up to 325 ug/l and TCE up to 25 ug/l.

D. In 1994, a soil gas survey showed PCE of 812 ug/l, TCE of 142 ug/l, 1,1-DCE of 6 ug/l, cis-1,2-DCE of 16 ug/l, and 1,1,1-TCA of 316 ug/l in the soil gas to 20 feet bgs. In 1996, Respondent Astro Seal started a soil vapor extraction system to remove VOCs from the subsurface beneath the facility, pursuant to the LA Regional Water Quality Control Board's requirements. In 1998, there was an estimated 95.76% to 100% removal for PCE and 94.44% to 100% removal for TCE from the soil vapor.

9.A. Respondent Rudy Barbee is the current owner of the property at 9758 Klingerman Street in South El Monte, California ("the 9758 Klingerman property"). Chemical use at the 9758 Klingerman property includes PCE, TCE, and xylenes.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1990, an initial subsurface soil investigation indicated methylene chloride of 690 ug/kg and PCE of 5,900 ug/kg in the soils to a depth of 5 feet below ground surface (bgs) at the chemical storage area. In 1991, a soil gas survey showed PCE of 1,512 ug/l, TCE of 10.3 ug/l, and 1,1-DCA of 4.3 ug/l in the soil vapor to a depth of 6 feet bgs and PCE of 287 ug/l in the soil vapor to a depth of 16 feet bgs at the chemical storage area. In 1999, a soil gas survey showed PCE of 410 ug/l at 12 feet bgs and 364 ug/l at 20 feet bgs. TCE of 41 ug/l was detected at 20 feet bgs.

C. In 2000, two vapor extraction wells were installed at the 9758 Klingerman property to remove VOCs from the subsurface beneath the facility.

10.A. Respondent Tan Lam is the current owner of the property at 2128 Rosemead Boulevard in South El Monte, California ("the 2128 Rosemead property"). Respondent Chemrite Company, hereinafter referred to as "Respondent Chemrite", manufactured printing ink varnish at the 2128 Rosemead property from 1975 through 1989.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, t-1,2-DCA, methylene chloride, 1,1-DCE, cis-1,2-DCE, vinyl chloride, and chloroform have been detected in soil, soil gas, and/or groundwater. In 1990, a soil assessment was performed and three 5-foot bores were drilled at the 2128 Rosemead property. Maximum concentrations of PCE of 2,400 ug/kg, TCE of 120 ug/kg, 1,1-DCA of 11 ug/kg, t-1,2-DCA of 190 ug/kg, and methylene chloride of 560 ug/kg and were detected in the soil. In 1997, a soil gas survey was performed. A total of eighteen (18) probes to a maximum depth of 15 feet bgs were installed. Maximum concentrations of PCE of 370 ug/l, TCE of 67 ug/l, 1,1-DCA of 71 ug/l, and chloroform of 270 ug/l were detected in the probes.

C. In 1999, groundwater samples were collected from four locations using a hydro punch. Groundwater was encountered at approximately 20 to 25 feet bgs. Maximum concentrations of PCE of 298 ug/l, TCE of 198 ug/l, 1,1-DCA of 110 ug/l, 1,1-DCE of 9 ug/l, cis-1,2-DCE of 1,040 ug/l, and vinyl chloride of 97 ug/l were detected in the groundwater.

11.A. Respondent Chevron Research and Technology Company, hereinafter referred to as "Respondent Chevron", operated a service station at 9420 Harvey Avenue in South El Monte, California ("the 9420 Harvey property") from 1939 to 1973 (Standard Oil Service Station: 1939 to 1946 and Chevron Service Station: 1946 to 1973). Respondent Chevron also operated

automobile maintenance and repair facilities at the 9420 Harvey property. There is no chemical use record at the facility.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,2-DCA, 1,1-DCE, and cis-1,2-DCE have been detected in soil, soil gas, and/or groundwater. A total of 25 soil borings were drilled in the 9420 Harvey property. Maximum concentrations of PCE of 370 ug/kg, TCE of 6 ug/kg, 1,2-DCA of 49 ug/kg, and cis-1,2-DCE of 68 ug/kg were detected to 25 feet below ground surface (bgs) in the area. Highest contaminant concentrations were detected near the former Chevron Station. In 1990, a soil gas survey was performed and thirty six 13-foot probes were installed in the 9420 Harvey property. VOCs were not tested in the soil gas.

C. A total of 5 monitoring wells MW-3, MW-4, CW-1, CW-2, and CW-3 [subsequently abandoned]) have been installed at the 9420 Harvey property. Maximum levels of PCE of 40 ug/l, TCE of 24 ug/l, and 1,2-DCA of 28 ug/l have been detected in the groundwater.

12.A. Respondent Norma Clayton is the current owner of the property at 1419 Potrero Avenue in South El Monte, California ("the 1419 Potrero property"). Respondent Mammoet Western Inc., hereinafter referred to as "Respondent Mammoet", formerly known as Western Industrial Movers, is an industrial moving company and has operated at the 1419 Potrero property since 1982. Chemical use at the facility includes solvents and waste oil.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, and 1,2-DCE have been detected in soil, soil gas, and/or groundwater. In 1990, a soil assessment was conducted and three 5-foot soil bores were drilled. VOCs were not detected in the soil samples. In 1998, a soil gas survey was performed. One nested probe with probes to a maximum depth of 25 feet bgs was installed and sampled. Maximum concentrations of PCE of 3 ug/l and TCE of 3 ug/l were detected in the probes.

C. In 1990, one groundwater monitoring well was installed at the 1419 Potrero property. The well was sampled three times in 1990. Maximum concentrations of PCE of 79 ug/l, TCE of 28 ug/l, 1,1-DCA of 42 ug/l, and 1,2-DCE of 10 ug/l were detected in the groundwater samples. In 1996, groundwater sampling of the monitoring well showed PCE of 234 ug/l, TCE of 8 ug/l, and 1,2-DCA of 3 ug/l in the groundwater.

13.A. Respondent Compressor Parts and Repair, Inc., hereinafter referred to as "Respondent Compressor Parts", has owned and operated a facility which manufactures air conditioning compressors at 1501 Peck Road in South El Monte, California ("the 1501 Peck property") since 1971. Chemical use at the facility includes phosphoric acid, sodium hydroxide, and all purpose soluble oil

B. In subsurface investigations, PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,1,1-TCA, ethyl benzene, xylene, and TH have been detected in soil, soil gas, and/or groundwater. In 1989, an initial soil investigation indicated PCE of 1,560 ug/kg, ethyl benzene of 1,062 ug/kg, xylene of 2,530 ug/kg, toluene of 363 ug/kg, and TH of 4,500 mg/kg at 10 feet below ground surface (bgs) in the soil near an industrial clarifier. TCE of 330 ug/kg was detected at 5 feet bgs near the clarifier. In 1992, a soil gas survey indicated soil vapors of PCE of 1,731 ug/l, TCE of 350 ug/l, trans 1,2-DCE of 22 ug/l, cis-1,2-DCE of 8.0 ug/l at the clarifier and its piping to a depth of five feet bgs. PCE of 42 ug/l and cis-1,2-DCE of 12.6 ug/l were also detected to a depth of 15 feet bgs.

C. In 1992, three monitoring wells were installed at the 1501 Peck property. Sampling of the wells showed 1,1-DCE of 2.2 ug/l, 1,1,1-TCA of 0.8 ug/l, methylene chloride of 8 ug/l, xylene of 5 ug/l, and TPH of 2 ug/l in the groundwater.

D. Respondent Compressor Parts installed a vapor extraction system at the 1501 Peck property to remove VOCs from the subsurface beneath the facility, pursuant to the LA Regional Water Quality Control Board's requirements.

14.A. Respondent CraneVeyor Corporation, hereinafter referred to as "Respondent CraneVeyor", has owned and operated a machine shop at 1524 Potrero Avenue in South El Monte, California ("the 1524 Potrero property") since 1971. Respondent Craneveyor is a manufacturing facility for overhead cranes and other metal products. Chemical use at the facility includes 1,1,1-TCA, and petroleum naphtha.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, 1,2-DCA, 1,1-DCE, 1,1,1-TCA, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1988, a soil assessment was performed and three soil bores were drilled at 1 foot, 5 feet, and 10 feet below ground surface (bgs) in the 1524 Potrero property. Maximum concentrations of PCE of 75 ug/kg, methylene chloride of 827 ug/kg, and acetone of 619 ug/kg were detected in the soil. In 1989, during the installation of three monitoring wells, soil samples were taken and analyzed. Maximum concentrations of PCE of 4.5 ug/kg and toluene of 32 ug/kg were detected in the soil to a depth of 35 feet bgs. In 1992, a soil gas survey was performed. A total of 17 soil gas probes to a maximum depth of 12 feet bgs were installed, mostly in the former drum storage area. Maximum concentrations of 1,1-DCA of 60 ug/l and 1,1,1-TCA of 67 ug/l were detected in the probes. In 1996, a soil gas survey was performed and a total of 12 soil gas probes to a maximum depth of 10 feet bgs were installed. Maximum concentrations of 1,1,1-TCA of 2.0 ug/l were detected in the probes.

C. In 1990, the three monitoring wells installed in 1989 were sampled quarterly. Maximum concentrations of PCE of 55 ug/l, TCE of 32 ug/l, 1,1-DCA of 170 ug/l, 1,2-DCA of 2.4 ug/l,

and 1,1-DCE of 50 ug/l were detected in the groundwater. In 1997, two monitoring wells (MW-1 and MW-3) were sampled quarterly. Maximum concentrations of PCE of 200 ug/l, TCE of 14 ug/l, 1,1-DCA of 140 ug/l, 1,2-DCA of 1.6 ug/l, 1,1-DCE of 7 ug/l, 1-1,2-DCE of 15 ug/l were detected in the groundwater.

15.A. Respondent Aerojet-General Corporation, hereinafter referred to as "Respondent Aerojet", acquired the property at 9100 & 9200 Flair Drive in El Monte, California ("the 9100 & 9200 Flair property"), through a subsidiary, in 1961. Respondent Aerojet constructed several buildings from 1962 through 1964 (Administration and Engineering Building, Systems Evaluation Building, Engineering and Manufacturing Building, Aerojet-General Corporation Corporate Building, Space General Propellant Storage Facility). Operations at the 9100 & 9200 Flair property include electronics assembly and metallurgical laboratory, dry powder class C explosive storage magazine, rocket motor assembly, a flight simulator, and various R & D laboratories. Chemical use at the facility includes chlorinated solvents, freon, and lubricating oils.

B. In subsurface investigations, PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, vinyl chloride, perchlorate, freon-113, freon-11, and chloroform have been detected in soil, soil gas, and/or groundwater. In 1999, soil gas surveys ware performed at the Systems Evaluation Facility (Bldg 3), the Engineering & Manufacturing Building (Bldg. 4), and the propellant storage facility. Maximum concentrations of PCE of 45 ug/l, TCE of 38 ug/l, cis-1,2-DCE of 57 ug/l, vinyl chloride of 45 ug/l, and freon-113 of 56 ug/l were detected in the soil gas. Subsequent soil gas sampling was conducted in 2002, with PCE being the only VOC detected, at a maximum concentration of 95 ug/l in the soil gas.

C. In 1999, in-situ groundwater sampling, using direct push methodology, was conducted in the same areas where the soil gas

surveys were performed. Maximum concentrations of PCE of 20 ug/l, TCE of 2200 ug/l, cis-1,2-DCE of 200 ug/l, and perchlorate of 16 ug/l were detected in the groundwater. Subsequent in-situ groundwater sampling was conducted in 2002 and five shallow monitoring wells installed in 2002 were sampled twice, once in 2002 and once in 2003. Maximum concentrations of PCE of 65 ug/l, TCE of 1400 ug/l, cis-1,2-DCE of 21 ug/l, vinyl chloride of 1 ug/l, chloroform of 4.1 ug/l, 1,1-DCE of 1.6 ug/l, 1,1-DCA of 1.9 ug/l, and freon-11 of 2.3 ug/l were detected in the groundwater.

D. In 2002, soil sampling was conducted during installation of the five monitoring wells. A maximum concentration of PCE of 13 ug/l was detected in the soil.

16.A Respondent Barry Zwahlen is the current owner of the property at 2223 Loma Avenue in South El Monte, California ("the 2223 Loma property"). Respondent JCI Environmental Services, hereinafter referred to as "Respondent JCI", operated a hazardous waste liquid storage and hauling facility at the 2223 Loma property until 1981.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,1,1-TCA, methylene chloride, and BTEX. have been detected in soil, soil gas, and/or groundwater. During several phases of soil assessments, a total of ten soil bores were drilled at the 2223 Loma property. Maximum concentrations of PCE of 1,000 ug/kg, TCE of 10,000 ug/kg, methylene chloride of 26,000 ug/kg, BTEX. of 14,000 ug/kg, and MEK of 31,000 ug/kg were detected in the soil from ground surface to 25 feet below ground surface (bgs). Higher concentrations were detected near the former UST farm. During several phases of soil gas surveys, a total of thirty-six (36) 5-foot probes and five nested probes with probes at 15, 20, and 25 feet bgs were installed. Soil vapors of PCE of 217 ug/l, TCE of 71 ug/l, cis-1,2-DCE of 105 ug/l, 1,1-DCA of 4 ug/l, 1,1-DCE of 4 ug/l, trans-1,2-DCE of 4 ug/l, and 1,1-TCA of 9 ug/l were

detected. Higher VOCs concentrations were detected near the former UST farm. In 1997, two nested probes near the former UST farm were sampled and tested for VOCs. PCE of 95 ug/l were detected to 15 feet bgs and PCE of 48 ug/l were detected at 20 feet bgs.

C. A total of six groundwater monitoring wells have been installed. Sampling of the wells showed maximum concentrations of PCE of 118 ug/l, TCE of 99 ug/l, 1,1- DCA of 30 ug/l, and cis-1,2-DCE of 555 ug/l were detected in the groundwater. Higher VOC concentrations were detected in the down-gradient wells. Groundwater was measured at approximately 20 feet bgs in July 1997.

17.A. Respondent Claudean Mullins Kawie has owned the property at 2112 Chico Avenue in South El Monte, California ("the 2112 Chico property") since 1973. Chemical use at the 2112 Chico property includes MEK, PCE, and lacquer thinners.

B. In subsurface investigations, PCE, TCE, 1,2-DCA, 1,1-DCE, 1,1,1-TCA, 1,1-DCA, 1,2-DCE, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In December 1989, the initial subsurface investigation found up to 445 ug/kg of PCE in soils to eleven feet below ground surface (bgs) adjacent to the clarifier. PCE (150 mg/kg), toluene (2,460 mg/kg), and other chlorinated volatile and aromatic compounds were detected in sludge from the clarifier. PCE (1.4 ug/l) and other chlorinated compounds were detected in a sample of clarifier effluent. On December 10 1991, the RWQCB received a letter which reported that the clarifier had been closed as described in the RWQCB-approved workplan. Between 1991 and 1995, soil tests found maximum concentrations of 3700 ug/kg of PCE, 3000 ug/kg of TCE, 81 ug/kg of 1,1-DCA, 620 ug/kg of 1,1,1-TCA, 46 ug/kg of 1,1-DCE, and 48 ug/kg of 1,2-DCE from ground to depths of 27 feet bgs. In 1993 and 1994, soil gas surveys found maximum concentrations of 76 ug/l of PCE, 97 ug/l of TCE, 68 ug/l

of 1,2-DCA, 46 ug/l of 1,1-DCA, 76 ug/l of 1,1,1-TCA, 2 ug/l of 1,1-DCE, and 6.2 ug/l of 1,2-DCE to 25 feet bgs.

C. Groundwater sampling between 1990 and 1995 found maximum concentrations of 230 ug/l of PCE, 98 ug/l of TCE, 4.1 ug/l of Chloroethane, 39 ug/l of 1,1-DCA, 200 ug/l of 1,1,1-TCA, 6.4 ug/l of 1,1-DCE, and 150 ug/l of 1,2-DCE in the groundwater (aquifer depth is 24 feet bgs).

18.A. Respondent La Victoria Foods, Inc. hereinafter referred to as "Respondent La Victoria", has owned and operated a facility which manufactures processed food products at 9133 East Harvey in Rosemead, California ("the 9133 East Harvey property") since 1958. Chemical use at the facility includes a cleaning solvent. This solvent was used from 1981 through 1991.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and cis 1,2-DCE have been detected in soil, soil gas, and/or groundwater. Between January 1992 and April 1993, soil tests found up to 27 ug/kg of DCA, 260 ug/kg of 1,1,1-TCA, 2.6 ug/kg of DCE, 33 ug/kg of TCE, and 820 ug/kg of PCE to a depth of 15 feet below ground surface (bgs). Between September 1992 and March 1993, soil gas surveys found up to 260 ug/l of DCA, 342 ug/l of 1,1,1-TCA, 415 ug/l of DCE, 3.4 ug/l of TCE, and 320 ug/l of PCE to a depth of 25 feet bgs. Respondent La Victoria excavated and legally disposed of 186 cubic feet of VOC contaminated soil.

C. Between October 1993 and October 1995, groundwater sampling found up to 11.0 ug/l of DCA, 5.0 ug/l of 1,1,1-TCA, 4.5 ug/l of DCE, 0.6 ug/l of cis-1,2-DCE, 2.7 ug/l of TCE, and 21 ug/l of PCE. Groundwater depth on site was found to be approximately 35 feet bgs. In 1997, one well (GW-1) was sampled quarterly. Maximum concentrations of PCE (8 ug/l) and TCE (2 ug/l) were detected in the groundwater.

19.A. Respondent Lee Pharmaceuticals has owned and operated a facility manufacturing cosmetics, depilatories, false fingernails, and dental filling materials and adhesives at 1444 Santa Anita Avenue in South El Monte, California ("the 1444 Santa Anita property") since 1973. Chemical use at the facility includes various solvents (halogenated and non-halogenated), acrylates, acids, and petroleum products.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCA, cis 1,2-DCE, trans 1,2-DCE, and methylene chloride have been detected in soil, soil gas, and/or groundwater. Soil tests during a subsurface investigation in 1987 found up to 2,300 ug/kg of PCE, 300 ug/kg of TCE, 6,400 ug/kg of methylene chloride, 350 ug/kg of 1,1,1-TCA, 600 ug/kg of acetone, 590 ug/kg of toluene, and total xylene of 670 ug/kg to a depth of 20 feet below ground surface (bgs). Further soil tests in September 1989 found up to 40.5 ug/kg of PCE, 310 ug/kg of TCE, 8 ug/kg of DCA, and 25.6 ug/kg of toluene to a depth of 30 feet bgs. Soil gas tests in 1990 found up to 434 ug/l of PCE, 86 ug/l of TCE, 23 ug/l of DCA, 53 ug/l of 1,1,1-TCA, 6 ug/l of 1,1-DCE, 37 ug/l of cis-1,2-DCE, 3 ug/l of trans-1,2-DCE, 1.4 ug/l of methylene chloride, 91 ug/l of toluene, and 913 ug/l of total xylene.

C. Groundwater sampling during the 1987 subsurface investigation found 1,100 mg/l of methylene chloride and 100 mg/l of acetone. Detection limits for VOCs were too high (2,500 ug/l). Groundwater depth was found to be between 23 and 25 feet bgs. Further groundwater tests in 1989 and 1992 found up to 14 ug/l of PCE, 740 ug/l of TCE, 18 ug/l of DCA, 3 ug/l of 1,1,1-TCA, 5 ug/l of DCE, 24 ug/l of trans-1,2-DCE, 41 ug/l of toluene, and 31 ug/l of total xylene. In 1997, two wells (MW1 and MW2) were sampled quarterly. Maximum concentrations of PCE (18 ug/l), TCE (28 ug/l), cis-1.2-DCE (67 ug/l), and 1,1-DCA (6 ug/l) were detected in the groundwater.

20.A. Respondent Manufacturers Development, a California Corporation, operated a machine shop from 1967 to 1990 at 1719 Floradale Avenue in South El Monte, California ("the 1719 Floradale property"). Chemical use at the facility includes cutting oil, kerosene, and water soluble oil.

B. In subsurface investigations, PCE, TCE, methylene chloride, ethyl benzene, xylene, and TH have been detected in soil, soil gas, and/or groundwater. In 1989, a soil assessment at the 1719 Floradale property detected PCE of 800 μg/kg, methylene chloride of 400 μg/kg, xylene of 27,000 μg/kg, and TPH of 360 μg/kg at 9 feet below ground surface (bgs), approximately 5 feet below the base of the clarifier. In 1992, a soil gas survey detected PCE of 20 μg/l at 5 feet bgs.

C. In 1992, the clarifier was removed and a monitoring well/nested vapor probe was installed. Soil testing indicated PCE of 1,300 μg/kg, ethylbenzene of 2,000 μg/kg, TPH of 9,700 mg/kg, xylenes of 6,500 μg/kg, and toluene of 1,500 μg/kg at 6 feet bgs. Soil vapor survey showed PCE of 0.9 μg/l at 10 feet bgs. Groundwater sampling indicated PCE of 5 μg/l and TPH of 1,750 μg/l. In 1993, chemical analysis of soil samples collected from two 35 foot soil borings indicated TPH of 8,900,000 ug/kg at 5 feet bgs at the south end of the clarifier. Soil remediation (excavation) was performed in the same year at the clarifier area.

D. In 1994, quarterly monitoring of the groundwater well was performed. Maximum concentrations of PCE of 24 ug/l and TCE of 4 ug/l were detected in groundwater.

21.A. Respondent M & T Company, hereinafter referred to as "Respondent M & T" is the current owner of the property at 2500 Rosemead Boulevard in South El Monte, California ("the 2500 Rosemead property"). Chemical use at the 2500 Rosemead property includes 1,1,1-TCA.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, 1,1-DCE, and 1,1,1-TCA have been detected in soil and/or groundwater. In 1988, a soil investigation was performed and two 10-foot borings were drilled in the current and former solvent drum storage areas. 1,1,1-TCA of 1,000 ug/kg was detected to 10 feet below ground surface (bgs). In February 1996, a soil gas survey was performed at the 2500 Rosemead property. A total of fourteen (14) probes to a maximum depth of 20 feet bgs were installed at the 2500 Rosemead property. Maximum soil vapor concentrations of 1,1-DCA of 353 ug/l, 1,1-DCE of 10 ug/l, and 1,1,1-TCA of 20 ug/l were detected in these probes. Higher VOC vapor concentrations were detected near the former drum storage areas. In August 1996, a soil gas survey was performed and a total of twelve (12) probes to a maximum depth of 20 feet bgs were installed in the former drum storage area. Maximum soil vapor concentrations of 1,1-DCA of 115 ug/l, 1,1-DCE of 5.1 ug/l, and 1,1,1-TCA of 19 ug/l were detected.

C. Three monitoring wells have been installed and sampled four times since 1989. PCE of 67 ug/l, TCE of 10 ug/l, 1,1-DCA of 190 ug/l, 1,1,1-TCA of 6 ug/l were detected in the groundwater from monitoring well (MW-1) installed in the former solvent drum storage areas. Depth to groundwater was measured in 1997 at approximately 21 feet bgs.

22.A. Respondent Newair Incorporated, hereinafter referred to as "Respondent Newair", manufactures and rebuilds air filters for the trucking industry, municipalities, and off-road operators at 9920 and 9928 Hayward Way in South El Monte, California ("the 9920 and 9928 Hayward property"). Respondent Newair also recycles old air filters by cleaning and reusing the screens. Respondent Newair began operation at the 9920 and 9928 Hayward property in 1981. Chemical use at the facility includes methylene chloride, solvents, and paints.

B. In subsurface investigations, PCE, TCE, 1,1-DCE, 1,1,1-TCA, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1988, a soil assessment was performed and soil samples were collected near the loading area. PCE of 183 μg/kg, 1,1,1-TCA of 16 ug/kg, 1,1-DCE of 5 ug/kg, and methylene chloride of 47 ug/kg were detected to five feet below ground surface (bgs). In 1992, a soil gas survey detected PCE of 3.9 ug/l in the soil vapor samples.

C. In 1989, one monitoring well was installed and was sampled one time in 1989. PCE of 170 ug/l was detected in the groundwater. In 1993, groundwater sampling showed PCE of 42 ug/l. In 1997, the monitoring well was sampled quarterly. Maximum concentrations of PCE of 300 ug/l were detected in the groundwater.

23.A. Respondent One Dollar Cleaner has operated a dry cleaning shop at 2106 Mountainview Road in South El Monte, California ("the 2106 Mountainview property") since 1988. Chemical use at the facility includes solvents containing PCE, TCE, and 1,1,1-TCA.

B. In subsurface investigations, PCE and TCE have been detected in soil gas and/or groundwater. Soil investigation was not performed at the site. In 1993, a soil gas survey was conducted at the 2106 Mountainview property. A total of fourteen (14) probes to a maximum depth of 10 feet below ground surface (bgs) were installed and sampled. Maximum concentrations of PCE of 1,037 ug/l and TCE of 137 ug/l were detected in the probes. In 1997, a soil gas survey was conducted and two nested probes to a maximum depth of 30 feet bgs were installed and sampled. Maximum concentrations of PCE of 1,200 ug/l were detected in the probes.

C. In 1998, two groundwater samples were collected using a hydropunch. Maximum concentrations of PCE of 1,600 ug/l were detected in the groundwater samples. Groundwater was encountered at approximately 30 feet bgs.

24.A. Respondent Palmer Battery, hereinafter referred to as "Respondent Palmer", has operated a used automobile batteries recyling facility at 3013 Potrero Avenue in South El Monte, California ("the 3013 Potrero property"). Chemical use at the facility includes sulfuric acid, paints, solvents, lacquers, and thinners.

B. In subsurface investigations, PCE, TCE, 1,2-DCA, 1,1-DCA, 1,1,1-TCA, and BTEX have been detected in soil, soil gas, and/or groundwater. In 1988, a soil investigation detected PCE of 3,300 μg/kg, TCE of 800 μg/kg, 1,2-DCA of 16 μg/kg, and 1,1,1-TCA of 210 μg/kg in the soil to 20 feet below ground surface (bgs) near the battery washing rack. In 1995, a soil gas survey showed maximum concentrations of PCE of 3,273 μg/l, TCE of 633 ug/l, and BTEX of 8,960 ug/l, mostly in samples collected near the former battery rack, to a depth of approximately 20 feet bgs.

C. In 1989, groundwater sampling of the four groundwater monitoring wells at the 3013 Potrero property showed maximum concentrations of PCE of 12 μg/l, 1,1-DCA of 13 μg/l, 1,2-DCA of 2.3 μg/l, TCE of 3.1 μg/l, and 1,1,1-TCA of 2.6 μg/l in the groundwater. In 1997, one groundwater monitoring well (MW-1) was sampled twice. Maximum concentrations of PCE of 89 ug/l, TCE of 31 ug/l, and 1,1-DCA of 11 ug/l were detected in the groundwater.

D. From 2000 through 2001, Respondent Palmer operated a soil vapor extraction system to remove VOCs from the subsurface beneath the facility. Respondent Palmer's consultant estimated

that 49 pounds of VOCs (mainly PCE) had been removed from the subsurface.

25.A. Respondent Plastic Engineered Components, Inc., hereinafter referred to as "Respondent Plastic", last owned Los Angeles Die & Mold that operated a plastic molding shop at 1942 N. Rosemead Boulevard in South El Monte, California ("the 1942 N. Rosemead property") beginning between 1946 and 1951 (exact date unknown), until ceasing operations in 1997 or 1998. Chemical use at the facility includes 1,1,1-TCA, acetone, and hydraulic oils, and MEK.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCA, 1,2-DCA, 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE have been detected in soil, soil gas, and/or groundwater. Soil tests in 1988 and 1989 found up to 100 ug/kg of PCE, 210 ug/kg of TCE, 150 ug/kg of DCA, 1600 ug/kg of 1,1,1-TCA, 56 ug/kg of DCE, 70 ug/kg of Toluene, and 130 ug/kg of Xylene to a depth of 30 feet below ground surface (bgs). A soil gas survey in 1994 found up to 1.0 ug/l of DCA and 5.6 ug/l of 1,1,1-TCA to a depth of 12 feet bgs.

C. Groundwater tests between 1989 and 1996 found up to 210 ug/l of PCE, 37 ug/l of TCE, 92 ug/l of cis-1,2-DCE, 180 ug/l of trans-1,2-DCE, 61 ug/l of DCA, 2.5 ug/l of 1,2-DCA, 73 ug/l of 1,1,1-TCA, and 4.5 ug/l of DCE. Groundwater depth varied between 17 and 37 feet bgs during the time period of these tests.

26.A. Respondent Art Weiss owns the property at 2128 and 2200 North Merced Avenue in South El Monte, California ("the 2128 and 2200 North Merced property"). Respondent Quaker Chemical Incorporation, hereinafter referred to as "Respondent Quaker Chemical", is the parent company of Multi-Chemical Products Inc. which was dissolved in 1994. Multi-Chemical Products Inc. manufactured polyurethane, acrylics, and epoxy for use in construction waterproofing at the 2128 and 2200 North Merced

property from 1969 to 1991. Chemical use at the facility includes PCE, 1,1,1-TCA, TCE, and methylene chloride.

B. In subsurface investigations, PCE, TCE, 1,1-DCA, and 1,1,1-TCA have been detected in soil, soil gas, and/or groundwater. In 1988, a soil investigation detected PCE of 12,000 ug/kg to 10 feet below ground surface (bgs). Additional soil investigation performed in the same year showed PCE of 4,700 ug/kg, TCE of 180 ug/kg, 1,1-DCA of 260 ug/kg, and 1,1,1-TCA of 160 ug/kg to 10 feet bgs. In 1990, additional soil investigation showed PCE of 5,000 ug/kg to 15 feet bgs near the solvent tank. In 1994, a soil gas survey showed PCE of 41 ug/l to 30 feet bgs.

C. Three monitoring wells were installed and were sampled quarterly from 1989 to 1991. Maximum concentrations of PCE of 620 ug/l, TCE of 5 ug/l, and 1,1,1-TCA of 160 ug/l were detected in the ground water. Depth to groundwater was measured approximately at 25 feet bgs.

27.A. Respondent Seachrome Corporation, hereinafter referred to as "Respondent Seachrome", is a manufacturer of bathroom hardware and has been operating at 9819 Klingerman Street in South El Monte, California("the 9819 Klingerman property") since 1944. Chemical use at the facility includes 1,1,1-TCA, nitric acid, hydrochloric acid, and chrome additive.

B. In subsurface investigations, PCE, TCE, 1,1-DCE, 1,1,1-TCA, DCA, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1987, initial soil investigation detected maximum concentrations of PCE of 330 ug/kg, 1,1-DCE of 69 ug/kg, and 1,1,1-TCA of 390 ug/kg in the soils to a depth of 0.5 feet below ground surface (bgs) near the drum storage area. In 1988, a Phase II soil investigation showed PCE of 19 ug/kg, TCE of 10 ug/kg, and 1,1,1-TCA of 11 ug/kg in the soils to a depth of 0.5 feet bgs near the drum storage area. In 1989, a

Phase III soil investigation was conducted. No VOCs were detected in the soil samples obtained from two 10-foot soil borings near the degreaser area. In 1992, a soil gas investigation was performed at the drum storage area. Maximum concentrations of TCE of 195 ug/l, 1,1-DCE of 24 ug/l, and 1,1,1-TCA of 803 ug/l were detected to five feet bgs. Maximum concentrations of TCE of 161 ug/kg, 1,1,1-TCA of 379 ug/kg, and 1,1-DCE of 85 ug/kg were detected to 15 feet bgs.

C. In 1988 and 1990, three monitoring wells were installed. Groundwater sampling between 1993 and 1994 showed maximum concentrations of PCE of 498 ug/l, TCE of 65 ug/l, DCA of 16 ug/l, and 1,1,1-TCA of 248 ug/l. In 1997, one groundwater monitoring well (EW-1) was sampled quarterly. Maximum concentrations of PCE of 160 ug/l, TCE of 13 ug/l, and methylene chloride of 18 ug/l were detected in the groundwater.

D. From 1996 through 1998, Respondent Seachorme operated a soil vapor extraction system to remove VOCs from the subsurface beneath the facility.

28.A. Respondent L. E. Tepfer Co., Inc., hereinafter referred to as "Respondent Tepfer", is a precision machine shop for the aerospace industry. Respondent Tepfer has operated at 12114 E. Garvey Avenue in El Monte, California ("the 12114 E. Garvey property") since 1955. Chemical use at the facility includes lube oils, coolants, and solvents.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA have been detected in soil, soil gas, and/or groundwater. During several phases of soil assessments, a total of seventeen soil borings were drilled in the above areas of concern. Maximum concentrations of PCE of 190 ug/kg and TCE of 46 ug/kg were detected in the soil from ground surface to 10 feet below ground surface (bgs). In 1995, a soil gas survey was performed. A

total of 18 probes to a maximum depth of 25 feet bgs were installed. VOCs and BTEX were not detected at the detection limits (1 ug/l) in the probes.

C. Four monitoring wells have been installed and the wells have been sampled three times to date. Maximum concentrations of PCE of 51 ug/l, TCE of 21 ug/l, and 1,1,1-TCA of 13 ug/l were detected in the groundwater. Depth to groundwater was measured at about 47 feet bgs in June 1995.

29.A. Respondent Time Realty Investments Inc. is the current owner of the property at 9053 Rush Street in South El Monte, California ("the 9053 Rush property"). Chemical use at the property includes 1,1,1-TCA and acetone.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE and BTEX have been detected in soil, soil gas, and/or groundwater. In 1989, a soil assessment was performed and a 10-foot boring was drilled near the clarifier at the 9053 Rush property. Maximum concentrations of PCE of 51 ug/kg, TCE of 19 ug/kg, and 1,1,1-TCA of 53 ug/kg were detected to 0.5 feet below ground surface (bgs). In 1998, a soil gas survey was performed and total of eight probes to a maximum depth of 15 feet bgs were installed at the 9053 Rush property. Maximum concentrations of PCE of 11 ug/l, TCE of 13 ug/l, 1,1,1-TCA of 4 ug/l, and BTEX 16 ug/l (xylenes) were detected in the probes near the former clarifier.

C. In 1998, one groundwater sample was collected near the former clarifier. PCE of 5.7 ug/l, TCE of 57 ug/l, cis-1,2-DCE of 59 ug/l, and 1,1-DCA of 6.8 ug/l were detected in the groundwater.

30.A. Respondent Tonks Properties is the owner of the property at 1430 Chico Avenue in South El Monte, California ("the 1430 Chico property").

B. In subsurface investigations, PCE, TCE, cis-1,2-DCE, 1,1-DCA, cis-1,2-DCA have been detected in the soil, soil gas, and/or groundwater at the 1430 Chico property. In 1989, a soil assessment was performed and a 10-foot boring was drilled near the former underground storage tank (UST) farm at the 1430 Chico property. Maximum concentrations of PCE of 63 ug/kg, ethylbenzene of 6 ug/kg, and total xylenes of 100 ug/kg were detected to 10 feet below ground surface (bgs). In 1991, five USTs at the UST farm were excavated and removed pursuant to the Los Angeles County Department of Public Works requirements. Maximum concentrations of PCE of 46 ug/kg, TCE of 270 ug/kg, chlorobenzene of 250 ug/kg, 1,2-DCE of 7.3 ug/kg were detected in the soil samples collected from the bottom of the excavation pit (approximately 20 feet bgs). In 1992, a soil gas survey was performed and twenty one (21) probes to a maximum depth of 20 feet bgs were installed at the 1430 Chico property. PCE of 38 ug/l was detected at 20 feet bgs in the former UST farm.

C. In 1997, one groundwater sample was obtained at the 1430 Chico property using a hydropunch. PCE of 5.1 ug/l, TCE of 2.7 ug/l, 1,1-DCA of 2.4 ug/l, cis-1,2-DCA of 2.2 ug/l, and cis-1,2-DCE of 1.3 ug/l were detected in the sample. Ground water was encountered at approximately 24 feet bgs.

31.A. Respondent Art Weiss is the owner of the property at 10414 Rush Street in South El Monte, California ("the 10414 Rush property"). Respondent Tri-Fitting Manufacturing Company, hereinafter referred to as "Respondent Tri-Fitting", is a machine shop that manufactures aircraft fittings and has operated at the 10414 Rush Street property since 1984. Chemical use at the

facility includes PCE, solvents, mineral spirits, and cutting oil.

B. In subsurface investigations, PCE, TCE, 1,1-DCE, 1,1-DCA, 1,2-DCA, 1,1,1-TCA, vinyl chloride, and methylene chloride have been detected in soil, soil gas, and/or groundwater. In 1989, Respondent Tri-Fitting submitted the sampling results of soil borings drilled at the 10414 Rush property. The chemical analysis of the soil indicated PCE ranging from 21,000,000 ug/kg at 1 foot below ground surface (bgs) to 250 ug/kg at 10 feet bgs. In 1990, soil samples collected from a well borehole indicated PCE of 92 μg/kg at 45 feet bgs. In 1992, a soil vapor survey indicated PCE over 3,000 μg/l at several locations, and TCE of 21.92 μg/l and 1,1,1-TCA of 7 ug/l at six feet bgs. PCE of 271 μg/l was also detected at 27 feet bgs. In 1997, a soil gas survey showed maxinum concentrations of PCE of 813 ug/l and TCE of 6.4 ug/l.

C. In 1990, chemical analysis of the groundwater sampled indicated PCE of 120 μg/l and TCE of 18 μg/l. In 1991, groundwater samples collected by the Los Angeles Regional Water Quality Control Board staff indicated PCE of 110 μg/l and TCE of 16 μg/l. In the same year, groundwater sampling showed PCE of 480 μg/l and TCE of 96.2 μg/l. In 1992, three groundwater monitoring wells were sampled. The chemical analysis of the groundwater indicated PCE of 130 ug/l at well 1, PCE of 330 μg/l and TCE of 28 ug/l at well 2, and PCE of 220 μg/l and TCE of40 μg/l at well 3. In 1997, quarterly groundwater sampling was performed at the 10414 Rush property. Maximum concentrations of PCE of 440 ug/l were detected in the groundwater.

32.A. Respondent Robert Vandervoch is the current owner of the property at 9733 Klingerman Street, South El Monte, California ("the 9733 Klingerman property"). Chemical use at the 9733

Klingerman property includes lacquer thinner, 1,1,1 TCA, paint, cutting oil.

B. In subsurface investigations, PCE, TCE, 1,1,1-TCA, 1,1-DCE, and 1,1-DCA have been detected in soil, soil gas, and/or groundwater at the 9733 Klingerman property. In May 1989, a soil investigation showed maximum concentrations of PCE of 90 ug/kg and 1,1,1-TCA of 160 ug/kg to five feet below ground surface (bgs) in the two storage areas. In July 1989, a soil investigation showed maximum concentrations of PCE of 220 ug/kg and TCE of 32 ug/kg to 10 feet bgs in the two storage areas. In 1991, a soil investigation showed maximum concentrations of PCE of 30 ug/kg and 1,1,1-TCA of 78 ug/kg to 10 feet bgs near the clarifier. In 1991, a soil gas survey was performed and twelve probes to a maximum depth of 10 feet bgs were installed. Maximum concentrations of PCE of 5900 ug/l, TCE of 270 ug/l, 1,1-DCA of 17,000 ug/l, and 1,1,1-TCA of 11,000 ug/l were detected in the probes.

C. In 1995, two monitoring wells (MW-1 and MW-2) were installed and sampled quarterly that year. Maximum concentrations of 1,1- PCE of 150 ug/l, TCE of 5 ug/l, 1,1-DCA of 2 ug/l, 1,1-DCE of 4 ug/l, and 1,1,1-TCA of 120 ug/l were detected in the groundwater.

33.A. Respondent Waymire Drum Company, hereinafter referred to as "Respondent Waymire", has operated a drum reconditioning facility at 9629 El Poche Street in South El Monte, California ("the 9629 El Poche property") since 1983. Chemical use at the facility includes toluene, MEK, petroleum naphtha, caustic soda, sodium gluconate, sodium nitrate, alkaline paint flocculent, oil, and pigmented coatings.

B. In subsurface investigations, PCE, TCE, methylene chloride, PCB, trans-1,2-DCE, 1,1,1-TCA, 1,1-DCA, 1,1-DCE, BTEX,

and acetone have been detected in soil, soil gas, and/or groundwater. In 1988, a soil investigation was performed at the 9629 El Poche property. Methylene chloride of 214 μg/kg and TCE of 214 μg/kg at 1 foot below ground surface (bgs) were detected in Subarea 1 (drum storage area). Benzene of 48 μg/kg was detected at 1 foot bgs in Subarea 2 (drum storage area). PCE of 4,940 μg/kg, TCE of 983 μg/kg, methylene chloride of 9210 μg/kg, trans-1,2-DCE of 7,630 μg/kg, PCB 1254 of 980 mg/kg, and BTEX up to 58 mg/kg were detected at 1 foot bgs in Subarea 3 (drum processing area). Toluene of 178 μg/kg was detected at one foot bgs in Subarea 4 (drum processing area). Methylene chloride of 118 μg/kg was detected at 5 feet bgs in Subarea 5 (maintenance building). In 1989. additional soil samples were collected in Subarea 3. 1,1-DCE of 735 μg/kg, toluene of 220 μg/kg, and TCE of 36 μg/kg were detected at 1 foot bgs. In 1989 a soil vapor survey indicated PCE of 28 μg/l at 10 feet bgs. In 1992, a soil gas survey performed in Subarea 1 showed PCE of 150 μg/l, TCE of 34 μg/l, 1,1-DCA of 32 μg/l, and 1,1-DCE of 46 μg/l at 6 feet bgs.

C. In 1988, groundwater investigation at the 9629 El Poche property showed 1,1,1-TCA of 446 μg/l, 1,1-DCA of 200 μg/l, and 1,1-DCE of 48 μg/l in the groundwater. In 1990, groundwater samples indicated TCE of 415 μg/l and 1,1-DCA of 207 μg/l. In 1992, groundwater samples collected by the Los Angeles Regional Water Quality Control Board (RWQCB) staff indicated TCE of 89 μg/l, 1,1-DCA of 580 μg/l, 1,1-DCE of 100 μg/l, and cis-1,2-DCE of 310 μg/l. In 1992, groundwater sampling indicated TCE of 138 μg/l, 1,1-DCA of 2,835 μg/l, and 1,1-DCE of 196 μg/l. In 1993 the groundwater was sampled under a regional groundwater sampling program conducted by RWQCB staff and the USEPA. The chemical analysis of the groundwater indicated PCE of 25 μg/l, TCE of 110 μg/l, 1,2-DCE of 2800 μg/l, 1,1-DCE of 32 μg/l, and 1,1-DCA of 260 μg/l. In 1997, four wells (MW-1, 2, 3, and 23) were sampled

quarterly. Maximum concentrations of PCE of 140 ug/l and TCE of 39 ug/l were detected in the groundwater.

34.A. Respondent Art Weiss owns the property at 1439 Lidcombe Avenue in South El Monte, California ("the 1439 Lidcombe property"). Chemical use at the 1439 Lidcombe property includes Stoddard solvent, water soluble oils, and kerosene.

B. In subsurface investigations, PCE, TCE, cis-1,2-DCE, 1,1,1-TCA, 1,1-DCA and TPH have been detected in soil, soil gas, and/or groundwater. In 1987, P&M submitted the results of the UGS tank investigation, which included a temporary groundwater monitoring well. The chemical analysis of the soil indicated concentrations of waste oil of 28,350 μg/kg at 20 feet bgs, and kerosene of 2,200 μg/kg at 15 feet bgs. The chemical analysis of the groundwater indicated kerosene of 1.8 ppm and TPH of 2 ppm.

C. In 1997, soil assessments (soil gas and soil boring) and groundwater assessments (hydropunch and monitoring well installation) were performed. Maximum concentrations of PCE of 33 ug/l, TCE of 18 ug/l, 1,1,1-TCA of 4.6 ug/l were detected in the soil gas. Maximum concentrations of PCE of 10 ug/l, TCE of 2,300 ug/l, and cis-1,2-DCE of 2,600 ug/l were detected in the groundwater.

35.A. Respondent West Coast Metal Finishing, hereinafter referred to as "Respondent West Coast Metal", owned and operated a metal finishing facility at 1734 North Tyler Avenue in South El Monte, California ("the 1734 North Tyler property") from 1994 to 1996. Chemical use at the facility includes TCE, acids, bases, heavy metals, and cyanide.

B. In subsurface investigations, PCE, TCE, xylene, cyanide have been detected in soil, soil gas, and/or groundwater. In 1990, a subsurface investigation indicated maximum concentrations of PCE

of 2,100,000 ug/kg, TCE of 96,000 ug/kg, cyanide of 6,400 ug/kg, xylene of 4,000 ug/kg, and TPH of 430,000 ug/kg in the soil at one foot below ground surface (bgs). In 1997, a soil gas survey detected maximum concentrations of PCE of 3,400,000 ug/l and TCE of 240,000 ug/l in the soil gas at 5 feet bgs. Confirmation soil samples collected during this event showed PCE of 670 ug/kg at 15 feet bgs and 150 ug/kg at 26 feet bgs.

C. There are no groundwater data at the facility. In July 2000, the LARWQCB issued a Notice of Violation to Respondent West Coast Metal for failure to implement a groundwater investigation at the facility.

36. The respondents identified in Paragraphs 3 through 35 are referred to throughout this Order as "Respondents."

37. On October 15, 1984, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the San Gabriel Valley Area 1 Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B (49 Fed. Reg. 40320). The South El Monte Operable Unit is part of the San Gabriel Valley Area 1 Site.

38. From approximately July 1995 to May 1999, EPA undertook a Remedial Investigation and Feasibility Study ("RI/FS") for the SEMOU Area, pursuant to CERCLA and the National Contingency Plan, 40 C.F.R. Part 300. In a report dated August 26, 1998, EPA presented the results of the SEMOU RI and in a report dated April 7, 1999, EPA presented the results of the SEMOU FS.

39. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and the proposed plan for remedial action in September 1999, and provided opportunity for public comment on the proposed remedial action.

40. The decision by EPA on the interim remedial action to

be implemented at the SEMOU Area is embodied in an interim Record of Decision ("ROD"), executed on September 29, 2000. on which the State has given its concurrence. The ROD (Attachment 2) is attached to this Order and is incorporated by reference. The ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

41. Hazardous substances and solid wastes released from Respondents' facilities have moved downward from the surface, through soil, contaminating groundwater beneath Respondents' facilities. The contamination has generally migrated southward and westward from Respondents' facilities, leaving plumes of contaminated groundwater. Evidence of downward migration through the soil includes hundreds of soil vapor and soil samples collected beneath Respondents' facilities demonstrating the presence of PCE, TCE, and other chemicals used at the Respondents' facilities. Evidence of migration through the aquifer includes the presence of chemicals in samples collected from a network of monitoring wells installed in the SEMOU Area downgradient of the Respondents' facilities.

42. The San Gabriel groundwater basin provides drinking water to more than one million residents of the San Gabriel Valley and nearby areas. Given the absence of dependable alternatives to the aquifer as the region's primary water supply, the groundwater is expected to remain as residents' primary source of drinking water indefinitely. Numerous water supply wells draw water directly from contaminated portions of the aquifer.

43. The groundwater contamination in the South El Monte area has impacted numerous public water supply wells, which previously had the capacity to produce thousands of gallons per minute of potable water. Many other wells have low levels of

contamination, and are at risk of having to shut down. Some of these wells are in the area described in the ROD.

44. The affected water purveyors ("water purveyors") in the SEMOU include the City of Monterey Park (MP), San Gabriel Valley Water Company (SGVWC), and Southern California Water Company (SCWC). MP was forced to shut down its previously constructed VOC treatment systems for groundwater extracted from its wells No. 5 and wells Nos. 9, 12, and 15 due to perchlorate contamination. SGVWC was forced to shut down some of its Plant 8 wells due to VOC contamination. SCWC was forced to shut down its previously constructed VOC treatment system for groundwater extracted from its San Gabriel well field due to perchlorate contamination.

45. Response actions at the site have included EPA's RI/FS activities (approximately 1984 through 1993); soil, soil gas, and groundwater investigations completed by Respondents and other parties (approximately 1990 through 2000); and operation of soil vapor extraction systems by certain Respondents. The affected water purveyors in the SEMOU have constructed and operated "wellhead treatment" facilities including VOC treatment systems for groundwater extracted from MP well NO. 5 and Wells Nos. 9,12, and 15 (recently installed); a VOC treatment system for groundwater extracted from SGVWC Plant 8 Well Field; and a VOC treatment system for groundwater extracted from SCWC San Gabriel Well Field. MP has also constructed a perchlorate treatment system for MP wells Nos. 9, 12, and 15 and MP is evaluating perchlorate removal for its well No.5. In addition, MP is currently constructing an interim secondary VOC treatment system for MP wells Nos. 9, 12, and 15. SGVWC is currently designing a secondary VOC treatment system for its Plant 8 Well Field. SCWC is constructing a pilot-scale perchlorate treatment system for its San Gabriel Well Field.

46. The selected remedy, as embodied in the interim ROD provides for the extraction and treatment of contaminated groundwater in the intermediate zone in the western SEMOU. The intermediate zone VOC contamination is shown in Figure 1 included in the attached Statement of Work ("SOW"). The objectives of the selected remedy are to prevent exposure of the public to contaminated groundwater, contain further migration of contaminated groundwater from more highly contaminated portions of the aquifer to less contaminated areas or depths, reduce the impact of continued contaminant migration on downgradient water supply wells, and protect future uses of less contaminated and uncontaminated groundwater. The remedy provides for the construction and operation of groundwater extraction wells, treatment facilities, and conveyance facilities capable of pumping and treating approximately 10,020 gallons per minute of contaminated groundwater. The remedy requires the construction of new groundwater extraction wells, treatment systems, and pipelines, but also allows the use of existing facilities where appropriate.

47. The SEMOU Record of Decision expresses a preference for the treated groundwater to be delivered to water purveyors, rather than discharged to the aquifer.

48. The remedy will reduce exposure to the contaminated groundwater by limiting the spread of the contamination into less contaminated and uncontaminated portions of the aquifer, by reducing contaminant concentrations in the aquifer and, most likely, by providing a supply of potable water to residents.

III. CONCLUSIONS OF LAW AND DETERMINATIONS

49. The SEMOU is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9). The SEMOU also contains "facilities" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

50. The substances listed in Paragraph 2 of this Order are found at the Site and are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and are "solid wastes" as defined in Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

51. These hazardous substances and solid wastes have been disposed of at the Site and have migrated or threaten to migrate from the Site into the soil and groundwater.

52. Respondents are "persons" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21). Respondents are "persons" as defined in Section 1004(15) of RCRA, 42 U.S.C. § 6903(15), whose past or present handling, storage, treatment, transportation or disposal of "solid wastes" as defined by Section 1004(27) of RCRA, 42 U.S.C. § 6903(27), may present an imminent and substantial endangerment to health or the environment under Section 7003 of RCRA, 42 U.S.C. § 6973.

53. Respondents are liable parties as defined in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and are subject to this Order under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a). Respondents are liable under Section 7003 of RCRA, 42 U.S.C. § 6973, because they contributed to the handling, storage, treatment, transportation or disposal of solid wastes at the SEMOU.

54. There have been releases of hazardous substances at or from the Site as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22), including but not limited to the past disposal of

hazardous substances at the Site and the migration of hazardous substances from the Site.

55. The potential for future migration of hazardous substances from the Site poses a threat of a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

56. The release or threat of release of one or more hazardous substances from a facility may present an imminent and substantial endangerment to the public health or welfare or the environment under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a). The substances listed in Paragraph 2 of this Order are solid wastes that may present an imminent and substantial endangerment to health or the environment under Section 7003 of RCRA, 42 U.S.C. § 6973.

57. The contamination and endangerment at this Site constitute an indivisible injury. The actions required by this Order are necessary to protect the public health, welfare, and the environment. Respondents are jointly and severally responsible for all of the contamination at the Site.

IV. NOTICE TO THE STATE

58. On June 4, 2003, prior to issuing this Order, EPA notified the State of California Department of Toxic Substances Control that EPA would be issuing this Order.

V. ORDER

59. Based on the foregoing, Respondents are hereby ordered to comply with the following provisions, including but not limited to all attachments to this Order, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order:

VI. DEFINITIONS

60. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

A. "SEMOU" shall mean the South El Monte Operable Unit of the San Gabriel Valley Superfund Area 1 Site, in and near the cities of South El Monte, Rosemead and El Monte in Los Angeles County, California, and depicted generally on the map attached as Attachment 1.

B. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

C. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next working day.

D. "EPA" shall mean the United States Environmental Protection Agency.

E. "DTSC" shall mean the California Department of Toxic Substances Control and any successor departments or agencies of DTSC.

F. "LARWQCB" shall mean the Los Angeles Regional Water

Quality Control Board and any successor boards, departments, or agencies of LARWQCB.

G. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

H. "Operation and Maintenance" or "O&M" shall mean all activities required under the Performance Standards Evaluation Plan and Operation and Maintenance Manual developed by Respondents pursuant to this Order and Section IV of the SOW, and approved by EPA.

I. "Paragraph" shall mean a portion of this Order identified by an arabic numeral.

J. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations, identified in the SOW, that the Remedial Action and Work required by this Order must attain and maintain.

K. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq. (also known as the Resource Conservation and Recovery Act).

L. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the SEMOU, signed on September 29, 2000, by Keith Takata, the Director of Superfund Division, EPA Region 9, and all attachments thereto.

M. "Remedial Action" or "RA" shall mean those activities, except for Operation and Maintenance, to be undertaken by Respondents to implement the final plans and specifications

submitted by Respondents pursuant to the Remedial Design / Remedial Action (RD/RA) Work Plan approved by EPA, including any additional activities required under Sections X, XI, XII, XIII, and XIV of this Order.

N. "Remedial Design" or "RD" shall mean those activities to be undertaken by Respondents to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design/Remedial Action Work Plan.

O. "Remedial Design/Remedial Action (RD/RA) Work Plan" shall mean the work plan setting forth the Work to be performed by Respondents under this Order, as more fully described in Section IX of this Order and in the SOW.

P. "Response Costs" shall mean all costs, including direct costs, indirect costs, and accrued interest incurred by the United States to perform or support response actions at the SEMOU. Response costs include but are not limited to the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports and other items pursuant to this Order and costs associated with verifying the Work.

Q. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the portions of the Remedial Design, Remedial Action, and Operation and Maintenance at the SEMOU, that is set forth in Attachment 3 to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order.

R. "Section" shall mean a portion of this Order identified by a roman numeral and includes one or more paragraphs.

S. "Site" shall have the same meaning as the "SEMOU", defined above.

T. "State" shall mean the State of California, including but not limited to the California Department of Toxic Substances, the California Regional Water Quality Control Board, and the California Department of Health Services, Drinking Water Field Operations Branch.

U. "United States" shall mean the United States of America.

V. "Work" shall mean all activities Respondents are required to perform under this Order, including Remedial Design, Remedial Action, Operation and Maintenance, and any activities required to be undertaken pursuant to Sections VII through XXIV, and XXVII of this Order.

VII. NOTICE OF INTENT TO COMPLY

61. Respondents shall provide, not later than fourteen(14) days after the effective date of this Order, written notice to EPA's Project Manager stating whether they will comply with the terms of this Order. If Respondents do not unequivocally commit to perform the RD and RA as provided by this Order, they shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondents' written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondents under Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be acceptance of Respondents' assertions.

VIII. PARTIES BOUND

62. This Order shall apply to and be binding upon each Respondent identified in Paragraphs 3 through 36, its directors, officers, employees, agents, successors, and assigns.

Respondents are jointly and severally responsible for carrying out all activities required by this Order. Each Respondent shall communicate and cooperate with the other Respondents. No change in the ownership, corporate status, or other control of any Respondent shall alter any of the Respondents' responsibilities under this Order.

63. Respondents shall make best efforts to coordinate in the performance of the Work required by this Order with any person not a Respondent to this Order (ie. water purveyors or other PRPs) who offers to perform or, in lieu of performance, to pay for, in whole or in part, the Work required by this Order. Best efforts to coordinate shall include, at a minimum:

(A) Replying in writing within a reasonable period of time to an offer to perform or pay for, in whole or in part, the Work required by this Order;

(B) Engaging in good-faith negotiations with any party not a Respondent to this Order who offers to perform or to pay for, in whole or in part, the Work required by this Order; and

(C) Good-faith consideration of a good-faith offer to perform or pay for, in whole or in part, the Work required by this Order.

64. Respondents shall provide a copy of this Order to any prospective owners or successors before a controlling interest in any Respondent's assets, property rights, or stock are transferred to the prospective owner or successor. Respondents shall provide a copy of this Order to each contractor, sub-contractor, laboratory, or consultant retained to perform any Work under this Order, within fourteen (14) days after the effective date of this Order or on the date such services are retained, whichever date occurs later. Respondents shall also provide a copy of this Order to each person representing Respondents with respect to the SEMOU or the Work and shall condition all contracts and subcontracts entered into hereunder

upon performance of the Work in conformity with the terms of this Order. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be related by contract to the Respondents within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Order and for ensuring that their contractors, subcontractors and agents comply with this Order, and perform any Work in accordance with this Order.

65. Not later than sixty (60) days prior to any transfer by any Respondent of any real property interest in any property included within the SEMOU, such Respondent shall submit a true and correct copy of the transfer document(s) to EPA, and shall identify the transferee by name, principal business address and effective date of the transfer.

IX. WORK TO BE PERFORMED

66. Respondents shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondents shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the SEMOU.

67. Certain PRPs have signed an agreement with the San Gabriel Basin Water Quality Authority, SGVWC, SCWC, and MP (collectively "the water entities") to use water purveyors' facilities to implement appropriate portions of the Work required under this Order. Notwithstanding the terms of any agreement between these PRPs and the water entities, however, Respondents are responsible for compliance with this Order. If Respondents choose to contract with water purveyors, Respondents are responsible for ensuring that any Work performed by the water purveyors is performed in accordance with this Order.

68. If Respondents intend to use any existing facilities and/or production wells in the SGVWC, SCWC, or Monterey Park Well Fields, or other purveyor-owned facilities and/or production wells as part of the remedial action, an agreement, approved by EPA, must be reached with the necessary water purveyors. Respondents shall submit a draft of this agreement to EPA 30 days after the effective date of this Order. The agreement shall provide for long-term extraction from the production wells at rates and depths sufficient to ensure compliance with the Performance Criteria in Section 11.1 of the ROD and Section III of the SOW. If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water (as described in Section 12.1 of the ROD) in existence at the time the water is served, including perchlorate action levels, will have to be met. If treated groundwater is discharged to a surface water body, NPDES requirements, including those for perchlorate, will need to be met. If Respondents intend to use existing water purveyor-owned facilities and/or production wells as part of the remedial action, Respondents shall submit to EPA the following deliverables in lieu of design submittal: as-built drawings, specifications, and an operation and maintenance manual for all existing facilities and wells to be used, and DHS permit for all existing treatment facilities to be used including DHS 97-005 documentation. Respondents shall also submit the following deliverables: detailed summary of the actual cost of construction, operation, and maintenance of the existing facilities and wells, water volume from each well and analytical results for each well measured quarterly, and results of sampling to assess ongoing treatment system performance and compliance with treatment to less than MCLs or action levels. The deliverables relating to existing water purveyor-owned facilities and wells shall be submitted to EPA fifteen (15) days after

execution of an agreement, approved by EPA, between the Respondents and the water purveyors, for use of existing purveyor-owned facilities and/or production wells as part of the remedial action. EPA will review the deliverables to evaluate the existing facilities' capability to reliably achieve the Performance Criteria described in Section 11.1 of the ROD and Section III of the SOW. After completing its evaluation, EPA will indicate: i) the extent to which the existing facilities appear to be achieving Performance Criteria; and ii) any needed modifications to the existing facilities or their operation to fully satisfy Performance Criteria or ensure their future capability to meet Performance Criteria. If EPA determines that additional deliverables relating to existing facilities are required, Respondents shall submit such deliverables pursuant to Section XII "Additional Response Action" of this Order. If any new facilities or wells will be required in the SGVWC, SCWC, or the MP Well Field Areas or other areas to adequately contain the contaminated groundwater plume and meet the Performance Criteria, these should be included in the design process described in Section IV.D of the SOW.

69. All aspects of the Work to be performed by Respondents pursuant to this Order shall be under the direction and supervision of a qualified project manager the selection of whom shall be subject to approval by EPA. Within fourteen (14) days after the effective date of this Order, Respondents shall notify EPA in writing of the name and qualifications of the project manager, including primary support and staff, proposed to be used in carrying out Work under this Order. If at any time Respondents propose to use a different project manager, Respondents shall notify EPA and shall obtain approval from EPA before the new project manager performs any Work under this Order.

70. Within twenty one (21) days after the effective date of this Order, Respondents shall notify EPA of the selection of a project manager/supervising contractor. EPA will review Respondents' selection of a project manager/supervising contractor according to the terms of this paragraph and Section XIV of this Order. If EPA disapproves of the selection of the project manager/supervising contractor, Respondents shall submit to EPA within 30 days after receipt of EPA's disapproval of the project manager/supervising contractor previously selected, a list of project managers/supervising contractors, including primary support and staff, that would be acceptable to Respondents. EPA will thereafter provide written notice to Respondents of the names of the project managers/supervising contractors that are acceptable to EPA. Respondents may then select any approved project manager/supervising contractor from that list and shall notify EPA of the name of the project manager/supervising contractor selected within twenty one (21) days of EPA's designation of approved project managers/supervising contractors.

71. Within forty five (45) days after the effective date of this Order, Respondents shall submit a Compliance and Sentinel Well Network Plan to EPA for review and approval. The Compliance and Sentinel Well Network Plan shall describe the proposed locations and specifications of the compliance and sentinel wells. Within forty five (45) days after EPA approval of the Compliance and Sentinel Well Network Plan, Respondents shall initiate installation of compliance and sentinel wells. Within sixty (60) days after EPA approval of the work performed under the Compliance and Sentinel Well Network Plan, Respondents shall submit a Compliance and Sentinel Well Installation Report. Within thirty (30) days after EPA approval of Compliance and Sentinel Well Installation Report, Respondents shall submit a Compliance Monitoring Plan to EPA for review and approval.

72. Within sixty (60) days after the effective date of this

Order, Respondents shall submit an RD/RA Work Plan to EPA for review and approval. The RD/RA Work Plan shall include a step-by-step plan for completing the remedial design and remedial action for the remedy described in the attached SOW and for attaining and maintaining all requirements, including Performance Standards, identified in the SOW. The RD/RA Work Plan must describe in detail the tasks and deliverables Respondents will complete during the remedial design and remedial action phases, and a schedule for completing all tasks and deliverables pursuant to the schedule of deliverables described in the RD/RA SOW. The major tasks and deliverables described in the RD/RA Work Plan shall include, but not be limited to, the following: (1) a conceptual design; (2) a preliminary design; (3) a pre-final design; (4) identification and satisfactory compliance with applicable permitting requirements; (5) a sampling and analysis plan; (6) a Construction Quality Assurance Plan (CQAP); (7) an Operation and Maintenance Manual; and (8) a Compliance Monitoring Plan.

73. The RD/RA Work Plan shall provide for implementing the attached SOW, and shall comport with EPA's "Superfund Remedial Design/Remedial Action Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 15, 1995, EPA 540/R-95/059. Upon approval by EPA, the RD/RA Work Plan and future revisions or addenda to the RD/RA Work Plan are incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order.

74. Upon approval of the RD/RA Work Plan by EPA, Respondents shall implement the RD/RA Work Plan according to the schedule in the approved RD/RA Work Plan. Any violation of the RD/RA Work Plan shall be a violation of this Order.

75. Respondents shall submit a Sampling and Analysis Plan and

Site Health and Safety Plan for field activities no later than the date of the Conceptual Design submittal. The Site Health and Safety Plan shall conform to the applicable Occupational Safety and Health Administration and EPA requirements, including but not limited to the requirements in 29 C.F.R. § 1910.120.

76.. Within seventy-five (75) days after EPA approval of the RD/RA Work Plan, Respondents shall submit a Conceptual Design to EPA for review and approval. The Conceptual Design submittal shall include, at a minimum, the following: (1) a detailed Design Basis Report that presents and justifies the concepts, assumption, standards, and preliminary interpretations and calculations used in the design; (2) an updated schedule for design, construction and operation of the Remedial Action; (3) an updated list of substantive requirements, permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date; (4) copies of permits, approvals, and agreements not previously supplied to EPA; and (5) activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

77. Within sixty (60) days after EPA approval of the Conceptual Design, Respondents shall submit a Preliminary Design to EPA for review and approval. The Preliminary Design submittal shall include, at a minimum, the following: (1) any changes in the Design Basis submitted as part of the Conceptual Design; (2) preliminary plans, specifications, and drawings of groundwater extraction, treatment, conveyance, and monitoring systems; (3) outline of required specifications; (4) an updated Construction Schedule for construction and implementation of the Remedial Action which identifies timing for initiation and completion of all critical path tasks; and (5) an updated list of permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date, copies

of permits, approvals, and agreements not previously supplied to EPA, and activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

78. Within forty-five (45) days after EPA approval of the Preliminary Design, Respondents shall submit a Pre-Final Design to EPA for review and approval. The Pre-Final Design shall be a draft version of the Final Design. The Pre-Final Design submittal shall include, at a minimum, the following: (1) revised plans and specifications; (2) a draft Operation and Maintenance Manual; and (3) the Construction Quality Assurance Plan (CQAP). The CQAP shall describe the approach to quality assurance during construction activities in the SEMOU and shall specify a quality assurance official (QA Official), independent of the construction contractor, to conduct a quality assurance program during the construction phase of the project.

79. Upon EPA approval, the Pre-Final Design submittal shall become the Final Design and be incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. After approval of the Final Design, Respondents shall implement the Remedial Action.

80. Within forty-five (45) days after EPA approval of the Preliminary Design submittal, Respondents shall prepare and submit to EPA for review a Construction Health and Safety Plan, as required by Section IV.M.3 and Section V of the SOW attached to this Order.

81. If Respondents seek to retain a construction contractor to assist in the performance of the Remedial Action, then Respondents shall submit a copy of the contractor solicitation documents to EPA not later than five (5) days after issuance of the solicitation documents.

82. Within thirty (30) days after the effective date of this Order, Respondents shall notify EPA in writing of the name, title, and qualifications of any construction contractors that may be used in carrying out work under this Order. EPA shall thereafter provide written notice of the name(s) of the contractor(s) it disapproves, if any. Respondents may select any contractor not disapproved and shall notify EPA of the name of the contractor selected within 5 days of selection. If at any time Respondents propose to change the construction contractor, Respondents shall notify EPA and shall obtain approval from EPA as provided in this Paragraph, before the new construction contractor performs any work under this Order. If EPA disapproves of the selection of any contractor as the construction contractor, Respondents shall submit a list of contractors that would be acceptable to them to EPA within thirty (30) days after receipt of EPA's disapproval of the contractor previously selected.

83. The Work performed by Respondents pursuant to this Order shall, at a minimum, achieve the Performance Standards specified in Section III of the SOW, consistent with the approved Performance Standards Evaluation Plan.

84. Notwithstanding any action by EPA, Respondents remain fully responsible for achievement of the Performance Standards in the ROD and SOW. Nothing in this Order, or in the ROD or SOW, or in EPA's approval of the Remedial Design/ Remedial Action Work Plan, or approval of any other submission, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Design or Remedial Action will achieve the Performance Standards set forth in Section III of the SOW. Respondents' compliance with such approved documents does not foreclose EPA from seeking additional work to achieve the applicable performance standards.

85. Respondents shall, prior to any off-site shipment of hazardous substances from the SEMOU Area to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's RPM of such shipment of hazardous substances. However, the notification of shipments shall not apply to any shipments when the total volume of all shipments from the SEMOU to the state will not exceed ten (10) cubic yards.

1. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondents shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

2. The identity of the receiving facility and State will be determined by Respondents following the award of the contract for Remedial Action construction. Respondents shall provide all relevant information, including information under the categories noted in paragraph 86.A above, on the shipments as soon as practicable after the award of the contract and before the hazardous substances are actually shipped.

86. Within forty five (45) days after Respondents conclude that the Remedial Action has been fully performed, Respondents shall so notify EPA and shall schedule and conduct a pre-certification inspection to be attended by Respondents and EPA. The pre-

1 certification inspection shall be followed by a written report,
2 submitted within thirty (30) days of the inspection by a
3 registered professional engineer and Respondents' Project
4 Manager, certifying that the Remedial Action has been completed
5 in full satisfaction of the requirements of this Order. If,
6 after completion of the pre-certification inspection and receipt
7 and review of the written report, EPA determines that the
8 Remedial Action or any portion thereof has not been completed in
9 accordance with this Order, EPA shall notify Respondents in
10 writing of the activities that must be undertaken to complete the
11 Remedial Action and shall set forth in the notice a schedule for
12 performance of such activities. Respondents shall perform all
13 activities described in the notice in accordance with the
14 specifications and schedules established therein. If EPA
15 concludes, following the initial or any subsequent certification
16 of completion by Respondents that the Remedial Action has been
17 fully performed in accordance with this Order, EPA may notify
18 Respondents that the Remedial Action has been fully performed.
19 EPA's notification shall be based on present knowledge and
20 Respondents' certification to EPA, and shall not limit EPA's
21 right to perform periodic reviews pursuant to Section 121(c) of
22 CERCLA, 42 U.S.C. § 9621(c), or to take or require any action
23 that in the judgment of EPA is appropriate at the SEMOU Area, in
24 accordance with Sections 104, 106, or 107 of CERCLA, 42 U.S.C.
25 §§ 9604, 9606, or 9607, or in accordance with Section 7003 of
26 RCRA, 42 U.S.C § 6973.

27 87. Within thirty (30) days after Respondents conclude that all
28 phases of the Work have been fully performed, that the
29 Performance Standards have been attained, and that all Operation
30 and Maintenance activities have been completed, Respondents shall
31 submit to EPA a written report by a registered professional
32 engineer certifying that the Work has been completed in full
33 satisfaction of the requirements of this Order. EPA shall
34 require such additional activities as may be necessary to

complete the Work or EPA may, based upon present knowledge and Respondents' certification to EPA, issue written notification to Respondents that the Work has been completed, as appropriate. EPA's notification shall not limit EPA's right to perform periodic reviews pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the SEMOU Area, in accordance with Sections 104, 106, or 107 of CERCLA, 42 U.S.C. §§ 9604, 9606, or 9607, or in accordance with Section 7003 of RCRA, 42 U.S.C § 6973.

X. FAILURE TO ATTAIN PERFORMANCE STANDARDS

88. In the event that EPA determines that additional response activities are necessary to meet applicable Performance Standards, EPA may notify Respondents that additional response actions are necessary.

89. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response activities are necessary to meet any applicable Performance Standards, Respondents shall submit for approval by EPA a work plan for the additional response activities. The plan shall conform to the applicable requirements of Sections IX, XVI, and XVII of this Order. Upon EPA's approval of the plan pursuant to Section XIV, Respondents shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

XI. EPA PERIODIC REVIEW

90. Under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may conduct a review at the SEMOU Area to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Until such time as EPA certifies completion of the Work, Respondents shall conduct the requisite studies, investigations, or other response

actions as determined necessary by EPA in order to permit EPA to conduct the review under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c). As a result of any review performed under this paragraph, Respondents may be required to perform additional Work or to modify Work previously performed.

XII. ADDITIONAL RESPONSE ACTIONS

91. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondents to submit a work plan for additional response activities. EPA may also require Respondents to modify any plan, design, or other deliverable required by this Order, including any approved modifications.

92. Not later than thirty (30) days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondents shall submit a work plan for the response activities to EPA for review and approval. Upon approval by EPA, the work plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon approval of the work plan by EPA, Respondents shall implement the work plan according to the standards, specifications, and schedule in the approved work plan. Respondents shall notify EPA of their intent to perform such additional response activities within seven (7) days after receipt of EPA's request for additional response activities.

XIII. ENDANGERMENT AND EMERGENCY RESPONSE

93. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment,

Respondents shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's Remedial Project Manager (RPM) or, if the RPM is unavailable, the RPM's Section Chief. If neither of these persons is available, Respondents shall notify the EPA Emergency Response Section, Region 9. Respondents shall take such action in consultation with EPA's RPM and in accordance with all applicable provisions of this Order, including but not limited to the Health and Safety Plan. In the event that Respondents fail to take appropriate response action as required by this Section, and EPA takes that action instead, Respondents shall reimburse EPA for all costs of the response action not inconsistent with the NCP. Respondents shall pay the response costs in the manner described in Section XXIV of this Order, within thirty (30) days of Respondents' receipt of demand for payment and a reconciled EPA financial cost summary of the costs incurred.

94. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the SEMOU.

XIV. EPA REVIEW OF SUBMISSIONS

95. All deliverables shall be submitted to EPA, LARWQCB, and DTSC concurrently. EPA will, to the extent feasible, incorporate LARWQCB's and DTSC's comments, if any, into EPA's comments on the deliverable. After review of any deliverable, plan, report or other item which is required to be submitted for review and approval pursuant to this Order, EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct Respondents to re-submit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, the

terms "approval by EPA," "EPA approval," or a similar term means the action described in items (a) or (b) of this paragraph.

96. In the event of approval or approval with modifications by EPA, Respondents shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA.

97. Upon receipt of a notice of disapproval or a request for a modification, Respondents shall, within the time specified in the attached SOW or such longer time as specified by EPA in its notice of disapproval or request for modification, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, or approval with modifications, Respondents shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission.

98. If any submission is not approved by EPA, Respondents shall be deemed to be in violation of this Order.

XV. PROGRESS REPORTS

99. In addition to the other deliverables set forth in this Order, Respondents shall provide monthly progress reports to EPA with respect to actions and activities undertaken pursuant to this Order. The progress reports shall be submitted on or before the 10th day of each month following the effective date of this Order. Respondents' obligation to submit progress reports continues until EPA gives Respondents written notice that the Work has been completed. At a minimum these progress reports shall: (1) describe the actions which have been taken to comply with this Order during the prior month; (2) summarize test, sampling, or operating data generated or obtained by Respondents and not previously submitted to EPA; (3) provide any preliminary calculations and supporting data used to evaluate performance; (4) describe all work planned for the next two months with

schedules relating such work to the overall project schedule for RD/RA completion; and (4) describe all problems encountered (including the nature of and duration of any noncompliance) and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XVI. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

100. Respondent shall use the quality assurance, quality control, and chain of custody procedures described in the "EPA NEIC Policies and Procedures Manual," May 1978, revised May 1986, "EPA Guidance for the Data Quality Objectives Process" (EPA QA/G-4), "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," November 1999 (EPA QA/R-5), "Guidance for Quality Assurance Project Plans" February 1998 (EPA QA/G-5), EPA Region 9 "Sampling and Analysis Plan Guidance and Template, Version 2," March 2000 (R9QA/002), and any amendments to these documents, while conducting all sample collection and analysis activities required herein by any plan. To provide quality assurance and maintain quality control, Respondents shall:

1. Use only laboratories which have a documented Quality Assurance Program that complies with EPA guidance document EPA QA/R-5 (EPA Requirements for Quality Assurance Project Plans).

2. Ensure that the laboratory used by the Respondents for analyses performs according to a method or methods deemed satisfactory to EPA, is prepared to submit all protocols to be used for analyses to EPA at least 14 days before beginning analysis (if requested), and maintains protocols according to the record preservation requirements included in Section XXI.

3. Ensure that EPA personnel and EPA's authorized representatives are allowed access to the laboratory and personnel utilized by the Respondents for analyses.

101. Respondents shall notify EPA not less than fourteen (14) days in advance of any sample collection activity. At the request of EPA, Respondents shall allow split or duplicate samples to be taken by EPA or its authorized representatives, of any samples collected by Respondents with regard to the SEMOU or pursuant to the implementation of this Order. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

XVII. COMPLIANCE WITH APPLICABLE LAWS

102. All activities by Respondents pursuant to this Order shall be performed in accordance with the requirements of all Federal and state laws and regulations. EPA has determined that the activities contemplated by this Order are consistent with the National Contingency Plan (NCP).

103. Except as provided in Section 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination at the SEMOU or in very close proximity to the contamination and necessary for implementation of the Work.) Where any portion of the Work requires a Federal or state permit or approval, Respondents shall submit timely applications and take all other actions necessary to obtain and to comply with all such permits or approvals. For treated water which will be put into a public water supply, all legal requirements for drinking water in existence at the time that the water is served will have to be met because EPA considers serving of the water to the public (at the tap) to be off-site.

104. This Order is not, and shall not be construed to be, a permit issued pursuant to any Federal or state statute or regulation.

105. All materials removed from the SEMOU Area shall be disposed of or treated at a facility approved by EPA's RPM and in accordance with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3); with the U.S. EPA Off-Site Rule, 40 C.F.R § 300.440; and with all other applicable Federal, state, and local requirements.

XVIII. EPA PROJECT MANAGER

106. (A) All communications, whether written or oral, from Respondents to EPA shall be directed to EPA's Project Manager. Respondents shall submit to EPA three copies of all documents, including plans, reports, and other correspondence, which are developed pursuant to this Order, and shall send these documents by overnight mail or by certified mail, return receipt requested. Respondents shall also submit one copy of each deliverable to the project managers for DTSC, LARWQCB, and any other State agencies, as specified by the EPA Project Manager. EPA's Project Manager is:

Bella G. Dizon
U.S. Environmental Protection Agency
75 Hawthorne Street (SFD-7-3)
San Francisco, CA 94105
(415) 972-3190 [DIZON.BELLA@EPA.GOV]

Alternate Project Manager is:
Roberto Rodriguez
U.S. Environmental Protection Agency
75 Hawthorne Street (SFD-7-3)
San Francisco, CA 94105
(415) 972-3302 [RODRIGUEZ.ROBERTO@EPA.GOV]

(B) DTSC's project manager is:
Jacalyn Spiszman
California Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630
(714) 484-5460 [JSPISZMA@DTSC.CA.GOV]

(C) LARWQCB's project manager is:
Arthur Heath
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
(213) 576-6725 [AHEATH@RB4SWRCB.CA.GOV]

(D) One or more copies of each deliverable shall also be sent to EPA contractors, as specified by the EPA Project Manager.

107. EPA has the unreviewable right to change its Project Manager. If EPA changes its Project Manager, EPA will inform Respondents in writing of the name, address, and telephone number of the new Project Manager.

108. EPA's Project Manager shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. EPA's Project Manager shall have authority, consistent with the National Contingency Plan, to halt any work required by this Order, and to take any necessary response action.

XIX. ACCESS TO SITE NOT OWNED BY RESPONDENTS

109. To the extent that access to any portion of the SEMOU Area, or any other property, owned or controlled by persons other than Respondents is necessary in order to perform the Work required by this Order, Respondents will obtain, or use their best efforts to obtain, site access agreements from the present owner within 60 days of the effective date of this Order. Such agreements shall provide access for EPA, its contractors and oversight officials, the state and its contractors, and Respondents or Respondents'

authorized representatives and contractors, and such agreements shall specify that Respondents are not EPA's representatives with respect to liability associated with activities at the property. Respondents shall save and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action or other costs incurred by the United States including but not limited to attorneys fees and other expenses of litigation and settlement arising from or on account of acts or omissions of Respondents, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Order, including any claims arising from any designation of Respondents as EPA's authorized representatives under Section 104(e) of CERCLA. Copies of such agreements shall be provided to EPA prior to Respondents' initiation of field activities. Respondents' best efforts shall include the payment of reasonable sums of money in consideration of access. If access agreements are not obtained within the time referenced above, Respondents shall immediately notify EPA of their failure to obtain access. Subject to the United States' non-reviewable discretion, EPA may use its legal authorities to obtain access for the Respondents, may perform those response actions with EPA contractors at the property in question, or may terminate the Order if Respondents cannot obtain access agreements. If EPA performs those tasks or activities with contractors and does not terminate the Order, Respondents shall perform all other activities not requiring access to that property, and shall reimburse EPA, pursuant to Section XXIV of this Order, for all costs incurred in performing such activities. Respondents shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Respondents shall reimburse EPA, pursuant to Section XXIV of this Order, for all response costs (including attorney fees) incurred by the United States to obtain access for Respondents.

XX. SITE ACCESS AND DATA/DOCUMENT AVAILABILITY

110. Respondents shall allow EPA and its authorized representatives and contractors to enter and freely move about all property at the SEMOU Area to which Respondents have access and which is subject to or affected by the work under this Order or where documents required to be prepared or maintained by this Order are located, for the following purposes: inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Work or Respondents and their representatives or contractors pursuant to this Order; reviewing the progress of the Respondents in carrying out the terms of this Order; conducting tests as EPA or its authorized representatives or contractors deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondents. Respondents shall allow EPA and its authorized representatives to enter any property within the SEMOU Area to which Respondents have access, to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to Work undertaken in carrying out this Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under Federal law.

111. Respondents may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7) or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondents at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the state without

further notice to the Respondents. Respondents shall not assert confidentiality claims with respect to any data related to conditions, sampling, or monitoring within the SEMOU Area.

112. Respondents shall maintain for the period during which this Order is in effect, an index of documents that Respondents claim contain confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon written request from EPA, Respondents shall submit a copy of the index to EPA.

XXI. RECORD PRESERVATION

113. Respondents shall provide to EPA upon request, copies of all documents and information within their possession and/or control or that of their contractors or agents relating to activities at or near the SEMOU Area or to the implementation of this Order, including but not limited to sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

114. Until six (6) years after EPA provides notice that all Work required under this Order has been completed, Respondents shall preserve and retain all records and documents in their possession or control, and shall instruct their contractors and agents to preserve and retain all records and documents in their possession or control, that relate in any manner to the SEMOU Area or the Work. At the conclusion of this document retention period, Respondents shall notify the United States at least ninety (90) calendar days prior to the destruction of any such records or

documents, and upon request by the United States, Respondents shall deliver any such records or documents to EPA.

115. Within forty-five (45) after the effective date of this Order, Respondents shall submit a written certification to EPA's RPM that they have not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to their potential liability with regard to the SEMOU Area since notification of potential liability by the United States or the State or the filing of suit against them regarding the SEMOU Area. Respondents shall not dispose of any such documents without prior approval by EPA. Respondents shall, upon EPA's request and at no cost to EPA, deliver the documents or copies of the documents to EPA.

XXII. DELAY IN PERFORMANCE

116. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondents under the terms of this Section shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondents' obligations to fully perform all obligations under the terms and conditions of this Order.

117. Respondents shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone to EPA's Project Manager within forty eight (48) hours after Respondents first knew or should have known that a delay might occur. Respondents shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying EPA by telephone, Respondents shall provide written notification fully describing the nature of the delay, any justification for delay, any reason why Respondents should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the

delay, and a schedule for implementing the measures that will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

XXIII. ASSURANCE OF ABILITY TO COMPLETE WORK

118. Respondents shall demonstrate the ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA within 60 days after the effective date of the Order, one of the following: (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that one or more of the Respondents have sufficient assets available to perform the Work. Respondents shall demonstrate financial assurance in an amount to be determined by EPA. If Respondents seek to demonstrate ability to complete the remedial action by means of internal financial information, or by guarantee of a third party, Respondents shall re-submit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondents shall, within thirty (30) days after receipt of EPA's notice of determination, obtain and present to EPA for approval one of the other three forms of financial assurance listed above.

119. At least seven (7) days prior to commencing any work at the SEMOU Area pursuant to this Order, Respondents shall submit to EPA a certification that Respondents or their contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondents pursuant to this Order. Respondents shall ensure that such insurance or indemnification

is maintained for the duration of the Work required by this Order.

XXIV. REIMBURSEMENT OF RESPONSE COSTS

120. Respondents shall reimburse EPA, upon written demand, for all response costs incurred by the United States in overseeing Respondents' implementation of the requirements of this Order or in performing any response action which Respondents fail to perform in compliance with this Order. EPA may submit to Respondents on a periodic basis an accounting of all response costs incurred by the United States with respect to this Order. EPA's certified Agency Financial Management System summary data (SPUR Reports), or such other summary as certified by EPA, shall serve as basis for payment demands.

121. Respondents shall, within thirty (30) days of receipt of each EPA accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the later of the date that payment of a specified amount is demanded in writing or the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13.

122. Checks shall be made payable to the Hazardous Substances Superfund and shall include a reference to the South El Monte Operable Unit of the San Gabriel Valley Superfund Site Area 1, the site identification number (09KR) and Docket No. 2003-17. Checks shall be forwarded to:

U.S. Environmental Protection Agency - Region 9
ATTENTION: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251

123. Respondents shall send copies of each transmittal letter and check to the EPA Project Manager.

XXV. UNITED STATES NOT LIABLE

124. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondents, or their directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXVI. ENFORCEMENT AND RESERVATIONS

125. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to this Order and not reimbursed by Respondents. This reservation shall include but not be limited to past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support oversight cost demand, as well as accrued interest as provided in Section 107(a) of CERCLA.

126. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action (or any portion of the response action) as provided in CERCLA and the NCP, and seek reimbursement from Respondents for its costs, or seek any other appropriate relief.

127. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional remedial or removal actions as EPA may deem necessary, or from

requiring Respondents in the future to perform additional activities pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), Section 7003 of RCRA, 42 U.S.C. § 6973, or any other applicable law. Respondents shall be liable under CERCLA Section 107(a), 42 U.S.C. § 9607(a), for the costs of any such additional actions under CERCLA.

128. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

129. Respondents shall be subject to civil penalties under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than $27,500 for each day in which Respondents willfully violate, or fail or refuse to comply with this Order without sufficient cause. In addition, failure to properly provide response action under this Order, or any portion hereof, without sufficient cause, may result in liability under Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times the amount of any costs incurred by the Fund as a result of such failure to take proper action.

130. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the SEMOU Area.

131. If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XXVII. ADMINISTRATIVE RECORD

132. Upon request by EPA, Respondents must submit to EPA all documents related to the selection of the response action for possible inclusion in the administrative record file.

XXVIII. EFFECTIVE DATE AND COMPUTATION OF TIME

133. This Order shall be effective ten (10) days after the Order is signed by the Director of the Superfund Division, U.S. EPA Region 9. All times for performance of ordered activities shall be calculated from this effective date.

XXIX. OPPORTUNITY TO CONFER

134. EPA will hold a conference on September 15, 2003, at 1:00 P.M. in the South El Monte Senior Center at 1556 Central Avenue, South El Monte, California, to discuss this Order.

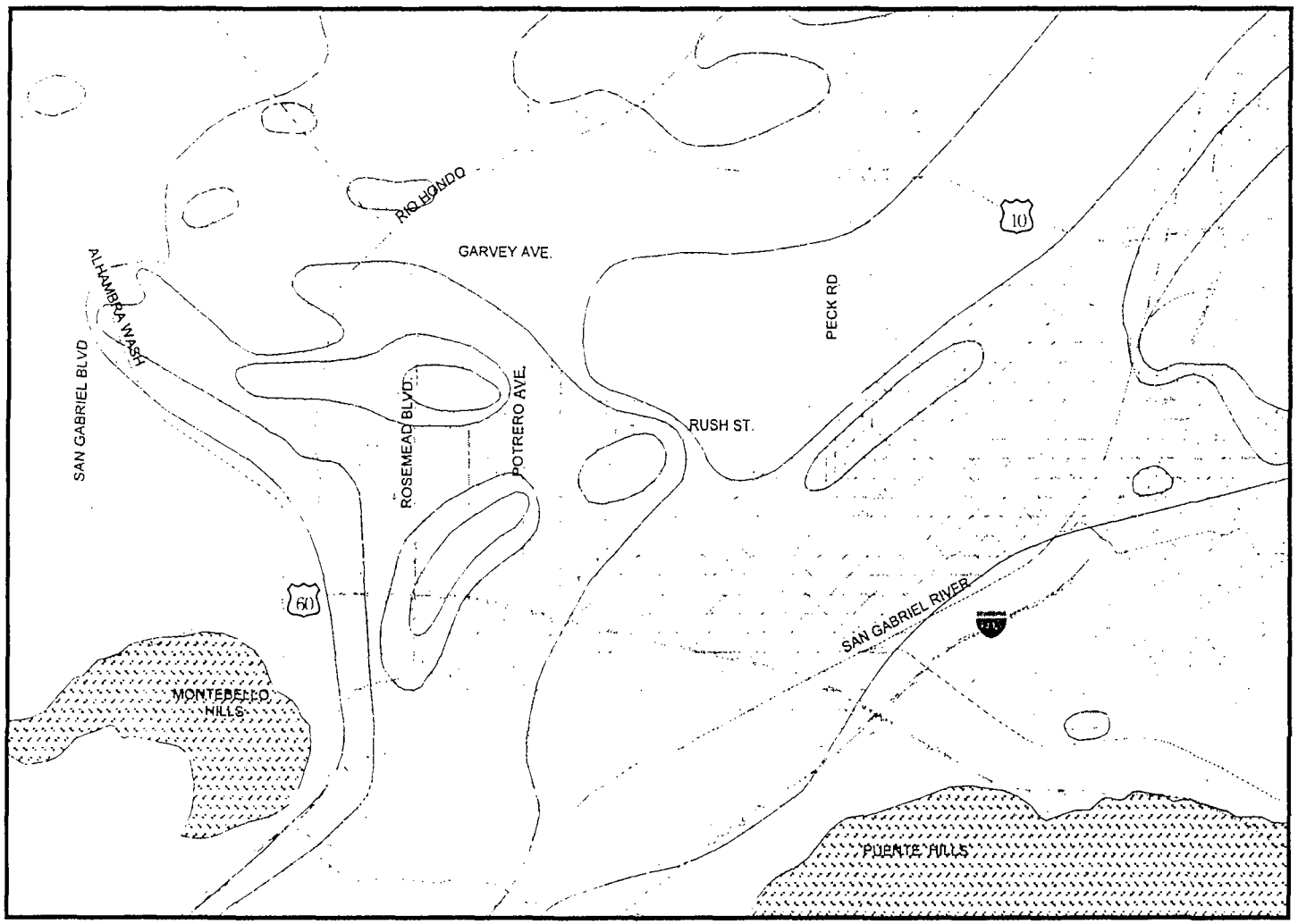
135. The purpose and scope of the conference shall be limited to issues involving the implementation of the response actions required by this Order and the extent to which Respondents intend to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondents a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made.

So Ordered, this 28 day of August, 2003.

BY: Keith Takata

Keith Takata
Director, Superfund Division
U.S. Environmental Protection Agency, Region 9

Attachment 1 to Administrative Order 2003-17



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LEGEND
2001 VOC CONTAMINATION

- VOC CONTAMINATION POTENTIALLY RANGING FROM LABORATORY DETECTION LIMITS TO < MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM MCLS TO < 10 X MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM 10 X TO < 20 X MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM 20 X TO < 100 X MCLS
- MAJOR TRANSPORTATION
- STREAMS

Figure 1
2001 Intermediate VOC Contamination

South El Monte OU RD/RA SOW

Attachment 2 to Administrative Order 2003-17

INTERIM RECORD OF DECISION

SAN GABRIEL VALLEY SUPERFUND SITE

SOUTH EL MONTE OPERABLE UNIT

LOS ANGELES COUNTY, CALIFORNIA

September 2000

United States Environmental Protection Agency

Region IX - San Francisco, California

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Part I - Declaration

1.1 Site Name and Location

This Interim Record of Decision (ROD) addresses groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California. The San Gabriel Valley Superfund Site Area 1 has a CERCLIS ID CAD980677355.

1.2 Statement of Basis and Purpose

This ROD presents the selected interim remedial action for the South El Monte OU of the San Gabriel Valley Superfund Site in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601 et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (collectively referred to herein as CERCLA) and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision is based on the Administrative Record for this site.

The State of California, acting through the California Department of Toxic Substances Control (DTSC) and the Los Angeles Regional Water Quality Control Board (LARWQCB), concur with the selected remedy.

1.3 Assessment of the Site

The U.S. Environmental Protection Agency (EPA) has determined that volatile organic compounds (VOCs) have been released into groundwater within the South El Monte OU, and that a substantial threat of release to groundwater still exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Selected Remedy

This interim action ROD addresses groundwater contaminated with VOCs. EPA's objective is to protect human health and the environment. The selected remedy is containment of groundwater contaminated with VOCs in the intermediate zone in the western portion of the South El Monte OU. This remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations along the downgradient edge of the contamination, and other locations, as necessary, and will require continued monitoring and evaluation at other locations. The treated groundwater is expected to be delivered to local water purveyors, although other discharge options may be evaluated. In addition, this remedy includes monitoring in the shallow and intermediate groundwater zones in the South El Monte OU. Although it is not a component of the South El Monte OU interim remedy, EPA's planned remedy in the adjacent downgradient Whittier Narrows OU will play an important role in containing South El Monte OU contamination and meeting EPA's South El Monte OU remedial action objectives. The South El Monte OU interim remedy is the seventh interim remedial action that EPA selected to contain contaminated groundwater within the San Gabriel Valley Superfund Sites.

1.5 Statutory Determinations

The selected interim action remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the interim remedial action, is cost effective, and utilizes permanent solutions to the maximum extent practicable. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of materials through treatment).

Because this interim remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use or unrestricted exposure, a statutory review will be conducted within five years after initiation of the interim remedial action to ensure that the remedy is, or will be protective of human health and the environment.

1.6 ROD Data Certification Checklist

The following information is presented in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern (COCs) and their respective concentrations
- Baseline risk represented by the COCs
- Current and future groundwater use assumptions used in the baseline risk assessment and ROD
- Groundwater use that will be available at the site as a result of the selected remedy
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected
- Decisive factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria)

Cleanup levels in the aquifer are not included in this interim action ROD because this is an interim action remedy focused on groundwater containment.

Keith A. Takata — 9-29-00

Keith A. Takata
Director of Superfund Division
U.S. Environmental Protection Agency, Region IX

Date

Part II
Decision Summary

Part II - Decision Summary

This Decision Summary portion of the interim Record of Decision (ROD) summarizes the information and approaches that the U.S. Environmental Protection Agency (EPA) used to reach a decision on this remedy. It also establishes the remedy that EPA has selected.

1 Site Name, Location and Description

This ROD presents the selected remedial action to address groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California.

1.1 Site Description

The South El Monte OU is part of the San Gabriel Valley Superfund Site Area 1 (CAD980677355), located in eastern Los Angeles County, California (Figure 1). The term "Operable Unit" (OU) is used to define a discrete action that is an incremental step toward a comprehensive site remedy. Operable units may address certain geographic areas, specific site problems, initial phases of a remedy, or a set of actions over time. In addition to the South El Monte OU, EPA has identified seven other OUs at the San Gabriel Valley Superfund Site. These are the Alhambra OU, Baldwin Park OU, El Monte OU, Puente Valley OU, Richwood OU, Suburban OU, and Whittier Narrows OU. EPA is the lead regulatory agency overseeing the cleanup at the San Gabriel Valley Superfund Site.

The San Gabriel Valley encompasses a basin that is approximately 170 square miles. Groundwater in the San Gabriel Basin is the primary drinking water source for more than one million people. Regional groundwater contamination by volatile organic compounds (VOCs) prompted EPA to place the San Gabriel Valley on the National Priorities List (NPL) in 1984. This list identifies the highest priority hazardous waste sites in the United States for investigation and cleanup.

The South El Monte OU covers approximately eight square miles in the south central portion of the San Gabriel Basin. The South El Monte OU is generally bounded by the San Bernardino Freeway (I-10) on the north, the Pomona Freeway (Highway 60) on the south, the San Gabriel River Freeway (I-605) on the east, and San Gabriel Boulevard on the west. The western boundary of the OU has moved from Walnut Grove Avenue, as described in the Feasibily Study and Proposed Plan, to San Gabriel Boulevard because EPA was made aware that groundwater contamination had migrated further west in the vicinity of San Gabriel Boulevard. Most of the South El Monte OU has been developed, except the large area of land within the Whittier Narrows flood control basin. The South El Monte OU encompasses the entire city of South El Monte and parts of the cities of El Monte and Rosemead. Most of the OU area is zoned for residential use, particularly the eastern and western portions, and is likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across the central portion of the South El Monte OU.

An underground feature in the South El Monte OU called a groundwater flow divide controls the direction that groundwater and contaminants in groundwater can move and also affects the development and evaluation of cleanup alternatives for the OU. The flow divide generally occurs near Rush Street in the central portion of the OU (see Figures 2 and 3). Groundwater flow in the shallow zone (generally less than 100 feet below ground surface (bgs) is principally to the south and southwest towards Whittier

Narrows. Groundwater flow in the intermediate zone (generally between 100 and 400 feet bgs) in the vicinity north of Rush Street is towards the west. South of Rush Street intermediate zone flow is generally south/southwest towards Whittier Narrows.

VOCs are the primary organic contaminants found above state and federal drinking water standards (maximum contaminant levels or MCLs) in South El Monte OU groundwater. The VOCs tetrachloroethene (PCE) and trichloroethene (TCE) are the primary contaminants of concern (COCs). PCE and TCE are the VOCs that are detected most often and at the highest concentrations in groundwater, although other VOCs, including, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1-dichloroethene (1,1-DCE) have also been detected above drinking water standards in the South El Monte OU.

In general, VOC concentrations are highest in the shallow groundwater near industrial facility source areas where releases have occurred. EPA has not yet identified any specific "principal threat wastes," such as non-aqueous phase liquids (NAPLs) in the industrial source areas within the South El Monte OU. VOCs have also spread downward into the intermediate zone beneath the shallow zone, then migrated towards drinking water production wells located to the west and to the south in Whittier Narrows. Both of the impacted aquifer zones in the South El Monte OU (shallow and intermediate) are considered to be drinking water sources by the State of California and the intermediate zone is currently being used to supply drinking water. Several drinking water wells in the South El Monte OU have already been impacted by VOC contamination. These wells had to be shut down or equipped with wellhead treatment to reduce contaminant levels to drinking water standards.

In addition to the drinking water well impacts, contamination from the South El Monte OU has migrated to the south into the Whittier Narrows OU, threatening drinking water sources in the Central Basin south of the San Gabriel Basin. The downgradient groundwater impacts have resulted in EPA taking action to control contaminant migration in the Whittier Narrows OU. EPA's actions in Whittier Narrows will limit any further migration of contaminated groundwater into the Central Basin. Because EPA has already selected a remedial action for the downgradient Whittier Narrows OU, the selected interim remedial action for the South El Monte OU does not address the southerly migration of contamination in the shallow and intermediate zones. Figures 2 and 3 show VOC concentrations in shallow and intermediate groundwater zones as of 1999. The LARWQCB, working under a Cooperative Agreement with EPA, oversees site-specific investigations at individual industrial facilities where releases have occurred. The LARWQCB has directed individual facilities in the South El Monte OU to cleanup soil and shallow groundwater where elevated concentrations of contaminants were identified beneath the facility. These focused actions are intended to address the more highly-contaminated source areas, while EPA's actions address the widespread regional groundwater contamination.

2 Site History and Enforcement Activities

2.1 Site History

The San Gabriel Valley has been the subject of environmental investigation since 1979 when groundwater contaminated with VOCs was first identified. In May 1984, four broad areas of contamination within the basin were listed as San Gabriel Areas 1 through 4 on EPA's NPL. EPA subsequently divided the basin into eight operable units (OUs) to provide a means of describing hydrogeology and contaminant distribution, and planning remedial activities in the basin. The source of groundwater contamination in the basin is from industrial facilities.

In 1986, data were compiled and reviewed to develop a preliminary conceptual hydrogeologic model of the San Gabriel Valley, as described in the Supplemental Sampling Program (SSP) Report (EPA, 1986). The results of the SSP investigations provided much of the basis for planning the remedial investigations that have been performed in the San Gabriel Valley since 1986. The Interim San Gabriel Basin Remedial Investigation Report (EPA, 1992a) describes these investigations and incorporates their results into an integrated discussion of EPA's understanding of hydrogeologic conditions in the basin.

EPA issued a draft Statement of Work (SOW) for a remedial investigation and feasibility study (RI/FS) to address groundwater contamination in the South El Monte OU. On July 25, 1995, EPA entered into an Administrative Consent Order for the South El Monte OU RI/FS. The group of PRPs that implemented the South El Monte OU RI/FS was known as the South El Monte OU Participants.

Sources of VOC contamination in the South El Monte OU include industrial facilities engaged in the manufacture of aerospace precision machines, aircraft fittings, pharmaceutical products and injectable drugs, chemicals, furniture, salsa, paint, jewelry, machine parts, cosmetic and dental composites, bathroom hardware, aluminum containers, precision sheet metals, electrical connectors, hand tools, and compressors; hazardous waste liquid storage and handling; drum reconditioning and recycling; petroleum storage and distribution; plastic molding; and battery recycling.

2.2 Remedial Investigation Activities

EPA developed the RI/FS process for conducting environmental investigations under Superfund. The RI/FS approach is the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites to evaluate potential remedial options. The RI serves as a mechanism to collect data for site characterization. The FS serves as the mechanism for development, screening, and evaluation of potential remedial alternatives. As stated in the Statement of Work, the RI/FS was designed to meet the following goals:

- Assess aquifer characteristics and characterize the vertical and lateral distribution of concentrations of VOCs in groundwater in the South El Monte OU area to support a focused FS and the selection of one or more interim actions for the South El Monte OU area.
- Develop and analyze alternatives for appropriate interim remedial actions to control the vertical and horizontal migration of groundwater with relatively higher concentrations of VOCs to areas in the South El Monte OU with relatively lower concentrations of VOCs.

An RI program was conducted for the South El Monte OU during 1996 and 1997. The RI field program consisted of evaluation of inactive production wells, installation of multi-port monitoring wells completed

in the shallow and intermediate zones, groundwater quality and level monitoring. The final RI Report was submitted to EPA in August 1998.

An FS was performed for the South El Monte OU in 1998 and 1999. The FS identified remedial action objectives, assembled remedial action alternatives, and provided an evaluation of the remedial action alternatives using the nine Superfund evaluation criteria established by EPA. The final FS Report was submitted to EPA in April 1999.

2.3 Enforcement Activities

EPA began its enforcement efforts in the South El Monte OU in 1985 by searching historical federal, state, and local records for evidence of chemical usage, handling, and disposal in the South El Monte OU area. At approximately the same time, the RWQCB initiated its Well Investigation Program (WIP) to identify sources of groundwater contamination. In 1989, EPA entered into a cooperative agreement with the RWQCB to expand the WIP program, to assist EPA in determining the nature and extent of the sources of groundwater contamination in the San Gabriel Valley, and to identify responsible parties. The RWQCB directly oversees facility-specific investigations in the South El Monte OU area; EPA helps fund these activities and, when necessary, uses its enforcement authority to obtain information and ensure that facility investigations are promptly completed.

As of December 1999, the RWQCB has sent chemical use questionnaires to approximately 1,300 facilities in the South El Monte OU area; inspected approximately 1,000 of these facilities; and directed approximately 286 facilities to perform soil, soil gas, and/or groundwater investigations. EPA has concurrently used its authority under Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to request information from more than 100 current and former owners and operators in the South El Monte OU. From these investigations, EPA has, to date, identified 43 facilities as sources of groundwater contamination in the South El Monte OU. EPA is continuing to gather data on facilities in the South El Monte OU and may identify additional facilities as sources of groundwater contamination after issuance of this ROD. The RWQCB has issued approximately 15 enforcement orders (Corrective Action Order [CAO], Administrative Civil Liability [ACL], etc.) to facilities that failed to timely comply with facility-specific investigation and/or cleanup activities required by the RWQCB.

In 1990 and 1991, EPA sent General Notice of Liability letters to representatives of 93 facilities in the South El Monte OU. In February 1994, EPA issued an Unilateral Administrative Order requiring one PRP to conduct a remedial investigation at its facility. On August 15, 1995, EPA sent Notification Letters to 49 potentially responsible parties (PRPs), representing 42 facilities, requesting that these parties participate in the South El Monte OU Interim RI/FS. Subsequently, EPA sent Notification Letters to two additional PRPs. Thirty of these notified PRPs, and three others that did not receive the notices, formed the South El Monte Participants that conducted the Interim RI/FS. The South El Monte OU Participants completed the RI/FS in April 1999.

Since 1995, EPA and the RWQCB have continued to investigate potential sources of contamination and expect to notify additional entities that they have been identified as PRPs. EPA is now in the process of identifying a final group of PRPs for the South El Monte OU. EPA anticipates issuing Special Notice letters to the South El Monte OU PRPs after the ROD is issued.

EPA and the RWQCB have undertaken enforcement activities elsewhere in the San Gabriel Valley, including facility investigations, issuance of CERCLA section 104(e) requests for information, issuance of General and Special Notice letters, and filing of cost recovery litigation. PRPs in the Puente Valley

and El Monte OUs previously entered into Administrative Consent Orders to perform the RI/FS activities for their respective OUs. EPA also issued a Unilateral Administrative Order to two parties in the Puente Valley OU and one party in the El Monte OU. In the Baldwin Park OU, EPA issued a ROD in March 1993, and in May 1997 sent Special Notice letters to 19 PRPs seeking performance of the remedial design and remedial action (RD/RA). Following the discovery of perchlorate contamination and lengthy negotiations, in July 2000, EPA issued Unilateral Administrative Orders to the 19 PRPs requiring implementation of the RD/RA.

3 Community Participation

The Proposed Plan for this remedy, in the form of a fact sheet, was distributed to the parties on EPA's mailing list for the South El Monte OU in September 1999. The Proposed Plan, together with the Final South El Monte OU RI (Geosystems Consultants, Inc., 1998) and FS (Geosystems Consultants, Inc., 1999) reports and other pertinent documents, were also included in the Administrative Record file available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library. The Administrative Record for the South El Monte OU was placed in CD-ROM format in each repository

In addition, EPA held a public meeting to present the Proposed Plan and EPA's preferred alternative on October 27, 1999, at the South El Monte High School in South El Monte, California. At this meeting, EPA answered questions and accepted oral comments pertaining to the South El Monte OU and the preferred alternative. A transcript of this meeting is available at the EPA's Superfund Records Center and at the two information repositories.

Notice of EPA's public meeting, availability of the Proposed Plan, and the announcement of a 60-day public comment period was published in the San Gabriel Valley Daily Tribune on September 30, 1999.

The public comment period ran from September 30 to November 29, 1999. EPA received numerous sets of written comments during the public comment period. These comments and the substantive oral comments are addressed in the Responsiveness Summary, included as Part III of this ROD.

4 Scope and Role of Operable Unit

There are four areas of groundwater contamination in the San Gabriel Basin aquifer listed on the NPL as San Gabriel Valley Areas 1 through 4. Groundwater contamination in the San Gabriel Valley extends over very large areas (approximately 30 square miles). In the valley, there are a number of different areas of contamination with distinct conditions and contaminant sources. To facilitate implementation of remedial actions, EPA has divided the site into eight different OUs (Figure 1):

- Alhambra OU – RI/FS underway
- Baldwin Park OU – Interim ROD signed, EPA has ordered the PRPs to implement remedy
- El Monte OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy
- **South El Monte OU – Subject of this Interim ROD**
- Whittier Narrows OU – Interim ROD Amendment signed, EPA is currently conducting the Remedial Design
- Suburban OU – No action remedy selected in ROD.
- Richwood OU – The remedial action for this water supply remedy has been completed by the state.
- Puente Valley OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy

The South El Monte OU remedial action selected in this ROD is an interim action because it is limited to controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions and the nature of the final remedy. Future remedial actions may include additional actions at or in the vicinity of industrial facilities identified as groundwater contamination sources in the South El Monte OU. This interim action will neither be inconsistent with, nor preclude, implementation of a final remedy. The OU-specific actions currently being undertaken in the San Gabriel Valley are primarily interim actions. It is anticipated that a final ROD will be issued for the entire San Gabriel Valley Superfund sites once interim remedial actions have been selected for the individual OUs.

5 Site Characteristics

5.1 Location and Topography

The South El Monte OU lies in the south-central portion of the San Gabriel Valley (Figure 1), approximately 25 miles from the Pacific Ocean, in eastern Los Angeles County. The San Gabriel Valley is a broad piedmont plain that slopes gradually to the southwest at a gradient of approximately 65 feet per mile (California Department of Water Resources {CDWR}, 1966). The San Gabriel Valley contains the subsurface San Gabriel Basin. This structural basin is a natural groundwater reservoir that collects rainfall on the valley floor and run-off from the surrounding highlands, recharging the groundwater aquifer.

The San Gabriel Basin is bounded to the north by the San Gabriel Mountains and to the southwest, south, and southeast by a crescent-shaped system of low hills. The hills making up the system, from west to east, are the Repetto, Merced, Puente, and San Jose Hills. The only significant break along this boundary falls between the Merced and Puente Hills at Whittier Narrows. Whittier Narrows is the lowest point in the San Gabriel Valley and is the exit for the San Gabriel and Rio Hondo Rivers and their tributaries, which serve as the drainage system for the valley.

The South El Monte OU covers a surface area of approximately eight square miles. The OU is not defined by any significant physiographic features. The South El Monte OU varies from approximately 312 feet mean above sea level (MSL) in the northeast to 200 feet above MSL in the southwest.

San Gabriel Boulevard defines the western boundary of the South El Monte OU, as described in Section 1.1. The northern, eastern and southern boundaries coincide with the San Bernardino Freeway (I-10), the San Gabriel River Freeway (I-605) and the Pomona Freeway (Highway 60), respectively.

Most of the annual precipitation in the South El Monte OU occurs intermittently during the winter months of December through March. The long-term average precipitation for the San Gabriel Basin is about 18 inches per year. Temperatures are usually moderate; the average annual temperature in the San Gabriel Valley is about 62 degrees Fahrenheit (°F). January and July are the coldest and warmest months of the year, respectively.

5.2 Surface Water

Two major stream systems carry surface flow from the San Gabriel Valley: the San Gabriel River and the Rio Hondo and their tributaries. The headwaters for these two systems are in the San Gabriel Mountains. The systems transverse the San Gabriel Valley in a southwesterly direction and exit the valley at Whittier Narrows. Except in the case of significant storms, these channels do not carry much natural run-off. There is considerable non-natural flow from industrial and wastewater plant discharge and imported surface water intended for groundwater recharge.

Nearly all of the stream channels comprising the surface water drainage of the San Gabriel Valley have been modified and concrete-lined (including a portion of the Rio Hondo and its tributaries in the South El Monte OU vicinity). This lining minimizes recharge of the aquifer by surface water flow.

The San Gabriel River is located near and parallel to the eastern boundary of the South El Monte OU and is unlined. The Rio Hondo is concrete-lined in the northwestern portion of the South El Monte OU, but unlined in the southwestern portion. The Rio Hondo drains the northwest portion of the San Gabriel Valley. The Rio Hondo traverses the South El Monte OU from the northwest to the southwest and exits near the southwest corner of the OU. Most of the flow in the Rio Hondo is diverted into the Peck Road

Spreading Grounds north of the South El Monte OU, so significant flow in the Rio Hondo through the South El Monte OU is limited to substantial storm events.

Where the river channels are unlined, surface water recharges the underlying aquifers. Recharge from the San Gabriel River occurs year round because of the continuous flow created by discharges of treated waste water. Recharge form the Rio Hondo is seasonal but may be significant, particularly downstream of the South El Monte OU in Whittier Narrows. .

5.3 Geology

5.3.1 San Gabriel Basin

The San Gabriel Basin is filled with alluvial deposits, primarily of Quaternary age, which overlie relatively impermeable rock. These deposits are 2,000 to 4,000 feet thick over the center of the basin and range between approximately 250 to 800 feet thick at the basin outlet in Whittier Narrows. The deepest portion of the San Gabriel Basin, reportedly in excess of 4,000 feet deep, is located in the northwest portion of the South El Monte OU.

There are two distinct sources of sediment in the basin: the coarse-grained crystalline rocks of the San Gabriel Mountains and the finer-grained sedimentary rocks of the hills to the southeast and southwest. Sediment derived from the San Gabriel Mountains to the north is generally coarser-grained than that from the hills to the south. Consequently, hydraulic conductivity of the alluvium generally increases with proximity to the San Gabriel Mountains. The distribution of the sediments deposited in the basin is also controlled by the position relative to river and tributary courses. In particular, coarse-grained sediments are prevalent in the San Gabriel River proximity. Most of the San Gabriel Basin is characterized by interfingering lenses of alluvial deposits (e.g., cobbles, gravel, silt, and clay) and the alluvial deposits show a high degree of variability in sediment type, both vertically and laterally.

Major structural features controlling regional ground-water flow in the San Gabriel Basin include the topographic highs (i.e., San Gabriel Mountains and southern hills) and topographic lows (i.e., Whittier Narrows). Four major faults in the San Gabriel Basin potentially impact ground-water flow: the Sierra Madre Fault System, the Raymond Fault, the Lone Hill-Way Hill Fault, and the Workman Hill Fault.

5.3.2 South El Monte OU

The sediments encountered during the South El Monte OU RI were unconsolidated alluvial deposits. Based on regional studies (CDWR, 1966), the surface sediments are primarily Recent alluvial deposits that are underlain by Pleistocene-age older alluvium. The Recent alluvial deposits are not readily discernible from the older alluvium. In general, the lithology in the eastern half of the South El Monte OU is coarser than the western half because of the influence of the San Gabriel River. In the western portion of the OU, particularly west of the Rio Hondo, the aquifer contains more extensive finer-grained deposits.

In significant portions of the South El Monte OU, there is a shallow water-bearing zone that is separated, to varying degrees, from a deeper intermediate water-bearing zone by a sequence of finer-grained, low permeability soils. The separation between the shallow and intermediate zones is corroborated by differences in water chemistry and groundwater levels.

In the western half of the South El Monte OU, the shallow zone extends from the water table to the top of the separating sequence, which was generally encountered between 60 and 130 feet bgs. The average

depth to the bottom of the shallow zone is approximately 100 feet bgs. The shallow zone consists of sand and gravel layers interbedded with finer-grained soils.

Throughout most of the western part of the South El Monte OU, the shallow and intermediate zones are separated by a sequence of finer-grained soils rather than a single, homogenous fine-grained stratum. The separating sequence of finer-grained soils varies in thickness from about 45 to 165 feet. The composition of the separating sequence is variable. In the far northwest portion of the OU, it is primarily silts and clays. Towards the southern edge of the South El Monte OU, the separating sequence contains increasing percentages of sand and gravel and in some locations the separating sequence is poorly defined or absent.

The intermediate zone is the water-bearing zone present from the base of the separating sequence to a depth of approximately 400 feet bgs. The 400 foot depth was selected based on water quality data indicating that this is approximately the maximum depth of VOC exceedances of drinking water standards in the area. The intermediate zone consists of a series of coarse-grained sediments (sands and gravels) interspersed with periodic thin lenses of finer-grained strata.

5.4 Hydrogeology

5.4.1 San Gabriel Basin

The San Gabriel Groundwater Basin comprises approximately 167 square miles of water-bearing valley land (CDWR, 1966). The maximum depth of alluvial fill within the main basin is unknown, though CDWR (1966) shows an alluvial depth of more than 4,000 feet at a location in the northwest portion of the South El Monte OU (CDWR, 1966).

Natural features that control the regional pattern of groundwater movement in the San Gabriel Basin include topographic highs (San Gabriel Mountains and southern hills) and lows (the valley floor, especially Whittier Narrows), and to some extent faults. Generally, groundwater in the basin flows from topographically high to low areas in the absence of groundwater pumping. In addition, groundwater flow is also controlled by the locations of significant recharge, such as undeveloped alluvial fans, riverbeds and spreading basins. Recharged groundwater moves away from these areas, generally towards topographically lower areas. Under natural groundwater flow conditions, such as those encountered in the first half of this century, groundwater generally flowed away from the margins of the basin towards the center of the alluvial valley, and then towards Whittier Narrows (EPA, 1992a).

In parts of the basin, including the western portion of the South El Monte OU, concentrated groundwater withdrawal by pumping significantly affects the direction and rate of groundwater flow. With the increased use of wells to extract groundwater from the basin, the pattern of groundwater flow in the basin has changed over time (EPA, 1992a). About 80 percent of the groundwater discharge from the San Gabriel Basin is now to production wells (EPA, 1992a). The remaining groundwater discharge consists of subsurface outflow through Whittier Narrows and minimal discharge to surface water in Whittier Narrows and Puente Valley.

5.4.2 South El Monte OU

As described above, based on the lithologic, water-level, and contamination data generated during the RI, the aquifer in much of the South El Monte OU has been divided into: a shallow zone (representing approximately the upper 50 to 100 feet of the aquifer); a finer-grained separating sequence of varying thickness present beneath the shallow zone; and an intermediate zone that is found beneath the separating sequence and extends to a depth of approximately 400 feet. The aquifer in the South El Monte OU extends much deeper than 400 feet (perhaps to as deep as 4,000 feet), however significant contamination

is not expected at depths of greater than 400 feet. The unconsolidated deposits in the South El Monte OU are of fluvial origin and consist of interbedded sediments comprised of gravel, sand, silt, and clay and mixtures of these materials.

Depth-to-water in the western half of the South El Monte OU (where the RI activities were focused) ranges from approximately 40 feet bgs in the northern portion of the OU to less than 25 feet bgs along the southern boundary of the OU.

Hydraulic conductivity is a measure of how easily fluids can flow through porous media. The geologic materials in the South El Monte OU vary from clay to gravel over short distances, thus estimates of hydraulic conductivity in the area can very considerably. On average, the hydraulic conductivity of the shallow zone is expected to be in the 200 to 300 feet/day range and the intermediate zone in the 50 to 100 feet/day range. Specific testing of two shallow extraction wells installed in the south-central portion of the OU during the RI/FS yielded hydraulic conductivity estimates in the 150 to 400 feet/day range.

Groundwater Flow

Groundwater flow is described below in terms of flow direction and gradient, both in the horizontal and vertical dimensions. Horizontal flow is discussed for the shallow zone, where higher levels of VOC contamination occur, and the intermediate zone where lower levels of VOC contamination occur.

Shallow groundwater contours prepared during the RI/FS indicate relatively uniform flow to the southwest throughout most of the South El Monte OU at hydraulic gradients averaging about 0.002 (Geosystems Consultants, Inc., 1998). The shallow zone flow direction is less clear in the northwest corner of the OU. There is the potential that active production wells located to the west are impacting shallow zone water levels and flow direction in the northwest corner of the OU.

Intermediate zone piezometric surface contours prepared during the RI/FS indicate relatively uniform flow to the southwest, into Whittier Narrows, with a hydraulic gradient of about 0.002 (Geosystems, Consultants, Inc. 1998). In the northwest corner of the OU, however, flow is towards the west and northwest with a gradient of about 0.003. Flow to the northwest in this area is consistent with extraction from production wells to the west and northwest. The location of the groundwater flow divide that separates flow towards the south from flow towards the west likely varies seasonally and with changes in the western pumping.

The shallow and intermediate zone groundwater elevation data recorded during the RI/FS were used to estimate vertical hydraulic gradients between adjacent screen intervals in the multi-port monitoring wells. In nearly all cases, vertical gradients are downward, ranging in magnitude from 0.001 to as much as 0.238 between the shallow and intermediate zones in the well located in the northwest corner of the OU (Geosystems Consultants, Inc., 1998) The large vertical gradients in the northwest corner of the OU indicate the high degree of separation between the shallow and intermediate zones in this area.

The downward vertical gradients are the result of pumping in the intermediate aquifer and resistance to vertical flow caused by the finer-grained separating sequence.

5.5 Groundwater Management

The South El Monte OU is located in the Main San Gabriel Basin. The rights to pump groundwater from the San Gabriel Basin are adjudicated (i.e., assigned to specified users in accordance with a court judgment). There are two judgments that govern groundwater management in the South El Monte OU vicinity.

5.5.1 San Gabriel Basin Judgment

Water rights in the Main San Gabriel Basin were adjudicated in a stipulated judgment by the Superior Court of Los Angeles County in 1973. This adjudication resulted in assigning water rights to approximately 50 parties that each hold rights to greater than one percent of the natural safe yield of the basin (152,700 acre-feet per year, established in the judgment), and approximately 100 parties that each hold rights to less than 1 percent of the natural safe yield. Also, according to the judgment, only selected parties have the right to export groundwater out of the Main San Gabriel Basin.

As amended in 1992, the judgment also establishes the duties of a Watermaster, which include annually determining an operating safe yield for the basin, monitoring pumpers' compliance with the judgment, issuing permits for all new and increased pumping in the basin, and preparing an annual report that includes details of pumping activities in the basin. The amount of groundwater that each water rights holder can pump in any year is adjusted by prorating the pumper's prescriptive rights (percentage of natural safe yield) by the operating safe yield, as established by the Watermaster.

The majority of the groundwater pumped from the Main San Gabriel Basin is used for drinking water, supplied to the public by purveyors that are regulated as public water supply systems. Annually, pumping typically equals or exceeds the operating safe yield of the basin. When excess extraction occurs, the judgment has established provisions for assessing pumpers the cost of importing replacement water to replenish the excess amount extracted. Replacement water is imported water purchased by the Upper San Gabriel Valley Municipal Water District and artificially recharged within the basin. The 1997-98 replacement water assessment was $246.65 per acre-foot.

5.5.2 Long Beach Judgment

The Long Beach Judgment is the 1964 settlement of a lawsuit between parties in the Central and San Gabriel Basins. This judgment mandates that an average of 98,415 acre-feet of useable water will be delivered to the Central Basin each year. This water consists of: (1) surface flow that passes through Whittier Narrows, (2) subsurface (groundwater) flow through Whittier Narrows, and (3) a portion of the water exported (piped) from the San Gabriel Basin to the Central Basin.

Although the Long Beach Judgment specifies an average entitlement of 98,415 acre-feet per year, the actual entitlement is calculated yearly by the court-appointed San Gabriel River Watermaster. The San Gabriel River Watermaster tabulates the water discharge through Whittier Narrows. If more than 98,415 acre-feet are delivered to the Central Basin from the San Gabriel Basin in a year, then the San Gabriel Basin is credited with the excess. Conversely, if less is delivered, the San Gabriel Basin is required to make up the difference either from past credits or, if that is not sufficient, through delivery of imported surface water as makeup water to the Central Basin.

5.6 Groundwater Contamination

VOCs are the primary organic contaminants found in groundwater above state and federal drinking water standards in the South El Monte OU. PCE and TCE are the VOCs that are detected most often in groundwater, although other VOCs, including 1,1-DCA, cis-1,2-DCE, and 1,1-DCE were detected at high concentrations in selected portions of the shallow zone during the South El Monte OU RI. One other VOC, 1,4-dioxane, has also been detected at several locations in the South El Monte OU, but at relatively low concentrations. 1,4-Dioxane is important because it requires different treatment technologies than most of the other VOCs and is more expensive to remove from the water. A limited number of additional contaminants were detected during the RI, but at lower concentrations and at fewer locations.

In general, VOC concentrations are highest in the shallow groundwater in the vicinity of industrial facility source areas where releases have occurred. Figure 2 shows the extent of VOC contamination in the South El Monte OU in the shallow zone. As shown in this figure, there are fairly large areas where VOC concentrations exceed 10 times the drinking water standards (or 50 micrograms per liter, μg/L) and several isolated smaller areas where concentrations exceed 100 times drinking water standards (or 500 μg/L). In these areas, concentrations of PCE and TCE detected during the last round of sampling for the South El Monte OU RI/FS range from about 40 to 730 μg/L and non-detect to 730 μg/L, respectively. Figure 2 clearly illustrates the large area of shallow contamination that has migrated out of the South El Monte OU and into the downgradient Whittier Narrows OU.

TCE and PCE concentrations in the intermediate zone in the South El Monte OU are much lower, generally less than 50 μg/L. However, there are a couple of areas in the intermediate zone with elevated VOC concentrations, including one area where PCE concentrations exceed 100 times the drinking water standards (or 500 μg/L). The highest VOC concentrations detected in the intermediate zone in the South El Monte OU during the RI/FS was 200 μg/L at a multi-port monitoring well zone screened from 209 to 218 feet bgs. Subsequent sampling of this well showed concentrations of 500 μg/L. As is the case in most of the shallow zone, PCE is detected at higher concentrations than TCE in the intermediate zone. The extent of intermediate zone contamination is shown in Figure 3. Multi-port monitoring well data indicate that exceedances of drinking water standards extend down at least as deep as 400 feet bgs. Only limited data are available from depths deeper than 400 feet bgs. As is the case in shallow zone, intermediate zone exceedances of drinking water standards extend out of the South El Monte OU and into the downgradient Whittier Narrows OU.

As described above, EPA has identified numerous industrial facilities in the South El Monte OU as contaminant sources where releases have impacted groundwater quality. To address the industrial areas that contain these sources, the RWQCB, with funding from EPA, oversees site-specific investigations and cleanups.

Within the South El Monte OU, EPA's RI efforts focused on regional groundwater contamination and EPA has not yet identified any specific areas of principal threat wastes. At some of the individual industrial facilities, where elevated concentrations of contaminants have been identified in the vadose zone and shallow groundwater, the RWQCB is overseeing facility-specific remedial actions. These focused actions should address the more highly-contaminated source areas.

6 Current and Potential Future Site and Resource Uses

6.1 Land Uses

The South El Monte OU consists of densely populated residential communities, mixed with light and heavy industrial areas, and commercial land use. Outside of the portion of the Whittier Narrows Recreation Area that extends into the southwest corner of the South El Monte OU, the area is essentially fully developed with very limited undeveloped or open areas. Within the OU, there are a number of relatively large industrial/commercial developments. Much of South El Monte, however, features numerous small industrial operations. In the portions of the South El Monte OU where the shallow groundwater contamination addressed in this ROD is found, land use is primarily light and heavy industrial. Residential areas are found adjacent to these industrial areas.

The South El Monte OU includes the entire City of South El Monte and parts of the cities of El Monte and Rosemead. Nearly all of the South El Monte OU area is fully developed, except the large block of land in the southern portion of the OU that is part of the Whittier Narrows flood control basin. Most of the land in the OU is zoned for residential use, particularly in the far eastern and western portions of the OU. These areas are likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across a significant area in the central portion of the South El Monte OU. There is also a relatively large industrial area along the northern boundary of the OU. Land use in the South El Monte OU area is not expected to change significantly over time.

6.2 Groundwater Uses

The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. Currently, groundwater extracted within the South El Monte OU is used as municipal water supply for residential, commercial and industrial purposes. As discussed previously, water rights in the Main San Gabriel Basin are fully adjudicated. Thus, the Main San Gabriel Basin Watermaster monitors all extraction. The producers that extract groundwater from within the South El Monte OU are: Amarillo Mutual Water Company, California American Water Company, California Domestic Water Company, Del Rio Mutual Water Company, City of El Monte, Los Angeles County, City of Monterey Park, San Gabriel Valley Water Company, and Woodland Farms (agricultural user). VOCs are detected in nearly all production wells in the South El Monte OU area. The City of El Monte, Los Angeles County, the City of Monterey Park, and San Gabriel Valley Water Company have had to shut down wells because of contamination and both the City of Monterey Park and San Gabriel Valley Water Company have installed wellhead treatment systems to address VOC contamination in production wells.

Production from the shallow zone is limited as most of the production wells are perforated in the deeper zone. There are currently no drinking water supply wells that draw water from the shallow, highly contaminated zones in the vicinity of industrial facilities. Future groundwater use in the OU vicinity is expected to be similar to current use, with active extraction occurring in many portions of the OU. Future extraction will likely be primarily from the intermediate zone and deeper.

7 Summary of Site Risks

EPA completed a Preliminary Baseline Risk Assessment (RA) for the South El Monte OU in 1997 (EPA, 1997a). The baseline risk assessment estimates the human health and environmental risks that the site could pose if no action were taken. It is one of the factors that EPA considers in deciding whether to take action at a site. In the South El Monte OU, EPA's decision to take action is based principally on the presence of contamination in groundwater at levels that exceed drinking water standards, evidence that contamination will continue to migrate into groundwater areas that are presently clean or less contaminated, and the current and potential use of groundwater in and around the South El Monte OU as a source of drinking water. The risk assessment is also used to identify the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the Preliminary Baseline RA for the South El Monte OU.

7.1 Summary of Human Health Risk Assessment

This summary of human health risk includes sections on the identification of chemicals of concern (COCs), exposure assessment, toxicity assessment, and risk characterization.

7.1.1 Identification of Chemicals of Concern

The Preliminary Baseline RA is based on data collected from production and monitoring wells between July 1993 and July 1995, except for 15 monitoring wells where data collected between February 1990 and April 1993 is used. The older data was used for the 15 wells because more recent sampling results were not available. Sampling data were available from 25 production wells, one EPA monitoring well, and 131 site assessment monitoring wells during this period. A total of 43 VOCs were detected in South El Monte OU groundwater and all of the VOCs detected were considered chemicals of potential concern (COPCs) for evaluation in the Preliminary Baseline RA. Of these 43 COPCs, only eight contributed significantly to the estimated risks and are discussed as chemicals of concern (COCs) in this RA summary. Table 1 provides information on these COCs in each of the seventeen well groupings and thirteen individual production wells considered in the RA.

As shown in Table 1, the eight COCs found in South El Monte OU groundwater that contribute significantly to the risk estimates were benzene, 1,2-dichloroethane (1,2-DCA), 1,2-dichloroethene (1,2-DCE), cis-1,2-dichlorothene (cis-1,2-DCE), 1,2-dichloropropane (1,2-DCP), trichloroethene (TCE), tetrachloroethene (PCE), and vinyl chloride. All of the COCs are VOCs and all are present in the most contaminated portion of the shallow zone. Only two of the COCs, PCE and TCE, were also found in the deeper production wells. The table also shows the frequency of detection (i.e., the number of times the chemical was detected in the samples collected from each well grouping or production well), generally using data from 1993 through 1995. The table indicates that PCE and TCE are the most frequently detected COCs in the South El Monte OU and represent the extent of contamination in groundwater at the site shown in Figures 2 and 3.

Table 1 presents the exposure point concentration for each of the COCs detected in each of the well groupings and production wells evaluated. In all cases, the highest exposure point concentrations were from either TCE or PCE. The arithmetic mean concentration shown in Table 1 was used for the calculations of "average" potential risk and either the maximum detected concentration or the 95th percentile (95%) upper confidence limit (UCL) on the arithmetic mean concentration (whichever was lower) was used as the exposure point concentration for calculating the maximum potential risk for each COC in each well group and production well.

7.1.2 Exposure Assessment

Exposure refers to the potential contact on an individual (or receptor) with a chemical. Exposure assessment is the determination or estimation of the magnitude, frequency, duration, and route of potential exposure. This section briefly summarizes the potentially exposed populations, the exposure pathways evaluated, and the exposure quantification from the Preliminary Baseline RA performed for the South El Monte OU.

Land use in the South El Monte OU is primarily residential, commercial and industrial. At the time of the Preliminary Baseline RA, there were twenty-three active or standby production wells in the South El Monte OU. Of these, all but one provide drinking water for domestic use. Exposure to contaminants in groundwater could occur through the use of groundwater for domestic purposes, such as ingestion of tap water, inhalation of contaminants from water used for bathing, cooking and laundering, and dermal contact with the water. The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. In the baseline RA, EPA evaluated two scenarios under which individuals might be exposed to contaminated groundwater:

1. Potential for a current resident to be exposed to contamination in groundwater through domestic use

2. Potential for a future resident to be exposed to contamination in groundwater through domestic use

Based on potential for exposure frequency, duration, and estimated intake, residents exposed to contaminated groundwater used for domestic purposes are expected to be the maximally exposed population.

It should be noted that the assumption that residents could be exposed to untreated groundwater from the well groupings or production wells evaluated is conservative. There are not currently any wells producing water for public drinking water supply from the highly contaminated shallow groundwater areas in the western or eastern portions of the South El Monte OU. Further, regulations, such as the Safe Drinking Water Act, currently prohibit water purveyors from serving water contaminated in excess of drinking water standards to consumers.

7.1.3 Toxicity Assessment

Table 1 shows the eight COCs that are the major risk contributors for the South El Monte OU. Based on data from various animal studies and other activities, two of the compounds (benzene and vinyl chloride) are classified as human carcinogens, four of the compounds (1,2-DCA, 1,2-DCP, PCE and TCE) are classified as probable human carcinogens (EPA weight of evidence class B2). The carcinogenic oral slope factors (toxicity values) for these six compounds are shown in Table 2.

All six of the above compounds are also considered carcinogenic through the inhalation route. The inhalation slope factors, based on data from various animal studies, for these six compounds are presented in Table 2.

The dermal route of exposure was incorporated into the preliminary baseline RA using an equation that incorporates the exposure point concentration and a dermal permeability constant (in centimeters/hour [cm/hr]). The dermal exposure risks are presented in Tables 3 and 4. The dermal permeability constants for the eight COCs are:

- Benzene- 0.021 cm/hr !!
- 1,2-DCA- 0.0053 cm/hr
- 1,2-DCE- 0.01 cm/hr

- 1,2-DCP- 0.01 cm/hr
- Cis-1,2-DCE- 0.01 cm/hr
- PCE- 0.048 cm/hr
- TCE- 0.016 cm/hr
- Vinyl Chloride- 0.0073 cm/hr

In addition to their classification as probable human carcinogens, six of the seven COCs (all except vinyl chloride) have toxicity data indicating their potential for adverse noncarcinogenic health effects in humans. The chronic toxicity data available for these compounds have been used to develop oral and inhalation reference doses (RfDs). The RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The oral and inhalation RfDs are presented in Table 2.

7.1.4 Risk Characterization

This section presents the results of the evaluation of the potential risks to human health associated with exposure to contaminated groundwater in the South El Monte OU. Exposure scenarios are evaluated by estimating the noncarcinogenic and carcinogenic risks associated with them.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. These risks are probabilities that usually are expressed in scientific notation (e.g., 1×10^{-6}). An excess lifetime cancer risk of 1×10^{-6} indicates that an individual has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposures is 10^{-4} to 10^{-6}. An excess lifetime cancer risk of greater than one in ten thousand (1×10^{-4}) is the point at which action is generally required at a site (EPA, 1991a).

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., a life-time) with a reference dose (RfD) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than one indicates that a receptor's dose of a single contaminant is less than the RfD and that toxic noncarcinogenic effects from exposure to that chemical are unlikely. HQs for all COCs that affect the same target organ (e.g., liver) are added together to generate the Hazard Index (HI). An HI less than one indicates that noncarcinogenic effects from all the contaminants are unlikely. Conversely, an HI greater than one indicates that site-related exposures may present a risk to human health.

Conclusions

Tables 3a, 3b, 4a and 4b present the risk characterization summaries for carcinogenic (Tables 3a and 3b) and noncarcinogenic effects (Tables 4a and 4b). The risk estimates presented in these tables are based on average and reasonable maximum exposure (RME) and were developed by taking into account various conservative assumptions about the frequency and duration of exposure to groundwater, as wells as the toxicity of the primary COCs.

To assess potential current residential exposure to groundwater through domestic use, data from all active drinking water wells sampled from July 1993 through July 1995 that had positive detections of VOCs were used (a total of thirteen production wells). The cumulative estimated hazard index was less than one for the average exposure and RME scenarios (Table 4a). The estimated excess lifetime cancer risk ranged from 5×10^{-8} to 5×10^{-7} for the average exposure scenario and 5×10^{-7} to 3×10^{-6} for the RME scenario (Table 3a). The estimated excess lifetime cancer risks based on exposure to groundwater from the

production wells that are currently active are either less than or towards the lower end of the 10^{-4} to 10^{-6} acceptable risk range used by EPA to manage risks at Superfund sites. In addition, the estimated risks for these production wells are conservative because they do not take into account treatment of groundwater or the blending of groundwater from these wells with other production wells. The water purveyors are prohibited from serving water that exceeds MCLs to any of their customers.

To assess potential future residential exposure to contamination in groundwater through domestic use, the preliminary RA focused on seventeen individual areas within the OU that had groundwater concentrations exceeding 10 times the primary drinking water standards (MCLs). These seventeen areas are represented by Well Groups 1 through 17 on Tables 3b and 4b. The well groups consist primarily of shallow monitoring wells at or near industrial facilities and include those wells with the highest VOC concentrations in the OU area. The shallow intervals monitored by these wells are not currently used for drinking water supply. Use of these well groups to evaluate potential future risk is a conservative approach. The estimated hazard index ranged from 0.07 to 4 for the average residential exposure scenario and 0.1 to 20 for the RME residential scenario (Table 4b). Major chemical contributors to the estimated hazard indices include benzene, cis-1,2-DCE, 1,2-DCE, PCE, and TCE. The estimated excess lifetime cancer risk ranged from $2x10^{-6}$ to $8x10^{-5}$ for the average exposure scenario and $2x10^{-5}$ to $9x10^{-4}$ for the RME (Table 3b). Major chemical contributors to the estimated excess lifetime cancer risk include benzene, 1,2-DCA, 1,2-DCP, PCE, TCE, and vinyl chloride. The estimated hazard indexes and excess lifetime cancer risks based on potential future exposure to groundwater from many of the Well Groups exceed the acceptable risk range ($1x10^{-5}$ - $1x10^{-6}$) used by the EPA to manage risks at Superfund sites. Based on these estimated risks, the areas around these well groups should be considered for remediation.

A screening level evaluation of volatile emissions to indoor air provides a conservative estimate of potential residential exposure to COCs in groundwater via this pathway. Potential current and future exposures were evaluated for the average and RME scenarios. The estimated hazard quotients for all of the production wells (used for potential current exposure) and well groups (used for potential future exposure) were all below 1. The estimated current excess lifetime cancer risks for indoor air using production wells were below 10^{-6} for both average and RME scenarios. The estimated excess lifetime cancer risks for potential future exposures to volatile emissions from groundwater using data from the 17 well groups ranges from $1x10^{-9}$ to $9x10^{-6}$.

Based on this risk characterization summary, actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, present a potential threat to public health, welfare, or the environment. As described in the preceding paragraphs, the groundwater contamination does not currently threaten public health or welfare.

7.2 Summary of Ecological Risk Assessment

An evaluation was conducted as part of this preliminary groundwater risk assessment to determine whether there are any potential ecological exposure pathways in the South El Monte OU. The potential for exposure to ecological receptors is related to the extent that groundwater contaminants migrate to or are discharged to surface water habitat. The environmental evaluation indicated that there are two plausible means for ecological receptors to be exposed to groundwater contaminants in the South El Monte OU:

- Extraction and discharge of contaminated groundwater into surface water bodies containing ecological receptors.
- Natural discharge of contaminated groundwater into surface water bodies that contain ecological receptors.

Outside of periodic, short-duration discharge associated with aquifer testing activities, there is no known surface-water discharge of extracted groundwater in the South El Monte OU. Based on the very limited frequency and duration of this RI-related type of discharge, no additional evaluation is warranted for this potential pathway.

The depth-to-groundwater in the South El Monte OU is generally between 15 and 50 feet bgs. Given these conditions, it is very unlikely that groundwater could discharge to surface water and potential exposures to aquatic and terrestrial organisms are unlikely as well. As indicated in EPA's Interim San Gabriel Basin RI Report (EPA, 1992a), natural discharge of groundwater to surface water (caused by shallow groundwater levels intersecting stream channel bottoms) is not expected in either the Rio Hondo or San Gabriel Rivers north of the Pomona Freeway (i.e., in the South El Monte OU area).

Based on this screening-level environmental evaluation, there are no complete ecological exposure pathways in the South El Monte OU.

7.3 Conclusion

In addition to the risk assessment, EPA has considered the state and federal drinking water standards (MCLs and MCLGs) that have been established for contaminants found in the South El Monte OU. MCLs and MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects are expected to occur. Even if the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure is less than 10^{-4} and the non-carcinogenic hazard quotient is less than 1, remedial action will generally be warranted if MCLs or non-zero MCLGs are exceeded ("Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," OSWER Directive 9355.0-30, April 22, 1991).

Contaminant concentrations exceed MCLs throughout a significant portion of the South El Monte OU, including groundwater regions that are currently used as sources of drinking water. In some areas, contamination levels exceed 100 times MCLs. Based on the risk characterization, the presence of widespread contamination in excess of MCLs, the use of groundwater in the South El Monte OU as a source of drinking water, and evidence that the contamination is migrating, EPA has determined that actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

8 Remediation Objectives

EPA's Remedial Action Objectives (RAOs) for the South El Monte OU are to:

- Prevent exposure of the public to contaminated groundwater;
- Contain further migration of contaminated groundwater from more highly contaminated portions of the aquifer to less contaminated areas or depths;
- Reduce the impact of continued contaminant migration on downgradient water supply wells, and;
- Protect future uses of less contaminated and uncontaminated groundwater.

These objectives reflect EPA's regulatory goal of restoring usable groundwater to its beneficial uses wherever practicable, within a time frame that is reasonable, or, if restoration is deemed impracticable, to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction (40 C.F.R. Section 300.430{a}{1}{iii}{F}). The RAOs address the risks associated with exposure to contaminated groundwater in the South El Monte OU (described above in Section 7) by significantly limiting the potential for future exposure.

To meet the RAOs, migration control will be required in the South El Monte OU as long as VOC concentrations in migrating groundwater exceed state or federal drinking water standards. The RAOs for the South El Monte OU do not include numeric, chemical-specific objectives in the aquifer or a time frame for restoration because this is an interim action to contain contamination. Although this interim remedial action is not focused on mass removal, the proposed remedy will remove significant contaminant mass from the aquifer, in effect beginning the restoration process.

9 Description of Alternatives

EPA evaluated the four alternatives for the South El Monte OU:

- Alternative 1 – No-Action
- Alternative 2 – Groundwater Monitoring (No Active Response)
- Alternative 3– Intermediate Zone Control in Western South El Monte OU, modified from that described in the FS (see Section 14)
- Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control

A brief description of the four remedial alternatives is presented below.

9.1 Alternative 1 – No Action

The NCP requires EPA to consider a no action alternative and to evaluate the risk to the public if no action were taken. The No-Action Alternative provides a baseline for comparison with other remedial alternatives under consideration. In this alternative, no remedial actions are taken to control contaminant migration from or within the South El Monte OU. This alternative does not include any groundwater monitoring, extraction, or treatment, so there is no cost associated with this alternative

The No-Action Alternative allows continued, uncontrolled migration of contamination. This alternative does not meet EPA's RAOs and does not comply with state and federal requirements.

9.2 Alternative 2 – Groundwater Monitoring (No Active Response)

The only remedial action specifically incorporated into Alternative 2 is groundwater monitoring to monitor VOC plume migration in the shallow and intermediate zones in the South El Monte OU. Alternative 2 does not have any extraction, treatment, conveyance, or discharge components. This alternative would rely solely on passive mechanisms such as dilution or dispersion to address contaminant migration. This alternative also assumes that the groundwater management activities described in Section 5.5 continue to limit human exposure to groundwater contamination. This alternative includes implementing a monitoring program using new and existing wells to monitor contaminant migration and compliance with the South El Monte OU remedial action objectives in the shallow and intermediate zones.

9.2.1 Monitoring

In order to estimate costs and evaluate effectiveness, this alternative assumes installation of three new multi-port monitoring wells monitoring the shallow and intermediate zones to supplement the existing monitoring well network. The monitoring program is assumed to include semi-annual monitoring of seven existing multi-port wells and three new multi-port wells.

9.3 Alternative 3 Intermediate Zone Control in Western South El Monte OU

Alternative 3 includes extraction, treatment, and monitoring of intermediate zone contaminated groundwater in the north-western half of the South El Monte OU. The system would be designed to contain groundwater with VOC concentrations exceeding primary drinking water standards (i.e., MCLs) that is moving in the intermediate zone from the source areas in the central portion of the OU towards groundwater pumping centers to the west. Drinking water wells completed in the intermediate zone in the western areas have already been impacted by VOC contamination above drinking water standards. Alternative 3 does not include any specific measures to address shallow and intermediate zone contamination migrating to the south towards Whittier Narrows. This alternative assumes that EPA's remedy in the Whittier Narrows OU will provide containment of this contamination. The key components of Alternative 3 are described below.

9.3.1 Extraction

For the intermediate zone contamination migrating towards the west, Alternative 3 provides the option of either installing new extraction wells, using existing San Gabriel Valley Water Company's (SGVWC) Plant 8 wells, City of Monterey Park's well MP 5, well MP 12 and proposed well MP 15P, and Southern California Water Company's (SCWC's) San Gabriel 1 and 2 wells (shown in Figure 5), or using a combination of new and existing wells. The intermediate zone extraction would control western migration of groundwater that exceeds drinking water standards.

The existing production wells that could potentially be incorporated into the extraction component of Alternative 3 are screened in the depth interval from approximately 200 feet bgs to 770 feet bgs. If new wells are used, they would likely be screened in the depth interval from approximately 250 to 450 feet bgs. The total extraction rate assumed for cost estimation purposes is 10,020 gallons per minute (gpm). This extraction rate is higher than that assumed in the FS. The higher extraction rate is needed to address the recently discovered contamination found further to the west than previously depicted (see Section 14 for additional details). The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination and further discussions with local water purveyors. Two cost estimates are presented in Table 5 to account for the use of either new extraction wells or existing water purveyor wells.

9.3.2 Treatment

Extracted groundwater containing VOCs that exceed drinking water standards would be treated by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of air stripping with carbon adsorption of VOCs in the off-gas. Other treatment processes could be evaluated during remedial design.

9.3.3 Conveyance and Discharge

If the necessary agreements can be reached, the treated water would be delivered to three of the local water purveyors with impacted wells and existing facilities in the western portion of the South El Monte OU: SGVWC, the City of Monterey Park, and SCWC. The assumed treatment plant locations are located at or adjacent to the facilities of these three water purveyors, so conveyance of treated water would be minimal. If necessary, other discharge options, such as aquifer recharge or surface water discharge, would be evaluated during remedial design.

9.3.4 Monitoring

Alternative 3 includes implementation of a monitoring program to monitor remedy performance and ensure compliance with the RAOs in the South El Monte OU. Both groundwater levels and groundwater quality would be measured as part of the evaluation of remedy performance. In order to estimate costs and evaluate effectiveness, this alternative assumes installation of two new multi-port monitoring wells and semi-annual sampling of the two new and seven existing multi-port wells.

9.4 Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control

Alternative 4 includes all of the components described above for Alternative 3, plus a groundwater extraction and treatment system in the shallow zone source area in the South El Monte OU. The additional extraction is intended to inhibit migration of high-level shallow zone contamination from the South El Monte OU into shallow and intermediate zones in the downgradient Whittier Narrows OU that are currently less contaminated. The key components of the alternative are described below.

9.4.1 Extraction

The additional groundwater extraction in Alternative 4 would occur at two existing shallow extraction wells northeast of the Rosemead Boulevard/Highway 60 (Pomona Freeway) interchange (Figure 2). The shallow containment would focus on the largest area of high level contamination in the southern portion of the South El Monte OU (Figure 2), where contamination migrates to the south towards Whittier Narrows. Although the intent of the extraction would be containment, the existing wells are located in area where they would also remove significant amounts of contamination from the shallow aquifer. The additional extraction rate assumed for cost estimation purposes is 900 gpm. This would bring the total extraction rate to 10,920 gpm. The actual extraction rates for the shallow wells would be determined during remedial design.

9.4.2 Treatment

The treatment assumed for Alternative 4 is the same as that described above for Alternative 3 for the intermediate groundwater. The shallow groundwater would be treated for VOC removal by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of liquid-phase carbon adsorption. Other treatment processes could be evaluated during remedial design.

9.4.3 Conveyance and Discharge

Assumptions for the intermediate zone groundwater are the same as described above for Alternative 3. The discharge assumption for the treated shallow groundwater is groundwater recharge through infiltration galleries. If necessary, other discharge options, such as surface water discharge, would be evaluated during remedial design.

9.4.4 Monitoring

The groundwater monitoring program for Alternative 4 would combine the monitoring program described above for Alternative 3 with a program to evaluate the performance of the shallow zone extraction system. To monitor performance of the shallow component of the remedy, installation of four shallow piezometers and two shallow monitoring wells was assumed downgradient of the extraction wells.

10 Comparative Analysis of Alternatives

The four remedial alternatives described in Section 9 are evaluated using the nine Superfund evaluation criteria listed in 40 C.F.R. Section 300.430. The comparative analysis provides the basis for determining which alternative presents the best balance of the criteria. The first two evaluation criteria are considered threshold criteria that the selected remedial action must meet. The five primary balancing criteria are balanced to achieve the best overall solution. The two modifying criteria, state and community acceptance, are also considered in remedy selection.

Threshold Criteria

- **Overall Protection of Human Health and the Environment** addresses whether each alternative provides adequate protection of human health and the environment, and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.

- **Compliance with ARARs** addresses the requirement of Section 121(d) of CERCLA that remedial actions at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4).

Primary Balancing Criteria

- **Long-term Effectiveness and Permanence** refers to the ability of a remedy to maintain reliable protection of human health and the environment over time.

- **Reduction of Toxicity, Mobility, or Volume Through Treatment** refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

- **Short-term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers and the community during construction and operation of the remedy until cleanup goals are achieved.

- **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

- **Cost** evaluates the estimated capital, operation and maintenance (O&M), and indirect costs of each alternative in comparison to other equally protective alternatives.

Modifying Criteria

- **State Acceptance** indicates whether the state agrees with, opposes, or has concerns about the preferred alternative.

- **Community Acceptance** includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose.

This section describes each threshold and primary balancing criterion, evaluates each alternative in relation to each criterion, and identifies advantages and disadvantages among the alternatives in relation to each criterion. Figure 4 presents a comparative matrix in which the four alternatives are ranked for each of the evaluation criterion. The details of how the rankings have been assigned for each criterion are provided below.

10.1 Overall Protection of Human Health and the Environment

The NCP requires that all alternatives be assessed to determine whether they can adequately protect human health and the environment from unacceptable risks from site contamination. These risks can be mitigated by eliminating, reducing, or controlling exposure to hazardous substances, pollutants, or contaminants.

10.1.1 Overall Protection of Human Health and the Environment: Evaluation of Alternatives

Alternatives 1 and 2 provide the least overall protection of human health and the environment. Neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Only the existing groundwater management activities discussed in Section 5.5 would be available to control public exposure to the contaminated groundwater but would not contain the contaminated groundwater. Limitations of Alternative 1 include increased long-term potential for human exposure; leaving the burden of constructing treatment facilities to water purveyors; and increased cost, difficulty, and time required for containment. As long as existing government controls remain in effect, there should be no increase in long-term potential for human exposure with Alternative 2. The burden and cost of constructing required treatment facilities would be borne by the water purveyors. Alternative 2 includes groundwater monitoring that would provide early warning of increases in contaminant concentrations at downgradient drinking water sources. An advantage of Alternatives 1 and 2 is that there are no risks associated with treatment residuals because none are created.

Considered in conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 both satisfy EPA's remedial action objectives and reduce long-term risks to human health and the environment by containing contaminated groundwater and preventing migration from more highly contaminated areas to less contaminated areas. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. The treatment technologies employed by these alternatives are effective at meeting federal and state MCLs. Alternative 4 is ranked higher than Alternative 3 because it includes discrete containment in a portion of the highly-contaminated shallow zone in the South El Monte OU. Alternative 4 extraction also provides additional mass removal in the shallow zone in the OU.

10.2 Compliance with ARARs

This evaluation criterion is also a threshold requirement and is used to determine if each alternative would attain federal and state ARARs, or whether there is adequate justification for invoking waivers for specific ARARs.

10.2.1 Compliance with ARARs: Evaluation of Alternatives

Alternatives 1 and 2 do not meet ARARs. Both alternatives allow for continued migration of contaminants above MCLs into less contaminated and uncontaminated portions of the groundwater.

Alternatives 3 and 4 were designed, in conjunction with EPA's interim remedy for the Whittier Narrows OU, to meet the ARARs described in Section 12 of this ROD. These alternatives provide containment of

contaminated groundwater as well as protection of existing production wells and significant portions of the aquifer that are currently less contaminated or uncontaminated.

10.3 Long-Term Effectiveness

This evaluation criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the magnitude of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For this interim action, untreated waste refers to any contaminated groundwater not removed from the aquifer.

The performance of the alternatives in relation to this criterion is evaluated primarily by estimating the extent to which each alternative prevents the migration of contamination into less contaminated and uncontaminated areas. Preventing or reducing contaminant migration reduces contaminant concentrations in downgradient areas, reducing risk by reducing the likelihood of exposure. Because this is an interim remedy to contain contaminant migration, untreated wastes will remain in the groundwater.

10.3.1 Long-Term Effectiveness and Permanence: Evaluation of Alternatives

Alternatives 1 and 2 are ranked low for this criterion because neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Contaminated groundwater would continue to migrate downgradient. Although natural attenuation processes (adsorption, dilution, dispersion) would likely decrease the concentration of contaminants in the plumes, downgradient water supply wells would be vulnerable to VOC contamination. Alternatives 1 and 2 would not generate any treatment residuals.

In conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 provide containment of contaminated groundwater as indicated by groundwater modeling. Alternatives 4 is assigned a slightly higher ranking than Alternative 3 because Alternative 4 provides supplemental shallow zone source control within the South El Monte OU. Because the Whittier Narrows OU remedy is providing containment at the downgradient boundary of contamination, the benefits of additional shallow zone control in Alternative 4 are more for contaminant removal than migration control. Less contaminated groundwater not contained by the remedial actions in Alternatives 3 and 4 would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural attenuation processes would be verified by groundwater sampling.

In Alternatives 3 and 4 the residual generated from treatment of contaminated groundwater would be spent granular activated carbon. This spent granular activated carbon would be reactivated offsite. The transportation and reactivation of this residual would be conducted in accordance with applicable regulations and would present minimal long-term risks because contaminants adsorbed to the granular activated carbon would be destroyed during the reactivation process.

10.4 Reduction of Toxicity, Mobility, and Volume Through Treatment

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is

used to reduce the principal threats at a site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

This evaluation focuses on the following factors for each remedial alternative:

- Whether the alternative satisfies the statutory preference for treatment as a principal element
- The treatment process employed, including the amount of hazardous materials that will be destroyed or treated and the degree of expected reduction in toxicity, mobility, or volume
- The degree to which treatment is irreversible
- The type and quantity of treatment residuals that will remain following treatment.

10.4.1 Reduction of Toxicity, Mobility, or Volume Through Treatment: Evaluation of Alternatives

Alternatives 1 and 2 do not provide any reduction in toxicity, mobility, or volume over existing conditions and do not satisfy the statutory preference for treatment. Alternatives 3 and 4 satisfy the statutory preference for treatment. These alternatives would significantly reduce the volume and mobility of contamination by inhibiting further contaminant migration. The treatment technologies considered for Alternatives 3 and 4, air stripping with off-gas controls and liquid-phase carbon adsorption, would irreversibly reduce the toxicity and volume of contaminants in the extracted groundwater and result in an effluent stream that meets drinking water standards for VOCs. Alternative 4 would provide greater reduction in the volume of contaminants present in the aquifer, although this increased contaminant removal increases costs substantially. Both treatment technologies would result in the destruction of VOCs when the granular activated carbon is regenerated

10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during the construction and implementation phase until remedial action objectives are met. The following factors are addressed for each alternative:

- **Protection of workers and the community during construction and implementation phases.** This factor qualitatively examines risk that results from implementation of the proposed remedial action and the effectiveness and reliability of protective measures.
- **Environmental Impacts.** This factor addresses the potential adverse environmental impacts that may result from the construction and implementation of an alternative. This factor also evaluates the reliability of the available mitigation measures to prevent or reduce potential impacts.
- **Time until RAOs are achieved.** This factor considers the amount of time required to construct remediation facilities and meet the remedial action objectives.

10.5.1 Short-Term Effectiveness: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because there is no construction or implementation phase and RAOs would not be met. None of the other three alternatives pose unmitigable risks to the community during construction and implementation. Nor do any of the alternatives pose unmitigable risks to workers beyond general construction hazards associated with large construction projects. No

unmitigable negative environmental impacts are anticipated in the areas in which facilities would be constructed.

For Alternative 2, the RAOs would not be met as long as contaminant migration continues, which would likely be a considerable length of time. For Alternatives 3 and 4, in conjunction with operation of the Whittier Narrows OU remedy, the RAOs are met as soon as the groundwater extraction and treatment components begin operation and establish hydraulic control.

10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation. The following factors are considered:

Technical Feasibility

- Ability to construct and operate: addresses any technical difficulties and unknowns associated with construction or operation of the technology
- Reliability of technology: focuses on the likelihood that technical problems associated with implementation will lead to schedule delays
- Ease of undertaking additional remedial action: includes a discussion of what, if any, future remedial actions may need to be undertaken and how the remedial action would interfere with, or facilitate, the implementation of future actions

Administrative Feasibility

- Coordination with other agencies, including the need for agreements with parties other than EPA required for construction and operation of the remedy.
- Availability of necessary equipment, specialists, and provisions to assure any necessary resources
- Availability of services and materials, plus the potential for obtaining competitive bids

10.6.1 Implementability: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because no action is implemented. As described above, the implementability evaluation incorporates several factors. Each of these is discussed separately in the following text.

Technical Feasibility: Ability to Construct and Operate. The extraction, treatment, and conveyance technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternatives 2 through 4 are widely used. No significant difficulties are expected in construction and operation of these technologies.

Technical Feasibility: Reliability of Technology. The extraction, treatment, conveyance, and monitoring technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternative 2 are generally proven and known to be reliable.

Technical Feasibility: Ease of Undertaking Additional Remedial Actions. The alternatives would not interfere with the implementation of future response actions to further contain contamination or restore groundwater in the South El Monte OU area.

Administrative Feasibility. There are not likely to be any significant administrative feasibility issues associated with implementation of Alternative 2, other than obtaining access agreements for monitoring well installation. Implementation of Alternatives 3 and 4 would require acquisition of property and/or easements for the construction of extraction wells, treatment facilities, and conveyance facilities. In addition, implementing Alternatives 3 and 4 would require resolution of the following administrative issues associated with groundwater extraction and discharge of treated water to local water purveyors or to the Rio Hondo:

- Agreements may need to be made with the Watermaster or with a water purveyor to account for extraction from the basin by the parties implementing the selected remedy because these parties may not have water rights.
- An agreement with the Watermaster may be required regarding the potential need to pay replacement water fees for treated water discharged to the Rio Hondo, if the discharged water does not recharge within the Main San Gabriel Valley basin..
- Agreements would need to be reached with water purveyors that would receive treated water from the groundwater treatment facilities. These agreements will need to address the amount of water each purveyor would accept, the treated water delivery location, responsibility for any necessary capital improvements to purveyor systems, and other operational, liability, and financial arrangements.
- Water purveyors would need to obtain approval for modifications to their water supply permits.
- If treated water is discharged to the Rio Hondo, RWQCB Basin Plan water quality objectives for Rio Hondo would need to be addressed. If the discharge exceeds Basin Plan inorganic water quality objectives, it may be necessary to conduct an evaluation of the impact of the discharge on downgradient surface water and groundwater, as well as an evaluation of reuse alternatives for the VOC-treated groundwater. If water quality impacts are minimal and reuse alternatives infeasible, the discharge may be allowed.

Availability of Services and Materials. Implementation of Alternatives 3 and 4 would require fabrication of treatment plant equipment. Required services and materials are believed to be available, including qualified contractors for construction and operation of the necessary facilities.

Alternative 2 is assigned a higher ranking in Figure 4 because there are no significant issues that could impact implementability of this monitoring-only alternative. Alternatives 3 and 4 are ranked lower because of the administrative issues associated with groundwater extraction and treated water discharge.

10.7 Cost

This criterion addresses the total cost of each alternative. This includes short-term and long-term costs, and capital and O&M costs. The following cost elements are considered for each alternative:

- **Capital Cost.** Direct capital cost includes the cost of construction, labor, equipment, land, site development, and service. Indirect capital cost includes engineering fees, license and permit cost, startup and shakedown costs, and contingencies.
- **O&M Cost.** Annual O&M cost includes operating labor cost, maintenance materials and labor, pumping and treatment energy costs, monitoring costs, and all other post-construction costs necessary to ensure continuous effective operation of the alternative.

- **Total Present Worth.** The total present worth of each alternative is calculated at a discount rate of 7 percent and a time period of 30 years. Total present worth for each alternative includes capital cost plus the present worth of the annual O&M costs.

The cost estimates are considered order-of-magnitude level estimates (i.e., the cost estimates have an expected accuracy of +50 to -30 percent). The assumption of a 30-year operating period is based on EPA guidance and does not reflect any specific finding regarding the duration of the selected remedy.

10.7.1 Cost: Evaluation of Alternatives

Although there is no cost presented for the no-action alternative (Alternative 1), there have been and would continue to be substantial financial impacts on local water purveyors or their rate payers because of the continued migration of contamination to their production wells. Table 5 summarizes the estimated costs for Alternatives 2 through 4.

10.7.2 Cost: Comparison of Alternatives

Table 5 compares the cost of each alternative for capital costs, long-term O&M costs, and present worth. The short-term capital costs range from $450,000 for Alternative 2 to $6,292,000 for Alternative 4. The annual O&M costs range from $90,000 for Alternative 2 to $1,130,000 for Alternative 4. The present worth costs range from $1,540,000 for Alternative 2 to $18,109,000 for Alternative 4. Table 5 presents two costs, assuming use of either new or existing facilities. The costs for Alternatives 3 and 4 are higher than those presented in the FS because of the facilities associated with the additional western extraction included in the modified Alternative 3 (as described in Section 14).

10.8 State Acceptance

The State of California has provided comments and feedback to EPA throughout the RI/FS process for the South El Monte OU. In a letter dated September 25, 2000, the California Department of Toxic Substance Control (DTSC), as lead agency for the state, concurred with EPA's selected remedy. In addition, the RWQCB concurred with EPA's selected remedy in a letter dated September 12, 2000.

10.9 Community Acceptance

EPA received written comments on the Proposed Plan from numerous individuals, representatives of PRP companies, and other local stakeholders. EPA responded directly to the oral questions at the public meeting held in October 1999. All of the written comments received during the 60-day public comment period, along with EPA's responses to them, are presented in the Responsiveness Summary in Part III of this ROD. The transcript for the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

Several of the commenters stated their preference for Alternative 4 rather than EPA's preferred Alternative 3. However, by far the majority of the comments submitted to EPA expressed support for EPA's selection of Alternative 3. EPA does not believe that the additional contaminant removal provided by the Alternative 4 shallow zone source control justify the additional costs of this alternative. EPA's conclusion is that Alternative 3 (the preferred alternative) represents the most appropriate interim remedy for the South El Monte OU. None of the comments received warranted a change to the proposed remedy.

11 Selected Remedy

After considering CERCLA's statutory requirements, the detailed comparison of the alternatives using the nine evaluation criteria, and public comments, EPA, in consultation with the State of California, has determined that the most appropriate remedy for this site is Alternative 3: intermediate zone control in western South El Monte OU. As described in Section 14 - Documentation of Significant Changes, the selected remedy is a slightly modified version of Alternative 3 presented in the FS and Proposed Plan. The performance standards and basic components of the selected remedy match those presented in the Proposed Plan and FS for Alternative 3, however, more facilities (e.g., extraction wells and treatment plants) will be required and the associated costs will be higher than previously assumed.

Summary of Rationale for the Selected Remedy

Alternatives 1 and 2 provide the least overall protection of human health and the environment and do not fully comply with State and Federal requirements (ARARs). Considered in conjunction with EPA's Whittier Narrows OU remedy, Alternatives 3 and 4 both satisfy the remedial action objectives and satisfactorily meet the threshold criteria of overall protection of human health and the environment and compliance with State and Federal requirements. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. Because the Whittier Narrows OU remedy will provide containment at the southern boundary of the contamination, the benefit of the additional shallow zone control provided by Alternative 4 would be to enhance mass removal, rather than migration control. However, Alternative 4 costs much more than Alternative 3 (see Table 5). For this containment remedy, EPA does not believe that additional mass removal benefits provided from the Alternative 4 shallow zone source control justify the additional cost.

The selected remedy, Alternative 3, meets the two Superfund threshold evaluation criteria, overall protection of human health and the environment and compliance with ARARs, and provides the best balance of the remaining Superfund evaluation criteria. EPA expects that this interim remedy will provide the basis for the final remedy for the South El Monte OU.

The selected remedy is an interim action and is focused on controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions. Additional actions may also be required if facility-specific cleanup or source control actions in the South El Monte OU are not progressing as expected.

11.1 Description of the Selected Remedy

The selected remedy will be implemented using a performance-based approach. The performance-based approach specifies criteria ("performance criteria") that must be met while allowing flexibility in implementation. The performance criteria described below are designed to attain the RAOs for the South El Monte OU.

The selected remedy addresses the intermediate zone groundwater contamination present in the north-western half of the South El Monte OU. For purposes of describing the remedy, this contamination has been separated into two areas: 1) the central area of intermediate zone contamination and 2) the western area of intermediate zone contamination.

The central area of intermediate zone contamination refers to the contamination located in the vicinity of Monterey Park's (MP) production wells 12 and 15 (planned) and the San Gabriel Valley Water Company (SGVWC) Plant 8 wells (8A through 8F). Figures 3 and 5 show the intermediate zone contamination and the locations of these production wells in this area. This area contains the contamination that the original version of Alternative No. 3, presented in the FS and the Proposed Plan, was designed to contain.

The western area of intermediate zone groundwater contamination refers to the recently discovered intermediate zone contamination downgradient (west) of Monterey Park well No.12 in the vicinity of the Southern California Water Company (SCWC) wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1 and additional Monterey Park wells 1, 3, 5, 6, 10 and Fern. Figures 3 and 5 show the intermediate zone contamination and the locations of the production wells in this area.

11.1.1 Performance Criteria for the Intermediate Zone

The remedial action shall provide sufficient hydraulic control to prevent migration of intermediate zone groundwater contaminated above chemical-specific ARARs into or beyond the Central Containment Area and into or beyond the Western Containment Area (*defined in Section 11.1.3.2*).

Compliance with this criterion will be verified through monitoring of compliance wells for two parameters: hydraulic control and chemical specific ARARs. Wells to be used for monitoring compliance with chemical-specific criteria should be completed with screen lengths of 20 feet or less within the intermediate zone. Larger screened intervals may be appropriate for wells used to monitor compliance with hydraulic control requirements.

The remedial action must create inward hydraulic gradients at each of the Containment Areas. These hydraulic gradients must be sufficient to demonstrate that contaminated groundwater is captured by the extraction wells under all flow conditions (e.g., during both wet and dry periods in the hydrologic cycle).

Implementation of the remedial action cannot result in any adverse effects (i.e., increases in migration of contamination) to production wells that are not part of the remedial action. In addition, the remedial action must provide the required capture of contamination above chemical-specific ARARs without relying on the effects of wells that are not part of the remedial action.

Extracted intermediate zone groundwater will be treated by air stripping (with off-gas controls) or liquid-phase carbon adsorption. If alternative treatment technologies are identified, EPA will evaluate the alternative in accordance with the criteria specified in 40 C.F.R. Section 300.430 during remedial design.

11.1.2 Compliance with Performance Criteria

Compliance with the performance criteria will be confirmed by quarterly sampling and water level monitoring at compliance wells. In the future, if monitoring data demonstrate that the performance criteria are unlikely to be violated in the short term, monitoring intervals may be lengthened. If it appears, based on trends in monitoring data, that the performance criteria are close to being violated, monitoring intervals may be shortened.

In the Central Containment Area, compliance with the performance criteria will initially be determined through monitoring of hydraulic gradients. After hydraulic containment has been achieved and contaminant concentrations downgradient from extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs at downgradient wells.

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. Contaminant concentrations in downgradient compliance wells must meet chemical-specific criteria at all times.

In both Containment Areas, EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the chemical-specific compliance wells to provide a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance, but close enough to ensure that groundwater contamination is being contained. Imminent exceedance of the performance criteria at compliance wells indicates that groundwater contamination is continuing to migrate and improved hydraulic containment is required. Additional requirements for compliance wells are included in Section 11.1.3.4.

11.1.3 Supplemental Explanation of Performance Criteria

The following paragraphs provide additional explanation of the performance criteria.

11.1.3.1 The "Intermediate" Zone

The "intermediate" zone is a term intended to describe a general horizon within the aquifer underlying the South El Monte OU. During the course of the RI and development of the FS, the complex stratigraphy was simplified with generalizing assumptions about vertical intervals that appear to have similar characteristics throughout the area. However, actual subsurface conditions are not accurately described by terms that imply a consistent, well-layered system. The alluvial materials that underlie the South El Monte OU are heterogeneous and are made up of interfingering lenses of variable hydraulic properties.

The intermediate zone encompasses the coarser interval of the aquifer found beneath the shallow zone and the separating sequence. The shallow zone and separating sequence generally extend across the upper 200 feet of the subsurface, plus or minus 50 feet. The separating sequence is comprised of finer-grained materials that limit the vertical movement of groundwater between the shallow zone and intermediate zone. The intermediate zone is used extensively for groundwater production and generally extends across the first 200 to 300 feet of the aquifer beneath the separating sequence. In the context of this remedy, the intermediate zone extends to the deepest depths where groundwater contamination exceeds chemical-specific ARARs. In general, this is the upper 450 feet below ground surface. However, there may be isolated exceedances deeper in the aquifer. The terms shallow zone, separating sequence and intermediate zone are used in a manner consistent with their usage in the South El Monte OU Final Remedial Investigation and Feasibility Study Reports (Geosystem Consultants, 1998 and 1999, respectively).

11.1.3.2 Central and Western Containment Areas

The Central Containment Area includes production wells owned by the City of Monterey Park and the San Gabriel Valley Water Company. Intermediate zone groundwater contamination currently extends into and beyond the Central Containment Area. EPA's objective in this portion of the intermediate zone is to ensure that contamination is contained within the Central Containment Area. For purposes of this remedial action, the Central Containment Area is defined as: (1) the area encompassed by five Monterey Park wells (Nos. 7, 8, 9, 12, and 15 (planned)) and six San Gabriel Valley Water Company Plant 8 wells (Nos. 8A, 8B, 8C, 8D, 8E, 8F), and (2) the intermediate zone groundwater contaminated above ARARs that is present within 1,500 feet downgradient of these wells. The remedial action must contain all intermediate zone groundwater contamination that is migrating into the Central Containment Area.

The Western Containment Area contains production wells owned by the City of Monterey Park and Southern California Water Company. Intermediate zone groundwater contamination currently extends into the Western Containment Area. EPA's objective in this portion of the intermediate zone is to ensure that contamination does not migrate beyond the Western Containment Area. For the purposes of this remedial action, the Western Containment Area is defined as: (1) the area encompassed by the five Southern California Water Company wells (wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1) and six Monterey Park wells (wells 1, 3, 5, 6, 10, and Fern), and (2) the extent of intermediate zone

groundwater contamination above ARARs in the vicinity of these wells. The remedial action must not allow intermediate zone groundwater contamination to spread beyond its current extent.

There are two approaches that appear to meet the performance criteria for each of the Containment Areas. The first relies exclusively on installation of new extraction wells upgradient of the existing production wells. These new wells would have to provide sufficient hydraulic control to capture contamination before it migrates into the production field. Under this scenario, compliance with the performance criteria will be determined at, or upgradient from, the production wells.

The second approach incorporates the production wells into the remedial action. If this second approach is used, it must be demonstrated that pumping from the production wells alone, or in combination with new wells, provides sufficient hydraulic control to meet the performance criteria. For the production wells to be considered as part of the remedial action, the responsible parties will have to provide assurances that the wells will operate in a manner that will ensure compliance with the performance criteria.

11.1.3.3 Compliance Wells

For any remedial approach, compliance will be monitored at wells located downgradient of each Containment Area. If a new extraction system is used in either Containment Area, compliance wells will also be placed at, or upgradient from, that Containment Area's production wells.

Compliance wells in the intermediate zone will be located within 2,000 feet of the area where extraction is occurring. Compliance well screens will generally be 20 feet or less. Concentrations in wells can vary as a function of screen length because of blending. Therefore, wells with screens longer than 20 feet are not generally considered appropriate for monitoring compliance with chemical-specific standards. However, longer screened intervals may be appropriate for wells used strictly to evaluate compliance with hydraulic control requirements.

Central Containment Area

In the Central Containment Area, compliance with performance criteria will initially be determined through monitoring of hydraulic gradients. Compliance wells will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Water quality data from these wells will also be used to confirm that hydraulic control requirements are being met. After hydraulic containment has been achieved and contaminant concentrations downgradient from the extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs. Wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs.

Western Containment Area

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. As with the Central Containment Area, wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs. Wells used to monitor hydraulic control will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Compliance wells must be sufficient in number and adequately located to ensure that contamination above ARARs does not migrate beyond the Western Containment Area.

11.1.3.4 Adverse Effects

The term "adverse effects" is included in the performance criteria to prevent the design and installation of a hydraulic control system that maintains concentrations at compliance wells below specified thresholds at the expense of production wells that are not part of the remedy. The principal adverse effect of concern is implementation of the remedial action in a manner that results in increased contaminant concentrations in existing production wells that are not part of the remedial action. This requirement

prevents, for example, the installation of new extraction wells immediately upgradient of the compliance wells and downgradient of production wells that are not part of the remedial action. The hydraulic control system must be protective of the environment and not result in adverse effects on production wells or allow continued spread of groundwater contamination.

11.2 Summary of the Estimated Remedy Costs

A detailed breakdown of the estimated capital, operating and maintenance (O&M), and present worth costs associated with the selected remedy is included in Table 7. The specific facilities assumed for estimating the costs of each of the remedy components are as follows (the actual number, size and location of facilities will be determined during remedial design):

- Groundwater Extraction- Installation of three new extraction wells in the Central Containment Area and three new extraction wells in the Western Containment Area to provide containment. An average total extraction rate of 10,000 gpm is assumed.
- Groundwater Treatment- Installation of wellhead treatment facilities at four locations (two in the Central Containment Area and two in the Western Containment Area). These facilities consist of air strippers with VGAC treatment of the off-gas. Treatment is assumed to remove contaminant concentrations to less than 50% of the chemical-specific criteria.
- End Use of Treated Groundwater- Conveyance pipelines to existing water purveyor facilities in the Central Containment Area and the Western Containment Area.
- Groundwater Monitoring- Installation of two additional multiport monitoring wells and implementation of a long-term monitoring program.

The present worth cost estimates assume a 7 percent (%) discount rate and a 30 year project duration. These cost estimates are expected to be accurate within +50 to –30%. The total estimated capital costs are $5.88 million. The estimated annual O&M costs are $0.84 million and the total present worth cost estimate is $14.1 million. These costs assume land acquisition and installation of new facilities. However, there are also existing water purveyor facilities, including land, pumps, wells, and pipelines, that could be incorporated into the remedy. If agreements can be reached to use these existing facilities in place of installing new facilities, the estimated capital costs (and the present worth cost) of the remedy would go down by approximately $2.22 million. Under this scenario, the total estimated capital costs are $3.66 million, and the estimated present worth cost of the remedy is $11.9 million.

These cost estimates assume that the treated water is delivered to water purveyors and that these purveyors pay $45 per acre-foot for the water they receive. This reimbursement rate is an estimate of the purveyor's "avoided cost" of pumping the water from the ground and pressurizing it for delivery to their distribution system. Incorporating this reimbursement rate into the estimate of annual O&M reduces the estimated annual O&M costs by $0.73 million. If the necessary agreements cannot be reached to deliver water to purveyors, annual O&M costs would increase by $0.73 million.

The cost estimates also assume that the containment systems in the Western Containment Area would not need to operate as long as the systems in the Central Containment Area. The Central Containment Area cost estimate assumes an operating life of 30 years. Based on the groundwater modeling evaluations described in Section 14, it is assumed that one of the systems in the Western Containment Area would operate for 10 years and the other one for 5 years. However, it is difficult to predict the actual length of time that these systems will need to operate. If both systems only operated for 5 years, the total present worth cost estimate would drop to $13.7 million. If both systems had to operate for as long as 15 years, the present worth cost estimate would increase to $15.3 million.

11.3 Expected Outcomes of the Selected Remedy

Once implemented, this remedy will protect the existing beneficial uses of the currently uncontaminated aquifer downgradient of the compliance wells. The remedy will allow for continued use of the downgradient areas as a source of drinking water supply. It will also ensure that existing and planned production wells in the Central and Western Containment areas of the OU are protected.

Because the interim remedial action selected in this ROD is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of aquifer (both the shallow and intermediate zones) upgradient of the compliance wells and associated extraction systems is expected to remain contaminated and unusable for a considerable length of time.

12 Applicable or Relevant and Appropriate Requirements (ARARs)

Section 121(d) of CERCLA, 42 U.S.C. § 9621(d) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. These applicable or relevant and appropriate requirements are referred to as "ARARs." Federal ARARs may include requirements promulgated under any federal environmental laws. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than federal requirements and that are identified by the state in a timely manner.

An ARAR may be either "applicable," or "relevant and appropriate," but not both. If there is no specific federal or state ARAR for a particular chemical or remedial action, or if the existing ARARs are not considered sufficiently protective, then other guidance or criteria to be considered (TBCs) may be identified and used to ensure the protection of public health and the environment. The NCP, 40 C.F.R. Part 300, defines "applicable," "relevant and appropriate," and "to be considered" as follows:

- **Applicable requirements** are those cleanup standards, standards of control, or other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

- **Relevant and appropriate requirements** are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.

- **TBCs** consist of advisories, criteria, or guidance that EPA, other federal agencies, or states developed that may be useful in developing CERCLA remedies. The TBC values and guidelines may be used as EPA deems appropriate.

ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements, and pertain only to onsite activities. Offsite activities must comply with all applicable federal, state, and local laws, including both substantive and administrative requirements, that are in effect when the activity takes place. There are three general categories of ARARs:

- **Chemical-specific** ARARs are health- or risk-based concentration limits, numerical values, or methodologies for various environmental media (i.e., groundwater, surface water, air, and soil) that are established for a specific chemical that may be present in a specific media at the site, or that may be discharged to the site during remedial activities. These ARARs set limits on concentrations of specific hazardous substances, pollutants, and contaminants in the environment. Examples of this type of ARAR include state and federal drinking water standards.

- **Location-specific** ARARs set restrictions on certain types of activities based on site characteristics. Federal and state location-specific ARARs are restrictions placed on the concentration of a contaminant or the activities to be conducted because they are in a specific location. Examples of special locations possibly requiring ARARs may include flood plains, wetlands, historic places, and sensitive ecosystems or habitats.

- **Action-specific** ARARs are technology- or activity-based requirements that are triggered by the type of remedial activities under consideration. Examples of this type of ARAR are RCRA regulations for waste treatment, storage, or disposal.

EPA has evaluated and identified the ARARs for the selected remedy in accordance with CERCLA, the NCP, and EPA guidance, including the CERCLA Compliance with Other Laws Manual, Part I (Interim Final), OSWER Directive 9234.1-01 (EPA, 1988a) and CERCLA Compliance with Other Laws Manual, Part II, OSWER Directive 9234.1-02 (EPA, 1989).

12.1 Chemical-Specific ARARs

The chemicals of potential concern for the South El Monte OU are compounds that have been detected in groundwater in the South El Monte OU. Table 6 lists these compounds and their chemical-specific ARARs.

12.1.1 Federal Drinking Water Standards

EPA has established MCLs, 40 C.F.R. Part 141, under the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f-j, to protect public health from contaminants that may be found in drinking water sources. MCLs are applicable at the tap for water that is delivered directly to 25 or more people or to 15 or more service connections.

Under the SDWA, EPA has also designated Maximum Contaminant Level Goals (MCLGs), 40 C.F.R. Part 141, which are health-based goals that may be more stringent than MCLs. MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects would occur. MCLGs greater than zero are relevant and appropriate where multiple contaminants in groundwater or multiple pathways of exposure present unacceptable health risks (EPA, 1988b). One chemical detected in the South El Monte OU groundwater, 1,1,2-trichloroethane, has a non-zero MCLG that is more stringent than its MCL.

Under Section 300.430(f)(5) of the NCP, remedial actions must generally attain MCLs and nonzero MCLGs if the contaminated water is a current or potential source of drinking water. The 1995 Water Quality Control Plan for the Los Angeles Region (Basin Plan) designates all of the contaminated groundwater in the South El Monte OU as current and potential sources of drinking water. However, since this ROD selects an interim remedial action to contain contaminant migration, no final cleanup standards are established for the restoration of groundwater. Final cleanup standards will be established in a Final ROD. For this Interim ROD, EPA has determined that the federal MCLs and nonzero MCLGs listed in Table 6 are ARARs for any groundwater that is extracted and used for domestic, municipal, industrial, or agricultural purposes, and for any groundwater that is discharged to the environment. In addition, these MCLs and MCLGs are ARARs for currently uncontaminated groundwater in the intermediate zone downgradient of the existing compliance wells established by the remedial action (EPA, 1988a).

If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water in existence at the time that the water is served will have to be met because EPA considers the service of water to the public to be an offsite activity.

12.1.2 California Drinking Water Standards

California has established state MCLs for sources of public drinking water, under the California Safe Drinking Water Act of 1976, Health and Safety Code (H&SC) §§ 4010.1 and 4026(c), California Code of Regulations (CCR) Title 22, §§ 64431 and 64444. Some state MCLs are more stringent than the corresponding federal MCLs. EPA has determined that the more stringent state MCLs are relevant and appropriate for the South El Monte OU. There are also some chemicals that lack federal MCLs. Where state MCLs exist for chemicals that lack federal MCLs, EPA has determined that the state MCLs are relevant and appropriate for the South El Monte OU. State MCLs apply to remedial actions in the South El Monte OU in the same manner as federal MCLs. Table 6 identifies the state MCLs that are ARARs for this remedial action.

If contaminants not listed in Table 6 are detected during implementation of the remedy, their state or federal MCLs (or non-zero MCLGs), whichever is lower, shall be ARARs for containment and treatment of the groundwater. If a contaminant is detected that does not have established MCLs or MCLGs (e.g., 1,4-dioxane), EPA will evaluate available standards and information, such as California Department of Health Services drinking water action levels, to identify a relevant and appropriate standard for the contaminant.

12.2 Location-Specific ARARs

This ROD specifies performance criteria for the remedy. As such, the locations of remediation facilities (e.g., wells, treatment plants, and pipelines) are not specifically identified herein. Locations of remediation facilities will be determined during the remedial design, and will conform to the location-specific ARARs identified below.

12.2.1 Location Standards for TSD Facilities

California Code of Regulations, Title 22, Section 66264.18 establishes location standards for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs). Subsection 66264.18(a) prohibits the placement of TSDFs within 200 feet of a fault displaced during the Holocene epoch. Subsection 66264.18(b) requires that TSDFs located within a 100-year flood plain be capable of withstanding a 100-year flood. These standards are applicable to the construction of any new groundwater extraction and treatment facilities used as part of this remedial action.

12.2.2 Endangered Species Act

The Endangered Species Act, 15 U.S.C. §§ 1531-1544, and implementing regulations, 40 C.F.R. § 6.302(h), 50 C.F.R. Parts 17, 222 and 402, are applicable to any remedial actions that impact a proposed or listed threatened or endangered species or destroy or adversely modify the critical habitat of a listed species. No endangered species are known or suspected to occur in the locations where remedial action facilities might be constructed. If, however, it appears during the implementation of the remedial action that construction activities or the discharge of treated groundwater might adversely affect a proposed or listed species, EPA will consult with the U.S. Fish and Wildlife Service (FWS) in accordance with 50 C.F.R. Part 402 and ensure that regulatory requirements are followed so that adverse impacts are avoided or mitigated.

12.2.3 California Fish and Game Code

California Fish and Game Code sections 2080, 5650(a), (b), and (f), 12015, and 12016 prohibit the discharge of harmful quantities of hazardous materials into places that may deleteriously affect fish, wildlife, or plant life. These provisions are applicable if the remedial action will result in the discharge of treated groundwater to surface waters.

12.2.4 National Historic Preservation Act

The National Historic Preservation Act and implementing regulations (16 U.S.C. § 470, 40 C.F.R. Part 6.301(b), 36 C.F.R. Part 800) require federal agencies or federal projects to take into account the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in, or eligible for, the Register of Historic Places. If remedial action is likely to have an adverse effect on any cultural resources that are on or near the South El Monte OU, EPA will examine whether feasible alternatives exist that would avoid such effects. If effects cannot reasonably be avoided, measures will be implemented to minimize or mitigate the potential effect.

No cultural resources are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review of all impacted areas will be made.

12.2.5 Archaeological and Historic Preservation Act

This statute and implementing regulations, 16 U.S.C. § 469, 40 C.F.R. Part 6.301(c), establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program. No sites of historical interest are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review will be made of impacted areas.

12.2.6 Historic Sites, Buildings, and Antiquities Act

The Historic Sites, Buildings, and Antiquities Act, 16 U.S.C. §§ 461-467, 40 C.F.R. Part 6.301(a), requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks. The remedial action is not anticipated to affect any of the facilities regulated under the act. However, during preliminary design, a complete review will be made of impacted areas.

12.3 Action-Specific ARARs

12.3.1 Local Air Quality Management

One VOC treatment technology that may be used is air stripping. Air emissions from air strippers are regulated by the California Air Resources Board, which implements the federal Clean Air Act (CAA), as well as the air pollution control requirements of the California H&SC, through local air quality management districts. Local districts may impose additional regulations to address local air emission concerns. The local air district for the South El Monte OU is the South Coast Air Quality Management District (SCAQMD). The SCAQMD has adopted several rules that are ARARs for air stripper emissions and construction activities.

SCAQMD Regulation XIII, comprising Rules 1301 through 1313, establishes new source review requirements. Rule 1303 requires that all new sources of air pollution in the district use best available control technology (BACT) and meet appropriate offset requirements. Emissions offsets are required for all new sources that emit in excess of one pound per day.

SCAQMD Rule 1401 requires that best available control technology for toxics (T-BACT) be employed for new stationary operating equipment, so that the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of 10 in 1 million (1 x 10-5). Many of the contaminants found in the South El Monte OU groundwater are air toxics subject to Rule 1401.

SCAQMD Rules 401 through 403 are also ARARs for construction and operation of remedial action facilities. SCAQMD Rule 401 limits visible emissions from a point source. Rule 402 prohibits discharge

of material that is odorous or causes injury, nuisance, or annoyance to the public. Rule 403 limits downwind particulate concentrations.

12.3.2 Federal Clean Water Act and California Porter-Cologne Water Quality Act

California's Porter-Cologne Water Quality Act incorporates the requirements of the federal Clean Water Act (CWA) and implements additional standards and requirements for surface and groundwaters of the state.

12.3.2.1 Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The RWQCB formulates and enforces water quality standards through a Basin Plan. The Basin Plan identifies the beneficial uses of surface and groundwaters in the San Gabriel River watershed and establishes water quality objectives necessary to protect these beneficial uses. Water quality objectives impose limitations on receiving waters, rather than discharges, and are applicable to any water body that receives discharge from remedial activities in the South El Monte OU.

The selected remedial action could result in the discharge of treated groundwater to the Rio Hondo. Table 2-1 of the Basin Plan identifies the following beneficial uses for the Rio Hondo above the Rio Hondo Spreading Grounds:

- Municipal and domestic supply (potential beneficial use)
- Groundwater recharge (intermittent beneficial use)
- Water contact recreation (intermittent beneficial use)
- Noncontact water recreation (existing beneficial use)
- Warm freshwater habitat (potential/intermittent beneficial use)
- Wildlife habitat (existing beneficial use)

Because municipal and domestic water supply is a potential beneficial use of these surface waters, Federal and State MCLs and MCLGs are water quality objectives for the Rio Hondo, except where the California Toxics Rule, 33 U.S.C. § 131.38 (below) imposes more stringent criteria. In addition, the following water quality objectives from the Basin Plan are ARARs for the Rio Hondo in the SEMOU vicinity:

- Total Dissolved Solids: 750 mg/L
- Sulfate: 300 mg/L
- Chloride: 150 mg/L
- Boron: 1.0 mg/L
- Nitrogen (NO_3-N + NO_2-N): 8 mg/L

The Basin Plan also establishes water quality objectives for groundwater in the Main San Gabriel Basin (Table 3-10). These water quality objectives are applicable as water quality objectives if the remedial action will result in a discharge that impacts groundwater.

12.3.2.2 California Toxics Rule

In May 2000, EPA established numeric criteria for priority toxic pollutants in California surface waters. As amended, 33 U.S.C. § 131.38 establishes water quality criteria for 126 pollutants, including many of the VOCs found in groundwater at the South El Monte OU. If it is determind that the remedial action will discharge treated groundwater to the Rio Hondo, EPA will use these water quality criteria to develop water quality-based effluent limitations for the discharge.

12.3.2.3 State Water Resources Control Board Resolution 68-16

The Basin Plan also incorporates the State Water Resources Control Board (SWRCB) policy "Statement of Policy with Respect to Maintaining High Water Quality in California" (Resolution 68-16). Resolution 68-16 requires that existing water quality be maintained unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than prescribed by other state policies. Any activity that may increase the volume or concentration of a waste discharged to surface or groundwater is required to use the "best practicable treatment or control."

Resolution 68-16 is applicable to discharges of treated groundwater. If treated water is to be discharged to the Rio Hondo, the RWQCB may require an evaluation of the potential impact of nitrate and TDS contained in treated groundwater on receiving waters and investigate alternative discharge options. If water quality impacts are minimal and alternative discharge options infeasible, the RWQCB may allow the discharge to the Rio Hondo.

12.3.2.4 State Water Resources Control Board Resolution 92-49

Subsection III.G of the SWRCB's "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304" (Resolution 92-49) requires attainment of background water quality or, if background levels cannot be restored, the best quality of water that is reasonable. Resolution 92-49 is not an ARAR because this is an interim remedial action to contain the spread of contamination, rather than a final action to restore groundwater in the South El Monte OU.

12.3.2.5 Standards Applicable to CERCLA Section 104(b) Discharges to Surface Waters

Site investigation activities undertaken pursuant to CERCLA § 104(b) are considered to be removal actions. It is EPA policy that removal actions "comply with ARARs to the extent practicable, considering the exigencies of the circumstances." (55 Fed. Reg. 8756).

It is possible that certain site investigation activities will take place during remedial design, which will result in temporary high-flow, high-volume discharges of contaminated groundwater (e.g., discharges from aquifer testing of extraction wells). EPA has considered the best available technology economically achievable (BAT) for treatment and disposal of these discharges. The three disposal options that EPA considered are: (1) onsite storage and disposal at a Resource Conservation and Recovery Act (RCRA)-approved hazardous waste facility, (2) discharge to a sanitary sewer for treatment at a wastewater treatment plant, and (3) onsite treatment and discharge to surface water channels. EPA has concluded that compliance with chemical-specific ARARs is not practicable, considering the exigencies of the circumstances, for many temporary high-flow, high-volume discharges.

EPA has determined that compliance with chemical-specific ARARs is practicable and necessary for CERCLA § 104(b) activities that do not result in temporary high-flow, high-volume discharges. EPA will determine the application of chemical-specific ARARs to CERCLA § 104(b) activities on a case-by-case basis. Where practicable, these discharges must comply with ARARs.

12.3.3 California Hazardous Waste Management Program

The federal RCRA establishes requirements for the management and disposal of hazardous wastes. In lieu of the federal RCRA program, the State of California is authorized to enforce its Hazardous Waste Control Act, and implement regulations (CCR Title 22, Division 4.5), subject to the authority retained by EPA in accordance with the Hazardous and Solid Waste Amendments of 1984 (HSWA). California is responsible for permitting treatment, storage, and disposal facilities within its borders and carrying out

other aspects of the RCRA program. Some of the Title 22 regulations are applicable to the generation and disposal of hazardous wastes in the South El Monte OU.

12.3.3.1 Hazardous Waste Generator Requirements

CCR Title 22 establishes requirements applicable to generators of hazardous waste. Implementation of the remedial action may generate hazardous waste as a result of ground-water monitoring and well installation (e.g., contaminated soil and groundwater and used personal protective equipment). Hazardous waste may also be generated as a result of ground-water treatment to remove VOCs (e.g., spent carbon). These requirements are applicable to remedial actions in the South El Monte OU.

The preamble to the NCP clarifies that when noncontiguous facilities are treated as one site, the movement of hazardous waste from one facility to another is subject to RCRA manifest requirements (55 Fed. Reg. 8691). Manifest requirements are ARARs in the event that the remedial action involve multiple water treatment units at different locations and require the movement of hazardous wastes (e.g., spent carbon) between these locations.

12.3.3.2 Land Disposal Restrictions

CCR Title 22 defines hazardous wastes that cannot be disposed of to land without treatment. Land disposal requirements are applicable to the disposal of spent carbon generated during the treatment of groundwater for removal of VOCs, if carbon adsorption is used, and the disposal of residuals associated with groundwater monitoring and well installation (e.g., contaminated soil and groundwater, used personal protective equipment).

12.3.3.3 Hazardous Waste TSD Facility Requirements

CCR Title 22, Division 4.5, Chapter 14, specifies Hazardous Waste TSDF requirements that regulate the design, construction, operation, and closure of RCRA-permitted TSDFs. Since the contaminated groundwater is sufficiently similar to RCRA hazardous wastes, Title 22 TSDF requirements are relevant and appropriate for the design, construction, operation, and closure of any ground-water treatment systems. The Title 22 ARARs include the substantive requirements of the following provisions:

- Section 66264.14: Security Requirements
- Section 66264.25: Seismic and Precipitation Standards
- Section 66264.94: Groundwater Protection Standards
- Sections 66264.111-115: Closure of Treatment Units
- Sections 66264.170-178: Use and Management of Containers
- Sections 66264.600-603: Standards for Miscellaneous Treatment Units

12.4 ARARs Waivers

This interim remedial action shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining onsite. These ARARs will be addressed in the Final ROD for the South El Monte OU.

13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy (in conjunction with the interim remedial action in the downgradient Whittier Narrows OU) will protect human health and the environment by limiting further downgradient migration of contaminated groundwater and preventing the existing groundwater contamination from impacting current groundwater users. The remedy will also remove contaminant mass from the aquifer. The selected remedy will reduce potential risks by decreasing the likelihood and magnitude of future exposure to contaminated groundwater. Contaminant concentrations in the groundwater in the areas to be addressed by the remedy are currently well above acceptable levels. Available treatment technologies are technically feasible and proven effective in meeting ARARs for VOCs in the treated groundwater and air. Implementation of the remedy will not pose unacceptable short-term risks. In addition, no adverse cross-media impacts are expected.

13.2 Compliance with ARARs

The selected remedy shall comply with all ARARs described in Section 12 of this interim ROD. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

13.3 Cost-Effectiveness

EPA believes the selected remedy is cost-effective for addressing migration of contaminated groundwater in the South El Monte OU. Section 300.430(f)(ii)(D) of the NCP requires EPA to determine cost-effectiveness by evaluating the cost of an alternative relative to its overall effectiveness. Effectiveness is defined by three of the five balancing criteria: long-term effectiveness, short-term effectiveness, and reduction of toxicity, mobility and volume through treatment. The overall effectiveness is then compared to cost to ensure that the selected remedy is cost-effective.

The estimated present worth cost of the selected remedy is $14.1 million. The selected remedy is the lowest cost alternative that meets EPA's RAOs for the South El Monte OU. The less expensive groundwater-monitoring only alternative (Alternative 2) does not actively contain migration of groundwater contamination in the South El Monte OU.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

As an interim remedial action, EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner in the South El Monte OU. EPA has also determined that the selected remedy provides the best balance of

tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and considering state and community acceptance.

The selected remedy satisfies the long-term effectiveness criterion by removing VOC contamination from the groundwater and destroying the VOCs during carbon regeneration. Groundwater containment through extraction effectively reduces the mobility and volume of and potential for exposure to site-related contamination. The selected remedy does not present any short-term risks that can not be readily mitigated and EPA expects that the implementability issues associated with the selected remedy can be resolved in a timely manner.

13.5 Preference for Treatment as a Principal Element

By treating the contaminated groundwater through air stripping or liquid-phase carbon adsorption, the selected remedy addresses the site contamination through the use of treatment technologies. By using treatment as a component of the interim remedial action, the statutory preference for remedies that employ treatment as a principal element is supported.

13.6 Five-Year Reviews

Because the remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, EPA shall conduct a review of the remedy at least once every 5 years after initiation of remedial action. The review will assess whether the remedy continues to provide adequate protection of human health and the environment. If it is determined that the remedy is no longer protective of human health and the environment, then modifications to the remedy will be evaluated and implemented as necessary.

14 Documentation of Significant Changes

The Proposed Plan for the South El Monte OU was released for public comment in September 1999. The Proposed Plan identified Alternative 3, Intermediate Zone Control in the Western South El Monte OU, as the Preferred Alternative for addressing groundwater contamination in the South El Monte OU. EPA received and reviewed a large number of written and verbal comments submitted during the public comment period. During this period, EPA was made aware of additional data on the extent of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. This data indicated that the intermediate zone groundwater contaminated in excess of MCLs had migrated further west than was depicted in the FS Report (Geosystem Consultants, 1999) and Proposed Plan. EPA confirmed the larger extent of intermediate zone contamination by installing and sampling two new multiport monitoring wells in the spring of 2000. Because of this migration, the western boundary of the South El Monte OU described as Walnut Grove Avenue in the Feasibility Study and Proposed Plan, has moved with the contamination to the vicinity of San Gabriel Boulevard.

Although the change in the extent of intermediate zone contamination does not require changes to the general structure of the preferred alternative, it does impact the locations and cost of the facilities that will be required to meet the RAOs. In the Proposed Plan, the preferred alternative only discussed the need for containment in the vicinity of the San Gabriel Valley Water Company (SGVWC) and Monterey Park well fields (referred to as the "Central Containment Area" in Section 11). The discovery of significant contamination downgradient of these locations required EPA to evaluate the potential need for additional downgradient containment to meet the migration control objectives of the remedy. To assess the magnitude and location of potential supplemental containment, EPA performed groundwater modeling simulations. The groundwater modeling results are described in a memorandum (EPA, 2000) and summarized below.

To develop a revised containment scenario, the extraction scenario simulated for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999) was modified to include additional pumping further west (referred to as the "Western Containment Area" in Section 11) at the downgradient edge of the plume. In the modified containment scenario, consistent with the simulations performed for the FS, all of the extraction is provided by existing water purveyor wells. However, this containment could instead be provided by extraction from new wells located upgradient of the existing wells. The modified containment scenario simulation includes the following:

- Operation of existing production wells at close to maximum capacity on a continuous basis if they have wellhead treatment systems currently operating or if the water purveyors have plans to install wellhead treatment systems in the near future. These wells include Monterey Park's wells 5, 12 and 15; selected SGVWC Plant 8 (8B, 8C, and 8D) wells; and SCWC's San Gabriel 1 and 2 wells
- Operation of selected additional purveyor wells as necessary to meet peak demands or to maintain system pressures
- Sufficient extraction from existing production wells to match historic average annual production rates for each purveyor's system
- Operation of EPA's planned remedy in the Whittier Narrows OU.

The average extraction rates for each of the wells assumed to be operating as part of the modified Alternative No. 3 are summarized as follows:

- Monterey Park No. 5 well- 1,620 gpm
- Monterey Park No. 12 and 15 wells- 4,050 gpm
- SGVWC Plant 8 wells- 2,500 gpm
- SCWC San Gabriel 1 and 2 wells- 1,850 gpm

TOTAL- 10,020 gpm

It should be noted that the extraction rates simulated for the Monterey Park's No. 12 and 15 wells are higher than those used in the simulations for Alternative No. 3 performed for the South El Monte OU FS Report (Geosystem Consultants, 1999). Figure 5 shows the simulation results for the modified Alternative No. 3. The figure shows the simulated paths of groundwater particles within and around the interpreted area of VOC contamination in the intermediate zone of the South El Monte OU. The simulated particle tracks presented in Figure 5 confirm that the extraction wells included in the original Alternative No. 3 (i.e., Monterey Park Nos. 12 and 15; SGVWC's Plant 8 wells) provide containment of the upgradient (i.e., the "Central Area") intermediate zone contamination. These extraction wells would also capture some of the contamination that has migrated downgradient. The remainder of the contamination that has migrated further downgradient (the "Western Area") beyond the capture zone of these wells can be contained by extraction from the Monterey Park No. 5 and the Southern California Water Company (SCWC) San Gabriel Nos. 1 and 2 wells.

These simulation results show that containment can be achieved using extraction from existing wells. As noted above, containment could also be achieved by using new wells installed upgradient of the existing wells. Two of the existing well clusters included in the modified Alternative No. 3 simulations were not included in the original Alternative No. 3 presented in the Proposed Plan. These are the Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2 wells. Because these wells are located downgradient of the primary containment provided by the upgradient Monterey Park/SGVWC wells, they may not need to be operated for as long to provide containment of this downgradient contamination.

The length of time that the additional containment systems would need to operate has been estimated using groundwater velocities derived from the simulation illustrated in Figure 5. The simulated groundwater velocities in the downgradient western area are about 400 feet/year and suggest that all of the groundwater would be captured by Monterey Park well No. 5 within about 6 years. Because retardation of contaminants such as PCE likely occurs in the intermediate zone, the estimated time to remove the contamination from the intermediate aquifer would be longer, approximately 10 years. This assumes a retardation factor of 1.8, as was used in the FS Report (Geosystem Consultants, 1999). Less time should be required to remove the contamination migrating towards the SCWC San Gabriel 1 and 2 wells because these wells capture a smaller area of contamination. Using the groundwater velocity and retardation factor described above, the estimated operational time frame for the SCWC wells is 5 years. These estimates are based on a number of assumptions; the actual amount of time needed to operate the containment systems in the Western Containment Area could be considerably different. However, the times cited above provide an adequate basis for estimating costs.

Revised Remedy Costs

The estimated present worth cost of the modified Alternative No. 3, assuming use of all new facilities (i.e., none of the existing water purveyor wells, pumps, land or other facilities would be used in the containment systems), is $14.1 million (see Table 7). This cost estimate relies on all of the same cost assumptions and cost factors used in developing costs for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999), and includes the costs of installing and operating additional facilities in the vicinity of Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2. The cost estimate assumes that these facilities would need to operate for 10 and 5 years, respectively. The estimated present worth cost of the

modified Alternative No. 3 would be reduced to $11.9 million if it is assumed that existing facilities are used (EPA 2000).

The actual amount of time that the supplemental containment systems for the Western Containment Area would need to operate is uncertain. Accordingly, the actual costs of the remedy could be higher or lower than those described above. For example, if both containment systems only needed to operate for 5 years, the estimated cost of the remedy would be $13.7 million, rather than $14.1 million. Conversely, if both wellhead treatment facilities had to operate for 15 years, the estimated cost of the remedy would increase to $15.3 million (EPA 2000).

Part III
Responsiveness Summary

Part III – Responsiveness Summary

This Responsiveness Summary portion of the interim Record of Decision (ROD) presents the U.S. Environmental Protection Agency's (EPA) responses to the written and significant oral comments received at the public meeting and during the public comment period. The section is divided into responses to written comments and responses to oral comments. Comments are expressed in italics, EPA's responses in plain text.

1 Responses to Written Comments

This section provides responses to written comments received by EPA during the public comment period. Written comments were received from eight local agencies and cities (Cities of Monterey Park, Pico Rivera, and South El Monte; Main San Gabriel Basin Watermaster; San Gabriel Basin Water Quality Authority; Upper San Gabriel Valley Municipal Water District; Southeast Water Coalition [SEWC]; the Water Replenishment District); two local water purveyors (San Gabriel Valley Water Company and Southern California Water Company); seventeen individual South El Monte OU potentially responsible parties and their representatives (Aircraft Stamping Co., Inc.; APW-Electronic Solutions; Artistic Polishing and Plating, Inc.; Art Weiss Industrial Properties; Bassett & Obbink; Clamp Manufacturing Company, Inc.; CraneVeyor Corporation; Eagle Metal Finishing Co., Inc.; Earl Butler and Associates; EEMUS Manufacturing Corp; Ray Finkle; Jebbia Trust; Roc-Aire Corporation; Seachrome Corporation; Smittybilt, Inc.;Tri-Fitting Mfg. Company; and Robert Glenn Vanderbosch); Geosystem Consultants, Inc. (on behalf of the South El Monte OU Participants); two individuals (R. Brown and Allan Hill); and Congressman Matthew G. Martinez.

1.1 Responses to Comments from the City of Monterey Park

Monterey Park Comment No. 1. *Thank you for the presentation made on October 27, 1999 about the South El Monte Operable Unit (SEMOU) treatment alternatives. We appreciate the opportunity to hear the status and the progress of the SEMOU. We support the EPA's choice of Alternative 3. We feel that it provides the required control for the intermediate contamination and the flexibility to allow the choice to either treat the shallow contamination at South El Monte or in Whittier Narrows, which ever is more cost effective.*

The model that we have all seen for the past three years shows contaminant flow coming west in the intermediate aquifer from the SEMOU. The City of Monterey Park Water System (City) has 11 drinking water supply wells located in the city of Rosemead, south of Garvey Ave. and east of San Gabriel Blvd. In the past we have had a history of generally low levels of VOC contamination in the City's wells. Unfortunately, in 1995, the PCE level for Well no. 12 (2,500 gpm) went to a level that it was placed on standby status. The PCE level currently stands at 34 μg/L.

In addition, Well no. 6 (700 gpm) was put on standby status in October 1999 because of TCE contamination and Fern Well (1,800 gpm) may have to be put on standby status this winter because of PCE contamination. In September 1998, Well no. 5 (2, 100 gpm) was taken out of service due to PCE contamination. It was put back in service in September 1999 with a GAC treatment plant (cost $680,000).

We look forward to working with you for solutions to contain and eliminate the contamination in SEMOU in a timely manner. We are planning to start construction of a treatment plant at the City's Well no. 12 within the next year. As I discussed with Ms. Adams on the 27th, anything that can be done to assist the RPRs in SEMOU to receive some type of credit for financial assistance for this project would help this portion of the remedy progress faster. As we first wrote you in April 1997, we have a concern that the migrating contamination from SEMOU will continue to reduce the number of wells available to us. This would be a big problem for us because our only water source is from our wells.

EPA's Response. EPA understands the significant financial and operational impacts of South El Monte OU contamination on the City's water supply wells and believes that the selected remedy will ensure that the City has access to clean water over the long-term. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the City, to reach these agreements in a timely manner.

1.2 Responses to Comments from the City of Pico Rivera

Pico Rivera Comment No. 1. *Under Alternative 3, proposed wells would be located on the westerly portion of the South El Monte Operable Unit (SEMOU) where they would provide containment of contaminated groundwater moving towards groundwater pumping centers to the west.*

Under Alternative 4, the wells would be located within the central portion (between Rosemead Boulevard and Chico Avenue) where they would also provide containment of contaminated groundwater migrating through the Whittier Narrows.

Perhaps location of wells in the central portion as a Revision to Alternative 3 would be more effective. Ideally, for maximum effectiveness, wells should be located in areas where the shallow and intermediate zones of VOC contamination overlap.

EPA's Response. The selected remedy (Alternative 3) includes containment in the western portion of the South El Monte OU because this is where the contamination has already migrated. If containment were implemented in the central portion of the OU, large amounts of contamination would continue to migrate downgradient, impacting additional water supply wells in clean areas. Thus, the containment would be less effective. Alternative 4 additionally called for pumping in the central portion of the OU. This pumping would primarily act as a source control measure, rather than containment.

Pico Rivera Comment No. 2. *Assuming completion of the ROD for the Whittier Narrows OU by mid-2000, construction on the plan may not be completed until 2003. It is estimated that the Whittier Narrows plan, which is running approximately one year ahead of the proposed South El Monte Plan, will be completed on or around mid-2002.*

Comment: Since migration of contaminated groundwater will continue southerly for two to three years if Alternative 3 is selected, perhaps installation of an emergency interim containment remedy within the Whittier Narrows OU would be appropriate.

EPA's Response. EPA expects that the Whittier Narrows OU remedy will be operational by the end of 2001. There is currently an interim containment action operated by the San Gabriel Valley Water Quality Authority just north of San Gabriel Boulevard in Whittier Narrows to contain the most contaminated portion of the shallow zone. EPA is planning to perform additional interim extraction in the shallow zone in Whittier Narrows in 2000.

Pico Rivera Comment No. 3. *How will the matter of adjudicated water rights be addressed for any water drawn?*

EPA's Response. EPA's preference is for local water purveyors to be the recipients of treated water from the South El Monte OU remedy. If this is the case, those water purveyors would be expected to count any water they accept from the project towards their water rights allocation. If agreements cannot be reached to provide the treated water to local water purveyors, the water will most likely be recharged to the aquifer within the San Gabriel Basin. In either of these scenarios, EPA expects that arrangements will be made with local water management agencies to address groundwater management issues.

Pico River Comment No. 4. *Will all water purveyors within the Whittier Narrows OU be afforded water at $45 per acre foot as is contemplated within the South El Monte OU?*

EPA's Response. Currently, EPA is expecting purveyors, and perhaps other entities, would bid on operation of the treatment facilities for the Whittier Narrows OU. The operator would be expected to pay all of the necessary fees to local water agencies, including fees for replacement or replenishment water for any water they accept that is in excess of their water right for that year. EPA also expects that the operator would use the treated groundwater as a domestic water supply.

The cost of $45 per acre-foot is used for cost estimating purposes only and is based on a rough estimate of the "avoided cost" for a purveyor that is no longer paying the costs to pump their own water to the ground surface.

Pico Rivera Comment No. 5. *Would EPA consider remodeling existing purveyor wells to increase extraction rates?*

EPA's Response. The South El Monte OU Feasibility Study does include the costs of retrofitting existing wells with new pumps to provide the appropriate capacity for the remedial pumping. In the Whittier Narrows OU, EPA concluded that there were not any existing purveyor wells ideally located to provide efficient containment of the groundwater contamination.

1.3 Responses to Comments from the City of South El Monte

South El Monte Comment No. 1. *I have been directed to draft a letter notifying the United State Environmental Protection Agency of the South El Monte City Council's decision to support alternative three, the USEPA's preferred alternative, from among the four cleanup alternatives presented during the community meeting held Wednesday, October 27, 1999, at the South El Monte High School.*

The action was taken at the regularly scheduled November 22, 1999, meeting. A letter signed by mayor Art Olmos will follow. This letter is being sent to you in order to have the City Council's decision on the record prior to the close of the comment period.

EPA's Response. Comment noted. EPA has selected Alternative No. 3 for the South El Monte remedy in this Interim ROD. The majority of the written comments received by EPA during the public comment period were in support of Alternative No. 3.

1.4 Responses to Comments from the Main San Gabriel Basin Watermaster

Watermaster Comment No. 1. *Watermaster strongly supports the use of existing water purveyors facilities as a part of the remedial action. Use of wells owned by San Gabriel Valley Water Company and*

the City of Monterey Park will reduce project costs while assuring a reliable water supply for the purveyors and their customers. The recharge of treated water is not a preferred alternative, especially in the downstream areas of the Main San Gabriel Basin. The recharge capabilities, which are required for the spreading of storm runoffs and Replenishment Water, will likely become markedly diminished with the constant spreading of treated water. In addition to losses in the capture of storm water, the constant flow of treated water will require a mitigation program to control vectors, such as midges. The utilization of the treated water by the two Producers will avoid these problems.

EPA's Response. Comment noted. EPA also strongly prefers that local water purveyors be the recipients of treated water from the South El Monte OU remedy. In addition, EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors and Watermaster, to reach these agreements in a timely manner.

1.5 Responses to Comments from the San Gabriel Basin Water Quality Authority

Water Quality Authority Comment No. 1. *In general, WQA supports EPA's Proposed Plan for the SEMOU. The containment specified for the intermediate zone in the northwestern portion of the operable unit will be essential in arresting the flow of contaminants and protecting down gradient groundwater production centers. The three extraction wells and associated treatment facilities that make up the intermediate zone containment barrier must be implemented immediately to properly mitigate this significant threat. In addition, WQA is committed to assuring that the remedy include, to the extent possible, existing water supply facilities so that impacts to the local water supply are minimized in conjunction with the cleanup.*

EPA's Response. Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner.

Water Quality Authority Comment No. 2. *WQA also acknowledges that an integrated solution is required to address the contamination found in both the SEMOU and Whittier Narrows Operable Unit (WNOU). Furthermore, WQA agrees that when implemented, the proposed extraction barrier for the WNOU will provide the necessary containment to protect the central basin from the contamination emanating from a portion of the SEMOU. However, WQA is concerned that the complexities associated with the comprehensive WNOU barrier remedy may significantly delay its implementation.*

In light of the uncertainties surrounding the implementation of the WNOU barrier, WQA has and will continue to support actions that can be quickly implemented to remove sources of contamination in SEMOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. Continued operation of both these projects, in conjunction with the comprehensive remedy proposed by the EPA, will be essential to minimizing the threat to Central Basin.

EPA's Response. Although there are a number of factors that make implementation of the Whittier Narrows OU remedy quite complex, EPA is attempting to accelerate implementation of the Whittier Narrows OU remedy and expects it to be operational within the next 12 months. In the interim, EPA continues to support installation and operation of early actions that address the most critical areas of contamination. The early action that WQA is currently operating in Whittier Narrows addresses the most highly contaminated portion of the shallow zone in Whittier Narrows and should continue to operate until the full-scale Whittier Narrows remedy is available to take over containment at this location.

Water Quality Authority Comment No. 3. *Although EPA has chosen not to include the SEMOU early action extraction barrier in its preferred alternative for the SEMOU, it has in the past, supported and encouraged supplemental source removal actions that would complement actions taken under CERCLA. EPA's prior support of the SEMOU early action extraction barrier was essential in getting the project implemented and will be essential in keeping it operational since long-term funding remains unsecured. Because the South El Monte early action extraction barrier is primarily a source removal action, additional commitments by both the EPA and the Los Angeles Regional Quality Control Board (Regional Board) will be necessary to mandate continuance of the barrier operation under the Regional Board's site cleanup authority. Such enforcement actions will isolate responsibility to those companies directly linked to the groundwater contamination now being cleaned up by the extraction barrier.*

EPA's Response. EPA fully supports implementation of source control actions at individual facilities or groups of facilities in the South El Monte OU, including WQA's shallow barrier project. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities. These types of source removal actions are critical to EPA's long-term remedial goals in the South El Monte OU and throughout the San Gabriel Basin.

Water Quality Authority Comment No. 4. *In summary, WQA supports a combination of EPA's preferred alternative (alternative No. 3), the SEMOU early action extraction barrier, the WNOU early extraction barrier, and EPA's WNOU comprehensive barrier as the remedial actions that are necessary to address the contamination present within the SEMOU and WNOU. These actions are best implemented using a combination of regulatory vehicles, including EPA enforcement, EPA fund lead, Regional Board enforcement and voluntary actions.*

EPA's Response. Comment noted. EPA concurs with the ongoing need for both regional containment actions as EPA is implementing in the Whittier Narrows and South El Monte OUs and localized source control actions in contaminant source areas.

1.6 Responses to Comments from the Upper San Gabriel Valley Municipal Water District (USGVMWD)

USGVMWD Comment No. 1. *The Upper District strongly encourages the U.S. Environmental Protection Agency (USEPA) to adopt Alternative 4, the intermediate zone control in western SEMOU and shallow zone source control for the following reasons:*

1. *Shallow zone extraction would remove significant high-level contamination in a relatively short period of time. This will reduce the impact of continued contaminant migration towards the Whittier Narrows. Shallow zone source control satisfies the primary balancing criteria as listed in the proposed plan. It is our feeling that Alternative 4 will reduce costs in the long-run.*

2. *The increased estimate costs of shallow zone source control are reduced by increased local participation already taking place. The San Gabriel Valley Water Quality Authority, along with local water producers, are working with local partnerships to develop local cleanup projects.*

3. *These complicated negotiations hinge on the adoption of shallow zone source control in the Record of Decision for South El Monte. By not including shallow zone source control, the USEPA is not taking into consideration local participation and funds.*

EPA's Response. Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA firmly believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. Further, as we have in the past, EPA will continue to support the development of local partnerships to fund and implement source control actions such as the shallow zone extraction barrier pilot project (SEPP) currently operating in the South El Monte OU.

Based on comments received from the San Gabriel Basin Water Quality Authority (see Section 1.5 above), we do not believe that agreements for continued operation of local cleanup projects, such as the SEPP, hinge on this ROD incorporating shallow zone source control into the South El Monte OU interim remedy.

1.7 Responses to Comments from the Southeast Water Coalition (SEWC)

SEWC Comment No. 1. *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional $4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. SEWC feels that the $4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.

SEWC reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte seems very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, SEWC strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.

EPA's Response. EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU.

EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

SEWC Comment No. 2. *Additionally, SEWC will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as SEWC stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

The SEWC strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the SEWC Technical Advisory Committee and the Water Replenishment District.

EPA's Response. As described in the Whittier Narrows OU ROD Amendment, EPA's objective for the Whittier Narrows OU remedy is to contain and extract groundwater contaminated with chemicals in excess of drinking water standards in Whittier Narrows. The intent of this containment is to limit migration of all groundwater exceeding MCLs into the Central Basin.

As is described further in the Responsiveness Summary portion of the Whittier Narrows OU ROD Amendment, EPA did not include a wellhead treatment contingency in the ROD Amendment. EPA intends to continue to apply Agency resources towards the task of protecting the quality of the groundwater aquifer by containing contaminant source areas and capturing contamination in the aquifer.

Once the Whittier Narrows remedy is implemented, EPA considers it unlikely that any additional Central Basin production wells will require wellhead treatment. The remedy should stop migration of contamination through the Narrows, thereby reducing the threat of significant contamination reaching the Central Basin.

However, EPA does expect that some of the contamination currently in the Narrows will continue to move into the Central Basin aquifer before the proposed remedy can take effect. EPA will continue to monitor the wells along the Whittier Narrows Dam. Should contaminant levels increase such that groundwater contamination poses a significant threat to Central Basin production wells, EPA may implement a focused, fast-track temporary extraction system to protect Central Basin wells.

1.8 Responses to Comments from the Water Replenishment District of Southern California (WRD)

WRD Comment No. 1. *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional $4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. WRD feels that the $4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.

EPA's Response. EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

WRD Comment No. 2. *WRD believes that both shallow and intermediate zone control in the South El Monte Operable Unit, in conjunction with the proposed shallow and intermediate zone remediation in the Whittier Narrows Operable Unit (WNOU), are vital to the protection of the Central Basin from San Gabriel Valley contamination. Due to the complexities associated with implementation of the WNOU remediation project, WRD has and will continue to support actions that can be quickly implemented to remove sources of contamination in both the SEMOU and the WNOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. The USEPA needs to assure that these projects will be included in the comprehensive remedy proposed by the USEPA to minimize the contamination threat to the Central Basin. The USEPA has recently stated interest in implementing an early removal project in the intermediate zone of the WNOU. WRD supports that interest and encourages prompt execution of this project, while the USEPA continues to implement the regional remediation project in the WNOU.*

EPA's Response. Although there are definite benefits associated with shallow zone control in the South El Monte OU, EPA does not concur that South El Monte OU shallow zone control is "vital" to the protection of the Central Basin from San Gabriel contamination.

EPA will continue to move forward on accelerated implementation of the full containment remedy in the Whittier Narrows OU. EPA also supports local stakeholder cooperation that facilitates early implementation of components of the ultimate remedy in either the Whittier Narrows or South El Monte OUs.

WRD Comment No. 3. *WRD reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte would be very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, WRD strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.*

EPA's Response. EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU. As described above in the response to WRD Comment No. 1, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. EPA will continue to support source removal and source control through other avenues, as described above.

WRD Comment No. 4. *Additionally, WRD will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as WRD stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

WRD strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the Water Replenishment District and the SEWC Technical Advisory Committee.

EPA's Response. See response to SEWC Comment No. 2 above in Section 1.7.

1.9 Responses to Comments from the San Gabriel Valley Water Company

San Gabriel Valley Water Company (SGVWC) Comment No. 1. *San Gabriel Valley Water Company ("San Gabriel") is a public utility providing water service to all or portions of 18 cities in Los Angeles County, including nearly all of the area within the South El Monte Operable Unit ("OU"). San Gabriel fully supports EPA's Preferred Alternative: Alternative 3 - Intermediate Zone Control in Western South El Monte OU.*

The discussion of Alternative 3 states that "the preferred alternative provides the option of using San Gabriel Valley Water Company well field extraction systems." This refers to San Gabriel's Plant No. 8 which is a key water production facility located near the intersection of Rosemead Boulevard and Garvey Avenue in South El Monte in the northeast portion of the OU. VOC contamination has been

detected in four of the five wells at Plant No. 8 with three of these wells currently exceeding the MCL for PCE. In response, San Gabriel is planning to install a wellhead treatment facility in the year 2000.

As stated in Michael L. Whitehead's March 24, 1999 letter to Gavin McCabe (copy enclosed), "if agreement can be reached with EPA and the South El Monte Operable Unit participants, San Gabriel is willing and able to operate its facilities and commit to meeting [the] operational requirements [of EPA] for the duration of the EPA required cleanup" at our Plant No. 8.

San Gabriel endorses the use of existing wells to resolve both groundwater cleanup and drinking water supply issues, and we are pleased that EPA has chosen such a plan as the Preferred alternative in South El Monte.

EPA's Response. EPA appreciates SGVWC's interest in participating in the South El Monte OU remedy. In addition to the water supply benefits gained by providing the treated water to water purveyors, EPA believes that the use of existing water supply wells and facilities will likely be the most cost-effective way to implement the South El Monte OU remedy. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and we are optimistic that the necessary agreements can be reached to allow the use of existing facilities to the maximum extent possible to meet the objectives of the selected remedy described in this ROD. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely manner.

San Gabriel Valley Water Company (SGVWC) Comment No. 2. *These comments are offered to assist the EPA in its evaluation of the South El Monte Operable Unit ("SEMOU") Draft Feasibility Study ("Draft FS"). In particular we urge the EPA to endorse the use of existing wells and planned wellhead treatment facilities of San Gabriel Valley Water Company ("San Gabriel") as an important element of the groundwater remediation plan in the SEMOU.*

San Gabriel is a public utility water company which is subject to the regulatory jurisdiction of the California Public Utilities Commission (the "CPUC"). San Gabriel has operated since 1937 and provides public utility water service to a population of over 160,000 in 15 cities including all of South El Monte, and in unincorporated county areas in the San Gabriel Valley. San Gabriel produces nearly 40,000 acre feet of water per year from 31 wells in Los Angeles County, including 27 wells in the Main San Gabriel Basin. San Gabriel's Plant No. 8 is a key water facility with 5 wells and is within the SEMOU.

Rising VOC levels necessitated the drilling of a new well at Plant No. 8 in 1998 and a treatment plant is planned for later this year. The need to provide reliable water supply that meets all federal and state safe drinking water standards dictates that we design and construct this facility now, regardless of the cleanup plan required by EPA in the SEMOU. But the cost of building and operating these facilities will be borne, at least initially, by San Gabriel and it customers. Clearly, in the interest of sound public policy, EPA should encourage and allow the SEMOU PRPs to help pay for and incorporate the Plant No. 8 facilities into their cleanup plan, thereby minimizing their own costs while lifting the cost burden from San Gabriel and its customers.

Plant No. 8's location at the western edge of the SEMOU VOC plume makes it a logical location for containment and treatment of the westward migration of VOCs and it has been identified as such in the Draft FS. The operational requirements of Plant No. 8 for containment of VOCs in the western SEMOU as outlined in the Draft FS are achievable with existing facilities and at historic pumping rates. If agreement can be reached with EPA and the SEMOU participants, San Gabriel is able to operate its facilities and commit to meeting those operational requirements for the duration of the EPA required cleanup and San Gabriel is prepared to meet and confer with EPA and the SEMOU participants to discuss the terms and conditions of such an agreement.

In that regard, San Gabriel's longstanding management, technical expertise, and financial resources should provide EPA ample assurance of San Gabriel's ability to carry out such a cleanup plan. As previously stated, San Gabriel has provided reliable public utility water service in the San Gabriel Valley since 1937. San Gabriel's entire water system, including Plant No. 8, is dedicated to public use and is necessary and useful to San Gabriel in the performance of its obligations as a public utility as provided in the Public Utilities Code and pursuant to CPUC regulations. As such, none of the facilities in that water system can be freely transferred, sold or even encumbered as long as they remain necessary and useful to San Gabriel in the performance of those obligations.

San Gabriel strongly urges EPA to endorse the use of Plant No. 8 as proposed in the Draft FS. Doing so will advance the legitimate and appropriate public policy objective of assuring that already contaminated sources of public water supply are directly remedied in a way that will benefit and bring much needed relief to San Gabriel and its customers who rely so heavily on groundwater produced within the SEMOU area. We would be happy to meet with you to discuss this possibility at the earliest possible date.

EPA's Response. As stated in the response to SGVWC's Comment No. 1, EPA appreciates SGVWC's willingness to participate in the South El Monte OU remedy. EPA also understands the significant financial and operational impacts of South El Monte OU contamination on SGVWC's water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and supports the use of existing water supply wells and facilities to the maximum extent possible to help meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely fashion. EPA does not expect that any operational agreements would need to include provisions that SGVWC give up control of any portion of their system. However, SGVWC would need to commit to operating their facilities in a manner that would ensure that the performance standards described in this ROD are met.

1.10 Responses to Comments from the Southern California Water Company (SCWC)

SCWC Comment No. 1. *By way of background, SCWC provides retail water service to approximately 4,600 customers within the cities of Rosemead and South San Gabriel, and portions of the unincorporated county of Los Angeles. SCWC has relied on groundwater pumped from within the OU to meet the majority of its customers' needs for many years.*

In particular, SCWC operates two groundwater wells within the OU: San Gabriel Wells 1 and 2. Both wells have been impacted by PCE and TCE contamination. One well was shut down in April 1999 because the maximum contaminate level for PCE was exceeded. Low levels of PCE and TCE have been detected in the other well, and it is currently in a six-month monitoring period under Department of Health scrutiny.

SCWC's customers face a substantial cost increase in responding to the shutdown of the Company's wells. Either SCWC will be forced to install expensive well head treatment, or rely entirely on more expensive imported water purchased from the Upper San Gabriel Valley Municipal Water District.

SCWC encourages the EPA to continue its aggressive effort to remediate as quickly and efficiently as possible the contamination in the OU and the San Gabriel Valley Groundwater Basin generally. To that end, SCWC has several comments on the Proposed Plan which it hopes will be incorporated in the Record of Decision (ROD).

- ***The Plume Boundary Should be Expanded to the West.*** *The western boundary of the OU plume is generally limited by Walnut Grove Boulevard. However, several production wells to the west of this boundary, including SCWC's, have detected substantial levels of PCE and TCE. As mentioned above, one of SCWC's wells is shut down because it has PCE levels above the MCL. The plume has clearly migrated to the west and north. Based on the current contaminant levels, a more accurate representation of the western plume boundary would be San Gabriel Boulevard. As discussed below, effective plume management depends on proper placement of extraction facilities, which in turn is dependent on proper delineation of the plume boundaries.*

  Modification of the plume boundary in this manner is consistent with actions taken by the EPA in the Baldwin Park OU. Indeed, the plume boundary in that OU has been shifted south and west several times to account for the plume migration.

EPA's Response. At the time the Proposed Plan was prepared, EPA was not aware that MCL exceedances had been detected further west than Walnut Grove Boulevard. As shown in Figures 3 and 5 in this ROD, the interpreted extent of contamination has been revised to incorporate more recent data, including new monitoring wells EPA installed in this area since the Proposed Plan was issued. The updated figure shows the intermediate zone contamination extending further west to encompass the SCWC and Monterey Park wells that exceed MCLs in this area.

SCWC Comment No. 2. ***Pump and Treat Facilities Should be Located on the Leading Edge of the Plume.*** *Normally, optimal plume management through the EPA Alternative 3 methodology (pump and treat) would involve locating the extraction facilities at the leading edge of the plume. Any other location may result in creation of multiple plumes or incomplete remediation. Given the migration westward, location of the pump and treat facilities on the westernmost boundary of the plume would be optimal. We request that the EPA consider this criteria carefully, particularly in light of the westerly plume migration, before selecting the site or sites for the pump and treat facilities. Instead of identifying the exact location of the proposed pump and treat facilities, the EPA ROD should simply require as one criterion the location of the wells on the leading edge of the plume.*

EPA's Response. EPA's performance standards for this remedy (described in Section 11 of this ROD) do address the entire extent of the intermediate zone contamination in the western portion of the South El Monte OU, including the leading edge of contamination. EPA has not indicated the specific locations of extraction wells in this ROD (see Section 11). This will allow the parties responsible for implementing the remedy flexibility in determining where extraction wells should be located and to work out agreements with water purveyors and local stakeholders to use existing infrastructure as much as possible to help meet the performance standards for the South El Monte OU remedy.

SCWC Comment No. 3. ***Pump and Treat Facilities Should be Located to Take Advantage of Localized Groundwater Gradients and Pumping Holes.*** *According to the Main San Gabriel Basin Watermaster hydrologic model of the OU, there is a pumping hole in the immediate area around SCWC's San Gabriel well facilities. Pumping holes such as this tend to maximize the groundwater inflow gradient to the pumping depression. This characteristic might be used to further optimize the placement of pump and treat facilities. Indeed, SCWC's San Gabriel wells may be an optimal location because they are both at the leading edge of the plume and within this pumping depression. However, neither SCWC's wells nor this general region are listed within the Proposed Plan as possible locations for the pump and treat facilities. Again, rather than simply identifying the exact location of the proposed pump and treat facilities, the EPA should include reference to the existence of a localized pumping hole in the western area of the OU unit and list as a criterion that the pump and treat facilities be located to take advantage of this characteristic.*

EPA's Response. As noted above, at the time the Proposed Plan was prepared EPA was not aware that contamination in excess of MCLs had migrated so far west, so the City of Monterey Park and SCWC

wells located west of Walnut Grove Boulevard were not evaluated as potential locations for containment of the intermediate zone contamination. This ROD does not specify the precise locations of extraction wells to be used to provide the containment necessary to meet the performance standards described in Section 11. A more detailed evaluation of groundwater flow directions in this area, including the influence of the "pumping hole" and the individual production wells in this area (including SCWC's wells) will be needed during the remedial design phase to select the final extraction locations for the South El Monte remedy.

SCWC Comment No. 4. *Use of Existing Facilities Should be Maximized. SCWC encourages the EPA to pursue its approach of maximizing the incorporation and use of existing facilities within the final remedial action. Where practical, existing treatment facilities should be incorporated into the EPA's imposed remediation effort so that water suppliers can recover some of the added costs forced on them by contamination. To the extent feasible, the responsible parties should be required to treat the contaminated groundwater resources so that the treated water is safe for human consumption. The water consumers in the OU have been forced to pay substantially higher water costs because of the contamination. This expense should be placed on the entities responsible for the contamination to the full extent possible. This priority criterion is implied in the EPA preferred alternative, but it should be listed more definitively in the ROD.*

EPA's Response. Although this ROD does not require the use of existing water purveyor facilities to implement the remedy in the South El Monte OU, EPA believes that maximizing the use of existing facilities will likely be the most cost effective way to implement the remedy. EPA is optimistic that the necessary agreements can be reached to allow the use of existing facilities to help meet the objectives of the selected remedy described in this ROD and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders and water purveyors to reach these agreements in a timely manner.

1.11 Responses to Comments from South El Monte Businesses (Group A)

The following eight South El Monte OU businesses and/or property owners all submitted the same set of comments: CraneVeyor Corporation; Jebbia Trust; Seachrome Corporation; Earl Butler & Associates, Inc.; Smittybilt Corporation; Roc-Aire Corporation; Bassett & Obbink; and Ray Finkle. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group A for presentation purposes.

Group A General Comment No. 1. *Of the four remedial alternatives considered by EPA, Alternative 3, EPA's preferred remedy: (1) adequately protects human health and the environment; (2) attains applicable or relevant and appropriate requirements ("ARARS") under federal and state environmental laws; and (3) most optimally balances all of the "primary balancing criteria" required to be considered under Section 300.430 of the National Oil and Hazardous Substances Pollution Contingency Plan, Title-40, Code of Federal Regulations Part 300 (the "NCP").*

EPA's Response. EPA concurs with this conclusion and has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

Group A General Comment No. 2. *Conversely, the alleged marginal increased environmental benefits associated with Alternative 4 are far outweighed by the known marginal increased costs of implementing this alternative. Alternative 4 costs over 47 percent more than Alternative 3 but does not generate commensurate health and safety benefits for the added dollars.*

EPA's Response. EPA has also concluded that the additional benefits gained from Alternative No. 4 are not significant enough to justify the considerable additional costs. EPA has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

Group A General Comment No. 3. *EPA should continue to encourage stakeholders to implement supplemental voluntary remediation programs, (including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP"). However, EPA should not include the SEPP in the SEMOU Record of Decision ("ROD") as it is not necessary to comply with the NCP.*

EPA's Response. EPA has not included the Shallow Zone Extraction Pilot Project (SEPP) in this ROD. However, EPA remains very interested in continued implementation of source control and source removal actions, such as the SEPP, in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that appropriate site-specific cleanup is occurring at individual facilities or groups of facilities.

Group A General Comment No. 4. *Additional source identification is warranted. Presently unidentified or uninvestigated sources within the SEMOU could significantly impact the details and costs of a final remedy. Moreover, it is extremely inequitable and against public policy for the presently identified potentially responsible parties ("PRPs") to pay for past or possibly ongoing releases of contaminants from neighboring properties. Failure of the Agency to identify a wider group of responsible parties increases the risk that future response actions would be funded with Superfund money or after incurring unnecessary litigation costs better used for remediation.*

EPA's Response. Extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs.

Group A General Comment No. 5. *EPA should rapidly complete its assessment of candidates for early cashout settlements based on financial and technical criteria. Proceeds raised from such settlements should be earmarked for future response actions listed in the ROD and not used merely to offset past EPA oversight costs. Past oversight costs should be collected from recalcitrant parties.*

EPA's Response. EPA is evaluating "ability to pay" information for interested South El Monte PRPs and considering candidates for early settlements and expects to offer settlements to qualifying parties. EPA expects to issue Special Notice Letters to South El Monte OU PRPs following release of this ROD and at this time cannot respond to comments on allocation of settlement proceeds. Further, EPA will not know if there are any "recalcitrant" parties until after Special Notice Letters have been issued and consent decree negotiations initiated.

Group A Specific Comment No. 1. *Alternative 3 versus Alternative 4. The primary difference between Alternative 3 and 4 is that the latter includes a "Shallow Zone Extraction" component in addition to the "Localized Intermediate Zone Extraction" common to both alternatives. As discussed below in Specific Comment 2, an ongoing Shallow Zone Extraction Pilot Project (which would arguably satisfy the supplemental requirements of Alternative 4) already is being conducted on a voluntary basis.*

The comparative water quality benefits of Alternatives 3 and 4 can be seen by looking at the projected concentrations of key contaminants at downgradient monitoring points. The two most important downgradient monitoring points in this case are: a) the Whittier Narrows Dam, where the cost of the Whittier Narrows Operable Unit remedy could be impacted; and b) the Montebello Forebay, a source of drinking water for the Los Angeles Central Basin.

Attached to this letter is a copy of Figures 45 and 46 from the SEMOU Feasibility Study ("FS") that was reviewed and approved by EPA. Figure 45 is a "Comparison of Projected PCE[1] concentrations at [the] Whittier Narrows Dam." The left side of Figure 45 compares PCE concentrations in the shallow zone, while the right side makes the same comparison for the intermediate zone. Figure 46 makes similar comparisons at the Montebello Forebay.[2]

In both figures, there is extremely little difference between the PCE concentrations in these locations, regardless of whether Alternative 3 or 4 are used. As EPA plans to conduct a significant[3] groundwater pump and treat remedy at the Whittier Narrows dam regardless of whether shallow zone extraction is conducted in the SEMOU, there is little reason to absolutely require that shallow zone extraction in the SEMOU be made part of the Record of Decision.

EPA estimates the net present value ("NPV") of Alternative 3 is approximately $8,334,400. The estimated NPV of Alternative 4 is $12,285,000, representing a 47.4 percent cost increase over Alternative 3. When viewing the projected PCE concentrations at the Dam and the Forebay under both alternatives, there is insufficient marginal increased protection of human health and the environment to warrant the mandatory inclusion of shallow extraction in the ROD. In gross overview, implementation of Alternative 3 (and of a reasonable remedy which will occur in the WNOU) adequately protects human health and the environment while complying with all ARARS. Alternative 3 satisfies the threshold criteria in 40 C.F.R. Section 300.430(f)(1)(i)(A).

Furthermore, analysis of the NCP's five "primary balancing criteria" in 40 C.F.R. Section 300.430(f)(1)(i)(B) does not support a 47.4 percent increase in the cost of the remedy either.

- *First, there is no evidence in the FS to support a claim that Alternative 3 (and some reasonable response action in the WNOU) will not achieve "long-term effectiveness and permanence" in both the SEMOU and the WNOU.*
- *Second, "reduction of toxicity, mobility, or volume through treatment" should be considered. Admittedly, any additional groundwater extraction well strategically placed in the SEMOU will likely remove some COCs from the groundwater. However, when balanced with the 47.4 percent increase in costs, it is unlikely that the SEPP will reduce toxicity, mobility or volume at drinking water wellheads by 47.4 percent, the point most critical to human exposure to contaminated groundwater. Again, the SEPP is helpful but should not be required in the ROD.*
- *Third, EPA should consider "short-term effectiveness" of the SEPP when looking at the overall SEMOU remedy. While the SEPP is already showing early positive results in remediating shallow zone contaminants, it does not have any short term impact on contaminants in the intermediate zone, which is more likely a source of drinking water. Implementation of the SEPP will not shorten the overall SEMOU remedy by 47.4 percent.*

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[1] *Although PCE is not the only constituent of concern in the SEMOU, it was viewed as one of the most significant contaminants of concern ("COCs") and a representative of how other COCs will migate under various remedial alternatives.*

[2] *The FS also compared PCE concentrations at a point under Highway 60. However, this was an arbitrarily chosen point based only on a major surface landmark and is not relevant to the location of a remedial action point (the dam) or a major source of drinking water (the Forebay).*

[3] *At present, we understand that EPA plans to pump and treat approximately 9,000 gallons per minute of groundwater at the Whittier Narrows Dam. To our knowledge, EPA has not made any commitments about reducing the scope of its WNOU remedy, even if the SEPP were made part of the SEMOU ROD.*

- *Fourth, EPA should consider "implementability" of the SEPP. The SEPP is being implemented and is likely to continue being implemented on a voluntary basis by private parties. This is not a significant factor in the analysis.*
- *Fifth, the agency must consider the "cost" of the final remedy. This has been discussed above as a function of the other balancing criteria. We concur with EPA's initial position that, while shallow zone extraction is beneficial to the overall remedy, the cost of requiring additional shallow zone extraction in the ROD outweighs the associated benefits.*

EPA's Response. EPA believes that the figures included in the South El Monte OU FS Report (Geosystems, 1999) showing projected simulated future PCE concentrations at various locations in the aquifer should only be used for very general comparisons of the remedial alternatives. However, EPA has reached the same conclusion as the commentor regarding the increased cost of Alternative No. 4 compared to its additional benefits. This ROD selects Alternative No. 3 for the interim remedy in the South El Monte OU.

Group A Specific Comment No. 2. *Shallow Zone Extraction Pilot Project. Although it should not be included as a component of the SEMOU ROD, EPA should encourage stakeholders to pursue additional response actions including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP"). The SEPP is a voluntary project undertaken in part by some private parties and the San Gabriel Valley Water Quality Authority to remove COCs in shallow groundwater. EPA has also provided valuable assistance in the SEPP.*

The SEPP is currently funded for at least one more year. Now that initial remediation statistics are being generated, additional private parties are showing an interest in raising additional funds to continue operating the SEPP voluntarily. These actions are laudable and should be recognized in the equitable apportionment of response costs. However, these efforts go above and beyond what is required under the NCP and should not be required in the ROD.

EPA's Response. EPA appreciates the efforts of the various entities, including selected South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU aid cleanup efforts by removing significant concentration of contaminant mass. EPA will continue to work with the RWQCB and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

Group A Specific Comment No. 3. *Additional Source Identification. Regardless of what Alternative is chosen by EPA, additional source identification is necessary if a SEMOU remedy is to be funded by private parties. To date, EPA and the California Regional Water Quality Control Board identified a limited number of PRPs who happened to be in business at the time a PRPs search was conducted. More effort is needed to identify facilities that engaged in operations similar to those conducted by listed PRPs. Because other parties were not actively engaged in targeted industrial operations when the initial screening exercise was conducted, the properties were not required to conduct subsurface investigations or remediation, even though many other facilities used the same COCs and manufacturing procedures as the listed PRPs. Sites with similar histories of operations and chemical usage should be held to the same standards of subsurface investigation, remediation and liability.*

Based on personal knowledge of the South El Monte area built up over a number of years, I believe that enough financially viable parties could be traced to additional sites to warrant additional PRPs search activities. Based upon its preliminary screening work to date, EPA is in the most economically efficient position to complete its source identification program. The resulting groundwater remediation funds likely to be generated by newly added PRPs would more than offset this initial investment. These

additional costs are easier for EPA to recover than a private party who has a different burden of proving compliance with the NCP in a cost recovery action, let alone economic hurdles for funding such work.

Source identification should also take place for sources outside of the SEMOU. For example, attached Figure 13 from the FS shows a "straight line cut-off" of the PCE and PCE plume in the northeast comer of the SEMOU. This straight line represents a data gap that can be re-drawn using existing data from hydrologically upgradient sources to determine the impact on the SEMOU from the Baldwin Park Operable Unit ("BPOU").

In addition to source identification, this combined information would be helpful in projecting long term remediation strategies. For example, recent sampling of SEMOU monitoring wells shows evidence of perchlorate contamination. Perchlorates are most likely traceable to sources in the BPOU and not to the SEMOU. Using perchlorates as a tracer element, it would not be unreasonable to assume that other COCs released in the BPOU are also migrating into the SEMOU.

In closing, the failure to identify more responsible parties' could well result in insufficient funds being raised by existing PRPs to support EPA's proposed remedy for the SEMOU. Additional funding would have to come from either the Superfund or through inefficient cost recovery litigation.

EPA's Response. As noted in the response to General Comment No. 4 above, extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs. The commentor references personal knowledge of the South El Monte area that may help identify additional PRPs. EPA and the RWQCB are interested in additional information that could help in identifying potential source areas and would gladly evaluate any new information provided.

Regarding source areas outside of the South El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU (including the Baldwin Park OU) is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. If not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

Group A Specific Comment No. 4. ***Early Cashout Settlements.*** *EPA is aware of the fact that, unlike certain other operable units in the Site, the SEMOU primarily consists of relatively small businesses and individuals who are particularly impacted by the transaction costs associated with participation in the CERCLA process. It would be most economically efficient to reach an early, equitable cashout with financially limited parties as well as parties with demonstrated low impacts to the groundwater.*

As the PRP identification process has failed to identify many facilities and PRPs within the SEMOU, the proceeds from the early cashout settlements must be used for the highest priority: implementation of the ROD. EPA's past response costs should be collected from recalcitrant PRPs who have not participated in past response actions and who do not plan to contribute to future response actions.

EPA's Response. See the response above to General Comment No. 5.

1.12 Responses to Comments from South El Monte Businesses (Group B)

The following three South El Monte OU businesses all submitted the same set of comments: Clamp Manufacturing Company, Inc.; Eagle Metal Finishing Co. Inc.; and Tri-Fitting Manufacturing Company. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group B for presentation purposes.

Group B Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. ". . . selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU interim remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Group B Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Group B Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

Lastly, the action orientation that birthed the SEPP needs flexibility that performance requirements would only hamper. The SEPP is the only mitigating action now in operation within the area. It's results could be very helpful to the long run containment efforts, for both the SEMOU and the WNOU.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.13 Responses to Comments from South El Monte Businesses (Group C)

The following two South El Monte OU businesses both submitted the same set of comments: Artistic Polishing and Plating, Inc. and APW-Electronic Solutions. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group C for presentation purposes. .

Group C Comment No. 1. *Artistic agrees with EPA's selection of "Alternative 3" as its preferred remedial plan. Artistic believes Alternative 3 achieves EPA's overall strategy in the San Gabriel Valley Ground Water Basin which is to control contaminant migration. Alternative 3, when viewed in light of the Whittier Narrows OU ("WNOU") remedy, is a cost effective interim remedial action that controls contaminant migration. Additionally, the WNOU remedy and Alternative 3 are complimentary of each other in that the WNOU remedy will control contaminant migration to the South of the SEMOU and Alternative 3 will control contaminant migration to the west of the SEMOU.*

Alternative 4, on the other hand, should not be selected for the SEMOU because it will provide nothing more than a costly redundancy to the WNOU remedy. Alternative 4 would cause an extraction field and treatment system to be installed between the southern boundary of the SEMOU and the WNOU extraction wells. Such a costly remedy will not achieve any greater control over contaminant migration than that provided by the WNOU remedy. Thus, Alternative 4 can not be justified on a cost or technical basis.

EPA's Response. For clarification, the shallow zone source control component of Alternative No. 4 would not have been installed "between the southern boundary of the SEMOU and the WNOU extraction wells." It would have been just downgradient of South El Monte OU source areas.

EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs.

Group C Comment No. 2. *Moreover, certain PRPs, which includes Artistic, and the WQA have already implemented a shallow zone extraction pilot program ("SZEPP") in the southern portion of the SEMOU. Artistic and certain other PRPs participated in funding the SZEPP with the expectation and understanding that the system would not be the subject of EPA control or oversite. Rather, Artistic believed that the SZEPP was implemented to start mass removal from the shallow zone. Artistic urges the EPA to view the SZEPP as being similar to the many site specific remedies that have been implemented in the SEMOU. The suggestion of adding the SZEPP into the EPA's proposed plan (Alternative 4) is as illogical as adding all of the SEMOU site specific remedies to its proposed plan. The SZEPP is a separate remedial measure and should remain as such.*

Artistic supports EPA's selection of Alternative 3 as its proposed plan and urges EPA to reject Alternative 4.

EPA's Response. EPA views the SEPP as a site-specific source control action for a group of facilities. And, although EPA has not included the SEPP in this ROD, EPA remains very supportive of the SEPP and will continue to work with the Regional Water Quality Control Board, local stakeholders and South El Monte OU PRPs to ensure that appropriate source control and source removal actions are implemented (or continued) at individual facilities or groups of facilities in the South El Monte OU.

1.14 Responses to Comments from Art Weiss Industrial Properties

Art Weiss Industrial Properties Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. ". . . selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Art Weiss Industrial Properties Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Art Weiss Industrial Properties Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP will be an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.15 Responses to Comments from EEMUS Manufacturing Corp.

EEMUS Manufacturing Corp. Comment No. 1. *I support the EPA's selection of Alternative 3 from the Feasibility Study to address ground water contamination in the South El Monte Operable Unit (SEMOU). The Remedial Action Objectives outlined by the EPA will be met by implementation of Alternative 3 particularly when considering other efforts that are planned by the EPA in the adjacent Whittier Narrows Operable Unit.*

At the October 27th EPA presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) several individuals provided comment that Alternative 4 be implemented instead of Alternative 3. These requests do not take into consideration the need for providing a sound remedial approach but are the more is better solution.

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA's evaluations conclude that the additional benefits gained from Alternative No. 4 are not significant enough to justify its much higher cost.

EEMUS Manufacturing Corp. Comment No. 2. *The addition of the shallow zone extraction barrier that would be added as the result of selection of Alternative 4 has already been implemented in the SEMOU. We believe that this project is beneficial and addresses shallow zone contamination removal in the southern area of the SEMOU. Adding this to the SEMOU ROD will not impact the EPA's overall solution to containment of contamination to the south in the intermediate ground water levels flowing from the SEMOU, El Monte and Baldwin Park Operable Units.*

EPA's Response. As noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU.

For clarification, the selected remedy for the South El Monte OU addresses containment of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. The comment refers to containment to the south, rather than west. Containment to the south is a component of the Whittier Narrows OU remedy. The comment also references containment of contaminated groundwater flowing from the El Monte and Baldwin Park OUs. This remedy only addresses the contamination flowing out of the South El Monte OU.

EEMUS Manufacturing Corp. Comment No. 3. *The EPA, in its October 27th presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) indicated that contamination from the SEMOU had migrated to Whittier Narrows. Some indication was also made that the EPA may attempt to recover costs for investigation and implementation of a remedial solution in the Whittier Narrow Operable Unit from the SEMOU participants. The EPA should consider the following issues if its costs for the Whittier Narrows project are allocated to others.*

1. *Many of the individuals designated as PRPs in the SEMOU have worked on the development of the feasibility study and contributed funding for this project voluntarily. The EPA should look to allocate any of their costs to those PRPs that have not contributed to these efforts.*

2. *There are properties in the SEMOU that are known to have soil contamination where the owners have made no effort to cleanup the sites. This unaddressed soil contamination has the potential of undermining the effectiveness and length of any ground water cleanup. These PRPs should be looked at by EPA for collection of any additional costs as their sites continue to be sources of contamination to ground water. .*

EPA's Response. EPA expects the South El Monte OU PRPs to allocate costs amongst themselves.

The allocation negotiations are the time to take into account past contributions, including facility-specific cleanup activities.

However, for any PRPs that do not resolve their liability, EPA will take into consideration any failure to contribute to past investigation and cleanup efforts.

EEMUS Manufacturing Corp. Comment No. 4. *There is evidence of ground water contamination flowing into the SEMOU and to Whittier Narrows from the Baldwin Park Operable Unit and the El Monte Operable Unit. The model provided by EPA shows the contamination flowing from these Operable Units to be under drinking water limits. EPA has taken the position that this level of contamination is not a factor at Whittier Narrows. The contamination that is flowing from these Operable Units is additive and there may have been slugs of higher concentrations that have entered or are yet to enter the SEMOU or Whittier Narrows from these neighboring Operable Units. If the EPA chooses to allocate costs for its' Whittier Narrows Operable Unit it is obligated to identify all those that potentially contributed to contamination, that would clearly include the Baldwin Park and El Monte Operable Units.*

EPA's Response. Regarding contamination flowing from Baldwin Park OU and El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

1.16 Responses to Comments from Aircraft Stamping Co., Inc.

Aircraft Stamping Co. Comment No. 1. *In your meeting of October 27, 1999 at South El Monte High School, EPA stated that in pumping and treating the intermediate zone, the water pumped or treated would either be discharged into the river bed or distributed to the water purveyors in that area. It would be my hope that the water purveyors would be given the first opportunity to purchase the water thereby alleviating some of the cost that would otherwise have to be borne by the EPA and/or the PRPs.*

EPA's Response. EPA's preference is that the treated water be supplied to water purveyors in the South El Monte OU. We are optimistic that the necessary agreements can be reached to allow the water purveyors to accept the water from the remedy.

Aircraft Stamping Co. Comment No. 2. *Will EPA be doing a cost benefit and health benefit to determine whether or not their project in the Whittier Narrows area is even necessary to order to protect the health and the environment?*

EPA's Response. EPA completed the Whittier Narrows OU Feasibility Study Addendum and released a Proposed Plan in October 1998. These documents describe the evaluations conducted to determine the need for an active remedy in the Whittier Narrows OU, including comparisons to the nine Superfund evaluation criteria. The ROD Amendment for the Whittier Narrows OU, issued in November 1999 further details the need for the selected remedy.

1.17 Responses to Comments from Mr. Robert Vanderbosch

Mr. Vanderbosch Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum.*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Mr. Vanderbosch Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Mr. Vanderbosch Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its

higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.18 Responses to Comments from Geosystem Consultants, Inc. (representing the South El Monte OU Participants)

Geosystem Consultants Comment No. 1. *Overall, the SEMOU Participants and Geosystem concur with EPA's selection of Alternative 3 as the preferred remedy in the Proposed Plan. Moreover, the SEMOU Participants and Geosystem are encouraged by EPA's willingness to entertain the use of existing infrastructure in the preferred remedy. This existing infrastructure is owned by the two SEMOU water purveyors whose wells have been impacted by volatile organic compounds (VOCs); namely the San Gabriel Valley Water Quality Company (SGVWC) and the City of Monterey Park. The SEMOU Participants and Geosystem have maintained all along that using existing infrastructure is both practical and cost-effective. Just as importantly, it may help get the remedy implemented several years earlier than if the "conventional" approach were adopted.*

EPA's Response. Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and supports the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

Geosystem Consultants Comment No. 2. *Shallow Zone Extraction Barrier Pilot Program. As EPA is aware, Cardinal Industrial Finishes (Cardinal) and, more recently, the San Gabriel Basin Water Quality Authority (WQA) have long advocated some type of "early action" in the SEMOU. In brief, the stated objective of the early action has consistently been to inhibit the migration of high VOC concentrations in the shallow zone toward Whittier Narrows and to remove VOC mass. After years of effort; and with the enthusiastic support of the state regulatory agencies, an early action was initiated in September 1999. Specifically, the SEMOU shallow zone extraction barrier pilot program (SEPP) became operational. The SEPP involves the extraction of a total of approximately 1,100 gpm from two extraction wells, treatment using liquid-phase granular activated carbon, and recharge of the treated ground water back into the shallow zone aquifer via engineered infiltration galleries. Based on the influent concentrations to the treatment systems, Geosystem estimates that the SEPP will remove around 72 pounds of VOCs per month (866 pounds per year) from the shallow zone aquifer. Moreover, ground water level data suggest that the combined effect of extraction via the two wells and recharge via the two infiltration galleries has created a hydraulic barrier that inhibits most, if not all, VOC migration at concentrations over 200 µg/l.*

The SEMOU Participants and Geosystem believe that an early action program that removes 72 pounds of VOCs per month and that achieves even partial hydraulic containment is a worthwhile effort. In the Proposed Plan, however, EPA does not mention the SEPP other than as a component of Alternative 4, which is not EPA's preferred remedy. While not advocating the selection of Alternative 4 as the preferred remedy, Geosystem and the SEMOU Participants believe that their efforts to inhibit shallow zone VOC migration toward Whittier Narrows and to remove VOC mass from the shallow zone aquifer should be

acknowledged in the Proposed Plan. Indeed, Geosystem and the SEMOU Participants believe that the SEPP should be given time to have a beneficial impact on downgradient ground water quality before EPA finalizes its plans for the fund-lead remedy in the Whittier Narrows Operable Unit (WNOU). Even if EPA believes the SEPP is or could be redundant because of its Whittier Narrows remedy, it could still be acknowledged and given credit as a VOC mass removal and/or source control measure.

EPA's Response. EPA appreciates the efforts of the various entities, including Cardinal Industrial Finishes, other South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. Source removal actions like the SEPP provide considerable long-term benefits in cleaning up South El Monte OU groundwater. Although it has not been selected as a specific component of the interim containment remedy described in this ROD, EPA believes that source control/removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU will continue to be an important component of the overall remedial efforts in the OU. EPA will continue to work with the RWQCB, South El Monte PRPs and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

EPA also acknowledges that operation of the SEPP does provide partial containment of high-level contamination migrating away from facilities in the South El Monte OU. However, the degree of containment provided by the SEPP does not mitigate the need for containment of shallow and intermediate groundwater contamination in the downgradient Whittier Narrows OU. If it continues to operate for a number of years, the SEPP will eventually affect the contaminant concentrations observed at containment wells in Whittier Narrows. But, EPA does not expect that the SEPP will significantly change the size of the area requiring containment in Whittier Narrows for many years to come.

Geosystem Consultants Comment No. 3. ***Identification of SEMOU PRPs.*** *The search for PRPs in the SEMOU involved sending a chemical use questionnaire to selected industrial/commercial facilities. It is Geosystem's understanding that the questionnaire recipients were selected based on a "drive-by" or "windshield" survey by Los Angeles Regional Water Quality Control Board (LARWQCB) personnel. If the completed questionnaires indicated that chlorinated solvents were used, stored, or handled at a particular facility, LARWQCB personnel conducted a physical site inspection. The inspections focused on features such as chemical storage areas, degreasing units, subsurface clarifiers, stained or degraded surface paving, and the like. Facilities at which LARWQCB personnel suspected releases may have occurred were required to conduct preliminary subsurface investigations of soil and, at some facilities, ground water quality.*

Because chemical use questionnaires were not sent to every commercial and industrial facility in the SEMOU, it is almost certain that not all solvent users were identified. Furthermore, the source identification program did not address anything other than the then current land use. As such, businesses that had used, stored, or handled solvents in the past, but which had ceased operating by the time the questionnaires were issued, escaped LARWQCB's follow-up inspections. The industrial properties in the SEMOU are predominantly small and most have had multiple owners and/or operators over the last 40 to 50 years. Accordingly, it is almost certain that many facilities that should have been inspected were not identified. Moreover, there are anecdotal indications that some questionnaires may not have been filled out correctly and that housekeeping at certain facilities improved dramatically prior to LARWQCB's inspections; thus, prospective PRPs may have avoided having to conduct subsurface investigations. Improvements in housekeeping at some facilities reportedly included remodeling and repaving.

Based on the above, Geosystem and the SEMOU Participants believe that there are more, as yet unidentified, PRPs in the SEMOU and that past land use should be considered in a renewed attempt to identify more PRPs, and spread the financial burden of the SEMOU remedy more equitably.

EPA's Response. Given the great number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential contaminant sources have not been identified. In addition to the "windshield" surveys, the RWQCB reviewed public records to identify potential solvent users. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU were very thorough. EPA is still collecting data and evaluating individual facilities in the South El Monte OU. EPA expects to name additional PRPs to participate in implementation of this remedy.

If the South El Monte OU Participants have relevant information about specific facilities that were not investigated by the RWQCB, they should present this information to EPA so that it can be determined if additional investigation is warranted.

Geosystem Consultants Comment No. 4. ***Site-Specific Remediation.*** *Drafts of several of the early RI/FS documents included language to the effect that remediation at individual SEMOU facilities is critical as part of a broader source mitigation program. Specifically, Geosystem and the SEMOU Participants reasoned that the systematic elimination of significant vadose zone contamination and/or ground water "hot spots" is of paramount importance to the success of any remedial alternative, be it containment or otherwise. In response to requests from EPA, however, the language pertaining to site-specific remediation was ultimately deleted from the text of the final deliverables. In parallel with the above, there are several SEMOU facilities with significant vadose zone and/or ground water contamination that have not been forced by local and state regulatory agencies to remediate. By way of example, a Cleanup and Abatement Order (CAO) issued by the LARWQCB to a SEMOU PRP in 1986 has still not been enforced to this day. In another instance in 1987, the LARWQCB refused a PRP permission to initiate a vapor extraction system to mitigate contamination by alcohols, ketones, and aromatic VOCs on the basis that "evidence" of PCE contamination would be destroyed.*

More recently, LARWQCB has begun to rectify this situation by applying pressure on certain PRPs to initiate site-specific vadose zone remediation programs and/or ground water remediation programs. Geosystem and the SEMOU Participants believe that more vigorous regulatory agency action against recalcitrant PRPs should be a critical component of the remedy in the SEMOU.

EPA's Response. The commentor does not provide enough information for EPA to speak to the specific references regarding the lack of site-specific cleanup action. EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

Geosystem Consultants Comment No. 5. ***Inflow of Contaminants from Other Areas.*** *Consistent with EPA's presumed remedy of containment using some type of ground water pump-and-treat system, the emphasis in the SEMOU RI was rightly on where the contaminants are going rather than where they came from. This emphasis was such that during the preparation of the RI/FS deliverables, EPA repeatedly requested that any references to the possible inflow of contaminants to the SEMOU from adjacent areas be deleted. However, the sources of contamination are critical to the cost allocation process, without which there may not be a viable PRP group to fund the remedy. In that context, there are several strong indications that inflows of contaminants are occurring or have occurred in the past. These indications are as follows:*

- *Perchlorate has been reported in ground water samples collected from two wells in the SEMOU; a City of Monterey Park well in the Whittier Narrows Golf Course (Well No. 12) and in an EPA multiport monitoring well on Meeker Avenue (Well No. EPAW417). So far as Geosystem is aware, perchlorate in the Main San Gabriel Basin is almost exclusively attributable to sources in the Baldwin Park Operable Unit (BPOU). While the isolated occurrence of perchlorate in Well No. 12 is difficult to explain, the proximity of Well EPAW417 to the BPOU is a strong indication that*

contaminants, possibly including VOCs, from that operable unit have impacted SEMOU ground water.

- *EPA's own interpretations of VOC distribution in the intermediate zone have consistently shown a plume extending from Whittier Narrows to the northeastern corner of the SEMOU, at which point it terminates with an arbitrary straight line immediately southwest of the BPOU. Although EPA stops short of showing a continuous VOC plume extending from the WNOU into the BPOU, the inference is clearly that it does. Moreover, it is likely that the isolated areas of higher VOC concentration along the west side of the San Gabriel River are attributable to migration from the BPOU. In other words, these apparently isolated areas may be the residual of a larger, more concentrated VOC plume that has since largely dissipated. Despite having largely dissipated, however, VOCs migrating out of the BPOU have contributed to the overall VOC contamination in the WNOU.*

- *The area of high VOC concentrations in the so-called "duck farm" area on the eastern SEMOU boundary appear to originate from a source or sources east of the San Gabriel River and the 605 Freeway. Again, this and other areas of higher VOC concentrations have probably contributed to overall ground water contamination in the SEMOU and the WNOU.*

- *Ground water modeling during the SEMOU FS indicates that the active and formerly active production wells in the northwestern corner of the SEMOU create significant pumping depressions in the intermediate zone and possibly in the shallow zone. These depressions may be (or may have been) large and deep enough to draw in ground water from the north and northwest, i.e., ground water that may contain contaminants originating from the adjacent El Monte Operable Unit.*

Geosystem had planned to use the basin-wide CFEST model to perform particle track modeling to show that ground water and, hence, VOCs from adjacent operable units could enter the SEMOU. Unfortunately, the particle tracking module of the CFEST model was not working correctly in the version of the model provided to Geosystem by EPA. Considering the widespread occurrence of VOCs throughout the San Gabriel Basin, however, it is almost inconceivable that VOC-contaminated water from one or more of the surrounding operable units has not flowed into, through, and out of the SEMOU at some time in the past. Even if VOCs are not currently entering the SEMOU from adjacent operable units, past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy. As EPA is well aware, the cost allocation process is often based on the volume of impacted ground water as well as the mass and concentrations of VOCs in ground water. Thus, a large volume of ground water contaminated by only low concentrations of VOCs still contributes significantly to the cost of the remedy.

EPA's Response. There is evidence that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. The areas of contamination being addressed in these interim remedies are in the southwest portion of the South El Monte OU. As shown in Figures 2 and 3, this is a considerable distance from the Baldwin Park OU contamination present in the northeast corner of the South El Monte OU.

In response to some of the specific issues cited in the comment:

- Low concentrations of perchlorate (similar to those detected in the City of Monterey Park and EPA monitoring wells referenced in the comment) have recently been detected in the shallowest zone in a multi-port monitoring well located within one of the primary source areas in the South El Monte OU. This indicates the potential presence of a local perchlorate source.

- Based on available hydrogeologic data, EPA does not believe that the isolated area of high VOC concentrations in the shallow aquifer in the far eastern portion of the South El Monte OU has any impact on groundwater contamination being addressed by the interim containment remedies in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs

- EPA has installed an additional monitoring well to help assess the potential impact of El Monte OU contamination on the wells in the pumping center west of the South El Monte OU.

EPA does not believe that available data support the conclusion stated in the comment that "past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy." The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data clearly indicate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

Geosystem Consultants Comment No. 6. *Central Basin Ground Water Quality. Preventing VOCs from migrating through Whittier Narrows and into the adjoining Central Basin is an undeniably valid objective and there has been much discussion during the WNOU FS about the relative merits of allowing only nondetectable VOC concentrations into the Central Basin versus concentrations between detection limits and MCLs. There has, however, been no discussion whatsoever about existing ground water quality in the Central Basin. Readers of San Gabriel Basin RI/FS documents could be forgiven for assuming that Central Basin ground water is pristine in every respect. In reality, however, the Central Basin has its own ground water contamination problems attributable to decades of industrial activity over a longer period of time and at a high intensity than in the San Gabriel Valley. While Central Basin ground water contamination should in no way change the remedial objectives for the San Gabriel Basin operable units, its acknowledgment would help keep things in perspective.*

EPA's Response. It is true that there are numerous groundwater contamination problems across the large Central Basin. However, the Montebello Forebay portion of the Central Basin immediately south of Whittier Narrows Dam is relatively free of contamination except for that migrating in from the San Gabriel Basin. In most of the Central Basin, the drinking water aquifers are relatively deep and isolated from the shallow aquifers by competent aquitards. However, in the Montebello Forebay, these drinking water aquifers are shallower and are connected directly with the shallow aquifers and the Montebello Forebay is the primary recharge location for the entire Central Basin. These physical features highlight the significant threat to the Central Basin drinking water aquifers posed by the San Gabriel Basin contamination.

1.19 Responses to Comments from R Brown

R Brown Comment No. 1. *I must object to the lack of an alternative that would limit the pumping of contaminated water to near where it was contaminated. In South El Monte the groundwater is very shallow and any spills of chemicals will quickly pollute the shallow zone. As a result, I request the consideration of an alternative that only involves pumping of water from the shallow zone in South El Monte Operable Unit.*

In addition on the west side of the South El Monte Operable Unit there long has been a ground water depression caused by over pumping by well owners. It is this high demand for ground water that has resulted in the contamination migrating down into the immediate zone from the shallow zone. If there

was less pumping of water on the west side of this operable unit the contaminated water would have migrated south which is the historic direction of ground water movement in the area where the contamination occurred.

EPA's Response. There is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Regardless of the reasons for westerly flow, at this time it is not feasible to eliminate flow towards the west. Accordingly, to meet EPA's objectives for this remedy (described in Section 8), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

R Brown Comment No. 2. *A few years ago the EPA in the Baldwin Park Operable Unit strongly advised the water pumpers in the valley to stop drilling wells away from the plume and start installing clean up equipment on wells that would extract water from the contaminated zone. This is a good policy. And it should be part of the solution in the South El Monte Operable Unit. The EPA fact sheet shows that the highest levels of contamination are only east of Rosemend Blvd in the shallow zone. Only with removal of the highly contaminated water will the public see a quick solution to the South El Monte problem. Therefore I favor an alternative that removes and treats water from the shallow zone.*

EPA's Response. The selected remedy does in fact shift extraction to focus on the contaminated portions of the aquifer as is recommended in this comment. EPA's expectation is that local water purveyors will take the treated water from the remedy. These purveyors would reduce extraction from deeper or downgradient production wells that are currently extracting from less contaminated or uncontaminated areas.

Although this ROD selects Alternative No. 3 as the interim remedy for the South El Monte OU, EPA believes that shallow zone source control at individual facilities or groups of facilities will continue to be an important component of overall cleanup in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring.

R Brown Comment No. 3. *The ground water users of this basin have for a long time had an effort to deal with the over draft of ground water to the west of the South El Monte Operable Unit. The Cooperative Water Exchange Agreement has the Main San Gabriel Basin Watermaster collect money from valley users of ground water to pay for the higher cost imported water to be delivered to the City of Alhambre through USG 5 by Upper San Gabriel Valley Municipal Water District so the City of Alhambra can refrain from pumping ground water in the area of the water table depression. The increased pumping of ground water from the intermediate zone on the West Side of the South El Monte Operable Unit will complicate the long term correction of the west side ground water over draft. This can be avoided if the EPA selects an alternative that emphisizes pumping from the shallow zone near to where the contamination originally occurred. Alternative 4 as published is closest to my ideal solution, and if there is not to be an only shallow zone pumping alternative, I would favor Alternative Four.*

EPA's Response. EPA's hope is that the selected remedy will not result in a net increase in pumping from the intermediate zone in the western portion of the South El Monte OU. The most likely implementation scenario is for the treated water to go to local water purveyors in the vicinity. These purveyors would then reduce the amount they are currently extracting from other nearby wells. As noted above in the response to Comment No. 1, because of the magnitude and extent of contamination present in the intermediate zone, EPA must select a remedy that includes intermediate zone pumping to prevent the further spread of this contamination and to protect water supply wells and areas of the aquifer that are currently uncontaminated.

1.20 Responses to Comments from Mr. Allan Hill

Allan Hill Comment No. 1. *I recommend that Alternative 4 be implemented. Alternative 3 does not include shallow zone source control which is where a substantial part of the problem exists.*

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs. This ROD selects Alternative No. 3 for the South El Monte OU remedy. However, as is noted throughout this responsiveness summary, EPA believes that source control/source removal actions are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

1.21 Responses to Comments from Congressman Matthew G. Martinez

Congressman Martinez Comment No. 1. *I am a strong supporter of EPA's position that the polluters should pay for the cost of the cleanup. For that reason, I think it is important that we made sure that those companies selected have, in fact, been responsible for the pollution through good scientific determinations. Many of those PRP's which were named by the California Water Regional Control Board did nothing but have shallow soil contamination with no physical scientific evidence showing a linkage to ground water. Even through EPA may be able to hold any PRP named accountable, I believe that the spirit of the law and of EPA's credo would stipulate that we do not punish people that didn't do anything. There is no way that you will [sic]*

***It is my hope that when EPA issues their special notice letters to the PRPs, they will only notify those** that had scientific variable traceable link to ground water pollution and not those companies that simply had minor soil contamination.*

EPA's Response. In the South El Monte OU, the Regional Board's role has been to oversee and direct investigations at industrial facilities suspected of contaminant releases and, if necessary, to require site-specific cleanup actions. However, EPA has the responsibility for identifying and naming the PRPs that will be responsible for implementing the remedy selected in this ROD. EPA will only name as PRPs those companies or individuals where there is sufficient scientific evidence to support a conclusion that activities at their property have contributed to the groundwater contamination.

It is important to understand that the historic nature of many of the contaminant releases combined with the physical conditions in the South El Monte OU (and nearly everywhere else in the San Gabriel Basin), often complicate the evaluation of the link between soil contamination and groundwater contamination. EPA carefully reviews all of the available data before making a determination that the owners or operators of a specific facility are PRPs. EPA intends to only name PRPs where there is sufficient information to reasonably conclude that the contaminant releases at the facility have resulted in groundwater contamination.

Congressman Martinez Comment No. 3. *It is my opinion that soil cleanup should be the duty and responsibility of the California Water Regional Control Board. I would further hope that those PRPs which had only soil contamination, but no traceable link to ground water, would also receive third party litigation protection from EPA.*

EPA's Response. To date, the Regional Board has maintained the responsibility for directing all cleanup actions (both soil and shallow groundwater) at individual facilities. EPA anticipates that for the foreseeable future, the Regional Board will continue in this capacity.

After EPA has determined which parties will receive Special Notice Letters for implementation of the interim remedy selected in this ROD, EPA may notify those parties not receiving Special Notice that they are not currently suspected of having contributed to groundwater contamination in the South El Monte OU. EPA cannot offer third party litigation protection to parties such as these except through settlements resolving potential liability. EPA will consider making settlement offers to some or all of these parties if circumstances warrant.

Congressman Martinez Comment No. 4. *I am very interested in reviewing which PRP's the EPA intends to include, and which will not be included. If such a list has not yet been compiled, I would appreciate notification at least 10 days in advance of issuance of the notice letters.*

If EPA is not going to take what I believe to be a reasonable approach as stated above as to who should and should not receive notice letters, would you please reply to me and give me your reasons regarding this subject.

EPA's Response. Because this information may be used in potential enforcement actions, EPA cannot share its determinations regarding Special Notice recipients prior to the issuance of the letters. However, EPA can keep the Congressman informed as to the expected date for issuing Special Notice Letters.

EPA has every intention of following a reasonable, technically-sound approach in making the final determination as to who will receive Special Notice Letters for this remedy.

2 Responses to Oral Comments

In this section, EPA provides responses to oral comments received at the public meeting held on October 27, 1999 EPA responded to a number of questions directly at the public meeting. This section provides responses only to formal oral comments that were not fully addressed at the meeting. Formal oral comments were received from five parties: Mr. Royal Brown, a member of the public; Mr. Philip Miller, representing Geosystem Consultants, consultants for the South El Monte OU Participants; Mr. Bill Robinson, representing the Upper San Gabriel Valley Municipal Water District; Mr. Kirby Brill, representing the San Gabriel Basin Water Quality Authority; and Mr. Lawrence Felix, representing the South El Monte OU Participants. The full transcript of the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

2.1 Responses to Comments from Mr. Royal Brown

Mr. Brown Comment No. 1, Transcript Page 25, Line 24. *First of all, the presentation tonight simplified the groundwater flow in this area drastically. It completely forgot the vertical flow, up and down, as an important part of the component of what happens in geology.*

It is not just a single zone that's separated from another area. This is not a pressure aquifer in here, this is free-flowing ground water, and as a result there can be interchange upon the amount of pumping that occurs. So any pumping you do from a particular area will have a tendency even to move water through clay; and clearly, the simplified presentation that we've heard tonight --it appears that that has been the idea of the EPA all along -- is to go with a simplified presentation.

Frankly, I've seen elsewhere in groundwater basins that a major component of the problem has been, historically, vertical movement of water; therefore, a simplified concept that we have a separate action possible for shallow and another action for intermediate is really not reflective of what mother nature has set down here as the geology of this area.

If we had clearly identifiable, sealed areas with a common water table level, there wouldn't be much movement; but there is no clearly identifiable, sealed zone that's constant. This area was laid down by flood action, and it is very complex; water can move different directions because of water pressure and the water table and water pumping.

EPA's Response. EPA acknowledges that there is vertical movement of water in the South El Monte OU and the evaluations of groundwater flow performed during the RI/FS did take into account potential vertical flow. However, unlike most of the San Gabriel Basin, where the aquifer is not clearly separated into specific zones, the South El Monte OU does have distinctly different shallow and intermediate aquifer zones. It is important to account for these differing groundwater conditions in the evaluation and selection of remedial actions in the South El Monte OU. In much of the South El Monte OU, there is a fairly substantive sequence of fine-grained materials that limits vertical movement of groundwater and results in relatively large head differences (up to 25 feet) between the shallow and intermediate zones. Further, in portions of the OU groundwater flow directions are very different between the shallow and intermediate zone. These differing flow directions indicate that intermediate zone pumping has limited impacts on the shallow zone.

Mr. Brown Comment No. 2, Transcript Page 27, Line 5. *An important part of the evaluation of this area is the pumping depression that has historically occurred west of this area. That pumping depression basically is the cause of the water moving west.*

If we go back and look at early models of this basin, the constant flow was toward Whittier Narrows. It's only with the pumping that we can establish that there's a constant flow, now, to avoid a fill-in of the pumping depression to the west.

So basically, the important thing here in the long run for the public is the flow to the south, both in the intermediate zone and in the shallow zone. As a result, only Alternative 4 really protects the public interest, and that is of all the groundwater.

Alternative 3 does not protect the shallow area. It only directs action toward the intermediate zone; therefore, I strongly urge the EPA to discard Alternative 3 as not fulfilling the needs of the American public for protection of its groundwater, the groundwater that's owned in California by all the citizens of California, no matter whether they live in San Gabriel Valley or in northern California or over on the Colorado River.

According to our constitution in California, all the people of California own this water; and as a result of that, we've got to protect all of it, not just one zone.

EPA's Response. Regardless of the reasons for the westerly flow in the intermediate zone, there is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Based on current purveyor operations in the San Gabriel Basin, there is no indication that this westerly flow will dissipate in the foreseeable future. Accordingly, to meet EPA's objectives for this remedy (described in Section 8 of Part II), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

All of the contamination (both shallow and intermediate) flowing towards the south will be contained by EPA's remedy in the downgradient Whittier Narrows Operable Unit. Concurrent with the containment actions in the South El Monte and Whittier Narrows OUs, EPA will continue to work with the RWQCB and South El Monte PRPs to ensure that source control and source removal actions are implemented to reduce contaminant loading and migration in the shallow zone.

Mr. Brown Comment No. 3. Transcript Page 28, Line 9. *There is a current project that points toward cleanup of the shallow zone done by the Water Quality Authority. I'm afraid the EPA has not had good data about that project.*

Historically, what is estimated is one thing; but that project is about to go online and produce real costs. When you have real costs, you can find real benefits, not projected benefits.

There are two areas where we're going to see real benefits from that shallow project bound by the Water Quality Authority. First of all, there's direct removal of the chemicals from the groundwater at the wells at which they're pulling the water from;

Secondly, they treat that water, clean it up to above drinking water standards and discharge it as recharge water south of the wells. That water adds to the groundwater flow going in the shallow zone -- as the EPA calls it -- towards the south.

Since it's good quality water -- better than drinking water requirements -- and there is pollution to the south, that good water will dilute the existing pollution to the south of this project. That's a second major benefit.

If the water was sold to water companies by the Water Quality Authority, we would not be getting that benefit. So the Water Quality Authority's project really gives us two classes of benefits, and that's very important for the quick cleanup of the groundwater in this area.

I think that realization, an understanding of the costs and the time factor, is what's necessary for the EPA to understand that in the long run, a quick cleanup with lots of groundwater extraction immediately with

this cleanup and recharge action could reduce the costs of Alternative 4 in a major way. Therefore, I think it's important for the public to rise up and demand that both local people and responsible parties can take their local property, do shallow water treatment easily, and discharge it to the drainage system that we have in this area.

EPA's Response. Although this ROD does not select Alternative No. 4 as the interim remedy for the South El Monte OU, EPA agrees that the Water Quality Authority's shallow extraction pilot project does provide substantial benefits towards long-term cleanup of the South El Monte OU. EPA believes that shallow zone source control actions (such as the Water Quality Authority's project) at individual facilities or groups of facilities will continue to be an important component of the overall cleanup activities in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring. These source control activities are critical to accelerating cleanup of the groundwater in the South El Monte and Whittier Narrows OUs.

Mr. Brown Comment No. 4. Transcript Page 29, Line 25. *We have a whole series of rubber dams. Any water -- some percent of all the water that falls in this water shed is conserved by these rubber dams. That means if you dump it into the waste channel, the water is captured again, put into spreading basins, and is reused downstream by somebody from a well down there in Pico Rivera, Commerce, Downey, as drinking water. So we get a major benefit again.*

So I think Alternative 4 -- if it would understand that any of this water dumped on the ground or dumped into a waste channel has a positive benefit for the public in Los Angeles area, that's important, because there is a serious pumping depression down in central basin that needs to be corrected. The more recharge we have, the more cleanup projects on the shallow zone, that means more drainage water coming toward the central basin, which means correction in the long run, pumping deficiency that we've historically had in the Montebello Forebay. So for those reasons, I think it's paramount upon the EPA to adopt Alternative No. 4.

EPA's Response. This comment implies that Alternative No. 4 included discharge of treated water to surface water channels with subsequent flow into the Montebello Forebay as a component of the remedy. This is not the case. Just as in Alternative No. 3, the presumption is that the treated water from Alternative No. 4 would either be distributed to water purveyors or would recharge within the San Gabriel Basin. Further, an alternative that extracts water from the San Gabriel Basin (in the South El Monte OU) then discharges the treated water for recharge in the Montebello Forebay portion of the Central Basin would likely be cost prohibitive to implement. Neither EPA nor the South El Monte OU PRPs have water rights in the San Gabriel Basin. Thus, if water were extracted and allowed to leave the basin as part of this remedy, it would need to be off-set with the purchase of the replacement water. This would substantially increase the estimated operations and maintenance cost of the remedy.

2.2 Responses to Comments from Mr. Philip Miller, Geosystem Consultants, Inc. (representing the South El Monte OU Participants)

Mr. Miller Comment No. 1, Transcript Page 31, Line 13. *The reason I don't get to do that tonight is we don't disagree with the EPA.'s Alternative 3 as the preferred alternative for South El Monte. Further, use of infrastructure water in the preferred alternative -- we've maintained all along that it makes sense technically and financially to use infrastructure water, namely, the San Gabriel Water Company and the City of Monterey Park. As an added bonus, we believe it will help get the remedy off the ground or part of the remedy off the ground rather than the years it would take to happen with the traditional route.*

EPA's Response. Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and support the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

Mr. Miller Comment No. 2, Transcript Page 32, Line 7. *The first issue is that the early action project that was recently started up in South El Monte wasn't acknowledged in the proposed plan. As some of you may know, we started the system in September. We estimated we're moving 72 pounds of VOC a month, if concentrations stay more or less uniform. We think that's significant and should be given some acknowledgment in the proposed plan*

EPA's Response. EPA concurs that there are significant source control and mass removal benefits associated with operation of the shallow extraction pilot project (SEPP). EPA believes that source removal actions like the SEPP and other site-specific remediation activities occurring in the South El Monte OU provide considerable long-term benefits in cleaning up South El Monte OU groundwater.

Mr. Miller Comment No. 3, Transcript Page 32 Line 15. *The second issue is the strong suspicion that there are probably more, as yet, unidentified PRPs in the South El Monte Operable Unit.*

EPA's Response. With the large number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential sources of contamination have not been identified. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU have been very thorough. Extensive source identification and investigation activities occurred throughout the South El Monte OU and EPA is still collecting data and evaluating individual facilities. EPA expects to name additional PRPs to participate in implementation of this remedy.

Mr. Miller Comment No. 4, Transcript Page 32, Line 18. *Third is that the site-specific remediation has been under-emphasized throughout the RI/FS process.*

EPA's Response. The focus of the RI/FS and the interim remedy selected in this ROD is the regional groundwater contamination, rather than site-specific remediation of individual facilities. However, EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup activities. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities are occurring at individual facilities or groups of facilities.

Mr Miller Comment No. 5. Transcript Page 32, Line 21. *And fourth -- and perhaps most significantly -- we think that there's a strong likelihood that contaminants from other operable units have migrated into the South El Monte Operable Units. In some cases they may have migrated right through the operable unit and into Whittier Narrows.*

We understand EPA's emphasis in the RI/FS had to be where the contaminants were going to as opposed to where they came from; but at this stage in the process, with the impending cost allocation process. the issue of where the contamination came from comes much more to the forefront. We believe EPA. should consider the possible contributions from other operable units in its cost recovery efforts for the Whittier Narrows Operable Unit.

EPA's Response. EPA acknowledges that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not

believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU.

The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data demonstrate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

2.3 Responses to Comments from Mr. Bill Robinson, Upper San Gabriel Valley Municipal Water District (USGVMWD)

Mr. Robinson Comment No. 1, Transcript Page 33, Line 20. *I support the shallow zone source control plan even at an added cost of $ million. I think cleanup using containment is a bad approach because it increases the long-term costs of the solution.*

Perhaps the responsible parties are looking at this from a narrow perspective, from their own interests, and I think the EPA. needs to look at the total problem and the entire community interest when they choose an alternative.

I'm neutral on Alternative 3, but I've already said I support Alternative 4. I recommend that more attention be paid to the shallow aquifer.

EPA's Response. Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement appropriate source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. This could include continued operation of the WQA's shallow barrier project.

Mr. Robinson Comment No. 2, Transcript Page 34, Line 8. *Some comments have been made tonight about the treatment of the cleaned up water -- the question of encouragement of distribution of the cleaned up water to customers or discharge to the aquifer -- and I think the EPA. should support the plan that maximizes the beneficial use of that water if it's discharged to the aquifer, if that helps the long-term community interests.*

But I think you should also look real hard at working out deals that allow the cleaned up water to be distributed to customers. You have to balance that and pursue the best approach for the entire community, not necessarily for the responsible parties.

EPA's Response. The intermediate zone contamination in the South El Monte OU that is migrating towards the west has had significant financial and operational impacts on the water supply wells operated by local water purveyors. EPA believes that the best use of the treated intermediate zone water is to provide it as drinking water supply to local purveyors. This will provide the greatest benefit to the local community whose water supply has already been impacted. EPA is optimistic that the necessary agreements can be reached to allow for local use of the treated water and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner. If these agreements can not be reached in a timely manner, EPA will likely require aquifer recharge as the designated end use for the treated water.

Mr. Robinson Comment No. 3, Transcript Page 34, Line 22. *Just to wrap up, 20 years is a long time, and I just wish that we could increase the pace that we're crawling towards a solution. I mean, I don't want to come back here in 10 years. So I just urge the plan that reduces the long-term costs of the total solution. I believe that -- if you look at the community interests, I think that would be Alternative 4.*

EPA's Response. EPA's primary objective for this interim remedy is to provide containment of the regional groundwater contamination migrating away from source areas in the South El Monte OU. In that context, the additional present worth costs of Alternative No. 4 are not justified. However, this does not mean that source control and source removal actions will not continue in the South El Monte OU. Concurrent with implementation of this interim remedy, EPA will be continuing to work with the Regional Board to facilitate appropriate remedial actions at individual facilities or groups of facilities in the South El Monte OU. These parallel activities provide for a cost-effective approach to addressing the contamination in the South El Monte OU.

2.4 Responses to Comments from Mr. Kirby Brill, San Gabriel Basin Water Quality Authority

Mr. Brill Comment No. 1, Transcript Page 35, Line 9. *First of all, I'd like to state Water Quality's support of EPA.'s objectives. I think the Remedial Action Objectives that were spoken of earlier we can stand behind 100 percent.*

In support of those objectives, I think feel it's very important that the intermediate zone extraction system that's been explained, to the northwest, be implemented as soon as possible. The groundwater contamination is flowing to the northwest.

There are downgraded wells that are in the path of that contamination, so I think it's very important that we all move expeditiously towards a quick resolution of that project with quick implementation of that project.

EPA's Response. Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU

Mr. Brill Comment No. 2, Transcript Page 35, Line 24. *In addition to that, I think we feel it's very important for the South El Monte shallow extraction barrier to remain operational. It was constructed and funded within a consensus of this community, and I think there was a realization of the need of that project and the positive impacts of that. I would certainly hate to see that project shut down because of lack of funding.*

If that is best achieved through implementation or approval of Alternative 4 as EPA's proposed plan, then we would certainly support that. If there's other ways of keeping that shallow extraction barrier operational, we would support that as well.

I don't believe we're necessarily locked into one alternative or another and how it's named rather than the projects that are listed. I think that those should be implemented as quickly as possible, and in the case of the shallow extraction barrier that's already up and running -- as was mentioned earlier -- and already having significant positive benefits on the removal of contamination, I think it's very essential and crucial that that cleanup project remain operational.

I would underscore on some of the comments made earlier, that there will be significant long-term benefits that will occur with action occurring immediately. By keeping that project going, it has a strong likelihood of reducing the overall scope that would be required at a downgraded extraction barrier located at Whittier Narrows.

I really feel it's in everyone's best interests to move forward not only with the intermediate zone extraction and northwest of the operable unit, but maintaining the shallow extraction barrier. I think the overall fear with us and I believe fear of everyone in this room is that implementation of Alternative 3 will provide no incentive for financial participation to keep the shallow extraction barrier going.

If that concern is mitigated through other means, then we would certainly support those alternative actions. I think we feel, at least at this point in time, that's best achieved in including the barrier extraction plant as part of Alternative Plan 4.

EPA's Response. Although this ROD does not select Alternative No. 4, or include the Water Quality Authority's SEPP as a specific component of the interim remedy, EPA fully supports its continued operation as a source control action that provides mass removal and partial containment of the most contaminated portion of the aquifer in the South El Monte OU. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities or groups of facilities. These could potentially include mechanisms for ensuring continued operation of the shallow barrier project.

2.5 Responses to Comments from Mr. Larry Felix, South El Monte OU Participants

Mr. Felix Comment No. 1- Transcript Page 38, Line 15. *Early actions in the South El Monte Operable Unit have also been developed, signed to, and implemented due to the efforts of the same people responsible for the delivery of the Remedial Investigation/Feasibility Study. We encourage the continued operation of these early actions on the volunteer basis upon which they were undertaken.*

EPA's Response. EPA greatly appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU and spearheading implementation of the Shallow Extraction Pilot Project (SEPP) as an early action. EPA did not specifically include the SEPP as a component of the interim remedy selected in this ROD, however EPA remains very interested in continued implementation of source control and source removal actions in the South El Monte OU. EPA is encouraging the RWQCB and SEMOU PRPs to take the necessary steps to ensure that appropriate source control actions (such as the SEPP) continue at individual facilities or groups of facilities.

Mr. Felix Comment No. 2- Transcript Page 38, Line 22. *We would also now petition you, EPA, Regional Water Quality Control Board, Department of Toxic Substance Control, the San Gabriel Basin Water Quality Authority, and all other agencies and stakeholders responsible for the implementation of the remedy to use their creative abilities and to utilize whatever resources are currently available to them to develop programs and policies that address groundwater contamination problems in the South El Monte Operable Unit in a manner that provides equity to those who have brought us to this position.*

EPA's Response. As noted above, EPA appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU. EPA will continue to work with South El Monte OU PRPs and other local stakeholders to implement the interim remedy in the South El Monte OU in an efficient, cost-effective manner. EPA concurs that the effort already expended by members of the South El Monte OU Participants is a factor to be taken into account in allocating the costs of future remedial action.

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Tables

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations in Groundwater
South El Monte Operable Unit

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
Production Well 01900725	PCE	8/8	1.4	2	1.6	95% UCL
Production Well 01900791	PCE	1/3	0.4	0.7	0.7	Maximum
Production Well 01900792	PCE	3/4	1.4	1.9	1.9	Maximum
	TCE	3/4	0.54	0.7	0.7	Maximum
Production Well 01901694	PCE	1/1	NA	4	4	Maximum
Production Well 01902612	PCE	1/1	NA	7	7	Maximum
Production Well 01902664	PCE	1/1	NA	3	3	Maximum
	TCE	1/1	NA	5	5	Maximum
Production Well 01903057	None of the 8 risk drivers detected	NA	NA	NA	NA	NA
Production Well 01903081	PCE	9/9	0.9	1.3	1.1	95% UCL
Production Well 08000113	PCE	1/3	0.4	0.8	0.8	Maximum
Production Well 31900746	PCE	7/8	0.8	1.6	1.1	95% UCL
	TCE	2/4	1.6	0.6	0.6	Maximum
Production Well 31900747	PCE	5/8	0.6	1	0.8	95% UCL
Production Well 31903103	PCE	8/8	1.4	1.7	1.5	95% UCL
	TCE	1/2	2.0	1.4	1.4	Maximum
Production Well 41900745	PCE	7/7	1.9	3.3	2.4	95% UCL
	TCE	1/7	0.3	0.5	0.4	95% UCL
Production Well 41902713	PCE	5/8	0.4	1.6	0.7	95% UCL
Well Group 1	1,2-DCA	4/4	6.7	7.1	7.1	95% UCL

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
Well Group 2	Benzene	1/16	0.3	1.1	0.4	95% UCL
	PCE	16/16	123	710	196	95% UCL
	TCE	14/16	27	400	70	95% UCL
Well Group 3	Benzene	13/52	0.42	2.44	0.66	95% UCL
	1,2-DCA	2/52	0.60	2.78	0.83	95% UCL
	Cis-1,2-DCE	24/27	3.76	12.1	4.99	95% UCL
	PCE	47/52	399	8,900	692	95% UCL
	TCE	50/52	95	620	127	95% UCL
	Vinyl Chloride	11/52	1.64	18	2.44	95% UCL
Well Group 4	Benzene	18/31	134	880	212	95% UCL
	1,2-DCA	13/31	16.2	110	24.5	95% UCL
	Cis-1,2-DCE	9/31	2.8	3.2	3.2	Maximum
	PCE	14/31	13	42	17	95% UCL
	TCE	18/31	13.9	63	19.7	95% UCL
Well Group 5	1,2-Dichloroethene	3/3	37	98	98	Maximum
	PCE	1/3	27	72	72	Maximum
	TCE	3/3	46	79	79	Maximum
Well Group 6	Benzene	1/2	0.5	0.7	0.7	Maximum
	1,2-DCA	2/2	2.5	3.8	3.8	Maximum
	Cis-1,2-DCE	2/2	190	348	348	Maximum
	1,2-DCP	1/2	1.8	3.4	3.4	Maximum
	PCE	2/2	67	132	132	Maximum

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	2/2	56.5	99	99	Maximum
	Vinyl Chloride	2/2	16	29	29	Maximum
Well Group 7	1,2-DCA	1/3	5.3	6	6	Maximum
	1,2-DCE	1/3	5	5	5	Maximum
	PCE	2/3	22	43	43	Maximum
	TCE	2/3	16	29	29	Maximum
Well Group 8	1,2-DCA	1/16	0.3	0.5	0.3	95% UCL
	Cis-1,2-DCE	14/16	9.7	22	13	95% UCL
	PCE	16/16	43	170	67	95% UCL
	TCE	16/16	10.5	23	13.5	95% UCL
	Vinyl Chloride	1/16	0.4	0.6	0.5	95% UCL
Well Group 9	Benzene	2/17	2.2	0.8	0.8	Maximum
	1,2-DCE	2/6	9.2	19	13.7	95% UCL
	Cis-1,2-DCE	4/9	1.1	5.4	2.2	95% UCL
	PCE	17/17	171	790	272	95% UCL
	TCE	14/17	18	120	32	95% UCL
Well Group 10	PCE	4/4	155	348	320	95% UCL
	TCE	4/4	6.3	12	11	95% UCL
Well Group 11	Benzene	2/3	6	5	5	Maximum
	1,2-DCA	1/3	9	11	11	Maximum
	1,2-DCE	3/3	1,019	2,800	2,800	Maximum
	PCE	3/3	37	78	78	Maximum

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	3/3	60	110	110	Maximum
Well Group 12	PCE	7/7	362	640	482	95% UCL
	TCE	5/7	7.4	8.6	8.6	Maximum
Well Group 13	Benzene	1/3	1.7	0.2	0.2	Maximum
	Cis-1,2-DCE	1/2	0.3	0.6	0.6	Maximum
	PCE	3/3	260	536	536	Maximum
	TCE	3/3	9.1	12.2	12.2	Maximum
Well Group 14	1,2-DCA	8/11	1.8	2.7	2.5	95% UCL
	Cis-1,2-DCE	1/1	0.4	0.4	0.4	Maximum
	PCE	11/11	29	58	38.7	95% UCL
	TCE	11/11	13	32	17.5	95% UCL
Well Group 15	PCE	30/30	220.5	620	268.3	95% UCL
	TCE	3/30	1.1	2	1.6	95% UCL
Well Group 16	Benzene	2/6	13	12	12	Maximum
	1,2-DCE	4/5	89.4	310	210.1	95% UCL
	1,2-DCP	1/7	12.2	14	14	Maximum
	PCE	6/7	14.2	25	21	95% UCL
	TCE	6/7	212.4	760	435.8	95% UCL
Well Group 17	1,2-DCA	4/12	1.0	1.3	1.3	Maximum
	Cis-1,2-DCE	11/12	9.4	52.1	17.3	95% UCL
	1,2-DCP	1/12	0.8	0.5	0.5	Maximum
	PCE	12/12	238.5	480	298	95% UCL

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	12/12	24.3	96.2	36.8	95% UCL

Notes:
ND = non-detect
Ppb = parts per billion or µg/L (micrograms per liter)
95% UCL = 95 per cent upper confidence limit on the arithmetic mean groundwater concentration.

Table 2
Toxicity Values for Chemicals of Potential Concern
South El Monte Operable Unit

Chemical Name	Systemic Toxicity (mg/kg/day)						Carcinogenic Potency (mg/kg/day)						
	Oral Reference Dose	Source	Oral Critical Effect	Inhalation Reference Dose	Source	Inhalation Critical Effect	Weight of Evidence[1]	Source	Oral Slope Factor	Source	Inhalation Slope Factor	Source	Tumor Site
Benzene	0.0011	Route Extrapolation	--	0.0017	NCEA	--	A	IRIS	0.029	IRIS	0.029	IRIS[3]	Leukemia
1,2-DCA	0.01	NCEA	--	0.0029	NCEA	--	B2	IRIS	0.091	IRIS	0.091	IRIS[3]	Stomach, Mammary, Lung, Circulatory
1,2-DCE	0.006	HEAST	Liver Lesions	0.009	Route Extrapolation	--	--	--	--	--	--	--	--
Cis-1,2-DCE	0.0017	HEAST	Blood- decreased hematocrit and hemoglobin	0.01	Route Extrapolation	--	D	IRIS	--	--	--	--	--
1,2-DCP	0.0029	Route Extrapolation	--	0.0011	Iris[2]	Increased nasal mucosa	B2	HEAST	0.068	HEAST	0.068	Route Extrapolation	Liver
PCE	0.009	IRIS	Hepatotoxicity in mice, weight gain in rats	0.01	Route Extrapolation	--	C-B2	HEAST	0.052	NCEA	0.002	NCEA[3]	Liver, Leukemia
TCE	0.01	NCEA	Liver – Toxicity	0/006	Route Extrapolation	-	B2	HEAST	0.011	NCEA	0.006	NCEA[3]	Lungs, Liver
Vinyl Chloride	--	--	--	--	--	--	A	HEAST	1.9	HEAST	0.3	HEAST[3]	Lungs, Liver

HEAST = Health Effects Assessment Summary Tables (EPA, 1995b)

IRIS = Integrated Risk Information System (EPA, 1996a)

NCEA = National Center for Environmental Assessment (EPA, 1996b)

[1] Weight of Evidence Classification: A is Human Carcinogen; B is Probable Human Carcinogen (B1-limited evidence of carcinogenicity in humans, B2-sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans); C is a Possible Human Carcinogen; D is not classifiable as to Human Carcinogenicity.

[2] Inhalation Reference Dose calculated from unit risk.

[3] Inhalation Slope Factor calculated from unit risk.

Table 3a
Estimated Total Excess Lifetime Cancer Risk from Potential Current Domestic Use of Groundwater
South El Monte Operable Unit

Wells/Well Groups[1]	*Average Exposure*				*Reasonable Maximum Exposure*				
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	Major Chemical Contributors
01900725	1.4×10^{-7}	5.3×10^{-9}	1.6×10^{-8}	2×10^{-7}	9.8×10^{-7}	3.8×10^{-8}	1.3×10^{-7}	**1×10^{-6}**	PCE
01900791	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.3×10^{-7}	1.6×10^{-8}	5.9×10^{-8}	5×10^{-7}	
01900792	1.5×10^{-7}	1.1×10^{-8}	1.6×10^{-8}	2×10^{-7}	**1.3×10^{-6}**	9.4×10^{-8}	1.6×10^{-7}	**2×10^{-6}**	PCE
01901694	3.9×10^{-7}	1.5×10^{-8}	4.6×10^{-8}	5×10^{-7}	**2.4×10^{-6}**	9.4×10^{-8}	3.4×10^{-7}	**3×10^{-6}**	PCE
01902664	4.0×10^{-7}	6.8×10^{-8}	3.8×10^{-8}	5×10^{-7}	**2.5×10^{-6}**	4.2×10^{-7}	2.8×10^{-7}	**3×10^{-6}**	PCE
01903057	7.0×10^{-8}	7.0×10^{-8}	3.7×10^{-9}	1×10^{-7}	5.0×10^{-7}	5.0×10^{-7}	3.1×10^{-8}	**1×10^{-6}**	Carbon Tetrachloride
01903081	1.3×10^{-7}	4.3×10^{-8}	1.2×10^{-8}	2×10^{-7}	**1.0×10^{-6}**	4.0×10^{-7}	1.2×10^{-7}	**2×10^{-6}**	Carbon Tetrachloride, PCE
08000113	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.9×10^{-7}	1.9×10^{-8}	6.7×10^{-8}	6×10^{-7}	
31900746	9.6×10^{-8}	7.1×10^{-8}	9.7×10^{-9}	2×10^{-7}	8.1×10^{-7}	8.3×10^{-7}	9.8×10^{-8}	**2×10^{-6}**	PCE, Chloroform
31900747	5.9×10^{-8}	2.3×10^{-9}	6.9×10^{-9}	7×10^{-8}	4.9×10^{-7}	1.9×10^{-8}	6.7×10^{-8}	6×10^{-7}	
31903103	1.7×10^{-7}	2.1×10^{-8}	1.7×10^{-8}	2×10^{-7}	**1.1×10^{-6}**	1.3×10^{-7}	1.3×10^{-7}	**1×10^{-6}**	PCE
41900745	1.9×10^{-7}	1.1×10^{-8}	2.2×10^{-8}	2×10^{-7}	**1.5×10^{-6}**	8.5×10^{-8}	2.0×10^{-7}	**2×10^{-6}**	PCE
41902713	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.3×10^{-7}	1.6×10^{-8}	5.9×10^{-8}	5×10^{-7}	

[1] Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

Table 3b
Estimated Total Excess Lifetime Cancer Risk from Potential Future Domestic Use of Groundwater
South El Monte Operable Unit

Wells/Well Groups[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Well Group 1	1.2×10^{-5}	1.2×10^{-6}	1.5×10^{-6}	2×10^{-5}	7.6×10^{-4}	7.6×10^{-5}	1.2×10^{-7}	2×10^{-3}	1,2-DCA
Well Group 2	1.3×10^{-5}	7.9×10^{-7}	1.4×10^{-6}	1×10^{-5}	1.3×10^{-4}	9.7×10^{-6}	1.7×10^{-5}	2×10^{-4}	PCE
Well Group 3	4.7×10^{-5}	3.9×10^{-6}	4.8×10^{-6}	6×10^{-5}	5.0×10^{-4}	3.7×10^{-5}	6.0×10^{-5}	6×10^{-4}	PCE, TCE, VC
Well Group 4	1.2×10^{-5}	1.1×10^{-5}	5.7×10^{-7}	2×10^{-5}	1.1×10^{-4}	1.0×10^{-4}	6.3×10^{-6}	2×10^{-4}	Benzene, PCE, TCE, 1,2-DCA
Well Group 5	3.6×10^{-6}	6.2×10^{-7}	3.5×10^{-7}	5×10^{-6}	5.4×10^{-5}	7.3×10^{-6}	6.5×10^{-6}	7×10^{-5}	PCE, TCE
Well Group 6	6.6×10^{-5}	1.1×10^{-5}	1.8×10^{-6}	8×10^{-5}	7.5×10^{-4}	1.2×10^{-4}	2.5×10^{-5}	9×10^{-4}	PCE, TCE, VC, 1,2-DCP, 1,2-DCA
Well Group 7	3.4×10^{-6}	1.2×10^{-5}	2.8×10^{-7}	5×10^{-6}	3.6×10^{-5}	9.5×10^{-6}	3.9×10^{-6}	5×10^{-5}	PCE, TCE, 1,2-DCA
Well Group 8	5.9×10^{-6}	5.6×10^{-7}	5.3×10^{-7}	7×10^{-6}	5.4×10^{-5}	4.6×10^{-6}	6.0×10^{-6}	6×10^{-5}	PCE, TCE, VC
Well Group 9	1.8×10^{-5}	1.5×10^{-6}	2.0×10^{-6}	2×10^{-5}	1.8×10^{-4}	1.5×10^{-5}	2.3×10^{-5}	2×10^{-4}	PCE
Well Group 10	1.5×10^{-5}	6.6×10^{-7}	1.8×10^{-6}	2×10^{-5}	2.0×10^{-4}	8.3×10^{-6}	2.7×10^{-5}	2×10^{-4}	PCE
Well Group 11	7.0×10^{-6}	2.8×10^{-6}	5.1×10^{-7}	1×10^{-5}	7.8×10^{-5}	2.4×10^{-5}	7.5×10^{-6}	1×10^{-4}	PCE, TCE, 1,2-DCA
Well Group 12	3.6×10^{-5}	1.5×10^{-6}	4.1×10^{-6}	4×10^{-5}	3.0×10^{-4}	1.2×10^{-5}	4.1×10^{-5}	3×10^{-4}	PCE
Well Group 13	2.6×10^{-5}	1.1×10^{-6}	3.0×10^{-6}	3×10^{-5}	3.3×10^{-4}	1.4×10^{-6}	4.5×10^{-5}	4×10^{-4}	PCE
Well Group 14	3.5×10^{-6}	7.9×10^{-7}	3.5×10^{-7}	5×10^{-6}	3.0×10^{-5}	7.1×10^{-6}	3.4×10^{-6}	4×10^{-5}	PCE
Well Group 15	2.2×10^{-5}	8.5×10^{-7}	2.5×10^{-6}	3×10^{-5}	1.6×10^{-4}	6.5×10^{-6}	2.3×10^{-5}	2×10^{-4}	PCE
Well Group 16	8.1×10^{-6}	4.7×10^{-6}	4.1×10^{-7}	1×10^{-5}	8.6×10^{-5}	4.7×10^{-5}	4.9×10^{-6}	1×10^{-4}	PCE, TCE, 1,2-DCP
Well Group 17	2.4×10^{-5}	1.6×10^{-5}	2.8×10^{-6}	3×10^{-5}	1.9×10^{-4}	1.2×10^{-5}	2.5×10^{-5}	2×10^{-4}	PCE

[1] Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

Table 4a
Estimated Total Noncancer Hazard Index from Potential Current Domestic Use of Groundwater
South El Monte Operable Unit

Wells[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
01900725	0.00214	0.00219	0.00024	0.005	0.00455	0.00463	0.00061	0.010	
01900791	0.00059	0.00059	0.00007	0.001	0.00192	0.00192	0.00026	0.004	
01900792	0.00338	0.00338	0.00029	0.007	0.00840	0.00840	0.00087	0.02	
01901694	0.00587	0.00587	0.00068	0.01	0.01096	0.01096	0.00151	0.02	
01902664	0.01664	0.01664	0.00099	0.03	0.03105	0.03105	0.00218	0.06	
01903057	0.01468	0.01803	0.00078	0.03	0.03131	0.03845	0.00198	0.07	
01903081	0.00971	0.01163	0.00060	0.02	0.02650	0.03185	0.00190	0.06	
08000113	0.00059	0.00059	0.00007	0.001	0.00219	0.00219	0.00030	0.005	
31900746	0.00323	0.00323	0.00021	0.007	0.00795	0.00795	0.00060	0.02	
31900747	0.00088	0.00088	0.00010	0.002	0.00219	0.00219	0.00030	0.005	
31903103	0.00548	0.00548	0.00037	0.01	0.01050	0.01050	0.00086	0.02	
41900745	0.00352	0.00352	0.00035	0.007	0.00840	0.00840	0.00099	0.02	
41902713	0.00059	0.00059	0.00007	0.001	0.00192	0.00192	0.00026	0.004	

[1] Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

Table 4b
Estimated Total Noncancer Hazard Index from Potential Future Domestic Use of Groundwater
South El Monte Operable Unit

Wells[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Well Group-1	0.0339	0.0339	0.0004	0.07	0.671	0.671	0.001	0.1	
Well Group 2	0.2496	0.2495	0.0238	0.5	0.8638	0.8638	0.0893	2	PCE
Well Group 3	0.8565	0.8602	0.0788	2	2.5736	2.5832	0.2929	5	PCE, TCE
Well Group 4	1.3635	1.4074	0.0792	3	4.0191	4.1858	0.2790	8	Benzene
Well Group 5	0.2126	0.2126	0.0113	0.4	0.8563	0.8563	0.0575	2	TCE
Well Group 6	0.5799	0.5748	0.0252	1	1.9678	1.9525	0.1039	4	Cis-1,2-DCE
Well Group 7	0.1100	0.1090	0.0059	0.2	0.3350	0.3313	0.0240	0.7	
Well Group 8	0.1069	0.1068	0.0088	0.2	0.2897	0.2893	0.0295	0.6	
Well Group 9	0.4435	0.3412	0.0339	0.8	1.3065	1.0015	0.1185	2	PCE
Well Group 10	0.2433	0.2432	0.0271	0.5	0.9277	0.9276	0.1233	2	PCE
Well Group 11	2.0284	2.0846	0.0586	4	9.6574	9.8138	0.3170	20	1,2-DCE, TCE
Well Group 12	0.5850	0.5852	0.0666	1	1.4799	1.4810	0.1954	3	PCE
Well Group 13	0.4072	0.4071	0.0455	0.9	1.5316	1.5311	0.2055	3	PCE
Well Group 14	0.1302	0.1266	0.0078	0.3	0.3407	0.3317	0.0237	0.7	
Well Group 15	0.3299	0.3293	0.0380	0.7	0.7565	0.7548	0.1024	2	PCE
Well Group 16	0.9605	0.9580	0.0356	2	3.2491	3.2404	0.1401	7	TCE, 1,2-DCE
Well Group 17	0.4448	0.4441	0.0440	0.9	1.0809	1.0790	0.1230	2	PCE

[1] Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

Table 5
Cost Comparison of Alternatives
($1,000s)

Alternative	Capital Costs		Annual O&M Costs	Net Present Worth (30-years @ 7%)	
	Using New Facilities	Using Existing Facilities		Using New Facilities	Using Existing Facilities
2	450		90	1,540	
3	5,880	3,670	840	14,150	11,930
4	6,290	4,080	1,130	18,110	15,890

Table 6
Chemical-Specific ARARs for Chemicals of Concern

Compound	ARAR (ug/L)	Source
Acetone	-	-
Benzene	1	California MCL
Bromochloromethane	-	-
Carbon Disulfide	-	-
Carbon Tetrachloride	0.5	California MCL
Chlorobenzene	70	California MCL
Chloroethane	-	-
Chloroform[1]	100	Federal MCL
Chloromethane	-	-
1,2-Dibromomethane	0.05	Federal MCL
1,4-Dichlorobenzene	5	California MCL
1,1-Dichloroethane	5	California MCL
1,1-Dichloroethene	6	California MCL
1,2-Dichloroethane	0.5	California MCL
1,2-Dichloroethene	-	-
cis-1,2-Dichloroethene	6	California MCL
trans-1,2-Dichloroethene	10	California MCL
1,2-Dichloropropane	5	Federal MCL
2,2-Dichloropropane	-	-
1,1-Dichloropropene	-	-
1,3-Dichloropropene	0.5	California MCL
Ethylbenzene	700	Federal MCL
Isopropylbenzene	-	-
Methyl Ethyl Ketone	-	-
Methylene Chloride	5	Federal MCL
Naphthalene	-	-
n-Propylbenzene	-	-
Styrene	100	Federal MCL
Tetrachloroethene	5	Federal MCL
Toluene	150	California MCL
1,1,2-Trichloro-1,2,2-trifluoroethane	1,200	California MCL
1,1,1-Trichloroethane	200	Federal MCL
1,1,2-Trichloroethane	5	Federal MCL
Trichloroethene	5	Federal MCL
Trichlorofluoromethane	150	California MCL
1,2,4-Trimethylbenzene	-	-
1,3,5-Trimethylbenzene	-	-
Vinyl Chloride	0.5	California MCL
Xylenes, Total	1,750	California MCL

[1]This chemical is one of the four trihalomethanes (THMs); the MCL listed is for all four THMs combined: chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

Notes: - indicates "no MCL has been established or proposed."

Table 7
Detailed Costs Estimates for the Selected Remedy
South El Monte OU - Interim ROD

Component	Quantity	Unit	Unit Cost ($)	Cost ($)
Capital Costs (including Engineering and Management)				**Capital Costs**
Monitoring				
New MP® monitoring wells	2	ea.	$108,900	$217,800
Initial ground water monitoring	1	ls.	$52,000	$52,000
Monterey Park Module No. 1 (near wells 12 and 15)				
Install and equip. extraction wells	2	ea.	$229,050	$458,100
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$705,600	$705,600
Conveyance piping	2	ls.	$133,500	$267,000
Monterey Park Module No. 2 (near Well 5)				
Install and equip. extraction well	1	ea.	$226,500	$226,500
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$464,700	$464,700
Conveyance piping	1	ls.	$125,000	$125,000
SCWC Module (near wells San Gabriel 1 and 2)				
Install and equip. extraction wells	2	ea.	$226,500	$453,000
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$518,400	$518,400
Conveyance piping	1	ls.	$125,000	$125,000
SGVWC Module (near Plant 8)				
Install and equip. extraction wells	1	ea.	$226,500	$226,500
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$650,100	$650,100
Conveyance Piping	1	ls.	$125,000	$125,000
		Capital Cost Subtotal		$5,115,000
		Contingencies (15 percent)		$767,000
		TOTAL ESTIMATED CAPITAL COST		$5,882,000

Annual Operations & Maintenance Costs	Quantity	Unit Cost	Annual Cost ($)	Present Worth Cost (1) ($)
Long-term Ground Water Monitoring	1	$85,100	$85,100	$1,056,000
Monterey Park Module No. 1 (Wells 12 and 15)		*30 years operation*		
Treatment system monitoring	1	$40,200	$40,200	$499,000
Remediation system operation	1	$146,000	$146,000	$1,812,000
Monterey Park Module No. 2 (Well 5)		*10 years operation*		
Treatment system monitoring	1	$28,400	$28,400	$199,000
Remediation system operation	1	$95,500	$95,500	$671,000
SCWC Module (Wells San Gabriel 1 and 2)		*5 years operation*		
Treatment system monitoring	1	$32,400	$32,400	$133,000
Remediation system operation	1	$109,000	$109,000	$447,000
SGVWC Module (Wells 8B, C and D)		*30 years operation*		
Treatment system monitoring	1	$43,800	$43,800	$544,000
Remediation system operation	1	$147,300	$147,300	$1,828,000
		Annual O&M Subtotal:	$727,700	$7,189,000
		O&M Contingencies (15 percent)(1)	$109,200	$1,078,000
		Annual O&M Total:	$837,000	
		TOTAL DISCOUNTED O&M COST(1)		$8,267,000
		TOTAL CAPITAL COSTS		$5,882,000
		ESTIMATED PRESENT WORTH COST		$14,149,000

Notes
(1) Based on 5 to 30-year project and a 7% discount rate.
(2) Net Present Value Factors = 12.409 for 30 years, 7.024 for 10 years, and 4.100 for 5 years.

Capital cost estimates are not discounted because the construction work will be performed in the early stages of the project. O&M costs are reported as present worth estimates given a 7% discount rate for a duration that varies between 5 and 30 years. Cost estimates are based on extraction rates and influent quality estimates that may be refined during remedial design. Cost estimates are expected to be within a +50 to -30% accuracy range.

"ls. = lump sum; ea. = each

Figures

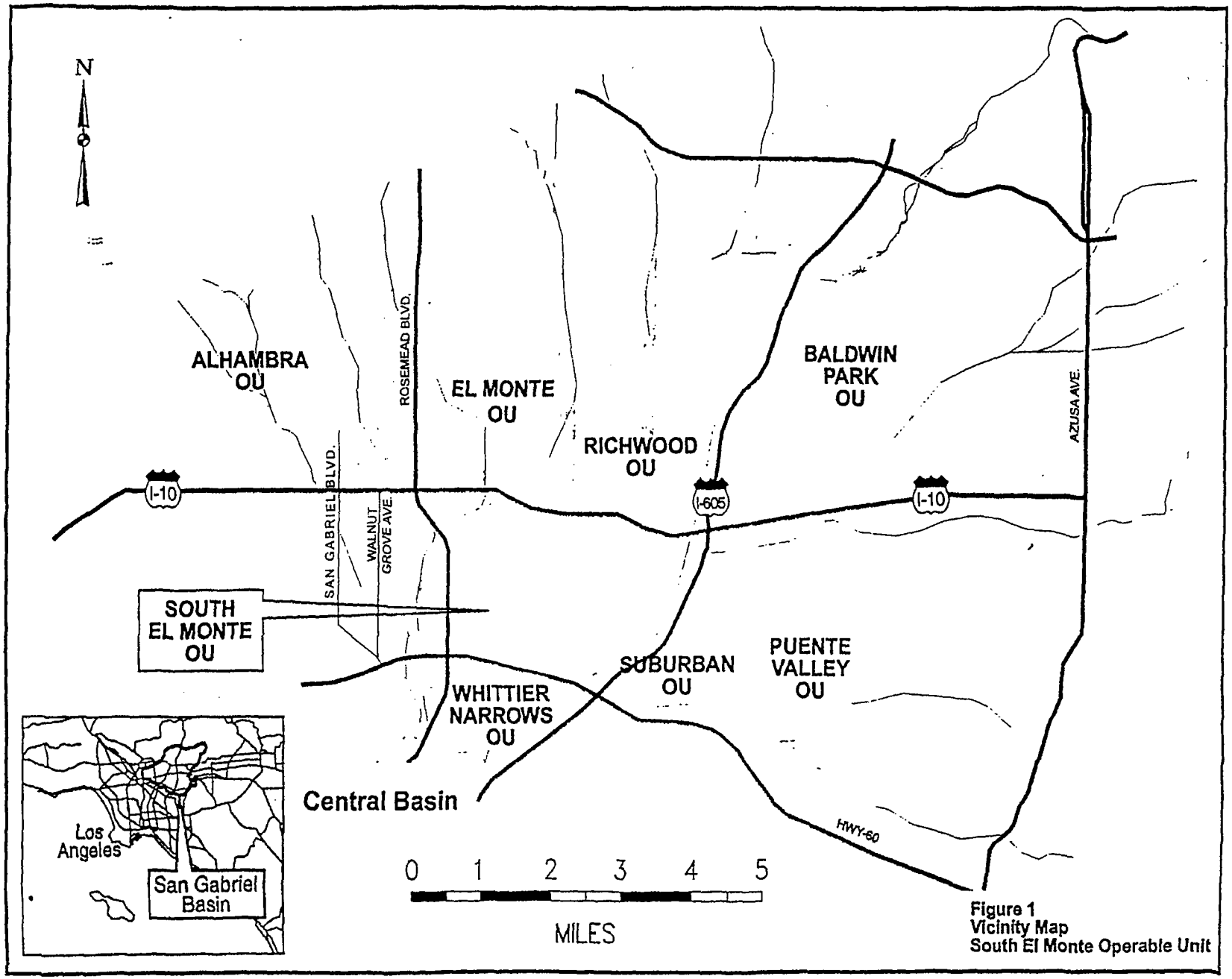

Figure 1
Vicinity Map
South El Monte Operable Unit

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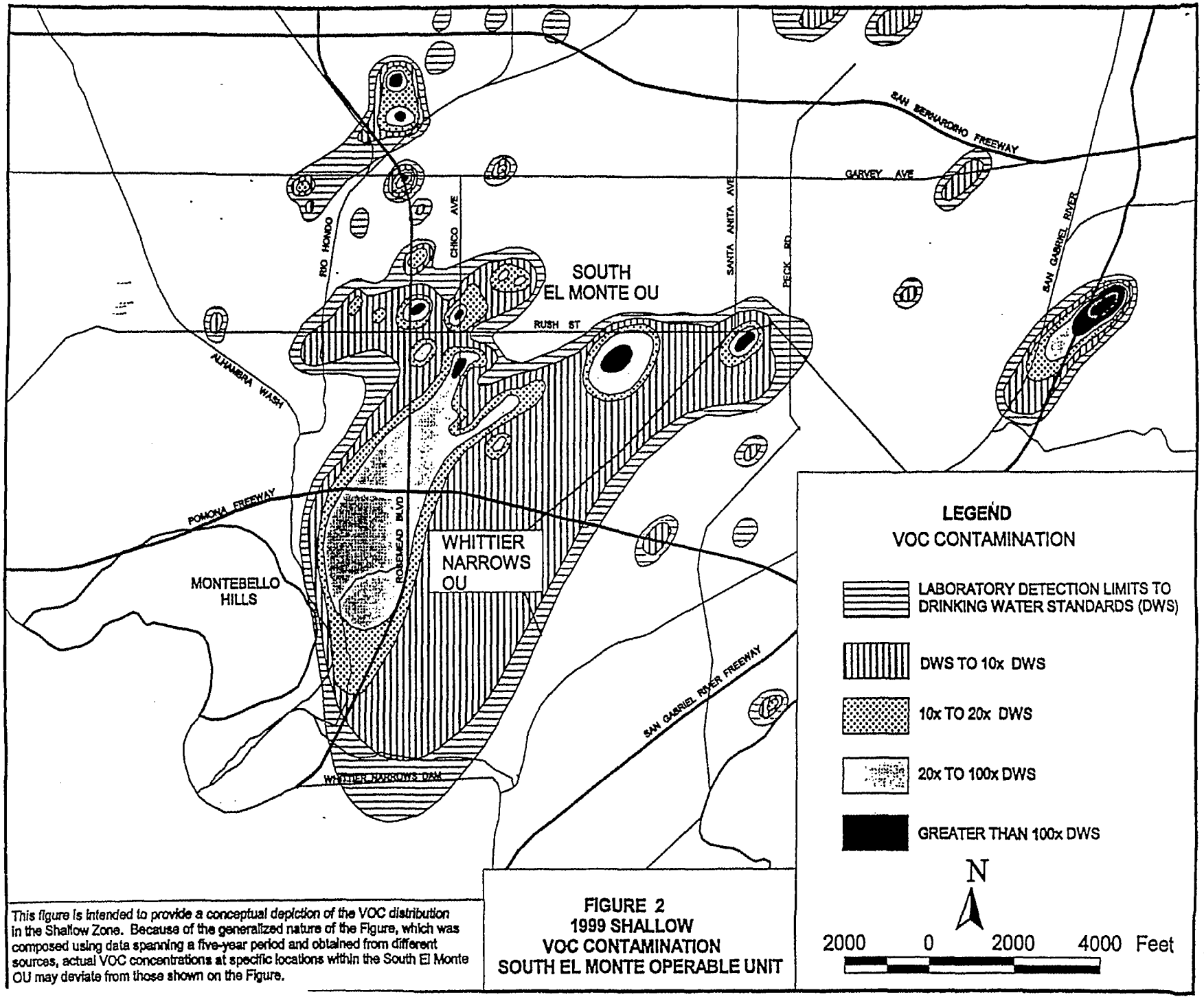
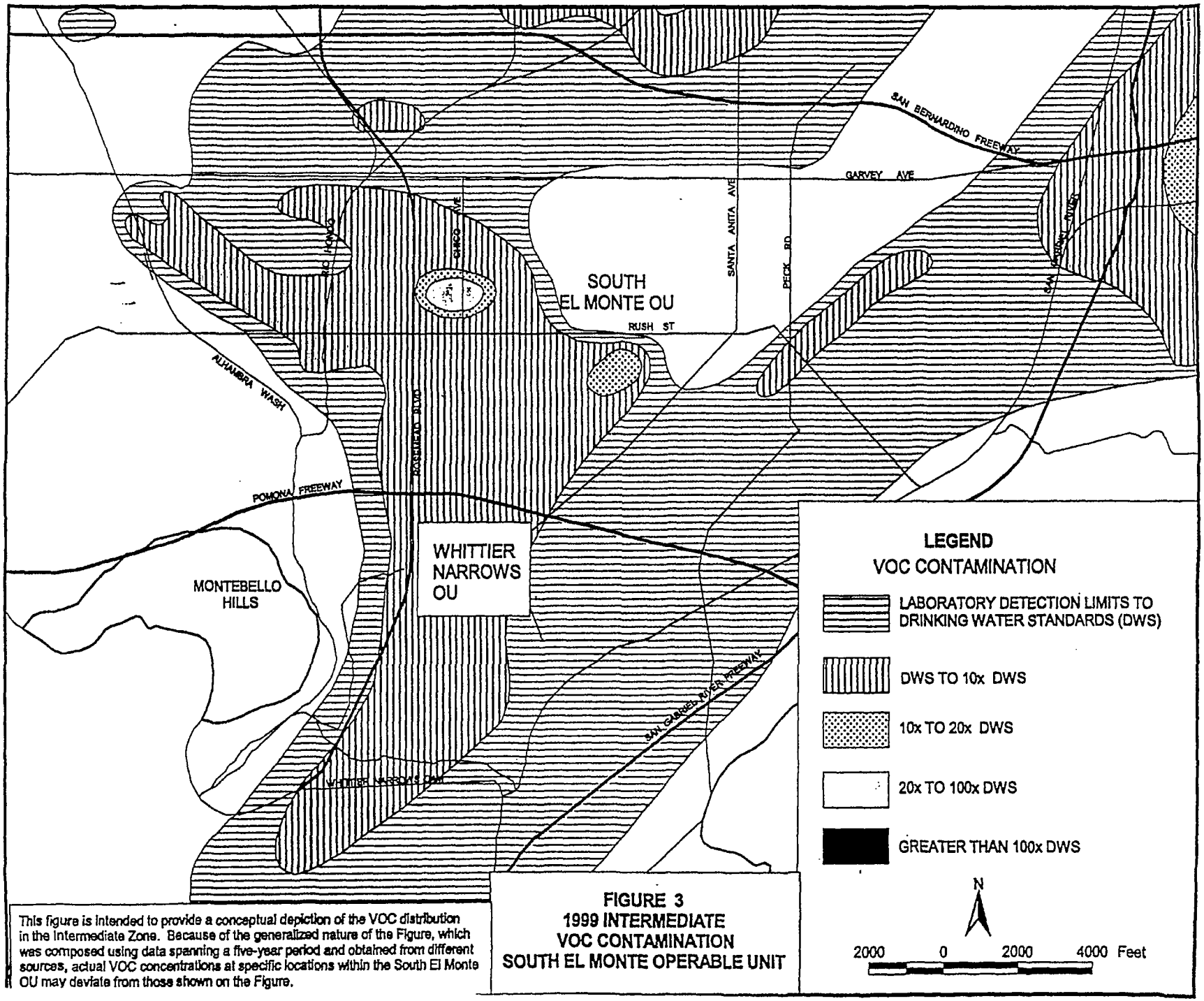


This figure is intended to provide a conceptual depiction of the VOC distribution in the Shallow Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different sources, actual VOC concentrations at specific locations within the South El Monte OU may deviate from those shown on the Figure.

FIGURE 2
1999 SHALLOW
VOC CONTAMINATION
SOUTH EL MONTE OPERABLE UNIT



This figure is intended to provide a conceptual depiction of the VOC distribution in the Intermediate Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different sources, actual VOC concentrations at specific locations within the South El Monte OU may deviate from those shown on the Figure.

FIGURE 3
1999 INTERMEDIATE
VOC CONTAMINATION
SOUTH EL MONTE OPERABLE UNIT

Figure 4: Alternative Evaluation Matrix - South El Monte Operable Unit

Evaluation Criteria	Alternative 1 No action	Alternative 2 Groundwater monitoring	Alternative 3 *Selected Remedy* Intermediate Zone Control in Western South El Monte OU	Alternative 4 Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control
Overall Protectiveness	○	○	●	●
Compliance with ARARs	○	○	●	●
Long-term Effectiveness & Permanence	○	◒	●	●
Implement-ability	not applicable	●	●	●
Short-term Effectiveness	not applicable	◒	●	●
Reduction of Toxicity, Mobility or Volume by Treatment	○	○	◒	●
Capital Cost O&M PWC	$0 $0 $0	$0.45 million $0.09 million $1.54 million	$5.88 million $0.84 million $14.15 million	$6.29 million $1.13 million $18.11 million
State Agency Acceptance	○	○	●	◒
Community Acceptance	○	○	●	◒

● = High ◒ = Medium ○ = Low

Note: The capital costs of Alternatives 3 and 4 are based on using primarily new production wells and infrastructure. If agreements are reached to use existing water purveyor-owned production wells and infrastructure, the capital costs of Alternatives 3 and 4 could decrease by an estimated $2,210,000. Annual operations and maintenance (O&M) costs for Alternatives 3 and 4 are based on purveyors using treated water for which they contribute $45/ac-ft to offset O&M costs. If purveyors do not use the treated water, annual O&M costs for Alternatives 3 and 4 will increase by at least an estimated $730,000.

O&M = Annual Operations and Maintenance Cost
PWC = Present Worth Cost: 7% Discount Rate, 30 Years

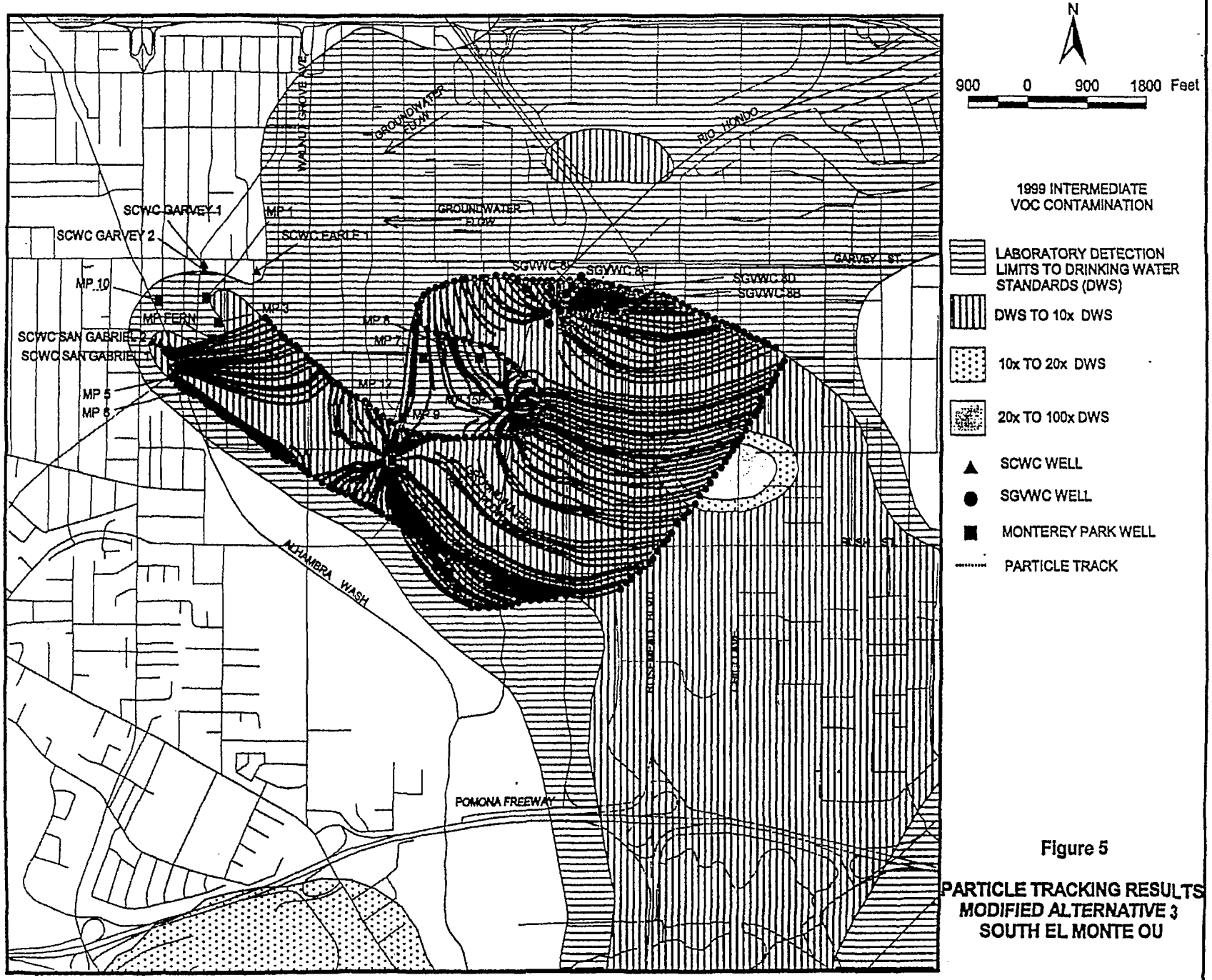


Figure 5

PARTICLE TRACKING RESULTS
MODIFIED ALTERNATIVE 3
SOUTH EL MONTE OU

Attachment 3 to Administrative Order 2003-17

RD/RA STATEMENT OF WORK

South El Monte Operable Unit

SAN GABRIEL VALLEY SUPERFUND SITE, AREA 1

LOS ANGELES COUNTY, CALIFORNIA

August 2003

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STATEMENT OF WORK FOR
REMEDIAL DESIGN AND REMEDIAL ACTION
ATTACHMENT X TO ADMINISTRATIVE ORDER 2003-X
South El Monte Operable Unit
San Gabriel Valley Superfund Site Area 1

I. Introduction

This Statement of Work (SOW) describes the activities Respondents must perform to design, construct, operate, maintain, monitor, and evaluate the interim remedial action described in the South El Monte Operable Unit (SEMOU) Interim Record of Decision (ROD), dated September 29, 2000. This SOW is Attachment 3 o the South El Monte Operable Unit Unilateral Administrative Order (Order) 2003-17.

The South El Monte Operable Unit addresses a several-square-mile area of groundwater contamination extending beneath portions of El Monte, Rosemead, and South El Monte, in Los Angeles County, California. Chemicals of potential concern in the groundwater include volatile organic compounds (VOCs) listed in Table 6 of the ROD (Attachment 1).

EPA intends to review deliverables to assess whether or not the remedial action will achieve the remedial objectives, and Performance Criteria set forth in the ROD and this SOW. EPA review or approval of a task or deliverable shall not, however, be construed as a guarantee of the adequacy of such task or deliverable.

A description of remedial actions (e.g., wellhead treatment) that have been initiated by water purveyors in the SEMOU, which, depending on the remedy implementation approach selected, may eventually be considered post RI/FS or pre-Remedial Design work, can be found in Attachment 2 of the SOW, along with recent concentrations of VOCs, perchlorate, 1,4-dioxane, and other chemicals in groundwater in the SEMOU.

The definitions set forth in Section IV of the Order shall apply to this SOW unless expressly provided otherwise herein.

II. Summary of the South El Monte OU Interim Remedial Action

The selected remedy addresses the intermediate zone groundwater contamination present in the northwestern half of the SEMOU. This contamination has been separated into two areas: 1) the Central Containment Area and 2) the Western Containment Area. The ROD requires the remedial action to provide sufficient hydraulic control to prevent migration of intermediate zone groundwater contaminated above chemical-specific ARARs (Table 6 and Section 12.1 of the ROD), into or beyond the Central Containment Area and into or beyond the Western Containment Area, as described in the SEMOU ROD (Section 11.1). Hydraulic control can be accomplished by: (1) installing new wells upgradient of the Western and Central Containment

Areas; or (2) using existing production wells located in the Western and Central Containment Areas, alone, or in combination with new wells.

Compliance wells shall be installed in strategic locations to verify that the hydraulic control is sufficient to meet the Performance Criteria. The approximate extent of the intermediate zone VOC contamination can be found in Figure 3 of the ROD. A more recent (2001) depiction of the intermediate VOC contamination in the SEMOU is shown on Figure 1 of this SOW. EPA shall approve the locations and specifications of the intermediate zone compliance wells. Sentinel wells located upgradient of the compliance wells are recommended to avoid exceedances of the Performance Criteria. A sentinel well is typically situated between a sensitive receptor downgradient (e.g., compliance or extraction well) and the source of contamination upgradient. Contamination should be first detected in the sentinel well which serves as a warning that contamination may be moving closer to the receptor. The sentinel well should be located far enough upgradient of the receptor to allow enough time before the contamination arrives at the receptor to initiate other measures to prevent contamination from reaching the receptor, or in the case of an extraction well, to, for example, institute necessary treatment facility or operational changes.

Compliance monitoring wells should be located such that if ARARs are exceeded or are expected to be exceeded in upgradient sentinel monitoring wells, adequate time is available to take action to maintain concentrations below ARARs at the compliance wells.

Initial Remedial Design Work:

As an initial step, Respondents shall design and install the compliance wells (and sentinel wells, if necessary) in the intermediate groundwater zone. Respondents may propose to use existing wells as compliance wells (and sentinel wells, if necessary). Respondents shall demonstrate to EPA's satisfaction that each well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. Prior to installation of compliance and sentinel wells, Respondents shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the proposed locations and specifications of the wells, new and/or existing, as required in Section IV of this SOW. After installation and sufficient monitoring of each proposed compliance and sentinel well, EPA shall determine whether the location and construction of each well is acceptable for its proposed use. Respondents shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin, as described in Section IV of this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, Respondents shall assume quarterly sampling of each well to ensure that the Performance Criteria are met in the intermediate zone, and submit Quarterly Compliance Monitoring Reports, as required by the Compliance Monitoring Plan.

Other Remedial Design requirements are set forth in Sections III and IV of this SOW.

III. Performance Criteria

As specified in the Order, Respondents shall meet all Performance Criteria, Remedial Action Objectives (RAOs), and Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the ROD and this SOW. The ROD states that the RAOs for the SEMOU are to prevent exposure of the public to contaminated groundwater; contain further migration of contaminated groundwater from the more highly contaminated portions of the aquifer to the less contaminated areas or depths; reduce the impact of continued contaminant migration on downgradient water supply wells; and protect future uses of less contaminated and uncontaminated groundwater. All compliance monitoring data shall be reported in the Quarterly Compliance Monitoring Reports. The ROD requires that the remedial action provide sufficient hydraulic control of contaminated groundwater in the intermediate zone to meet the Performance Criteria.

The Performance Criteria include the treatment standards, standards of control, quality criteria, and other substantive requirements, criteria or limitations included in the ROD.

C. Compliance with Performance Criteria:

The remedial action shall provide sufficient hydraulic control to prevent migration of intermediate zone groundwater contaminated above chemical-specific ARARs, listed in Table 6 of the ROD, into or beyond the Central Containment Area and into or beyond the Western Containment Area, in the northwestern portion of the SEMOU. Compliance with this criterion will be verified through monitoring of compliance wells for two parameters: hydraulic gradients and chemical-specific ARARs. The remedial action must create inward hydraulic gradients at each of the containment areas. These hydraulic gradients must be sufficient to demonstrate that contaminated groundwater is captured by the extraction wells under all flow conditions (e.g., during both wet and dry periods in the hydrologic cycle). The intermediate zone encompasses the coarser interval of the aquifer found beneath the shallow zone and the separating sequence, as defined in Section 11.1.3.1 of the ROD. The Central Containment Area is defined as: (1) the area encompassed by five Monterey Park wells (Nos. 7, 8, 9, 12, and 15 (planned)) and six San Gabriel Valley Water Company wells (Nos. 8A, 8B, 8C, 8D, 8E, and 8F), as listed in Section 11.1.3.2 of the ROD and (2) the intermediate zone groundwater contaminated above ARARs that is present within 1,500 feet downgradient of these wells. The Western Containment Area is defined as: (1) the area encompassed by five Southern California Water Company wells (San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1) and six Monterey Park wells (Nos. 1, 3, 5, 6, 10, and Fern), as listed in Section 11.1.3.2 of the ROD, and (2) the extent of intermediate zone groundwater contamination above ARARs in the vicinity of these wells.

Hydraulic control can be accomplished by: (1) installing new extraction wells upgradient of the Western and Central Containment Areas; or (2) using existing production wells alone, or in combination with new wells. If new wells are used upgradient of the containment areas, as defined above, they must provide sufficient hydraulic control to capture contamination before it migrates into the production well field. Under this

scenario, compliance with the performance criteria will be determined at, or upgradient from, the production wells. If existing production wells are used, Respondents shall demonstrate that pumping from the existing wells alone, or, in combination with new wells, provides sufficient hydraulic control to meet the Performance Criteria. If existing production wells are used, Respondents and the owners of the production wells shall also provide assurances acceptable to EPA that the wells will operate in a manner that ensures compliance with the Performance Criteria. Such assurances shall be provided for in agreements, approved by EPA, with the water companies that own the production wells. The remedial measures must provide sufficient hydraulic control, without the aid of other wells not included in the remedial action, to ensure that the Performance Criteria are not exceeded. See Figures 3 and 5 of the ROD for the approximate extent of the intermediate zone VOC contamination.

In the Central Containment Area, compliance with performance criteria will initially be determined through monitoring of hydraulic gradients. Water quality data from compliance wells will also be used to confirm that hydraulic control requirements are being met. After hydraulic containment has been achieved and contaminant concentrations downgradient from the extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs. In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs.

Respondents shall monitor compliance with this criterion at a sufficient number of compliance wells that meet the following requirements and have been approved by EPA:

Central Containment Area

(1) Located within 2,000 feet of the area where extraction is occurring. Compliance wells will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements.

(2) Located downgradient of the area with groundwater contamination exceeding ARARs (for wells used to measure compliance with chemical-specific ARARs).

(3) Completed with screen lengths of 20 feet or less within the intermediate zone. However, longer screened intervals may be appropriate for wells used strictly to evaluate compliance with hydraulic control requirements.

Western Containment Area

(1) Located within 2,000 feet of the area where extraction is occurring. Compliance wells must be sufficient in number and adequately located to ensure that contamination above ARARs does not migrate beyond the Western Containment Area.

(2) Located downgradient of the area with groundwater contamination exceeding ARARs (for wells used to measure compliance with chemical-specific ARARs).

(3) Located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements (for wells used to monitor hydraulic control).

(4) Completed with screen lengths of 20 feet or less within the intermediate zone. However, longer screened intervals may be appropriate for wells used strictly to evaluate compliance with hydraulic control requirements.

Respondents shall conduct quarterly monitoring (groundwater sample collection and analysis; groundwater level measurements) at the intermediate zone compliance wells to ensure compliance with the intermediate zone Performance Criteria. Results shall be reported in the Quarterly Compliance Monitoring Reports. The frequency of monitoring may be decreased in the future if the monitoring data support such a decrease (i.e., performance criteria are unlikely to be violated in the short term) and Respondents obtain EPA approval. Conversely, if it appears, based on trends in monitoring data, that the performance criteria (either contaminant concentrations or hydraulic gradients) are close to being violated, the monitoring frequency may be increased. Contaminant concentrations at the compliance wells and hydraulic gradients in the containment areas will be the absolute criterion for evaluating compliance. In both containment areas, EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the compliance wells to provide enough of a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance, but close enough to ensure that groundwater contamination is being contained. Imminent exceedance of the performance criteria at compliance wells indicates that groundwater contamination is continuing to migrate and improved hydraulic containment is required.

B. Additional Requirements

Implementation of the remedial action shall not adversely affect production wells that are not part of the remedial action (i.e., shall not result in increased contaminant concentrations in existing production wells that are not part of the remedy). In addition, the remedial action must provide hydraulic control of groundwater contamination exceeding ARARs without relying on the effects of wells that are not part of the remedial action.

Indications of an imminent exceedance of the Performance Criteria at a compliance well will be considered as evidence that groundwater contamination is migrating and that additional hydraulic containment is required. In the event of an actual or imminent exceedance of the Performance Criteria at the compliance wells, Respondents shall implement additional groundwater extraction and treatment to achieve sufficient

hydraulic control. Actual exceedance of the Performance Criteria at a compliance well is a violation of the Order which may result in enforcement action.

C. Groundwater Treatment and Discharge

Respondents shall treat all groundwater that is extracted pursuant to this SOW. Respondents shall install and operate treatment systems that are designed to reduce the concentrations of the contaminants to below ARARs (Table 6 and Section 12.1 of the ROD). Subject to EPA approval, these requirements may not apply to EPA-approved CERCLA Section 104(b) activities that will result in temporary high flow, high volume discharges (e.g., discharges from sampling of selected water supply wells or aquifer tests).

All extracted groundwater is expected to be treated with air stripping (with off-gas controls) or liquid-phase carbon adsorption to remove the contaminants listed in Table 6 of the ROD. Depending on the type of discharge or end-use, extracted groundwater may require treatment by ion exchange or other appropriate technologies to remove perchlorate. If alternative treatment technologies are proposed, EPA will evaluate the alternative technologies in accordance with the criteria specified in 40 CFR Section 300.430 during remedial design. If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water (as described in Section 12.1 of the ROD) in existence at the time the water is served will have to me met. If treated groundwater is discharged to a surface water body, NPDES requirements for perchlorate will need to be met.

Following treatment, extracted groundwater can either be provided to local water purveyors for use in the San Gabriel Basin ("the Basin"), or discharged to Alhambra Wash or the Rio Hondo. Alternative discharge options may be used, subject to EPA approval. Disposal of the treated groundwater must comply with the applicable or relevant and appropriate requirements (ARARs) identified in the ROD. Introduction of treated groundwater into a public water supply is an offsite activity that must comply with all legal requirements for drinking water in effect at the time of the activity.

The extraction and treatment of groundwater shall comply with the following requirements:

1. Treatment systems shall be designed and operated to reduce the concentrations of contaminants to below the ARARs (Table 6 and Section 12.1 of the ROD) under all anticipated operating conditions;

2. Best available control technology for toxics (T-BACT) shall be used on new stationary operating equipment, so the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of ten in one million (1×10^{-5}), as required by South Coast Air Quality Management District (SCAQMD) Rule 1401;

3. For water to be provided to a public water supply, the installation and operation of treatment systems shall be designed to reduce the concentrations of parameters for which there are Federal or State *Secondary* MCLs to below secondary MCLs;

4. Extraction and treatment systems shall comply with the substantive portions of SCAQMD Regulation XIII, comprising Rules 1301 through 1313, pertaining to new source review;

5. Extraction and treatment systems shall comply with the water quality objectives for discharge of treated water from the Regional Water Quality Control Board (RWQCB) Los Angeles Basin Plan and State Water Resources Control Board (SWRCB) Resolution 68-16, as outlined in the ROD;

6. Extraction and treatment systems shall comply with water quality-based effluent limitations for discharge of treated water based on water quality criteria for priority toxic pollutants in California surface waters in the amended 33 U.S.C. § 131.38 (California Toxics Rule), as outlined in the ROD;

7. Extraction and treatment systems shall comply with limits in visible emissions (SCAQMD Rule 401) and particulate concentrations (SCAQMD Rule 403);

8. Extraction and treatment systems shall not cause the discharge of material that is odorous or causes injury, nuisance or annoyance to the public (SCAQMD Rule 402);

9. Extraction and treatment systems shall comply with the substantive requirements in Title 22, California Code of Regulations (CCR), Sections 66264.601 -.603 for *miscellaneous treatment units,* and related substantive closure requirements in Sections 66264.111-.115 for air strippers or granular activated carbon (GAC) contractors;

10. Extraction and treatment systems shall comply with the substantive requirements in Title 22, California Code of Regulations (CCR), Section 66264.14 for *security requirements,* and related substantive design requirements in Section 66264.25 for granular activated carbon (GAC) vessels or other appropriate tanks;

11. Extraction and treatment systems shall comply with container and storage requirements in Title 22, CCR, Sections 66264.170 -.178 for the storage of contaminated groundwater over 90 days;

12. Extraction and treatment systems shall comply with Title 22, CCR, Sections 66262 and 66268 and other State Hazardous Waste Control Act (HWCA) requirements for storage and disposal if the spent carbon is classified as a hazardous waste; and

13. Extraction and treatment systems shall comply with the substantive portions of the State Water Well Standards for construction of water supply wells.

IV. List of Deliverables and Other Tasks

Respondents shall submit plans, specifications, and other deliverables for EPA review and/or approval, as specified below. EPA may also request periodic updates of selected deliverables (e.g., Work Plan, Sampling Plan, Monitoring Plans, etc.) described in this section of the SOW, as more information is gathered or as conditions change during implementation of the RD/RA. One copy of each final written deliverable shall be provided in an unbound format suitable for reproduction; additional copies shall be provided as stated in the Order. Information presented in color must be legible and interpretable when reproduced in non-color. If EPA requests, final written deliverables shall also be provided in electronic format.

Respondents shall implement quality control procedures to ensure the quality of all reports and submittals to EPA. These procedures shall include but are not limited to: internal technical and editorial review; independent verification of calculations; and documentation of all reviews, problems identified, and corrective actions taken.

As described in Section XIV of the Order, EPA may approve, disapprove, or modify each deliverable. Major deliverables are described below and shall be submitted according to the schedule in Section V of this SOW.

A. Compliance and Sentinel Well Network Plan

Prior to installation of compliance and sentinel wells, Respondents shall submit to EPA a Compliance and Sentinel Well Network Plan, describing the proposed locations and specifications of the compliance wells. All existing wells that may be used for compliance or sentinel purposes must be described in this plan. Additionally, all proposed new compliance and sentinel wells must be described and a schedule for their installation provided. Respondents shall demonstrate to EPA's satisfaction that each proposed compliance well is appropriate for measuring compliance, as described in Section III (Performance Criteria) of this SOW. This plan will include sampling procedures for confirming the adequacy of all proposed compliance and sentinel wells. Respondents must sample and monitor each proposed compliance and sentinel well at least two times to demonstrate that each well is suitable to be a compliance well as described in the ROD and this SOW. Additional confirmation sampling and monitoring may be required for proposed compliance wells if initial sampling and monitoring results are inconsistent. After installation and sufficient sampling and monitoring, EPA shall determine whether each well is acceptable for use as a compliance and or sentinel well.

B. Compliance and Sentinel Well Installation Report

After installation of the compliance and sentinel wells, Respondents shall submit a Compliance and Sentinel Well Installation Report, signifying the time at which compliance monitoring will begin. This report will include all sampling and monitoring results for all proposed compliance and sentinel wells, and the data must show contaminant concentrations and groundwater levels that adhere to the requirements for compliance and sentinel wells as outlined in the ROD and this SOW. After EPA approval of the Compliance and Sentinel Well Installation Report, Respondents shall assume quarterly sampling and monitoring of each well to ensure that the Performance Criteria are met in the intermediate zone, and submit Quarterly Compliance Monitoring Reports, as required by the Compliance Monitoring Plan, described in Section IV.G of this SOW.

C. Remedial Design/Remedial Action Work Plan

Respondents shall submit a Work Plan that describes the management strategy for design and construction of the remedial action ("RD/RA Work Plan"). The RD/RA Work Plan must be reviewed and approved by EPA in accordance with Section IX of the Order. The Work Plan shall include:

1. Project Description

The RD/RA Work Plan shall include a description of the work to be implemented by Respondents. The initial work should first and foremost focus on the location, installation, and monitoring of compliance and sentinel wells, including preparation of the Compliance and Sentinel Well Network Plan as required in Section IV of this SOW. The Work Plan shall also include, where applicable, additional data collection efforts (see Section IV.C.7 of this SOW); extraction locations; treatment technologies; discharge of the treated water (i.e., recipients, delivery locations, delivery pressures, and delivery rates); locations of major project components; existing equipment and facilities to be used as part of the remedial action; and other key aspects of the project. The Work Plan shall briefly discuss the condition, anticipated longevity, and any limitations in the use of each existing facility.

2. Description of the Responsibility and Authority of All Organizations and Key Personnel Involved With the Remedial Action.

The RD/RA Work Plan shall include a description of the responsibilities and qualifications of key personnel expected to direct or play a significant role in the Remedial Design, Remedial Action, or Operation and Maintenance, including Respondents' Project Coordinator, Designer, Construction Contractor, Construction Quality Assurance personnel, and

Resident Engineer. The Work Plan shall define lines of authority and provide brief descriptions of duties.

3. Schedule

The RD/RA Work Plan shall identify the initiation and completion dates for each required design activity, construction activity, inspection, and deliverable required by the Order and this SOW, consistent with the schedule included as Section V of this SOW. The Work Plan shall also identify the approximate timing of meetings and other activities that may require EPA participation, but are not identified in Section V of this SOW.

The schedule shall indicate that coordination meetings will initially occur on a monthly basis and may be decreased in frequency as deemed appropriate by EPA. The coordination meetings shall address project status, problems, solutions, and schedule. A representative of the Respondents shall prepare a meeting summary to document all decisions made, issues outstanding, schedule changes, planned follow up, and assignments.

4. Contracting Strategy and Construction Process

The RD/RA Work Plan shall briefly describe the planned contracting strategy, including a brief description of the process for evaluation and approval of construction changes and EPA review and approval of significant changes.

5. Plans for Satisfying All Permitting Requirements and Acquiring Property, Leases, Easements, or Other Access.

The RD/RA Work Plan shall list all permits, property, leases, and easements required for implementation of the remedial action; permits, property, leases, and easements acquired to date; and a schedule for submittal of permit applications and acquisition of property, leases, or easements not yet obtained.

Where normally required, permits must be obtained for all off-site activities, such as from the California Department of Health Services for domestic use of treated groundwater. Respondents are not required to obtain permits for on-site remedial activities, but must comply with all substantive requirements, including local building codes. If permits will not be obtained for an onsite activity where a permit is normally required, Respondents shall describe all consultative or coordination activities planned to identify and satisfy the substantive requirements.

6. Third Parties Necessary for Design, Construction, or Operation of the Remedial Action.

   The RD/RA Work Plan shall describe the roles and responsibilities of Respondents, participating water producers and water agencies, and other parties expected to play a significant role in the design, construction, or operation of the remedial action. The Work Plan shall summarize and provide copies of Memorandums of Understanding and draft or final agreements with water producers and other third parties expected to participate in implementation of the remedial action. If legally-binding agreements are not in place, the Work Plan shall describe commitments made to date and planned efforts to secure necessary commitments including a schedule. If the participation of a third party is uncertain, the Work Plan shall describe alternatives to be implemented in the event that the party does not fulfill its planned role. Schedules that rely on the participation of third parties must include contingencies with equivalent schedules which do not rely on third party participation. Possible third party roles include agreeing to the use of existing equipment (e.g., groundwater extraction wells, water treatment facilities, pipelines, groundwater recharge facilities), treatment plant operation, and acceptance of treated groundwater.

7. Identification of Any Concerns about the Quantity, Quality, Completeness, or Usability of Water Quality or Other Data Upon Which the Design Will Be Based

   Respondents shall provide a description of additional data collection efforts, if any, required for completion of the Remedial Design. Respondents shall consider whether any data are needed to verify that critical design assumptions remain valid (e.g., the areas of groundwater contamination requiring hydraulic containment). If additional data are required, Respondents shall propose a schedule for preparation of a Sampling and Analysis Plan (or Addendum) and implementation of the Plan. The Plan shall include all efforts (e.g., groundwater modeling) to evaluate additional data collected.

8. A Description of Planned Community Relations Activities to Be Conducted During Remedial Design and/or Remedial Action.

   In accordance with Section IX of the Order, Respondents shall cooperate with EPA and the State in providing information regarding the Work to the public. As requested by EPA or the State, Respondents shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

9. Updates to the RD/RA Work Plan and Periodic Reporting to EPA

The RD/RA Work Plan shall describe provisions for reporting progress to EPA (consistent with the schedule included in Section V of this SOW and the Compliance Monitoring Plan to be prepared in accordance with Section IV.G of this SOW). The RD/RA Work Plan shall also describe how the Work Plan will be updated as needed to document changes or provide information not available at the time the Work Plan is submitted.

If any of the information requested is not known at the time the RD/RA work plan must be submitted, and omitting the information from the work plan will not prevent compliance with any other requirements of this SOW, Respondents may submit the information at a later date. If any information is omitted, Respondents shall note in the work plan that the missing information was not available and specify when it will be submitted.

D. Remedial Design

Remedial Design activities shall include the preparation of clear and comprehensive design documents, construction plans and specifications, and other design activities needed to implement the work and satisfy Performance Criteria set forth in the ROD and this SOW. All plans and specifications shall be developed in accordance with relevant portions of the U.S. EPA's Superfund Remedial Design/Remedial Action Handbook (EPA 540/R-95/059), and in accordance with the schedule set forth in Section V of this SOW.

1. Conceptual Design

Respondents shall submit a Conceptual Design in accordance with the approved schedule. EPA approval is required before proceeding with further design work, unless EPA agrees otherwise. Unless modified by EPA, the Conceptual Design submittal shall include or address, at a minimum, the following:

a. A detailed Design Basis Report that presents and justifies the concepts, assumptions, standards, and preliminary interpretations and calculations used in the design. The Design Basis Report shall include:

(1) Volume or flow rate of water, air, and other media requiring treatment or disposal;

(2) A summary of water quality or other data to be used during design but not previously provided to EPA, along with an analysis of whether the data confirm assumptions,

recommendations, or conclusions made to date for the South El Monte OU;

(3) Assumed treatment plant influent quality over the design life of the treatment system(s), with a description of the methodology used to develop the estimate (including discussion of the likelihood and magnitude of short-term and long-term changes in influent concentrations);

(2) An explanation of how Performance Criteria for the intermediate aquifer zone will be met;

(3) Discussion of any proposed or anticipated State or Federal drinking water or ambient water quality standards or requirements that would impact the design;

(4) Filtration, disinfection, corrosion control, or other treatment requirements in addition to removal of site contaminants;

(5) Assumed treatment technologies and/or treatment trains (for all media and byproducts) and initial treatment process flow diagrams;

(6) Preliminary sizing of treatment system(s) and other remedial action components;

(7) Expected treatment facility removal capacity for all groundwater constituents requiring removal;

(8) Delivery locations, rates, and pressures for the treated groundwater, and other conveyance system assumptions for supplying or discharging treated groundwater;

(9) An assessment of the risk that insufficient recharge capacity may allow groundwater to leave the San Gabriel Basin and payment of make up water may be required. Provisions for alternative use of treated groundwater should be discussed;

(10) Interconnection requirements for delivery of treated groundwater, if any (e.g., connection to existing water distribution systems);

(11) The degree of automation and planned level of operator oversight;

(12) System control strategy, including the level of reliability, redundancy, or specific damage prevention features needed in each major component of the remedial action to respond to seismic events, power outages, equipment failure, system maintenance, operator error, or deviations from design assumptions;

(13) Listing and discussion of the relative importance of siting criteria for new extraction wells, treatment facilities, pipelines, and other facilities, along with preliminary locations and alignments; and

(14) Estimate of the distance from each proposed extraction location to the location assumed in computer model simulations completed in support of the South El Monte OU containment remedial action and an evaluation of whether additional computer modeling activities are needed to verify the effectiveness of the actual extraction locations.

b. An Updated Construction Schedule for construction and implementation of the Remedial Action that identifies timing for initiation and completion of all critical path tasks; and

c. An updated list of permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date; copies of permits, approvals, and agreements not previously supplied to EPA; and activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

2. Preliminary Design

Respondents shall submit a Preliminary Design in accordance with the approved schedule. EPA approval is required before proceeding with further design work, unless EPA agrees otherwise. Unless modified by EPA, the Preliminary Design submittal shall include or address, at a minimum, the following:

a. Any changes to the Design Basis submitted as part of the Conceptual Design;

b. Preliminary plans, specifications, and drawings, of groundwater extraction, treatment, conveyance, and monitoring systems;

c. Outline of required specifications;

d. An Updated Construction Schedule for construction and implementation of the Remedial Action which identifies timing for initiation and completion of all critical path tasks; and

e. An updated list of permits, regulatory agency approvals, MOUs, access or use agreements, easements, and properties developed or acquired to date; copies of permits, approvals, and agreements not previously supplied to EPA; and activities and schedules for obtaining outstanding items required before start of construction (e.g., for use of existing facilities or disposition of the treated water).

3. Intermediate Design

Unless directed otherwise by EPA, Respondents shall not be required to provide an Intermediate Design submittal, but may seek EPA review of design concepts or documents if desired.

4. Prefinal/Final Design

Respondents shall submit the Prefinal Design when the design effort is complete in accordance with the approved schedule. The Prefinal Design shall fully address all comments made on the Preliminary Design Report (and during the Intermediate Design review, if it occurs) and, if not previously addressed, be accompanied by a memorandum indicating how the comments were incorporated into the Prefinal Design. The Prefinal Design documents shall be certified by a Professional Engineer currently registered in the State of California.

The Prefinal Design shall serve as the Final Design if EPA has no further comments and provides its approval. The Prefinal Design submittals shall include a capital and operation and maintenance cost estimate; reproducible drawings and specifications; and a complete set of construction drawings in full and one-half size reduction. The Final Design should also include a schedule for construction completion, and satisfaction of the "Operational and Functional" criteria.

5. Applicability of RD Requirements to Extraction at the SGVWC, SCWC, or Monterey Park Well Fields or other Production Wells

Groundwater at the San Gabriel Valley Water Company (SGVWC) Plant 8, Southern California Water Company (SCWC), and Monterey Park Well Fields has been impacted by contaminated groundwater from the South El

Monte OU. SCWC has constructed a VOC treatment system for groundwater extracted from its San Gabriel Well Field. Due to perchlorate contamination, the system is currently not operating and pilot-scale perchlorate treatment facilities are being constructed. SGVWC has constructed and is now operating a VOC treatment system for groundwater extracted from its Plant 8 Well Field. A secondary VOC treatment system is currently being designed for Plant 8 Well Field. The City of Monterey Park previously constructed a VOC treatment system for groundwater extracted from its well No. 5 and has constructed a VOC treatment system for groundwater extracted from its No. 9, 12, and 15 (recently installed) wells. Due to perchlorate contamination, neither of the Monterey Park systems is operating. Perchlorate treatment facilities have been constructed for well Nos. 9, 12, and 15 and Monterey Park is evaluating perchlorate removal for well No. 5. In addition, a secondary VOC treatment system is currently being constructed for well Nos. 9, 12, and 15. If Respondents intend to use any existing facilities and/or production wells in the SGVWC, SCWC, or Monterey Park Well Fields, or other purveyor-owned facilities and/or production wells as part of the remedial action, an agreement, approved by EPA, must be reached with the necessary water purveyors that provides for long-term extraction from the existing productions wells at rates and depths sufficient to ensure compliance with the Performance Criteria in Section III of this SOW. Respondents shall submit as-built drawings and specifications for all existing facilities and wells to be used, operating agreements, and an operation and maintenance manual in lieu of design submittals. If any new facilities or wells will be required in the SGVWC, SCWC, or Monterey Park Well Field Areas or other areas to adequately contain the contaminated groundwater plume and meet the Performance Criteria, these should be included in the design process described above in Items 1 through 4. EPA will review the documents to evaluate the existing facilities' capability to reliably achieve the Performance Criteria described in Section III of this SOW. After completing its evaluation, EPA will indicate: i) the extent to which the existing facilities appear to be achieving Performance Criteria; and ii) any needed modifications to the existing facilities or their operation to fully satisfy Performance Criteria or ensure their future capability to meet Performance Criteria.

E. Remedial Action

Respondents shall implement the Remedial Action. During the design period, in preparation for implementation of the Remedial Action and in accordance with the schedule included in Section V of this SOW, Respondents shall submit a Construction Quality Assurance Plan, a Construction Health and Safety Plan, and any needed updates to the RD/RA Work Plan. The Construction Quality

Assurance Plan must be reviewed and approved by EPA prior to the initiation of the Remedial Action.

Upon approval of the Final Design and Construction Quality Assurance Plan, Respondents shall begin construction in accordance with the approved schedule. Significant field changes to the Remedial Action as set forth in the RD/RA Work Plan and Final Design shall not be undertaken without the approval of EPA. All work on the Remedial Action shall be documented in enough detail to produce as-built construction drawings after the Remedial Action is complete. Review and/or approval of submittals does not guarantee that the remedial action, when constructed, will meet the Performance Criteria.

1. Remedial Action Work Plan

   Respondents shall not be required to submit a separate Remedial Action Work Plan. Instead, Respondents shall provide supplemental information as necessary to update the Remedial Design/ Remedial Action Work Plan.

2. Preconstruction Meeting

   A Preconstruction Meeting shall be held after selection of the construction contractor but before initiation of construction. The meeting shall include Respondents' representatives and interested federal, state and local government agency personnel; shall define the roles, relationships, and responsibilities of all parties; review work area security and safety protocols; review any access issues; review construction schedule; and review construction quality assurance procedures.

   Respondents shall ensure that the results of the Preconstruction Meetings are documented and transmitted to all parties in attendance, including the names of people in attendance, issues discussed, clarifications made, and instructions issued.

3. Remedial Action Construction

   Respondents shall implement the Remedial Action as detailed in the approved RD/RA Work Plan (as updated) and approved Final Design.

4. Prefinal Construction Inspection

   Within fourteen (14) days after Respondents believe that construction is complete and the remedial action, or a discrete portion of the remedial action, is operational and functional, Respondents shall notify EPA and the State for the purposes of conducting a prefinal inspection to be attended by EPA and Respondents. Other participants shall include the Project

Coordinator and other federal, state, and local agencies with a jurisdictional interest. If a Prefinal Construction Inspection is held for a portion of the remedial action, one or more additional inspections shall be conducted so that the entire remedial action is inspected.

The objective of the inspection(s) is to determine whether construction is complete and the remedial action (or the inspected portion) is "operational and functional." Any outstanding construction items discovered during the inspection shall be identified and noted on a bullet list. Respondents shall certify that the equipment is effectively meeting the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. A Prefinal Construction Inspection Report shall be submitted by Respondents that outlines the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for a Final Inspection. The Prefinal Construction Inspection Report can be in the form of a bullet list or letter.

5. Final Construction Inspection

Within fourteen (14) days after completion of any work identified in the prefinal inspection report, Respondents shall notify EPA and the State for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection by EPA and Respondents. The prefinal inspection report shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

Any outstanding construction items discovered during the inspection still requiring correction shall be identified and noted on a punch list. If any items are still unresolved, the inspection shall be considered to be a Prefinal Construction Inspection requiring another Prefinal Construction Inspection Report and subsequent Final Construction Inspection.

6. Remedial Action Construction Report

As specified in the approved schedule included in Section V of this SOW, after construction is completed on the entire remedial action and the systems are operational and functional as intended, Respondents shall submit a Remedial Action Construction Report. In the report, a registered Professional Engineer and Respondents' Project Coordinator shall state that the construction of the Remedial Action has been completed in accordance with the RD/RA Work Plan submitted under this SOW. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, include as-built drawings

signed and stamped by a licensed Professional Engineer, provide actual costs of the Remedial Action (and O&M to date), and provide a summary of the results of operational and performance monitoring completed to date. The report shall contain the following statement, signed by a responsible corporate official of the Respondents or the Respondents' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Interim Remedial Action Report

As specified in the approved schedule included in Section V of this SOW, after Respondents have determined that the performance criteria of the remedial action are being met, Respondents shall submit an Interim Remedial Action Report pursuant to EPA 540-R-98-016, OSWER Directive 9320.2-09A-P "Close Out Procedures for National Priorities List Sites", January 2000. In the report, a registered Professional Engineer and Respondents' Project Coordinator shall certify that the Interim Remedial Action is operating and functioning as intended and that performance criteria listed in Section III of this SOW are being met. The written report shall provide a summary of the results of operational and performance monitoring completed to date and shall provide documentation to substantiate the Respondents' certification in full satisfaction with the Order, including, but not limited to, relevant data presented in accordance with Sections IV.J (Performance Evaluation Reports) and IV.L (Quarterly Compliance Monitoring Reports) of this SOW. The report shall also describe deviations from the RD/RA Work Plan and shall contain the following statement, signed by a responsible corporate official of the Respondents or the Respondents' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Operation and Maintenance

Operation and Maintenance (O&M) shall be performed in accordance with the approved Operation and Maintenance Manual.

1. Operation and Maintenance Plan

Respondents shall not be required to submit an Operation and Maintenance (O&M) Plan. O&M-related information shall be provided in the O&M Manual (see Section IV.F.2 of this SOW) and/or the Compliance Monitoring Plan (see Section IV.G of this SOW).

2. Operation and Maintenance Manual

Respondents shall submit a draft Operation and Maintenance Manual during the design period in accordance with the approved schedule, and a revised draft after the final construction inspection to incorporate manufacturer/vendor information and any design modifications implemented during the Remedial Action. The Operation and Maintenance Manual must be reviewed and approved by EPA. The manual shall include all necessary Operation and Maintenance information for the operating personnel, and provide or address the following:

a. System description;

b. Startup and shutdown procedures;

c. Criteria for determining when the remedial action is "operational and functional";

d. Description and schedule of normal operation and maintenance tasks, including equipment and material requirements, anticipated equipment replacement for significant components, availability of spare parts, provisions for remote monitoring and control, operator training and certification requirements, staffing needs, and related requirements;

e. Indicators of system performance and/or maintenance (e.g., parameters to be monitored to determine timing for activated carbon or ion exchange resin replacement, or to assess biological reactor performance);

f. Criteria to be used to determine whether the treated groundwater will be supplied to the primary or secondary user or use;

g. Any planned variation in groundwater extraction rate, including whether each extraction well is to be operated at constant or variable flow rate, and a description of the magnitude and timing of any expected variation;

h. Record keeping and reporting requirements, including operating and inspection logs, maintenance records, and periodic reports; and

i. Description and analysis of potential operating problems (e.g., equipment failure, higher than expected contaminant concentrations), including emergency operating and response activities and relevant health and safety information.

3. Applicability of O&M Requirements to Extraction at the SGVWC, SCWC, or Monterey Park Wells

See Section IV.D.5 of this SOW.

G. Compliance Monitoring Plan

Compliance monitoring activities shall be performed in accordance with the approved Compliance Monitoring Plan, to evaluate whether the Performance Criteria, as described in Section III of this SOW and in the ROD, are met. The Compliance Monitoring Plan shall specify the locations of compliance wells and any sentinel wells; sampling methods; and, at a minimum, a quarterly sampling frequency. Respondents shall submit the Compliance Monitoring Plan no later than the specified date in the approved schedule. Compliance with the Performance Criteria will be confirmed by results from sampling and monitoring at EPA-approved compliance wells on a quarterly basis, and shall be documented in Quarterly Compliance Monitoring Reports. EPA shall be notified of noncompliance with any Performance Criteria, and confirmation samples or water levels must be taken within 5 days of receipt of information indicating noncompliance or the likelihood of noncompliance. The Compliance Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

Respondents shall specify the locations of compliance and sentinel wells in the intermediate groundwater zone. Such wells shall comply with and be adequate to meet the Performance Criteria. The Compliance Monitoring Plan shall contain sufficient information for EPA to assess whether the compliance and sentinel wells meet Performance Criteria. Respondents shall specify sampling and monitoring methods, and, at a minimum, a quarterly sampling and monitoring frequency.

2. Computer Modeling

Respondents shall perform computer model simulations of groundwater flow and contaminant migration to help determine whether the remedial

action will sufficiently contain the groundwater contamination during all anticipated regional pumping and recharge conditions (i.e., demonstrating that simulated particles originating in contaminated areas converge into the extraction wells); and propose and evaluate modifications to the extraction plan, if needed, using an appropriate three-dimensional, time-varying model of groundwater flow (e.g., the EPA San Gabriel Basin FEFLOW model). If the existing FEFLOW model is used, appropriate improvements to the model shall be made (e.g., adding additional nodes at locations of new extraction wells) and the model calibration shall be evaluated using new hydraulic head data, any new transmissivity measurements, and other relevant information. Respondents shall submit to EPA any changes in critical modeling assumptions, and discuss their effect on recommended extraction rates and well locations. The Compliance Monitoring Plan shall describe proposed changes to the calibration of an existing model or plans to calibrate a new model, or propose a schedule for providing such information. All models must be calibrated by Respondents and approved by EPA prior to use.

3. Split Sampling

The Compliance Monitoring Plan shall specify procedures for coordination of EPA or State collection of split or replicate samples and water level measurements.

4. Contingency Action

The Compliance Monitoring Plan shall propose contingency plans to be used in the event that additional compliance monitoring activities are required to evaluate compliance with Performance Criteria. Contingency actions could include increases in monitoring frequency, and installation of additional groundwater monitoring wells. If compliance monitoring data indicate non-compliance, Respondents shall submit a Compliance Action Plan to EPA within 14 days of receipt of information indicating noncompliance or the likelihood of noncompliance. Actions may include, but not necessarily be limited to, additional compliance monitoring to confirm the finding, operational modifications followed by additional compliance monitoring, or design and construction efforts for additional extraction activities.

5. Data Reporting

The Compliance Monitoring Plan shall propose electronic reporting formats to support submittal of all groundwater data to EPA.

H. Monitoring Plan(s) for Other Potential Remedial Actions

If Respondents propose to use passive, or other, remedial actions at certain locations, and these actions are shown to be capable of compliance with applicable Performance Criteria, then Respondents must monitor these locations in accordance with an EPA-approved monitoring plan.

I. General Monitoring Plan

Monitoring activities for wells other than the compliance and sentinel wells shall be performed in accordance with the approved General Monitoring Plan. The plan shall specify type, locations, frequencies, methods, and duration of monitoring activities. Respondents shall submit the General Monitoring Plan no later than the date specified in the approved schedule. The General Monitoring Plan shall address the following requirements:

1. Data Collection Parameters

A description of the types of data to be collected, sampling and data gathering methods, monitoring locations, sampling frequencies, and if appropriate, minimum monitoring duration.

2. Well Discharge

Respondents shall measure flow rates at each extraction well (and calculate volumes of water extracted) as a function of time, using a meter/totalizer installed on the discharge pipe for each extraction well. The reading on the meter/totalizer shall be recorded at least quarterly and whenever water quality samples are collected from that well.

3. Treatment Plant Effluent/Treated Groundwater

Respondents shall analyze treated water samples to verify attainment of groundwater treatment goals (i.e., at a minimum, MCLs, as stated in the discharge limits) and monitor operational parameters that are used as indicators of treatment facility performance or the need for maintenance. Respondents shall propose appropriate parameters and schedules for sampling of treated groundwater to ensure compliance with ARARs. After a period of initial monitoring, Respondents may propose criteria for subsequent reductions in sampling and/or analysis frequencies if the sampling results support such reductions.

4. Contaminant Mass Removal

   Respondents shall calculate the mass of individual contaminants removed from the intermediate aquifer by each extraction well each quarter, and cumulatively.

5. Aquifer Testing

   Respondents shall perform aquifer tests at new extraction wells to estimate aquifer transmissivity in the vicinity of the wells.

6. Air Emissions Monitoring

   If applicable, Respondents shall perform air emission monitoring to verify that air emissions from treatment operations do not exceed ARARs.

7. Data Analysis and Reporting

   The General Monitoring Plan shall also describe how the performance data will be analyzed, interpreted, and reported to evaluate compliance with ARARs. All data shall be submitted by the deadlines specified in an agreed upon schedule. Claims of change, difference, or trend in water quality or other parameters (e.g., between observed values and an ARAR) shall include the use of appropriate statistical concepts and tests.

   All analytical data, whether or not validated, shall be submitted to EPA within 60 calendar days of sample shipment to the laboratory or 14 days of receipt of analytical results from the laboratory, whichever occurs first. All analytical data, previously validated and in electronic format in an approved data structure, shall be submitted within 90 calendar days of the sample shipment to the laboratory. Well construction information shall be submitted at the completion of the initial sampling activities or within 90 days after completion of a well, whichever is earlier.

8. Split Sampling

   The General Monitoring Plan shall also specify procedures for coordination of EPA or State collection of split or replicate samples.

9. Reporting Requirements to Support the Compliance Monitoring Plan and General Monitoring Plan

   The General Monitoring Plan shall provide a brief description of the contents and format for the Quarterly Compliance Monitoring Reports and Performance Evaluation Reports (see below).

J. Performance Evaluation Reports

Performance Evaluation Reports shall include: summaries of compliance monitoring activities conducted since the previous reporting period (including summaries of Quarterly Compliance Monitoring Reports); updated water level contour maps showing measured water levels, including capture zones for extraction wells; field data to demonstrate hydraulic control; measured contaminant concentrations and associated contour maps; the interpreted extent of contamination; and appropriate groundwater modeling results used to confirm compliance, including a detailed description and explanation of improvements made to the computer model of groundwater flow and contaminant migration in the preceding year and the resulting calibration; summaries of relevant operating and field data, including mass removal; any preliminary calculations and supporting data used to evaluate compliance; descriptions of the nature of, duration of, and response to any noncompliance; and any other requirements outlined in the General Monitoring Plan and the Compliance Monitoring Plan.

Initially, at a minimum, individual contaminant contour maps shall be prepared indicating the extent of PCE, TCE, and perchlorate contamination in the intermediate zone. Additional contour maps shall be prepared if requested by EPA to indicate the extent of contamination in additional depth intervals, or for additional contaminants. Assumptions made in averaging, excluding, truncating, or otherwise selecting or manipulating the data to be used in preparing the contour maps shall be clearly stated. Performance Evaluation Reports shall be provided as described in Section V of this SOW.

K. Progress Reports

Respondents shall submit reports on progress of work required under the Order and this SOW. These progress reports shall provide information as required by Section XV of the Order, except where such information is presented in other reports submitted regularly as required under this SOW, and will be due monthly, as described in Section V of this SOW.

L. Quarterly Compliance Monitoring Reports

The Quarterly Compliance Monitoring Reports shall include: measured contaminant concentrations and groundwater levels at compliance wells; charts showing contaminant concentrations and groundwater levels versus time at compliance wells; assessments and statements regarding whether Performance Criteria (either chemical concentrations or hydraulic gradients) have been violated; predictions, if appropriate, of possible future occurrences of noncompliance; any relevant preliminary calculations and supporting data used to evaluate compliance; and any other relevant requirements outlined in the

Compliance Monitoring Plan. Quarterly Compliance Monitoring Reports will be due every three months, as described in Section V of this SOW.

M. Supporting Plans

1. Sampling and Analysis Plan and Health and Safety Plan

Sampling and Analysis Plan. In accordance with Sections IX and XVI of the Order, Respondents shall prepare a Sampling and Analysis Plan (SAP), or update an existing Plan to perform compliance and general monitoring and carry out any other field investigations needed to complete the remedial design, and construct and operate the remedial action. The Plan shall discuss the timing of data collection activities, including data collection activities needed to establish baseline conditions before startup of the remedial action.

The SAP shall include a Field Sampling and Analysis Plan (FSAP), a Quality Assurance Project Plan (QAPP), and a schedule for implementation of all field activities including but not limited to well installation, sampling, analysis, and reporting activities. The FSAP and QAPP may be submitted as one document or separately, and may reference an existing FSAP or QAPP. Upon EPA approval, Respondents shall proceed to implement the sampling activities described in the SAP.

a. The FSAP shall describe sampling objectives, analytical parameters, sample locations and frequencies, sampling equipment and procedures, sample handling and analysis, management of investigation-derived wastes, and planned uses of the data. The FSAP shall be consistent with "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (Document Control No. 9QA-06-89, April 1990), and other applicable guidance. It shall be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. The FSAP shall include a description of the arrangements for disposal of investigation-derived waste.

b. The QAPP shall describe project objectives, organizational and functional activities, data quality objectives (DQOs), and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The QAPP shall be consistent with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, November 1999), and "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994) and other applicable guidance (see list

of references). The DQOs shall, at a minimum, reflect use of analytical methods for obtaining data of sufficient quality to meet National Contingency Plan requirements as identified at 40 CFR 300.435 (b). In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, document control procedures, preservation of records (see Sections IX, XVI, and XXI of the Order), data reduction, data validation, data management, procedures that will be used to enter, store, correct, manipulate, and analyze data; protocols for transferring data to EPA in electronic format; and document management.

Respondents shall demonstrate in advance and to EPA's satisfaction that each laboratory they may use is qualified to conduct the proposed work and meets the requirements specified in Section XVI of the Order. EPA may require that Respondents submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specification, and laboratory analyses of performance samples (blank and/or spike samples). In addition, EPA may require submittal of data packages equivalent to those generated by the EPA Contract Laboratory Program (CLP).

Health and Safety Plan. To ensure protection of on-site personnel and area residents from hazards posed by sampling activities, Respondents shall also develop a Health and Safety Plan (or update an existing Plan). The Plan shall be in conformance with U.S. Occupational, Safety, and Health Administration (OSHA) requirements as outlined in 29 CFR §§1910 and 1926, and any other applicable requirements. The Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, levels of protection, safe work practices and safeguards, contingency and emergency planning, and provisions for site control. EPA will review but will neither approve nor disapprove Respondents' Health and Safety Plan.

2. Construction Quality Assurance Plan

Respondents shall develop and implement a Construction Quality Assurance Plan to ensure, with a reasonable degree of certainty, that the completed Remedial Action meets or exceeds all design criteria, plans and specifications, and Performance Standards. The Construction Quality Assurance Plan shall include the following elements:

a. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the Remedial Action;

b. A description of the quality control organization, including a chart showing lines of authority, members of the Quality Assurance team, their responsibilities and qualifications, and acknowledgment that the Quality Assurance team will implement the quality control system for all aspects of the work specified and shall report to the Respondents' Project Coordinator and EPA. Members of the Quality Assurance team shall have a good professional and ethical reputation, previous experience in the type of QA/QC activities to be implemented, and demonstrated capability to perform the required activities. They shall also be independent of the construction contractor;

c. Description of the observations, inspections, and control testing that will be used to assure quality workmanship, verify compliance with the plans and specifications, or meet other QC objectives during implementation of the Remedial Action. This includes identification of sample size, sample locations, and sample collection or testing frequency; and acceptance and rejection criteria. The Plan shall specify laboratories to be used, and include information which certifies that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

d. Reporting procedures, frequency, and format for QA/QC activities. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records shall be presented in the Construction Quality Assurance Plan. The QA official shall report simultaneously to the Respondents' representative and to EPA; and

e. A list of definable features of the work to be performed. A definable feature of work is a task which is separate and distinct from other tasks and has separate quality control requirements.

3. Construction Health and Safety Plan

Respondents shall prepare a Construction Health and Safety Plan in compliance with OSHA regulations and protocols and other applicable requirements. The Construction Health and Safety Plan shall describe health and safety risks, employee training, monitoring and personal protective equipment, medical monitoring, individuals responsible in an emergency, and provisions for site control for workers and for visitors to the job site. EPA will review but neither approve nor disapprove Respondents' Construction Health and Safety Plan.

N. Work Complete Report

As specified in the approved schedule included in Section V of this SOW, after all phases of the Work (including O&M) under the Order have been performed, Respondents shall submit a Work Complete Report. In the report, a registered Professional Engineer and Respondents' Project Coordinator shall state that the Work has been completed in full satisfaction of the requirements of the Order. The written report shall provide a synopsis of the work defined in this SOW, describe deviations from the RD/RA Work Plan, provide actual costs of the Remedial Action (and O&M), and provide a summary of the results of operational and performance monitoring completed. The report shall contain the following statement, signed by a responsible corporate official of the Respondents or the Respondents' Project Coordinator:

> "To the best of our knowledge, after thorough investigation, we certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- **Schedule for Major Deliverables and Other Tasks** [*Note: schedule to be revised as necessary to account for work completed prior to the Order*]

ACTIVITY	DUE DATE
Effective Date of Order	Ten (10) days after the Order is signed
Notification of Project Manager (as required by Section IX of the Order)	Fourteen (14) days after the effective date of the Order
PLANNING DOCUMENTS	
Compliance and Sentinel Well Network Plan	Forty five (45) days after the effective date of the Order If necessary, revised Plan due 14 days after receipt of EPA comments
Initiate Compliance and Sentinel Well Installation	Forty-five (45) days after EPA approval of Compliance and Sentinel Well Network Plan
Compliance and Sentinel Well Installation Report	Sixty (60) days after completion of compliance and sentinel installation activities If necessary, revised Plan due 14 days after receipt of EPA comments
Compliance Monitoring Plan	Thirty (30) days after EPA approval of Compliance and Sentinel Well Installation Report If necessary, revised plan due 14 days after receipt of EPA comments
RD/RA Work Plan	Sixty (60) days after the effective date of the Order If necessary, revised plan due 14 days after receipt of EPA comments
General Monitoring Plan	Sixty (60) days after EPA approval of Preliminary Design Submittal If necessary, revised plan due 14 days after receipt of EPA comments

ACTIVITY	DUE DATE
REMEDIAL DESIGN	
Notification of Supervising Contractor (as required by Section IX of the Order)	Thirty (30) days after the effective date of the Order If necessary, revised contractor list due 30 days after receipt of EPA comments
RD/RA Work Plan	Update, as necessary
Conceptual Remedial Design Submittal	Seventy five (75) days after approval of RD/RA Work Plan If necessary, revised plan due 14 days after receipt of EPA comments
Preliminary Remedial Design Submittal	Sixty (60) days after EPA approval of Conceptual Remedial Design.
Intermediate Remedial Design Submittal	To be determined
Pre-final Remedial Design Submittal	Forty five (45) days after EPA approval of Preliminary Design Submittal
Final Remedial Design Submittal (if needed)	Fourteen (14) days after EPA approval of Prefinal Design Submittal
REMEDIAL ACTION	
Notification of Selected Contractor	Within 5 days of selection
Pre-Construction Meeting	Fourteen (14) days after EPA approval of Final Design
Initiate Construction	Fourteen (14) days after Pre-Construction Meeting
Prefinal Construction Inspection	Fourteen (14) days after Respondents determine that the remedial action satisfies "Operational and Functional" criteria

ACTIVITY	DUE DATE
Prefinal Construction Inspection Report	Seven (7) days after Prefinal Construction Inspection
Final Construction Inspection (if needed)	Twenty-one (21) days after Prefinal Construction Inspection
Final Construction Inspection Report (if needed)	Seven (7) days after Final Inspection
Remedial Action Construction Report	Draft due twenty-eight (28) days after final construction inspection If needed, revised Report due 28 days after receipt of EPA comments
Interim Remedial Action Report	Draft due two hundred and seventy (270) days after EPA approval of the Remedial Action Construction Report or fourteen (14) days after Respondents determine that performance criteria for the remedial action are being met, whichever is earlier If needed, revised Report due 28 days after receipt of EPA comments
OPERATION AND MAINTENANCE	
Operation and Maintenance Manual	Draft Manual due forty five (45) days after EPA approval of Preliminary Design Submittal (i.e., at same time as pre-final design) If requested by EPA, revised Manual due 21 days after receipt of EPA comments
	Updated Manual due 14 days after Final Construction Inspection to incorporate any design modifications made during RA (or written statement that update unnecessary) If requested by EPA, revised updated Manual due 21 days after receipt of EPA comments

ACTIVITY	DUE DATE
PERFORMANCE EVALUATION	
Performance Evaluation Reports	Due every 6 months (after approval of Compliance Monitoring Plan, or when remedial action satisfies "Operational and Functional" criteria, whichever is earlier) for first three years, and annually thereafter
Progress Reports	Due monthly, beginning sixty (60) days after effective date of the Order
Quarterly Compliance Monitoring Reports	Due quarterly, beginning ninety (90) days after EPA approval of Compliance Monitoring Plan
Noncompliance Notification	Due five (5) days after receipt of information indicating non-compliance, or potential noncompliance
Compliance Action Plan	Draft due fourteen (14) days after receipt of information indicating non-compliance
Compliance Correction Report	As established in approved Compliance Action Plan
SUPPORTING PLANS	
Sampling and Analysis Plan	No later than the date of the Conceptual Remedial Design submittal (75 days after EPA approval of RD/RA Work Plan)
Site Health and Safety Plan	No later than the date of the Conceptual Remedial Design submittal (75 days after EPA approval of RD/RA Work Plan)
Construction Quality Assurance Plan, Construction Health and Safety Plan	No later than the date of the Prefinal/Final Remedial Design submittal (45 days after EPA approval of RD/RA Work Plan)
CERTIFICATIONS REQUIRED BY SECTION XIV OF THE UNILATERAL ADMINISTRATIVE ORDER	

ACTIVITY	DUE DATE
Pre-Certification Inspection for Completion of the Work	Forty-five (45) days after Respondents conclude that all Work has been performed, including completion of all Operation and Maintenance activities
Certification that all Work has been Completed	Thirty (30) days after the pre-certification inspection

* To be determined (TBD) in design documents.

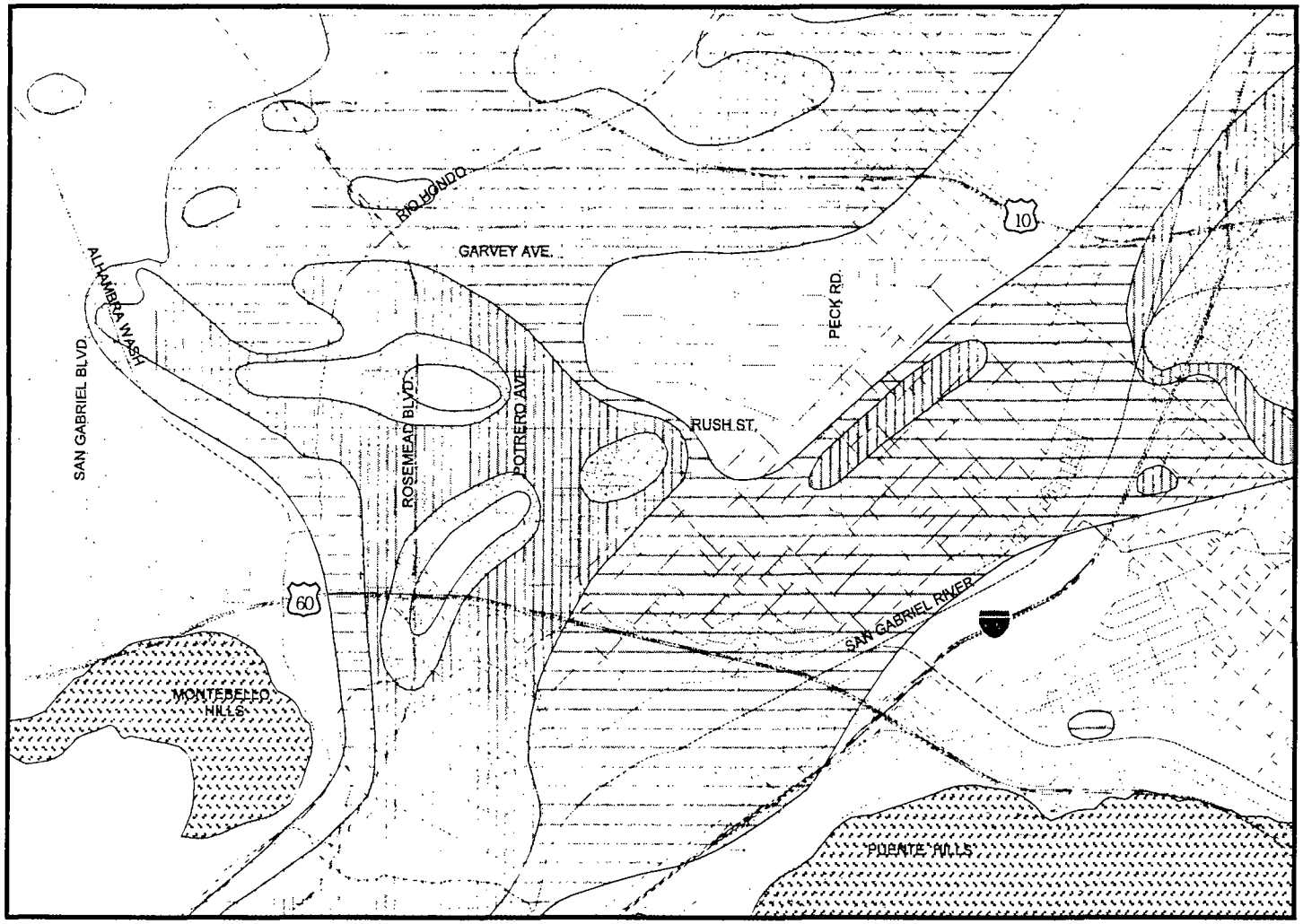
1. Days is calendar days.

Figure 1

South El Monte OU

Recent Intermediate Zone

VOC Contamination



N

2000 0 2000 Feet

LEGEND
2001 VOC CONTAMINATION

- VOC CONTAMINATION POTENTIALLY RANGING FROM LABORATORY DETECTION LIMITS TO < MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM MCLS TO < 10 X MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM 10 X TO < 20 X MCLS
- VOC CONTAMINATION POTENTIALLY RANGING FROM 20 X TO < 100 X MCLS
- MAJOR TRANSPORTATION
- STREAMS

Figure 1
2001 Intermediate VOC Contamination

South El Monte OU RD/RA SOW

Table 1

South El Monte OU

Recent Water Quality Data

RI/FS and Post-RI/FS Monitoring Wells

Table 1
Recent Water Quality Data
South El Monte OU RI/FS and Post-RI/FS Monitoring Wells

Well	Screen Inteval (feet bgs)	Aquifer	Sample Date (mo/year)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Trichlorofluoromethane	Chloroform	Chloromethane	Dichloroflouromethane	Methylene Chloride	1,1,1,2-Tetrachloroethane	Methyl tert-butyl ether	Vinyl Chloride	n-Nitrosodimethylamine	1,4-Dioxane	Perchlorate	Hexavalent Chromium
			Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMW01_01	330 - 340	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW01_02	238 - 248	Intermediate	Oct-99	5	3	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<0.5	--	4J	<5	--
			May-00	6	3	<1	<1	<1	5	<1	<1	<1	<1	<1	<1	<0.5	--	5	--	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.4/2.0	--	--
			Jun-01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-02	16	2.3	<0.5	<0.5	<0.3	2.9	<0.3	<0.5	<0.5	0.39J	<0.5	<0.5	<0.5	<0.002	1.8	1J	1.6
			Aug-02	6	4	<1	<1	<1	5	<1	<1	--	<1	<1	<1	<0.5	--	5	--	--
			Feb-03	31	1.8	<0.5	<0.5	<0.3	2.4	<0.3	<0.5	0.62T	<0.5	<0.5	<0.5	<0.5	<0.002	3	2	2.43
SEMW01_03	166 - 176	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<3	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002/<0.002	--	--	--
			Feb-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW01_04	45 - 53	Shallow	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	3J	4.1	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	--	--	--
			Jun-01	9	2	<1	<1	<1	5	<1	<1	<1	<1	<1	<1	<0.5	<0.002	<1	5.9B	--
			Feb-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	4	--
SEMW02_01	344 - 354	Intermediate	Oct-99	9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	3J	--
			May-00	11	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	--	--
			Nov-00	9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Jun-01	9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-02	9/13	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/0.6J	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	--	--	--
SEMW02_02	248 - 258	Intermediate	Oct-99	13	6	3	<1	0.9J	2	<1	<1	<1	<1	<1	<1	<0.5	--	3J	17	--
			May-00	14/16	5/6	2/2	<1/<1	0.6J/0.6J	2/2	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	<5/<5	13.8/13.9	--
			Nov-00	17	5	2	<1	0.6J	2	<1	<1	<1	<1	<1	<1	<0.5	<0.002	--	6.5	--
			Jun-01	20/21	4/4	2/2	<1/<1	0.6J/0.6J	2/2	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	<0.002	0.65J/0.63J	12.3B/12.4B	--
			Feb-02	32	4.2	1.4	<0.5	0.67	2	<0.3	<0.5	0.44TIC	0.26J	<0.5	<0.5	<0.5	0.0045	<1	14	<0.10
			May-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	--
			Aug-02	30/30	5/5	2/2	<1/<1	0.7J/0.7J	2/2	<1/<1	<1/<1	--	<1/<1	<1/<1	<1/<1	<0.5/<0.5	0.0007/0.0006U	--	13/13	--
			Feb-03	35	4.2	1.1	<0.5	0.61	2.0	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.002	1	11	<0.2
SEMW02_03	112 - 122	Intermediate	May-00	<1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	3J	--	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.8	--	--
			Feb-02	<1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW02_04	38 - 48	Shallow	Oct-99	23/25	10/10	0.8J/0.9J	0.9J/0.9J	0.7J/0.7J	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	16/16	<5/<5	--
			May-00	10	7	0.5J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	10	--	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	--	--
			Jun-01	3	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	0.8J	--	--
			Aug-02	<1	0.5J	<1	<1	<1	<1	<1	<1	--	<1	<1	0.7J	<0.5	--	--	--	--
SEMW03_01	371 - 380	Intermediate	Oct-99	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			May-00	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	--	--
			May-01	10	0.5J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Nov-01	16	0.8	<0.5	0.2J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--
			Feb-02	19	0.9J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Aug-02	25	1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	34	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW03_02	265 - 275	Intermediate	Nov-99	39	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	<5	3J	--
			May-00	40	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	--	--
			May-01	50	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Nov-01	83E	3.6	0.41J	0.39J	0.45J	<0.5	0.25	<0.5	<0.5	0.35	<0.5	<0.5	<0.5	<0.0038	0.51J	3J	2
			Feb-02	120/130	4/4	<1/<1	<1/0.5J	<1/<1	<1/<1	<1/<1	0.5J/0.6J	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	--	--	--
			Aug-02	110	6	0.5J	0.5J	0.5J	<1	<1	<0.5	--	<1	<1	<1	<0.5	--	--	--	--
			Nov-02	140	5	0.6J	0.5J	0.5J	<1	<1	0.6J	<1	<1	<1	<1	<0.5	--	<1	--	--
			Feb-03	110/140	6/8	0.6J/0.6J	0.6J/0.8J	0.6J/0.7J	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	--	--	--

Table 1
Recent Water Quality Data
South El Monte OU RI/FS and Post-RI/FS Monitoring Wells

Well	Screen Interval (feet bgs)	Aquifer	Sample Date (mo/year)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Trichlorofluoromethane	Chloroform	Chloromethane	Dichloroflouromethane	Methylene Chloride	1,1,1,2-Tetrachloroethane	Methyl tert-butyl ether	Vinyl Chloride	n-Nitrosodimethylamine	1,4-Dioxane	Perchlorate	Hexavalent Chromium
			Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMW03_03	180 - 190	Intermediate	Nov-99	29	1	<1	<1	0.5J	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	3J	4J	--
			May-00	38	2	<1	<1	0.5J	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	--	--
			Nov-00	45	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			May-01	30	3	<1	<1	0.6J	<1	<1	<1	<1	<1	<1	<1	<0.5	--	1.4	--	--
			Nov-01	77	3	0.4J	0.2J	0.8	<0.5	0.2J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--
			Feb-02	81	2.9	0.34J	<0.5	0.69	<0.5	0.19J	<0.5	<0.5	0.31J	<0.5	<0.5	<0.5	<0.002	0.98J	3	4.5
			Aug-02	80	3	<1	<1	0.6J	<1	<1	<0.5	--	<1	<1	<1	<0.5	--	--	2	--
			Feb-03	120E	3.8	0.37J	<0.5	0.68	<0.5	0.17J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.002	3	3	7.01
SEMW03_04	62 - 72	Shallow	Nov-99	240	5	8	<1	2	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	3J	<5	--
			May-00	23/25	5/6	8/8	0.5J/<1	4/4	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	3J/3J	--	--
			Nov-00	9/8	1/1	2/2	<1/<1	1/0.6J	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1/2	--	--
			May-01	10	3	3	<1	2	<1	<1	<1	<1	<1	<1	<1	<0.5	--	1.5	--	--
			Nov-01	5	1.2	2.3	<0.5	3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	2.5	<5	2.1
			Aug-02	6/6	2/2	4/3	<1/<1	3/3	<1/<1	<1/<1	<0.5/<0.5	--	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	0.9J/0.8J	--	--
			Nov-02	5	3	5	<1	3	<1	<1	<1	<1	<1	<1	<1	<0.5	--	1J	--	--
			Feb-03	8	5J	7	<1	4	<1	<1	<1	<1	<1	<1	0.5J	<0.5	--	1	--	--
SEMW04_01	389 - 398	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<2	--
SEMW04_02	281 - 290	Intermediate	Oct-99	7	1	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			May-00	5	0.9J	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Jun-01	5	1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Aug-02	6	2	<1	<1	<1	2	<1	<0.5	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	1J	--
SEMW04_03	189 - 198	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	<3	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	--	--	--
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<2	--
SEMW04_04	64 - 74		May-00	<1	0 5J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	<3	--
			Nov-00	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	--	--	--
			Jun-01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	0.95BJ	--
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	2	--
SEMW05_01	381 - 391	Intermediate	Oct-99	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	3J	--
			Jun-00	16	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	--	--
			Nov-00	21	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Jun-01	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	--	--
			Mar-02	36	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Aug-02	40	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	60	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW05_02	299 - 309	Intermediate	Oct-99	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	<5	3J	--
			Jun-00	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	--	--
			Nov-00	190	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Jun-01	140	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	--	--
			Aug-02	260	0.6J	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	240	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW05_03	209 - 218	Intermediate	Oct-99	500	0.9J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0 03	<5	<5	--
			Jun-00	590	0.9J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0 002	<1	--	--
			Sep-00	700/700	1/1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	--	--	--
			Nov-00	730	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Jun-01	440	0.8J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.002	<1	--	--
			Mar-02	510/520	1 2/1.2	<0.5/<0 5	0.26J/0.26J	<0.5/<0.5	0.26J/0.27J	<0.5/0.15J	<0.5/<0 5	<0.5/<0 5	0.27J/0.27J	0.29J/0.32J	<0.5/<0.5	<0 5/<0 5	<0.002/<0.002	<1/<1	1J/1J	1 8/1.7
			Aug-02	570	2	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	470E/470E	1.4/1.4	<0.5/<0 5	0.29J/0 29J	<0.3/<0 3	<0 5/<0.5	<0.3/<0.3	<0.5/<0 5	<0.5/<0.5	<0.5/<0.5	<0 5/<0 5	<0.5/<0.5	<0.5/<0 5	<0.002/<0.002	0.9J/0.8J	2/2	1.46/1.44

Table 1
Recent Water Quality Data
South El Monte OU RI/FS and Post-RI/FS Monitoring Wells

Well	Screen Interval (feet bgs)	Aquifer	Sample Date (mo/year)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Trichlorofluoromethane	Chloroform	Chloromethane	Dichloroflouromethane	Methylene Chloride	1,1,1,2-Tetrachloroethane	Methyl tert-butyl ether	Vinyl Chloride	n-Nitrosodimethylamine	1,4-Dioxane	Perchlorate	Hexavalent Chromium
			Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMW05_04	98 - 107	Shallow	Oct-99	7	4	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	–	<5	<5	–
			Jun-00	6	4	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			Jun-01	7	6	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			Aug-02	5	8	<1	<1	<1	2	<1	<1	–	<1	<1	<1	<0.5	–	–	–	–
SEMW05_05	65 - 74	Shallow	Oct-99	8/8	4/4	<1/<1	<1/<1	<1/<1	2/2	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	<5	<5/<5	–
			Jun-00	4/6	4/6	<1/<1	<1/<1	<1/<1	0.7J/2	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	–	–	–
			Jun-01	4/4	6/5	<1/<1	<1/<1	<1/<1	1/1J	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	<1/<1	–	–
			Aug-02	3	9	<1	<1	<1	1	<1	<0.5	–	<1	<1	<1	<0.5	–	–	–	–
SEMW06_01	357 - 366	Intermediate	May-00	11	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	–	–
			May-01	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			Nov-01	14	0.2J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	<0.5	–	–	–	–
			Mar-02	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
SEMW06_02	270 - 280	Intermediate	Nov-99	40	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	<5	3J	–
			May-00	66	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	–	–
			Nov-00	100	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			May-01	100/110	2/2	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	–	–	–
			Nov-01	240	2.4	<0.5	0.29J	<0.5	<0.5	<0.5	0.3J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<1	<5	1.7
			Mar-02	220	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5	–	–	–	–
			Aug-02	280	3	<1	<1	<1	<1	<1	<1	–	<1	<1	<1	<0.5	–	–	–	–
			Nov-02	430	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.002	1J	2	1/1.01
			Feb-03	360	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
SEMW06_03	120 - 129	Shallow	Nov-99	130	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	<5	<5	–
			May-00	90	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	–	–
			Nov-00	78	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			May-01	29	0.8J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<1	–	–
			Nov-01	67	1J	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	–	–	–	–
			Aug-02	90	2	<1	<1	0.7J	<1	<1	<1	–	<1	<1	<1	<0.5	–	–	–	–
			Feb-03	170	4	<1	<1	0.9J	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
SEMW06_04	58 - 67	Shallow	Nov-99	56	4	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.03	<5	11	–
			May-00	60	1	<1	<1	0.8J	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	7.7	–
			Nov-00	53/61	2/2	<1/<1	<1/<1	0.5J/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	–	3.9/3.6	–
			May-01	56	1J	<1	<1	0.7J	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<1	–	–
			Nov-01	53	2.1	<0.5	<0.5	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	0.79	4J	1.3
			Aug-02	60/50	15/11	0.8J/<1	<1/<1	4/3	<1/<1	<1/<1	<1/<1	–	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	–	–	–
			Nov-02	81	6	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.002	3J	6	1.05
			Feb-03	160	8	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
SEMW07_01	415-425	Intermediate	Apr-00	24	12	4	1	2	0.6J	<1	<1	<1	<1	<1	<1	<0.5	–	<5	5	–
			Jun-00	12/16	6/8	2/2	<1/<1	1/1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	–	4J/3J	6/6	–
			Nov-00	19	10	3	1	2	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.002	1.8	3.5	–
			Jun-01	22	6	3	1J	2	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.002	1.7	6.3B	–
			Feb-02	22	8.6	2.8	1	1.8	0.34J	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.002	1.3	6	3.7/3.9
			May-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6/6	–
			Aug-02	26	8	2	0.6J	1	0.6J	<1	<1	–	<1	<1	<1	<0.5	–	–	8	–
			Feb-03	18	19	6.6	2.3	3.3	0.27J	0.16J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.002	6	4	3.82
SEMW07_02	285-295	Intermediate	Apr-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	<5	–
			Jun-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<5	<5	–
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	–	<1	<3	–
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	–	<1	<1	<1	<0.5	–	–	–	–
SEMW07_03	215-225	Intermediate	Apr-00	30	2	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	<0.5	–	<5	6	–
			Jun-00	23	1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	–	<5	6	–
			Nov-00	27	1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	<0.002	<1	3.7/3.6	–
			Jun-01	22	2	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<0.5	<0.002	–	–	–
			Feb-02	25	2	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–
			Feb-03	24	3	0.6J	<1	0.5J	1	<1	<1	<1	<1	<1	<1	<0.5	–	–	–	–

Table 1
Recent Water Quality Data
South El Monte OU RI/FS and Post-RI/FS Monitoring Wells

Well	Screen Interval (feet bgs)	Aquifer	Sample Date (mo/year)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Trichlorofluoromethane	Chloroform	Chloromethane	Dichloroflouromethane	Methylene Chloride	1,1,1,2-Tetrachloroethane	Methyl tert-butyl ether	Vinyl Chloride	n-Nitrosodimethylamine	1,4-Dioxane	Perchlorate	Hexavalent Chromium
			Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMW07_04	80-90	Shallow	Apr-00	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0 5	--	<5/<5	<5/<5	--
			Jun-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	<3	--
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
SEMW08_01	445-455	Intermediate	May-00	0.6J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<1	--
			Jun-00	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	<3	--
			Mar-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
SEMW08_02	375-385	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<1	--
			Jun-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	<3	--
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
SEMW08_03	305-315	Intermediate	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<1	--
			Jun-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	<3	--
			Aug-02	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
SEMW08_04	230-240	Intermediate	May-00	3/5	<1/<1	<1/<1	<1/<1	<1/<1	<1/0.7	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	<5/<5	2.4/2.5	--
			Jun-00	3	<1	<1	<1	<1	0.7J	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	4	<1	<1	<1	<1	0.9J	<1	<1	<1	<1	<1	<1	<0.5	<0.002	<1	<3	--
			Jun-01	7	<1	<1	<1	<1	0.9J	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Mar-02	8	<1	<1	<1	<1	0.7J	<1	<1	<1	<1	<1	<1	<0.5	--	--	--	--
			Aug-02	13	<1	<1	<1	<1	1	<1	<1	--	<1	<1	<1	<0.5	--	--	--	--
			Feb-03	16/16	<1/<1	<1/<1	<1/<1	<1/<1	0.8J/0.7J	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<1/<1	<0.5/<0.5	--	<1/15	3/3	--
SEMW08_05	100-110	Shallow	May-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<1	--
			Jun-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<5	<5	--
			Nov-00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	1.9	<3	--
			Mar-02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	--	<1	--	--
			Feb-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.6J	--	--
			MCL	5	5	6	6	5	150	100	None	None	5	None	13	0.5	0.010[a]	3[a]	4[a]	50[b]

NOTES: Duplicate results shown where applicable.
-- = Not sampled.
J = Concentration is estimated because it falls between the method detection limit and laboratory reporting limit; B = indicates results that may be affected by equipment blank contamination below the contract required detection limit;
TIC = Tentatively Identified Compound.
MCL = EPA or California Maximum Contaminant Level (whichever is lower); a = California Action Level; b = California MCL for Total Chromium.

Attachment 1

September 2000 Record of Decision

INTERIM RECORD OF DECISION

SAN GABRIEL VALLEY SUPERFUND SITE

SOUTH EL MONTE OPERABLE UNIT

LOS ANGELES COUNTY, CALIFORNIA

September 2000

United States Environmental Protection Agency

Region IX - San Francisco, California

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Part I - Declaration

1.1 Site Name and Location

This Interim Record of Decision (ROD) addresses groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California. The San Gabriel Valley Superfund Site Area 1 has a CERCLIS ID CAD980677355.

1.2 Statement of Basis and Purpose

This ROD presents the selected interim remedial action for the South El Monte OU of the San Gabriel Valley Superfund Site in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601 et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (collectively referred to herein as CERCLA) and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision is based on the Administrative Record for this site.

The State of California, acting through the California Department of Toxic Substances Control (DTSC) and the Los Angeles Regional Water Quality Control Board (LARWQCB), concur with the selected remedy.

1.3 Assessment of the Site

The U.S. Environmental Protection Agency (EPA) has determined that volatile organic compounds (VOCs) have been released into groundwater within the South El Monte OU, and that a substantial threat of release to groundwater still exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Selected Remedy

This interim action ROD addresses groundwater contaminated with VOCs. EPA's objective is to protect human health and the environment. The selected remedy is containment of groundwater contaminated with VOCs in the intermediate zone in the western portion of the South El Monte OU. This remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations along the downgradient edge of the contamination, and other locations, as necessary, and will require continued monitoring and evaluation at other locations. The treated groundwater is expected to be delivered to local water purveyors, although other discharge options may be evaluated. In addition, this remedy includes monitoring in the shallow and intermediate groundwater zones in the South El Monte OU. Although it is not a component of the South El Monte OU interim remedy, EPA's planned remedy in the adjacent downgradient Whittier Narrows OU will play an important role in containing South El Monte OU contamination and meeting EPA's South El Monte OU remedial action objectives. The South El Monte OU interim remedy is the seventh interim remedial action that EPA selected to contain contaminated groundwater within the San Gabriel Valley Superfund Sites.

1.5 Statutory Determinations

The selected interim action remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the interim remedial action, is cost effective, and utilizes permanent solutions to the maximum extent practicable. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of materials through treatment).

Because this interim remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use or unrestricted exposure, a statutory review will be conducted within five years after initiation of the interim remedial action to ensure that the remedy is, or will be protective of human health and the environment.

1.6 ROD Data Certification Checklist

The following information is presented in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern (COCs) and their respective concentrations
- Baseline risk represented by the COCs
- Current and future groundwater use assumptions used in the baseline risk assessment and ROD
- Groundwater use that will be available at the site as a result of the selected remedy
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected
- Decisive factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria)

Cleanup levels in the aquifer are not included in this interim action ROD because this is an interim action remedy focused on groundwater containment.

Keith A. Takata — 9-29-00

Keith A. Takata
Director of Superfund Division
U.S. Environmental Protection Agency, Region IX

Date

Part II
Decision Summary

Part II - Decision Summary

This Decision Summary portion of the interim Record of Decision (ROD) summarizes the information and approaches that the U.S. Environmental Protection Agency (EPA) used to reach a decision on this remedy. It also establishes the remedy that EPA has selected.

1 Site Name, Location and Description

This ROD presents the selected remedial action to address groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California.

1.1 Site Description

The South El Monte OU is part of the San Gabriel Valley Superfund Site Area 1 (CAD980677355), located in eastern Los Angeles County, California (Figure 1). The term "Operable Unit" (OU) is used to define a discrete action that is an incremental step toward a comprehensive site remedy. Operable units may address certain geographic areas, specific site problems, initial phases of a remedy, or a set of actions over time. In addition to the South El Monte OU, EPA has identified seven other OUs at the San Gabriel Valley Superfund Site. These are the Alhambra OU, Baldwin Park OU, El Monte OU, Puente Valley OU, Richwood OU, Suburban OU, and Whittier Narrows OU. EPA is the lead regulatory agency overseeing the cleanup at the San Gabriel Valley Superfund Site.

The San Gabriel Valley encompasses a basin that is approximately 170 square miles. Groundwater in the San Gabriel Basin is the primary drinking water source for more than one million people. Regional groundwater contamination by volatile organic compounds (VOCs) prompted EPA to place the San Gabriel Valley on the National Priorities List (NPL) in 1984. This list identifies the highest priority hazardous waste sites in the United States for investigation and cleanup.

The South El Monte OU covers approximately eight square miles in the south central portion of the San Gabriel Basin. The South El Monte OU is generally bounded by the San Bernardino Freeway (I-10) on the north, the Pomona Freeway (Highway 60) on the south, the San Gabriel River Freeway (I-605) on the east, and San Gabriel Boulevard on the west. The western boundary of the OU has moved from Walnut Grove Avenue, as described in the Feasibily Study and Proposed Plan, to San Gabriel Boulevard because EPA was made aware that groundwater contamination had migrated further west in the vicinity of San Gabriel Boulevard. Most of the South El Monte OU has been developed, except the large area of land within the Whittier Narrows flood control basin. The South El Monte OU encompasses the entire city of South El Monte and parts of the cities of El Monte and Rosemead. Most of the OU area is zoned for residential use, particularly the eastern and western portions, and is likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across the central portion of the South El Monte OU.

An underground feature in the South El Monte OU called a groundwater flow divide controls the direction that groundwater and contaminants in groundwater can move and also affects the development and evaluation of cleanup alternatives for the OU. The flow divide generally occurs near Rush Street in the central portion of the OU (see Figures 2 and 3). Groundwater flow in the shallow zone (generally less than 100 feet below ground surface (bgs) is principally to the south and southwest towards Whittier

Narrows. Groundwater flow in the intermediate zone (generally between 100 and 400 feet bgs) in the vicinity north of Rush Street is towards the west. South of Rush Street intermediate zone flow is generally south/southwest towards Whittier Narrows.

VOCs are the primary organic contaminants found above state and federal drinking water standards (maximum contaminant levels or MCLs) in South El Monte OU groundwater. The VOCs tetrachloroethene (PCE) and trichloroethene (TCE) are the primary contaminants of concern (COCs). PCE and TCE are the VOCs that are detected most often and at the highest concentrations in groundwater, although other VOCs, including, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1-dichloroethene (1,1-DCE) have also been detected above drinking water standards in the South El Monte OU.

In general, VOC concentrations are highest in the shallow groundwater near industrial facility source areas where releases have occurred. EPA has not yet identified any specific "principal threat wastes," such as non-aqueous phase liquids (NAPLs) in the industrial source areas within the South El Monte OU. VOCs have also spread downward into the intermediate zone beneath the shallow zone, then migrated towards drinking water production wells located to the west and to the south in Whittier Narrows. Both of the impacted aquifer zones in the South El Monte OU (shallow and intermediate) are considered to be drinking water sources by the State of California and the intermediate zone is currently being used to supply drinking water. Several drinking water wells in the South El Monte OU have already been impacted by VOC contamination. These wells had to be shut down or equipped with wellhead treatment to reduce contaminant levels to drinking water standards.

In addition to the drinking water well impacts, contamination from the South El Monte OU has migrated to the south into the Whittier Narrows OU, threatening drinking water sources in the Central Basin south of the San Gabriel Basin. The downgradient groundwater impacts have resulted in EPA taking action to control contaminant migration in the Whittier Narrows OU. EPA's actions in Whittier Narrows will limit any further migration of contaminated groundwater into the Central Basin. Because EPA has already selected a remedial action for the downgradient Whittier Narrows OU, the selected interim remedial action for the South El Monte OU does not address the southerly migration of contamination in the shallow and intermediate zones. Figures 2 and 3 show VOC concentrations in shallow and intermediate groundwater zones as of 1999. The LARWQCB, working under a Cooperative Agreement with EPA, oversees site-specific investigations at individual industrial facilities where releases have occurred. The LARWQCB has directed individual facilities in the South El Monte OU to cleanup soil and shallow groundwater where elevated concentrations of contaminants were identified beneath the facility. These focused actions are intended to address the more highly-contaminated source areas, while EPA's actions address the widespread regional groundwater contamination.

2 Site History and Enforcement Activities

2.1 Site History

The San Gabriel Valley has been the subject of environmental investigation since 1979 when groundwater contaminated with VOCs was first identified. In May 1984, four broad areas of contamination within the basin were listed as San Gabriel Areas 1 through 4 on EPA's NPL. EPA subsequently divided the basin into eight operable units (OUs) to provide a means of describing hydrogeology and contaminant distribution, and planning remedial activities in the basin. The source of groundwater contamination in the basin is from industrial facilities.

In 1986, data were compiled and reviewed to develop a preliminary conceptual hydrogeologic model of the San Gabriel Valley, as described in the Supplemental Sampling Program (SSP) Report (EPA, 1986). The results of the SSP investigations provided much of the basis for planning the remedial investigations that have been performed in the San Gabriel Valley since 1986. The Interim San Gabriel Basin Remedial Investigation Report (EPA, 1992a) describes these investigations and incorporates their results into an integrated discussion of EPA's understanding of hydrogeologic conditions in the basin.

EPA issued a draft Statement of Work (SOW) for a remedial investigation and feasibility study (RI/FS) to address groundwater contamination in the South El Monte OU. On July 25, 1995, EPA entered into an Administrative Consent Order for the South El Monte OU RI/FS. The group of PRPs that implemented the South El Monte OU RI/FS was known as the South El Monte OU Participants.

Sources of VOC contamination in the South El Monte OU include industrial facilities engaged in the manufacture of aerospace precision machines, aircraft fittings, pharmaceutical products and injectable drugs, chemicals, furniture, salsa, paint, jewelry, machine parts, cosmetic and dental composites, bathroom hardware, aluminum containers, precision sheet metals, electrical connectors, hand tools, and compressors; hazardous waste liquid storage and handling; drum reconditioning and recycling; petroleum storage and distribution; plastic molding; and battery recycling.

2.2 Remedial Investigation Activities

EPA developed the RI/FS process for conducting environmental investigations under Superfund. The RI/FS approach is the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites to evaluate potential remedial options. The RI serves as a mechanism to collect data for site characterization. The FS serves as the mechanism for development, screening, and evaluation of potential remedial alternatives. As stated in the Statement of Work, the RI/FS was designed to meet the following goals:

- Assess aquifer characteristics and characterize the vertical and lateral distribution of concentrations of VOCs in groundwater in the South El Monte OU area to support a focused FS and the selection of one or more interim actions for the South El Monte OU area.
- Develop and analyze alternatives for appropriate interim remedial actions to control the vertical and horizontal migration of groundwater with relatively higher concentrations of VOCs to areas in the South El Monte OU with relatively lower concentrations of VOCs.

An RI program was conducted for the South El Monte OU during 1996 and 1997. The RI field program consisted of evaluation of inactive production wells, installation of multi-port monitoring wells completed

in the shallow and intermediate zones, groundwater quality and level monitoring. The final RI Report was submitted to EPA in August 1998.

An FS was performed for the South El Monte OU in 1998 and 1999. The FS identified remedial action objectives, assembled remedial action alternatives, and provided an evaluation of the remedial action alternatives using the nine Superfund evaluation criteria established by EPA. The final FS Report was submitted to EPA in April 1999.

2.3 Enforcement Activities

EPA began its enforcement efforts in the South El Monte OU in 1985 by searching historical federal, state, and local records for evidence of chemical usage, handling, and disposal in the South El Monte OU area. At approximately the same time, the RWQCB initiated its Well Investigation Program (WIP) to identify sources of groundwater contamination. In 1989, EPA entered into a cooperative agreement with the RWQCB to expand the WIP program, to assist EPA in determining the nature and extent of the sources of groundwater contamination in the San Gabriel Valley, and to identify responsible parties. The RWQCB directly oversees facility-specific investigations in the South El Monte OU area; EPA helps fund these activities and, when necessary, uses its enforcement authority to obtain information and ensure that facility investigations are promptly completed.

As of December 1999, the RWQCB has sent chemical use questionnaires to approximately 1,300 facilities in the South El Monte OU area; inspected approximately 1,000 of these facilities; and directed approximately 286 facilities to perform soil, soil gas, and/or groundwater investigations. EPA has concurrently used its authority under Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to request information from more than 100 current and former owners and operators in the South El Monte OU. From these investigations, EPA has, to date, identified 43 facilities as sources of groundwater contamination in the South El Monte OU. EPA is continuing to gather data on facilities in the South El Monte OU and may identify additional facilities as sources of groundwater contamination after issuance of this ROD. The RWQCB has issued approximately 15 enforcement orders (Corrective Action Order [CAO], Administrative Civil Liability [ACL], etc.) to facilities that failed to timely comply with facility-specific investigation and/or cleanup activities required by the RWQCB.

In 1990 and 1991, EPA sent General Notice of Liability letters to representatives of 93 facilities in the South El Monte OU. In February 1994, EPA issued an Unilateral Administrative Order requiring one PRP to conduct a remedial investigation at its facility. On August 15, 1995, EPA sent Notification Letters to 49 potentially responsible parties (PRPs), representing 42 facilities, requesting that these parties participate in the South El Monte OU Interim RI/FS. Subsequently, EPA sent Notification Letters to two additional PRPs. Thirty of these notified PRPs, and three others that did not receive the notices, formed the South El Monte Participants that conducted the Interim RI/FS. The South El Monte OU Participants completed the RI/FS in April 1999.

Since 1995, EPA and the RWQCB have continued to investigate potential sources of contamination and expect to notify additional entities that they have been identified as PRPs. EPA is now in the process of identifying a final group of PRPs for the South El Monte OU. EPA anticipates issuing Special Notice letters to the South El Monte OU PRPs after the ROD is issued.

EPA and the RWQCB have undertaken enforcement activities elsewhere in the San Gabriel Valley, including facility investigations, issuance of CERCLA section 104(e) requests for information, issuance of General and Special Notice letters, and filing of cost recovery litigation. PRPs in the Puente Valley

and El Monte OUs previously entered into Administrative Consent Orders to perform the RI/FS activities for their respective OUs. EPA also issued a Unilateral Administrative Order to two parties in the Puente Valley OU and one party in the El Monte OU. In the Baldwin Park OU, EPA issued a ROD in March 1993, and in May 1997 sent Special Notice letters to 19 PRPs seeking performance of the remedial design and remedial action (RD/RA). Following the discovery of perchlorate contamination and lengthy negotiations, in July 2000, EPA issued Unilateral Administrative Orders to the 19 PRPs requiring implementation of the RD/RA.

3 Community Participation

The Proposed Plan for this remedy, in the form of a fact sheet, was distributed to the parties on EPA's mailing list for the South El Monte OU in September 1999. The Proposed Plan, together with the Final South El Monte OU RI (Geosystems Consultants, Inc., 1998) and FS (Geosystems Consultants, Inc., 1999) reports and other pertinent documents, were also included in the Administrative Record file available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library. The Administrative Record for the South El Monte OU was placed in CD-ROM format in each repository

In addition, EPA held a public meeting to present the Proposed Plan and EPA's preferred alternative on October 27, 1999, at the South El Monte High School in South El Monte, California. At this meeting, EPA answered questions and accepted oral comments pertaining to the South El Monte OU and the preferred alternative. A transcript of this meeting is available at the EPA's Superfund Records Center and at the two information repositories.

Notice of EPA's public meeting, availability of the Proposed Plan, and the announcement of a 60-day public comment period was published in the San Gabriel Valley Daily Tribune on September 30, 1999.

The public comment period ran from September 30 to November 29, 1999. EPA received numerous sets of written comments during the public comment period. These comments and the substantive oral comments are addressed in the Responsiveness Summary, included as Part III of this ROD.

4 Scope and Role of Operable Unit

There are four areas of groundwater contamination in the San Gabriel Basin aquifer listed on the NPL as San Gabriel Valley Areas 1 through 4. Groundwater contamination in the San Gabriel Valley extends over very large areas (approximately 30 square miles). In the valley, there are a number of different areas of contamination with distinct conditions and contaminant sources. To facilitate implementation of remedial actions, EPA has divided the site into eight different OUs (Figure 1):

- Alhambra OU – RI/FS underway
- Baldwin Park OU – Interim ROD signed, EPA has ordered the PRPs to implement remedy
- El Monte OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy
- **South El Monte OU – Subject of this Interim ROD**
- Whittier Narrows OU – Interim ROD Amendment signed, EPA is currently conducting the Remedial Design
- Suburban OU – No action remedy selected in ROD.
- Richwood OU – The remedial action for this water supply remedy has been completed by the state.
- Puente Valley OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy

The South El Monte OU remedial action selected in this ROD is an interim action because it is limited to controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions and the nature of the final remedy. Future remedial actions may include additional actions at or in the vicinity of industrial facilities identified as groundwater contamination sources in the South El Monte OU. This interim action will neither be inconsistent with, nor preclude, implementation of a final remedy. The OU-specific actions currently being undertaken in the San Gabriel Valley are primarily interim actions. It is anticipated that a final ROD will be issued for the entire San Gabriel Valley Superfund sites once interim remedial actions have been selected for the individual OUs.

5 Site Characteristics

5.1 Location and Topography

The South El Monte OU lies in the south-central portion of the San Gabriel Valley (Figure 1), approximately 25 miles from the Pacific Ocean, in eastern Los Angeles County. The San Gabriel Valley is a broad piedmont plain that slopes gradually to the southwest at a gradient of approximately 65 feet per mile (California Department of Water Resources {CDWR}, 1966). The San Gabriel Valley contains the subsurface San Gabriel Basin. This structural basin is a natural groundwater reservoir that collects rainfall on the valley floor and run-off from the surrounding highlands, recharging the groundwater aquifer.

The San Gabriel Basin is bounded to the north by the San Gabriel Mountains and to the southwest, south, and southeast by a crescent-shaped system of low hills. The hills making up the system, from west to east, are the Repetto, Merced, Puente, and San Jose Hills. The only significant break along this boundary falls between the Merced and Puente Hills at Whittier Narrows. Whittier Narrows is the lowest point in the San Gabriel Valley and is the exit for the San Gabriel and Rio Hondo Rivers and their tributaries, which serve as the drainage system for the valley.

The South El Monte OU covers a surface area of approximately eight square miles. The OU is not defined by any significant physiographic features. The South El Monte OU varies from approximately 312 feet mean above sea level (MSL) in the northeast to 200 feet above MSL in the southwest.

San Gabriel Boulevard defines the western boundary of the South El Monte OU, as described in Section 1.1. The northern, eastern and southern boundaries coincide with the San Bernardino Freeway (I-10), the San Gabriel River Freeway (I-605) and the Pomona Freeway (Highway 60), respectively.

Most of the annual precipitation in the South El Monte OU occurs intermittently during the winter months of December through March. The long-term average precipitation for the San Gabriel Basin is about 18 inches per year. Temperatures are usually moderate; the average annual temperature in the San Gabriel Valley is about 62 degrees Fahrenheit (°F). January and July are the coldest and warmest months of the year, respectively.

5.2 Surface Water

Two major stream systems carry surface flow from the San Gabriel Valley: the San Gabriel River and the Rio Hondo and their tributaries. The headwaters for these two systems are in the San Gabriel Mountains. The systems transverse the San Gabriel Valley in a southwesterly direction and exit the valley at Whittier Narrows. Except in the case of significant storms, these channels do not carry much natural run-off. There is considerable non-natural flow from industrial and wastewater plant discharge and imported surface water intended for groundwater recharge.

Nearly all of the stream channels comprising the surface water drainage of the San Gabriel Valley have been modified and concrete-lined (including a portion of the Rio Hondo and its tributaries in the South El Monte OU vicinity). This lining minimizes recharge of the aquifer by surface water flow.

The San Gabriel River is located near and parallel to the eastern boundary of the South El Monte OU and is unlined. The Rio Hondo is concrete-lined in the northwestern portion of the South El Monte OU, but unlined in the southwestern portion. The Rio Hondo drains the northwest portion of the San Gabriel Valley. The Rio Hondo traverses the South El Monte OU from the northwest to the southwest and exits near the southwest corner of the OU. Most of the flow in the Rio Hondo is diverted into the Peck Road

Spreading Grounds north of the South El Monte OU, so significant flow in the Rio Hondo through the South El Monte OU is limited to substantial storm events.

Where the river channels are unlined, surface water recharges the underlying aquifers. Recharge from the San Gabriel River occurs year round because of the continuous flow created by discharges of treated waste water. Recharge form the Rio Hondo is seasonal but may be significant, particularly downstream of the South El Monte OU in Whittier Narrows. .

5.3 Geology

5.3.1 San Gabriel Basin

The San Gabriel Basin is filled with alluvial deposits, primarily of Quaternary age, which overlie relatively impermeable rock. These deposits are 2,000 to 4,000 feet thick over the center of the basin and range between approximately 250 to 800 feet thick at the basin outlet in Whittier Narrows. The deepest portion of the San Gabriel Basin, reportedly in excess of 4,000 feet deep, is located in the northwest portion of the South El Monte OU.

There are two distinct sources of sediment in the basin: the coarse-grained crystalline rocks of the San Gabriel Mountains and the finer-grained sedimentary rocks of the hills to the southeast and southwest. Sediment derived from the San Gabriel Mountains to the north is generally coarser-grained than that from the hills to the south. Consequently, hydraulic conductivity of the alluvium generally increases with proximity to the San Gabriel Mountains. The distribution of the sediments deposited in the basin is also controlled by the position relative to river and tributary courses. In particular, coarse-grained sediments are prevalent in the San Gabriel River proximity. Most of the San Gabriel Basin is characterized by interfingering lenses of alluvial deposits (e.g., cobbles, gravel, silt, and clay) and the alluvial deposits show a high degree of variability in sediment type, both vertically and laterally.

Major structural features controlling regional ground-water flow in the San Gabriel Basin include the topographic highs (i.e., San Gabriel Mountains and southern hills) and topographic lows (i.e., Whittier Narrows). Four major faults in the San Gabriel Basin potentially impact ground-water flow: the Sierra Madre Fault System, the Raymond Fault, the Lone Hill-Way Hill Fault, and the Workman Hill Fault.

5.3.2 South El Monte OU

The sediments encountered during the South El Monte OU RI were unconsolidated alluvial deposits. Based on regional studies (CDWR, 1966), the surface sediments are primarily Recent alluvial deposits that are underlain by Pleistocene-age older alluvium. The Recent alluvial deposits are not readily discernible from the older alluvium. In general, the lithology in the eastern half of the South El Monte OU is coarser than the western half because of the influence of the San Gabriel River. In the western portion of the OU, particularly west of the Rio Hondo, the aquifer contains more extensive finer-grained deposits.

In significant portions of the South El Monte OU, there is a shallow water-bearing zone that is separated, to varying degrees, from a deeper intermediate water-bearing zone by a sequence of finer-grained, low permeability soils. The separation between the shallow and intermediate zones is corroborated by differences in water chemistry and groundwater levels.

In the western half of the South El Monte OU, the shallow zone extends from the water table to the top of the separating sequence, which was generally encountered between 60 and 130 feet bgs. The average

depth to the bottom of the shallow zone is approximately 100 feet bgs. The shallow zone consists of sand and gravel layers interbedded with finer-grained soils.

Throughout most of the western part of the South El Monte OU, the shallow and intermediate zones are separated by a sequence of finer-grained soils rather than a single, homogenous fine-grained stratum. The separating sequence of finer-grained soils varies in thickness from about 45 to 165 feet. The composition of the separating sequence is variable. In the far northwest portion of the OU, it is primarily silts and clays. Towards the southern edge of the South El Monte OU, the separating sequence contains increasing percentages of sand and gravel and in some locations the separating sequence is poorly defined or absent.

The intermediate zone is the water-bearing zone present from the base of the separating sequence to a depth of approximately 400 feet bgs. The 400 foot depth was selected based on water quality data indicating that this is approximately the maximum depth of VOC exceedances of drinking water standards in the area. The intermediate zone consists of a series of coarse-grained sediments (sands and gravels) interspersed with periodic thin lenses of finer-grained strata.

5.4 Hydrogeology

5.4.1 San Gabriel Basin

The San Gabriel Groundwater Basin comprises approximately 167 square miles of water-bearing valley land (CDWR, 1966). The maximum depth of alluvial fill within the main basin is unknown, though CDWR (1966) shows an alluvial depth of more than 4,000 feet at a location in the northwest portion of the South El Monte OU (CDWR, 1966).

Natural features that control the regional pattern of groundwater movement in the San Gabriel Basin include topographic highs (San Gabriel Mountains and southern hills) and lows (the valley floor, especially Whittier Narrows), and to some extent faults. Generally, groundwater in the basin flows from topographically high to low areas in the absence of groundwater pumping. In addition, groundwater flow is also controlled by the locations of significant recharge, such as undeveloped alluvial fans, riverbeds and spreading basins. Recharged groundwater moves away from these areas, generally towards topographically lower areas. Under natural groundwater flow conditions, such as those encountered in the first half of this century, groundwater generally flowed away from the margins of the basin towards the center of the alluvial valley, and then towards Whittier Narrows (EPA, 1992a).

In parts of the basin, including the western portion of the South El Monte OU, concentrated groundwater withdrawal by pumping significantly affects the direction and rate of groundwater flow. With the increased use of wells to extract groundwater from the basin, the pattern of groundwater flow in the basin has changed over time (EPA, 1992a). About 80 percent of the groundwater discharge from the San Gabriel Basin is now to production wells (EPA, 1992a). The remaining groundwater discharge consists of subsurface outflow through Whittier Narrows and minimal discharge to surface water in Whittier Narrows and Puente Valley.

5.4.2 South El Monte OU

As described above, based on the lithologic, water-level, and contamination data generated during the RI, the aquifer in much of the South El Monte OU has been divided into: a shallow zone (representing approximately the upper 50 to 100 feet of the aquifer); a finer-grained separating sequence of varying thickness present beneath the shallow zone; and an intermediate zone that is found beneath the separating sequence and extends to a depth of approximately 400 feet. The aquifer in the South El Monte OU extends much deeper than 400 feet (perhaps to as deep as 4,000 feet), however significant contamination

is not expected at depths of greater than 400 feet. The unconsolidated deposits in the South El Monte OU are of fluvial origin and consist of interbedded sediments comprised of gravel, sand, silt, and clay and mixtures of these materials.

Depth-to-water in the western half of the South El Monte OU (where the RI activities were focused) ranges from approximately 40 feet bgs in the northern portion of the OU to less than 25 feet bgs along the southern boundary of the OU.

Hydraulic conductivity is a measure of how easily fluids can flow through porous media. The geologic materials in the South El Monte OU vary from clay to gravel over short distances, thus estimates of hydraulic conductivity in the area can very considerably. On average, the hydraulic conductivity of the shallow zone is expected to be in the 200 to 300 feet/day range and the intermediate zone in the 50 to 100 feet/day range. Specific testing of two shallow extraction wells installed in the south-central portion of the OU during the RI/FS yielded hydraulic conductivity estimates in the 150 to 400 feet/day range.

Groundwater Flow

Groundwater flow is described below in terms of flow direction and gradient, both in the horizontal and vertical dimensions. Horizontal flow is discussed for the shallow zone, where higher levels of VOC contamination occur, and the intermediate zone where lower levels of VOC contamination occur.

Shallow groundwater contours prepared during the RI/FS indicate relatively uniform flow to the southwest throughout most of the South El Monte OU at hydraulic gradients averaging about 0.002 (Geosystems Consultants, Inc., 1998). The shallow zone flow direction is less clear in the northwest corner of the OU. There is the potential that active production wells located to the west are impacting shallow zone water levels and flow direction in the northwest corner of the OU.

Intermediate zone piezometric surface contours prepared during the RI/FS indicate relatively uniform flow to the southwest, into Whittier Narrows, with a hydraulic gradient of about 0.002 (Geosystems, Consultants, Inc. 1998). In the northwest corner of the OU, however, flow is towards the west and northwest with a gradient of about 0.003. Flow to the northwest in this area is consistent with extraction from production wells to the west and northwest. The location of the groundwater flow divide that separates flow towards the south from flow towards the west likely varies seasonally and with changes in the western pumping.

The shallow and intermediate zone groundwater elevation data recorded during the RI/FS were used to estimate vertical hydraulic gradients between adjacent screen intervals in the multi-port monitoring wells. In nearly all cases, vertical gradients are downward, ranging in magnitude from 0.001 to as much as 0.238 between the shallow and intermediate zones in the well located in the northwest corner of the OU (Geosystems Consultants, Inc., 1998) The large vertical gradients in the northwest corner of the OU indicate the high degree of separation between the shallow and intermediate zones in this area.

The downward vertical gradients are the result of pumping in the intermediate aquifer and resistance to vertical flow caused by the finer-grained separating sequence.

5.5 Groundwater Management

The South El Monte OU is located in the Main San Gabriel Basin. The rights to pump groundwater from the San Gabriel Basin are adjudicated (i.e., assigned to specified users in accordance with a court judgment). There are two judgments that govern groundwater management in the South El Monte OU vicinity.

5.5.1 San Gabriel Basin Judgment

Water rights in the Main San Gabriel Basin were adjudicated in a stipulated judgment by the Superior Court of Los Angeles County in 1973. This adjudication resulted in assigning water rights to approximately 50 parties that each hold rights to greater than one percent of the natural safe yield of the basin (152,700 acre-feet per year, established in the judgment), and approximately 100 parties that each hold rights to less than 1 percent of the natural safe yield. Also, according to the judgment, only selected parties have the right to export groundwater out of the Main San Gabriel Basin.

As amended in 1992, the judgment also establishes the duties of a Watermaster, which include annually determining an operating safe yield for the basin, monitoring pumpers' compliance with the judgment, issuing permits for all new and increased pumping in the basin, and preparing an annual report that includes details of pumping activities in the basin. The amount of groundwater that each water rights holder can pump in any year is adjusted by prorating the pumper's prescriptive rights (percentage of natural safe yield) by the operating safe yield, as established by the Watermaster.

The majority of the groundwater pumped from the Main San Gabriel Basin is used for drinking water, supplied to the public by purveyors that are regulated as public water supply systems. Annually, pumping typically equals or exceeds the operating safe yield of the basin. When excess extraction occurs, the judgment has established provisions for assessing pumpers the cost of importing replacement water to replenish the excess amount extracted. Replacement water is imported water purchased by the Upper San Gabriel Valley Municipal Water District and artificially recharged within the basin. The 1997-98 replacement water assessment was $246.65 per acre-foot.

5.5.2 Long Beach Judgment

The Long Beach Judgment is the 1964 settlement of a lawsuit between parties in the Central and San Gabriel Basins. This judgment mandates that an average of 98,415 acre-feet of useable water will be delivered to the Central Basin each year. This water consists of: (1) surface flow that passes through Whittier Narrows, (2) subsurface (groundwater) flow through Whittier Narrows, and (3) a portion of the water exported (piped) from the San Gabriel Basin to the Central Basin.

Although the Long Beach Judgment specifies an average entitlement of 98,415 acre-feet per year, the actual entitlement is calculated yearly by the court-appointed San Gabriel River Watermaster. The San Gabriel River Watermaster tabulates the water discharge through Whittier Narrows. If more than 98,415 acre-feet are delivered to the Central Basin from the San Gabriel Basin in a year, then the San Gabriel Basin is credited with the excess. Conversely, if less is delivered, the San Gabriel Basin is required to make up the difference either from past credits or, if that is not sufficient, through delivery of imported surface water as makeup water to the Central Basin.

5.6 Groundwater Contamination

VOCs are the primary organic contaminants found in groundwater above state and federal drinking water standards in the South El Monte OU. PCE and TCE are the VOCs that are detected most often in groundwater, although other VOCs, including 1,1-DCA, cis-1,2-DCE, and 1,1-DCE were detected at high concentrations in selected portions of the shallow zone during the South El Monte OU RI. One other VOC, 1,4-dioxane, has also been detected at several locations in the South El Monte OU, but at relatively low concentrations. 1,4-Dioxane is important because it requires different treatment technologies than most of the other VOCs and is more expensive to remove from the water. A limited number of additional contaminants were detected during the RI, but at lower concentrations and at fewer locations.

In general, VOC concentrations are highest in the shallow groundwater in the vicinity of industrial facility source areas where releases have occurred. Figure 2 shows the extent of VOC contamination in the South El Monte OU in the shallow zone. As shown in this figure, there are fairly large areas where VOC concentrations exceed 10 times the drinking water standards (or 50 micrograms per liter, μg/L) and several isolated smaller areas where concentrations exceed 100 times drinking water standards (or 500 μg/L). In these areas, concentrations of PCE and TCE detected during the last round of sampling for the South El Monte OU RI/FS range from about 40 to 730 μg/L and non-detect to 730 μg/L, respectively. Figure 2 clearly illustrates the large area of shallow contamination that has migrated out of the South El Monte OU and into the downgradient Whittier Narrows OU.

TCE and PCE concentrations in the intermediate zone in the South El Monte OU are much lower, generally less than 50 μg/L. However, there are a couple of areas in the intermediate zone with elevated VOC concentrations, including one area where PCE concentrations exceed 100 times the drinking water standards (or 500 μg/L). The highest VOC concentrations detected in the intermediate zone in the South El Monte OU during the RI/FS was 200 μg/L at a multi-port monitoring well zone screened from 209 to 218 feet bgs. Subsequent sampling of this well showed concentrations of 500 μg/L. As is the case in most of the shallow zone, PCE is detected at higher concentrations than TCE in the intermediate zone. The extent of intermediate zone contamination is shown in Figure 3. Multi-port monitoring well data indicate that exceedances of drinking water standards extend down at least as deep as 400 feet bgs. Only limited data are available from depths deeper than 400 feet bgs. As is the case in shallow zone, intermediate zone exceedances of drinking water standards extend out of the South El Monte OU and into the downgradient Whittier Narrows OU.

As described above, EPA has identified numerous industrial facilities in the South El Monte OU as contaminant sources where releases have impacted groundwater quality. To address the industrial areas that contain these sources, the RWQCB, with funding from EPA, oversees site-specific investigations and cleanups.

Within the South El Monte OU, EPA's RI efforts focused on regional groundwater contamination and EPA has not yet identified any specific areas of principal threat wastes. At some of the individual industrial facilities, where elevated concentrations of contaminants have been identified in the vadose zone and shallow groundwater, the RWQCB is overseeing facility-specific remedial actions. These focused actions should address the more highly-contaminated source areas.

6 Current and Potential Future Site and Resource Uses

6.1 Land Uses

The South El Monte OU consists of densely populated residential communities, mixed with light and heavy industrial areas, and commercial land use. Outside of the portion of the Whittier Narrows Recreation Area that extends into the southwest corner of the South El Monte OU, the area is essentially fully developed with very limited undeveloped or open areas. Within the OU, there are a number of relatively large industrial/commercial developments. Much of South El Monte, however, features numerous small industrial operations. In the portions of the South El Monte OU where the shallow groundwater contamination addressed in this ROD is found, land use is primarily light and heavy industrial. Residential areas are found adjacent to these industrial areas.

The South El Monte OU includes the entire City of South El Monte and parts of the cities of El Monte and Rosemead. Nearly all of the South El Monte OU area is fully developed, except the large block of land in the southern portion of the OU that is part of the Whittier Narrows flood control basin. Most of the land in the OU is zoned for residential use, particularly in the far eastern and western portions of the OU. These areas are likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across a significant area in the central portion of the South El Monte OU. There is also a relatively large industrial area along the northern boundary of the OU. Land use in the South El Monte OU area is not expected to change significantly over time.

6.2 Groundwater Uses

The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. Currently, groundwater extracted within the South El Monte OU is used as municipal water supply for residential, commercial and industrial purposes. As discussed previously, water rights in the Main San Gabriel Basin are fully adjudicated. Thus, the Main San Gabriel Basin Watermaster monitors all extraction. The producers that extract groundwater from within the South El Monte OU are: Amarillo Mutual Water Company, California American Water Company, California Domestic Water Company, Del Rio Mutual Water Company, City of El Monte, Los Angeles County, City of Monterey Park, San Gabriel Valley Water Company, and Woodland Farms (agricultural user). VOCs are detected in nearly all production wells in the South El Monte OU area. The City of El Monte, Los Angeles County, the City of Monterey Park, and San Gabriel Valley Water Company have had to shut down wells because of contamination and both the City of Monterey Park and San Gabriel Valley Water Company have installed wellhead treatment systems to address VOC contamination in production wells.

Production from the shallow zone is limited as most of the production wells are perforated in the deeper zone. There are currently no drinking water supply wells that draw water from the shallow, highly contaminated zones in the vicinity of industrial facilities. Future groundwater use in the OU vicinity is expected to be similar to current use, with active extraction occurring in many portions of the OU. Future extraction will likely be primarily from the intermediate zone and deeper.

7 Summary of Site Risks

EPA completed a Preliminary Baseline Risk Assessment (RA) for the South El Monte OU in 1997 (EPA, 1997a). The baseline risk assessment estimates the human health and environmental risks that the site could pose if no action were taken. It is one of the factors that EPA considers in deciding whether to take action at a site. In the South El Monte OU, EPA's decision to take action is based principally on the presence of contamination in groundwater at levels that exceed drinking water standards, evidence that contamination will continue to migrate into groundwater areas that are presently clean or less contaminated, and the current and potential use of groundwater in and around the South El Monte OU as a source of drinking water. The risk assessment is also used to identify the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the Preliminary Baseline RA for the South El Monte OU.

7.1 Summary of Human Health Risk Assessment

This summary of human health risk includes sections on the identification of chemicals of concern (COCs), exposure assessment, toxicity assessment, and risk characterization.

7.1.1 Identification of Chemicals of Concern

The Preliminary Baseline RA is based on data collected from production and monitoring wells between July 1993 and July 1995, except for 15 monitoring wells where data collected between February 1990 and April 1993 is used. The older data was used for the 15 wells because more recent sampling results were not available. Sampling data were available from 25 production wells, one EPA monitoring well, and 131 site assessment monitoring wells during this period. A total of 43 VOCs were detected in South El Monte OU groundwater and all of the VOCs detected were considered chemicals of potential concern (COPCs) for evaluation in the Preliminary Baseline RA. Of these 43 COPCs, only eight contributed significantly to the estimated risks and are discussed as chemicals of concern (COCs) in this RA summary. Table 1 provides information on these COCs in each of the seventeen well groupings and thirteen individual production wells considered in the RA.

As shown in Table 1, the eight COCs found in South El Monte OU groundwater that contribute significantly to the risk estimates were benzene, 1,2-dichloroethane (1,2-DCA), 1,2-dichloroethene (1,2-DCE), cis-1,2-dichlorothene (cis-1,2-DCE), 1,2-dichloropropane (1,2-DCP), trichloroethene (TCE), tetrachloroethene (PCE), and vinyl chloride. All of the COCs are VOCs and all are present in the most contaminated portion of the shallow zone. Only two of the COCs, PCE and TCE, were also found in the deeper production wells. The table also shows the frequency of detection (i.e., the number of times the chemical was detected in the samples collected from each well grouping or production well), generally using data from 1993 through 1995. The table indicates that PCE and TCE are the most frequently detected COCs in the South El Monte OU and represent the extent of contamination in groundwater at the site shown in Figures 2 and 3.

Table 1 presents the exposure point concentration for each of the COCs detected in each of the well groupings and production wells evaluated. In all cases, the highest exposure point concentrations were from either TCE or PCE. The arithmetic mean concentration shown in Table 1 was used for the calculations of "average" potential risk and either the maximum detected concentration or the 95th percentile (95%) upper confidence limit (UCL) on the arithmetic mean concentration (whichever was lower) was used as the exposure point concentration for calculating the maximum potential risk for each COC in each well group and production well.

7.1.2 Exposure Assessment

Exposure refers to the potential contact on an individual (or receptor) with a chemical. Exposure assessment is the determination or estimation of the magnitude, frequency, duration, and route of potential exposure. This section briefly summarizes the potentially exposed populations, the exposure pathways evaluated, and the exposure quantification from the Preliminary Baseline RA performed for the South El Monte OU.

Land use in the South El Monte OU is primarily residential, commercial and industrial. At the time of the Preliminary Baseline RA, there were twenty-three active or standby production wells in the South El Monte OU. Of these, all but one provide drinking water for domestic use. Exposure to contaminants in groundwater could occur through the use of groundwater for domestic purposes, such as ingestion of tap water, inhalation of contaminants from water used for bathing, cooking and laundering, and dermal contact with the water. The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. In the baseline RA, EPA evaluated two scenarios under which individuals might be exposed to contaminated groundwater:

1. Potential for a current resident to be exposed to contamination in groundwater through domestic use

2. Potential for a future resident to be exposed to contamination in groundwater through domestic use

Based on potential for exposure frequency, duration, and estimated intake, residents exposed to contaminated groundwater used for domestic purposes are expected to be the maximally exposed population.

It should be noted that the assumption that residents could be exposed to untreated groundwater from the well groupings or production wells evaluated is conservative. There are not currently any wells producing water for public drinking water supply from the highly contaminated shallow groundwater areas in the western or eastern portions of the South El Monte OU. Further, regulations, such as the Safe Drinking Water Act, currently prohibit water purveyors from serving water contaminated in excess of drinking water standards to consumers.

7.1.3 Toxicity Assessment

Table 1 shows the eight COCs that are the major risk contributors for the South El Monte OU. Based on data from various animal studies and other activities, two of the compounds (benzene and vinyl chloride) are classified as human carcinogens, four of the compounds (1,2-DCA, 1,2-DCP, PCE and TCE) are classified as probable human carcinogens (EPA weight of evidence class B2). The carcinogenic oral slope factors (toxicity values) for these six compounds are shown in Table 2.

All six of the above compounds are also considered carcinogenic through the inhalation route. The inhalation slope factors, based on data from various animal studies, for these six compounds are presented in Table 2.

The dermal route of exposure was incorporated into the preliminary baseline RA using an equation that incorporates the exposure point concentration and a dermal permeability constant (in centimeters/hour [cm/hr]). The dermal exposure risks are presented in Tables 3 and 4. The dermal permeability constants for the eight COCs are:

- Benzene- 0.021 cm/hr !!
- 1,2-DCA- 0.0053 cm/hr
- 1,2-DCE- 0.01 cm/hr

- 1,2-DCP- 0.01 cm/hr
- Cis-1,2-DCE- 0.01 cm/hr
- PCE- 0.048 cm/hr
- TCE- 0.016 cm/hr
- Vinyl Chloride- 0.0073 cm/hr

In addition to their classification as probable human carcinogens, six of the seven COCs (all except vinyl chloride) have toxicity data indicating their potential for adverse noncarcinogenic health effects in humans. The chronic toxicity data available for these compounds have been used to develop oral and inhalation reference doses (RfDs). The RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The oral and inhalation RfDs are presented in Table 2.

7.1.4 Risk Characterization

This section presents the results of the evaluation of the potential risks to human health associated with exposure to contaminated groundwater in the South El Monte OU. Exposure scenarios are evaluated by estimating the noncarcinogenic and carcinogenic risks associated with them.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. These risks are probabilities that usually are expressed in scientific notation (e.g., 1×10^{-6}). An excess lifetime cancer risk of 1×10^{-6} indicates that an individual has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposures is 10^{-4} to 10^{-6}. An excess lifetime cancer risk of greater than one in ten thousand (1×10^{-4}) is the point at which action is generally required at a site (EPA, 1991a).

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., a life-time) with a reference dose (RfD) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than one indicates that a receptor's dose of a single contaminant is less than the RfD and that toxic noncarcinogenic effects from exposure to that chemical are unlikely. HQs for all COCs that affect the same target organ (e.g., liver) are added together to generate the Hazard Index (HI). An HI less than one indicates that noncarcinogenic effects from all the contaminants are unlikely. Conversely, an HI greater than one indicates that site-related exposures may present a risk to human health.

Conclusions

Tables 3a, 3b, 4a and 4b present the risk characterization summaries for carcinogenic (Tables 3a and 3b) and noncarcinogenic effects (Tables 4a and 4b). The risk estimates presented in these tables are based on average and reasonable maximum exposure (RME) and were developed by taking into account various conservative assumptions about the frequency and duration of exposure to groundwater, as wells as the toxicity of the primary COCs.

To assess potential current residential exposure to groundwater through domestic use, data from all active drinking water wells sampled from July 1993 through July 1995 that had positive detections of VOCs were used (a total of thirteen production wells). The cumulative estimated hazard index was less than one for the average exposure and RME scenarios (Table 4a). The estimated excess lifetime cancer risk ranged from 5×10^{-8} to 5×10^{-7} for the average exposure scenario and 5×10^{-7} to 3×10^{-6} for the RME scenario (Table 3a). The estimated excess lifetime cancer risks based on exposure to groundwater from the

production wells that are currently active are either less than or towards the lower end of the 10^{-4} to 10^{-6} acceptable risk range used by EPA to manage risks at Superfund sites. In addition, the estimated risks for these production wells are conservative because they do not take into account treatment of groundwater or the blending of groundwater from these wells with other production wells. The water purveyors are prohibited from serving water that exceeds MCLs to any of their customers.

To assess potential future residential exposure to contamination in groundwater through domestic use, the preliminary RA focused on seventeen individual areas within the OU that had groundwater concentrations exceeding 10 times the primary drinking water standards (MCLs). These seventeen areas are represented by Well Groups 1 through 17 on Tables 3b and 4b. The well groups consist primarily of shallow monitoring wells at or near industrial facilities and include those wells with the highest VOC concentrations in the OU area. The shallow intervals monitored by these wells are not currently used for drinking water supply. Use of these well groups to evaluate potential future risk is a conservative approach. The estimated hazard index ranged from 0.07 to 4 for the average residential exposure scenario and 0.1 to 20 for the RME residential scenario (Table 4b). Major chemical contributors to the estimated hazard indices include benzene, cis-1,2-DCE, 1,2-DCE, PCE, and TCE. The estimated excess lifetime cancer risk ranged from $2x10^{-6}$ to $8x10^{-5}$ for the average exposure scenario and $2x10^{-5}$ to $9x10^{-4}$ for the RME (Table 3b). Major chemical contributors to the estimated excess lifetime cancer risk include benzene, 1,2-DCA, 1,2-DCP, PCE, TCE, and vinyl chloride. The estimated hazard indexes and excess lifetime cancer risks based on potential future exposure to groundwater from many of the Well Groups exceed the acceptable risk range ($1x10^{-5}$ - $1x10^{-6}$) used by the EPA to manage risks at Superfund sites. Based on these estimated risks, the areas around these well groups should be considered for remediation.

A screening level evaluation of volatile emissions to indoor air provides a conservative estimate of potential residential exposure to COCs in groundwater via this pathway. Potential current and future exposures were evaluated for the average and RME scenarios. The estimated hazard quotients for all of the production wells (used for potential current exposure) and well groups (used for potential future exposure) were all below 1. The estimated current excess lifetime cancer risks for indoor air using production wells were below 10^{-6} for both average and RME scenarios. The estimated excess lifetime cancer risks for potential future exposures to volatile emissions from groundwater using data from the 17 well groups ranges from $1x10^{-9}$ to $9x10^{-6}$.

Based on this risk characterization summary, actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, present a potential threat to public health, welfare, or the environment. As described in the preceding paragraphs, the groundwater contamination does not currently threaten public health or welfare.

7.2 Summary of Ecological Risk Assessment

An evaluation was conducted as part of this preliminary groundwater risk assessment to determine whether there are any potential ecological exposure pathways in the South El Monte OU. The potential for exposure to ecological receptors is related to the extent that groundwater contaminants migrate to or are discharged to surface water habitat. The environmental evaluation indicated that there are two plausible means for ecological receptors to be exposed to groundwater contaminants in the South El Monte OU:

- Extraction and discharge of contaminated groundwater into surface water bodies containing ecological receptors.
- Natural discharge of contaminated groundwater into surface water bodies that contain ecological receptors.

Outside of periodic, short-duration discharge associated with aquifer testing activities, there is no known surface-water discharge of extracted groundwater in the South El Monte OU. Based on the very limited frequency and duration of this RI-related type of discharge, no additional evaluation is warranted for this potential pathway.

The depth-to-groundwater in the South El Monte OU is generally between 15 and 50 feet bgs. Given these conditions, it is very unlikely that groundwater could discharge to surface water and potential exposures to aquatic and terrestrial organisms are unlikely as well. As indicated in EPA's Interim San Gabriel Basin RI Report (EPA, 1992a), natural discharge of groundwater to surface water (caused by shallow groundwater levels intersecting stream channel bottoms) is not expected in either the Rio Hondo or San Gabriel Rivers north of the Pomona Freeway (i.e., in the South El Monte OU area).

Based on this screening-level environmental evaluation, there are no complete ecological exposure pathways in the South El Monte OU.

7.3 Conclusion

In addition to the risk assessment, EPA has considered the state and federal drinking water standards (MCLs and MCLGs) that have been established for contaminants found in the South El Monte OU. MCLs and MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects are expected to occur. Even if the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure is less than 10^{-4} and the non-carcinogenic hazard quotient is less than 1, remedial action will generally be warranted if MCLs or non-zero MCLGs are exceeded ("Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," OSWER Directive 9355.0-30, April 22, 1991).

Contaminant concentrations exceed MCLs throughout a significant portion of the South El Monte OU, including groundwater regions that are currently used as sources of drinking water. In some areas, contamination levels exceed 100 times MCLs. Based on the risk characterization, the presence of widespread contamination in excess of MCLs, the use of groundwater in the South El Monte OU as a source of drinking water, and evidence that the contamination is migrating, EPA has determined that actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

8 Remediation Objectives

EPA's Remedial Action Objectives (RAOs) for the South El Monte OU are to:

- Prevent exposure of the public to contaminated groundwater;
- Contain further migration of contaminated groundwater from more highly contaminated portions of the aquifer to less contaminated areas or depths;
- Reduce the impact of continued contaminant migration on downgradient water supply wells, and;
- Protect future uses of less contaminated and uncontaminated groundwater.

These objectives reflect EPA's regulatory goal of restoring usable groundwater to its beneficial uses wherever practicable, within a time frame that is reasonable, or, if restoration is deemed impracticable, to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction (40 C.F.R. Section 300.430{a}{1}{iii}{F}). The RAOs address the risks associated with exposure to contaminated groundwater in the South El Monte OU (described above in Section 7) by significantly limiting the potential for future exposure.

To meet the RAOs, migration control will be required in the South El Monte OU as long as VOC concentrations in migrating groundwater exceed state or federal drinking water standards. The RAOs for the South El Monte OU do not include numeric, chemical-specific objectives in the aquifer or a time frame for restoration because this is an interim action to contain contamination. Although this interim remedial action is not focused on mass removal, the proposed remedy will remove significant contaminant mass from the aquifer, in effect beginning the restoration process.

9 Description of Alternatives

EPA evaluated the four alternatives for the South El Monte OU:

- Alternative 1 – No-Action
- Alternative 2 – Groundwater Monitoring (No Active Response)
- Alternative 3– Intermediate Zone Control in Western South El Monte OU, modified from that described in the FS (see Section 14)
- Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control

A brief description of the four remedial alternatives is presented below.

9.1 Alternative 1 – No Action

The NCP requires EPA to consider a no action alternative and to evaluate the risk to the public if no action were taken. The No-Action Alternative provides a baseline for comparison with other remedial alternatives under consideration. In this alternative, no remedial actions are taken to control contaminant migration from or within the South El Monte OU. This alternative does not include any groundwater monitoring, extraction, or treatment, so there is no cost associated with this alternative

The No-Action Alternative allows continued, uncontrolled migration of contamination. This alternative does not meet EPA's RAOs and does not comply with state and federal requirements.

9.2 Alternative 2 – Groundwater Monitoring (No Active Response)

The only remedial action specifically incorporated into Alternative 2 is groundwater monitoring to monitor VOC plume migration in the shallow and intermediate zones in the South El Monte OU. Alternative 2 does not have any extraction, treatment, conveyance, or discharge components. This alternative would rely solely on passive mechanisms such as dilution or dispersion to address contaminant migration. This alternative also assumes that the groundwater management activities described in Section 5.5 continue to limit human exposure to groundwater contamination. This alternative includes implementing a monitoring program using new and existing wells to monitor contaminant migration and compliance with the South El Monte OU remedial action objectives in the shallow and intermediate zones.

9.2.1 Monitoring

In order to estimate costs and evaluate effectiveness, this alternative assumes installation of three new multi-port monitoring wells monitoring the shallow and intermediate zones to supplement the existing monitoring well network. The monitoring program is assumed to include semi-annual monitoring of seven existing multi-port wells and three new multi-port wells.

9.3 Alternative 3 Intermediate Zone Control in Western South El Monte OU

Alternative 3 includes extraction, treatment, and monitoring of intermediate zone contaminated groundwater in the north-western half of the South El Monte OU. The system would be designed to contain groundwater with VOC concentrations exceeding primary drinking water standards (i.e., MCLs) that is moving in the intermediate zone from the source areas in the central portion of the OU towards groundwater pumping centers to the west. Drinking water wells completed in the intermediate zone in the western areas have already been impacted by VOC contamination above drinking water standards. Alternative 3 does not include any specific measures to address shallow and intermediate zone contamination migrating to the south towards Whittier Narrows. This alternative assumes that EPA's remedy in the Whittier Narrows OU will provide containment of this contamination. The key components of Alternative 3 are described below.

9.3.1 Extraction

For the intermediate zone contamination migrating towards the west, Alternative 3 provides the option of either installing new extraction wells, using existing San Gabriel Valley Water Company's (SGVWC) Plant 8 wells, City of Monterey Park's well MP 5, well MP 12 and proposed well MP 15P, and Southern California Water Company's (SCWC's) San Gabriel 1 and 2 wells (shown in Figure 5), or using a combination of new and existing wells. The intermediate zone extraction would control western migration of groundwater that exceeds drinking water standards.

The existing production wells that could potentially be incorporated into the extraction component of Alternative 3 are screened in the depth interval from approximately 200 feet bgs to 770 feet bgs. If new wells are used, they would likely be screened in the depth interval from approximately 250 to 450 feet bgs. The total extraction rate assumed for cost estimation purposes is 10,020 gallons per minute (gpm). This extraction rate is higher than that assumed in the FS. The higher extraction rate is needed to address the recently discovered contamination found further to the west than previously depicted (see Section 14 for additional details). The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination and further discussions with local water purveyors. Two cost estimates are presented in Table 5 to account for the use of either new extraction wells or existing water purveyor wells.

9.3.2 Treatment

Extracted groundwater containing VOCs that exceed drinking water standards would be treated by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of air stripping with carbon adsorption of VOCs in the off-gas. Other treatment processes could be evaluated during remedial design.

9.3.3 Conveyance and Discharge

If the necessary agreements can be reached, the treated water would be delivered to three of the local water purveyors with impacted wells and existing facilities in the western portion of the South El Monte OU: SGVWC, the City of Monterey Park, and SCWC. The assumed treatment plant locations are located at or adjacent to the facilities of these three water purveyors, so conveyance of treated water would be minimal. If necessary, other discharge options, such as aquifer recharge or surface water discharge, would be evaluated during remedial design.

9.3.4 Monitoring

Alternative 3 includes implementation of a monitoring program to monitor remedy performance and ensure compliance with the RAOs in the South El Monte OU. Both groundwater levels and groundwater quality would be measured as part of the evaluation of remedy performance. In order to estimate costs and evaluate effectiveness, this alternative assumes installation of two new multi-port monitoring wells and semi-annual sampling of the two new and seven existing multi-port wells.

9.4 Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control

Alternative 4 includes all of the components described above for Alternative 3, plus a groundwater extraction and treatment system in the shallow zone source area in the South El Monte OU. The additional extraction is intended to inhibit migration of high-level shallow zone contamination from the South El Monte OU into shallow and intermediate zones in the downgradient Whittier Narrows OU that are currently less contaminated. The key components of the alternative are described below.

9.4.1 Extraction

The additional groundwater extraction in Alternative 4 would occur at two existing shallow extraction wells northeast of the Rosemead Boulevard/Highway 60 (Pomona Freeway) interchange (Figure 2). The shallow containment would focus on the largest area of high level contamination in the southern portion of the South El Monte OU (Figure 2), where contamination migrates to the south towards Whittier Narrows. Although the intent of the extraction would be containment, the existing wells are located in area where they would also remove significant amounts of contamination from the shallow aquifer. The additional extraction rate assumed for cost estimation purposes is 900 gpm. This would bring the total extraction rate to 10,920 gpm. The actual extraction rates for the shallow wells would be determined during remedial design.

9.4.2 Treatment

The treatment assumed for Alternative 4 is the same as that described above for Alternative 3 for the intermediate groundwater. The shallow groundwater would be treated for VOC removal by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of liquid-phase carbon adsorption. Other treatment processes could be evaluated during remedial design.

9.4.3 Conveyance and Discharge

Assumptions for the intermediate zone groundwater are the same as described above for Alternative 3. The discharge assumption for the treated shallow groundwater is groundwater recharge through infiltration galleries. If necessary, other discharge options, such as surface water discharge, would be evaluated during remedial design.

9.4.4 Monitoring

The groundwater monitoring program for Alternative 4 would combine the monitoring program described above for Alternative 3 with a program to evaluate the performance of the shallow zone extraction system. To monitor performance of the shallow component of the remedy, installation of four shallow piezometers and two shallow monitoring wells was assumed downgradient of the extraction wells.

10 Comparative Analysis of Alternatives

The four remedial alternatives described in Section 9 are evaluated using the nine Superfund evaluation criteria listed in 40 C.F.R. Section 300.430. The comparative analysis provides the basis for determining which alternative presents the best balance of the criteria. The first two evaluation criteria are considered threshold criteria that the selected remedial action must meet. The five primary balancing criteria are balanced to achieve the best overall solution. The two modifying criteria, state and community acceptance, are also considered in remedy selection.

Threshold Criteria

- **Overall Protection of Human Health and the Environment** addresses whether each alternative provides adequate protection of human health and the environment, and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.

- **Compliance with ARARs** addresses the requirement of Section 121(d) of CERCLA that remedial actions at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4).

Primary Balancing Criteria

- **Long-term Effectiveness and Permanence** refers to the ability of a remedy to maintain reliable protection of human health and the environment over time.

- **Reduction of Toxicity, Mobility, or Volume Through Treatment** refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

- **Short-term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers and the community during construction and operation of the remedy until cleanup goals are achieved.

- **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

- **Cost** evaluates the estimated capital, operation and maintenance (O&M), and indirect costs of each alternative in comparison to other equally protective alternatives.

Modifying Criteria

- **State Acceptance** indicates whether the state agrees with, opposes, or has concerns about the preferred alternative.

- **Community Acceptance** includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose.

This section describes each threshold and primary balancing criterion, evaluates each alternative in relation to each criterion, and identifies advantages and disadvantages among the alternatives in relation to each criterion. Figure 4 presents a comparative matrix in which the four alternatives are ranked for each of the evaluation criterion. The details of how the rankings have been assigned for each criterion are provided below.

10.1 Overall Protection of Human Health and the Environment

The NCP requires that all alternatives be assessed to determine whether they can adequately protect human health and the environment from unacceptable risks from site contamination. These risks can be mitigated by eliminating, reducing, or controlling exposure to hazardous substances, pollutants, or contaminants.

10.1.1 Overall Protection of Human Health and the Environment: Evaluation of Alternatives

Alternatives 1 and 2 provide the least overall protection of human health and the environment. Neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Only the existing groundwater management activities discussed in Section 5.5 would be available to control public exposure to the contaminated groundwater but would not contain the contaminated groundwater. Limitations of Alternative 1 include increased long-term potential for human exposure; leaving the burden of constructing treatment facilities to water purveyors; and increased cost, difficulty, and time required for containment. As long as existing government controls remain in effect, there should be no increase in long-term potential for human exposure with Alternative 2. The burden and cost of constructing required treatment facilities would be borne by the water purveyors. Alternative 2 includes groundwater monitoring that would provide early warning of increases in contaminant concentrations at downgradient drinking water sources. An advantage of Alternatives 1 and 2 is that there are no risks associated with treatment residuals because none are created.

Considered in conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 both satisfy EPA's remedial action objectives and reduce long-term risks to human health and the environment by containing contaminated groundwater and preventing migration from more highly contaminated areas to less contaminated areas. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. The treatment technologies employed by these alternatives are effective at meeting federal and state MCLs. Alternative 4 is ranked higher than Alternative 3 because it includes discrete containment in a portion of the highly-contaminated shallow zone in the South El Monte OU. Alternative 4 extraction also provides additional mass removal in the shallow zone in the OU.

10.2 Compliance with ARARs

This evaluation criterion is also a threshold requirement and is used to determine if each alternative would attain federal and state ARARs, or whether there is adequate justification for invoking waivers for specific ARARs.

10.2.1 Compliance with ARARs: Evaluation of Alternatives

Alternatives 1 and 2 do not meet ARARs. Both alternatives allow for continued migration of contaminants above MCLs into less contaminated and uncontaminated portions of the groundwater.

Alternatives 3 and 4 were designed, in conjunction with EPA's interim remedy for the Whittier Narrows OU, to meet the ARARs described in Section 12 of this ROD. These alternatives provide containment of

contaminated groundwater as well as protection of existing production wells and significant portions of the aquifer that are currently less contaminated or uncontaminated.

10.3 Long-Term Effectiveness

This evaluation criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the magnitude of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For this interim action, untreated waste refers to any contaminated groundwater not removed from the aquifer.

The performance of the alternatives in relation to this criterion is evaluated primarily by estimating the extent to which each alternative prevents the migration of contamination into less contaminated and uncontaminated areas. Preventing or reducing contaminant migration reduces contaminant concentrations in downgradient areas, reducing risk by reducing the likelihood of exposure. Because this is an interim remedy to contain contaminant migration, untreated wastes will remain in the groundwater.

10.3.1 Long-Term Effectiveness and Permanence: Evaluation of Alternatives

Alternatives 1 and 2 are ranked low for this criterion because neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Contaminated groundwater would continue to migrate downgradient. Although natural attenuation processes (adsorption, dilution, dispersion) would likely decrease the concentration of contaminants in the plumes, downgradient water supply wells would be vulnerable to VOC contamination. Alternatives 1 and 2 would not generate any treatment residuals.

In conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 provide containment of contaminated groundwater as indicated by groundwater modeling. Alternatives 4 is assigned a slightly higher ranking than Alternative 3 because Alternative 4 provides supplemental shallow zone source control within the South El Monte OU. Because the Whittier Narrows OU remedy is providing containment at the downgradient boundary of contamination, the benefits of additional shallow zone control in Alternative 4 are more for contaminant removal than migration control. Less contaminated groundwater not contained by the remedial actions in Alternatives 3 and 4 would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural attenuation processes would be verified by groundwater sampling.

In Alternatives 3 and 4 the residual generated from treatment of contaminated groundwater would be spent granular activated carbon. This spent granular activated carbon would be reactivated offsite. The transportation and reactivation of this residual would be conducted in accordance with applicable regulations and would present minimal long-term risks because contaminants adsorbed to the granular activated carbon would be destroyed during the reactivation process.

10.4 Reduction of Toxicity, Mobility, and Volume Through Treatment

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is

used to reduce the principal threats at a site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

This evaluation focuses on the following factors for each remedial alternative:

- Whether the alternative satisfies the statutory preference for treatment as a principal element
- The treatment process employed, including the amount of hazardous materials that will be destroyed or treated and the degree of expected reduction in toxicity, mobility, or volume
- The degree to which treatment is irreversible
- The type and quantity of treatment residuals that will remain following treatment.

10.4.1 Reduction of Toxicity, Mobility, or Volume Through Treatment: Evaluation of Alternatives

Alternatives 1 and 2 do not provide any reduction in toxicity, mobility, or volume over existing conditions and do not satisfy the statutory preference for treatment. Alternatives 3 and 4 satisfy the statutory preference for treatment. These alternatives would significantly reduce the volume and mobility of contamination by inhibiting further contaminant migration. The treatment technologies considered for Alternatives 3 and 4, air stripping with off-gas controls and liquid-phase carbon adsorption, would irreversibly reduce the toxicity and volume of contaminants in the extracted groundwater and result in an effluent stream that meets drinking water standards for VOCs. Alternative 4 would provide greater reduction in the volume of contaminants present in the aquifer, although this increased contaminant removal increases costs substantially. Both treatment technologies would result in the destruction of VOCs when the granular activated carbon is regenerated

10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during the construction and implementation phase until remedial action objectives are met. The following factors are addressed for each alternative:

- **Protection of workers and the community during construction and implementation phases.** This factor qualitatively examines risk that results from implementation of the proposed remedial action and the effectiveness and reliability of protective measures.
- **Environmental Impacts.** This factor addresses the potential adverse environmental impacts that may result from the construction and implementation of an alternative. This factor also evaluates the reliability of the available mitigation measures to prevent or reduce potential impacts.
- **Time until RAOs are achieved.** This factor considers the amount of time required to construct remediation facilities and meet the remedial action objectives.

10.5.1 Short-Term Effectiveness: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because there is no construction or implementation phase and RAOs would not be met. None of the other three alternatives pose unmitigable risks to the community during construction and implementation. Nor do any of the alternatives pose unmitigable risks to workers beyond general construction hazards associated with large construction projects. No

unmitigable negative environmental impacts are anticipated in the areas in which facilities would be constructed.

For Alternative 2, the RAOs would not be met as long as contaminant migration continues, which would likely be a considerable length of time. For Alternatives 3 and 4, in conjunction with operation of the Whittier Narrows OU remedy, the RAOs are met as soon as the groundwater extraction and treatment components begin operation and establish hydraulic control.

10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation. The following factors are considered:

Technical Feasibility

- Ability to construct and operate: addresses any technical difficulties and unknowns associated with construction or operation of the technology
- Reliability of technology: focuses on the likelihood that technical problems associated with implementation will lead to schedule delays
- Ease of undertaking additional remedial action: includes a discussion of what, if any, future remedial actions may need to be undertaken and how the remedial action would interfere with, or facilitate, the implementation of future actions

Administrative Feasibility

- Coordination with other agencies, including the need for agreements with parties other than EPA required for construction and operation of the remedy.
- Availability of necessary equipment, specialists, and provisions to assure any necessary resources
- Availability of services and materials, plus the potential for obtaining competitive bids

10.6.1 Implementability: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because no action is implemented. As described above, the implementability evaluation incorporates several factors. Each of these is discussed separately in the following text.

Technical Feasibility: Ability to Construct and Operate. The extraction, treatment, and conveyance technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternatives 2 through 4 are widely used. No significant difficulties are expected in construction and operation of these technologies.

Technical Feasibility: Reliability of Technology. The extraction, treatment, conveyance, and monitoring technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternative 2 are generally proven and known to be reliable.

Technical Feasibility: Ease of Undertaking Additional Remedial Actions. The alternatives would not interfere with the implementation of future response actions to further contain contamination or restore groundwater in the South El Monte OU area.

Administrative Feasibility. There are not likely to be any significant administrative feasibility issues associated with implementation of Alternative 2, other than obtaining access agreements for monitoring well installation. Implementation of Alternatives 3 and 4 would require acquisition of property and/or easements for the construction of extraction wells, treatment facilities, and conveyance facilities. In addition, implementing Alternatives 3 and 4 would require resolution of the following administrative issues associated with groundwater extraction and discharge of treated water to local water purveyors or to the Rio Hondo:

- Agreements may need to be made with the Watermaster or with a water purveyor to account for extraction from the basin by the parties implementing the selected remedy because these parties may not have water rights.
- An agreement with the Watermaster may be required regarding the potential need to pay replacement water fees for treated water discharged to the Rio Hondo, if the discharged water does not recharge within the Main San Gabriel Valley basin..
- Agreements would need to be reached with water purveyors that would receive treated water from the groundwater treatment facilities. These agreements will need to address the amount of water each purveyor would accept, the treated water delivery location, responsibility for any necessary capital improvements to purveyor systems, and other operational, liability, and financial arrangements.
- Water purveyors would need to obtain approval for modifications to their water supply permits.
- If treated water is discharged to the Rio Hondo, RWQCB Basin Plan water quality objectives for Rio Hondo would need to be addressed. If the discharge exceeds Basin Plan inorganic water quality objectives, it may be necessary to conduct an evaluation of the impact of the discharge on downgradient surface water and groundwater, as well as an evaluation of reuse alternatives for the VOC-treated groundwater. If water quality impacts are minimal and reuse alternatives infeasible, the discharge may be allowed.

Availability of Services and Materials. Implementation of Alternatives 3 and 4 would require fabrication of treatment plant equipment. Required services and materials are believed to be available, including qualified contractors for construction and operation of the necessary facilities.

Alternative 2 is assigned a higher ranking in Figure 4 because there are no significant issues that could impact implementability of this monitoring-only alternative. Alternatives 3 and 4 are ranked lower because of the administrative issues associated with groundwater extraction and treated water discharge.

10.7 Cost

This criterion addresses the total cost of each alternative. This includes short-term and long-term costs, and capital and O&M costs. The following cost elements are considered for each alternative:

- **Capital Cost.** Direct capital cost includes the cost of construction, labor, equipment, land, site development, and service. Indirect capital cost includes engineering fees, license and permit cost, startup and shakedown costs, and contingencies.
- **O&M Cost.** Annual O&M cost includes operating labor cost, maintenance materials and labor, pumping and treatment energy costs, monitoring costs, and all other post-construction costs necessary to ensure continuous effective operation of the alternative.

- **Total Present Worth.** The total present worth of each alternative is calculated at a discount rate of 7 percent and a time period of 30 years. Total present worth for each alternative includes capital cost plus the present worth of the annual O&M costs.

The cost estimates are considered order-of-magnitude level estimates (i.e., the cost estimates have an expected accuracy of +50 to -30 percent). The assumption of a 30-year operating period is based on EPA guidance and does not reflect any specific finding regarding the duration of the selected remedy.

10.7.1 Cost: Evaluation of Alternatives

Although there is no cost presented for the no-action alternative (Alternative 1), there have been and would continue to be substantial financial impacts on local water purveyors or their rate payers because of the continued migration of contamination to their production wells. Table 5 summarizes the estimated costs for Alternatives 2 through 4.

10.7.2 Cost: Comparison of Alternatives

Table 5 compares the cost of each alternative for capital costs, long-term O&M costs, and present worth. The short-term capital costs range from $450,000 for Alternative 2 to $6,292,000 for Alternative 4. The annual O&M costs range from $90,000 for Alternative 2 to $1,130,000 for Alternative 4. The present worth costs range from $1,540,000 for Alternative 2 to $18,109,000 for Alternative 4. Table 5 presents two costs, assuming use of either new or existing facilities. The costs for Alternatives 3 and 4 are higher than those presented in the FS because of the facilities associated with the additional western extraction included in the modified Alternative 3 (as described in Section 14).

10.8 State Acceptance

The State of California has provided comments and feedback to EPA throughout the RI/FS process for the South El Monte OU. In a letter dated September 25, 2000, the California Department of Toxic Substance Control (DTSC), as lead agency for the state, concurred with EPA's selected remedy. In addition, the RWQCB concurred with EPA's selected remedy in a letter dated September 12, 2000.

10.9 Community Acceptance

EPA received written comments on the Proposed Plan from numerous individuals, representatives of PRP companies, and other local stakeholders. EPA responded directly to the oral questions at the public meeting held in October 1999. All of the written comments received during the 60-day public comment period, along with EPA's responses to them, are presented in the Responsiveness Summary in Part III of this ROD. The transcript for the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

Several of the commenters stated their preference for Alternative 4 rather than EPA's preferred Alternative 3. However, by far the majority of the comments submitted to EPA expressed support for EPA's selection of Alternative 3. EPA does not believe that the additional contaminant removal provided by the Alternative 4 shallow zone source control justify the additional costs of this alternative. EPA's conclusion is that Alternative 3 (the preferred alternative) represents the most appropriate interim remedy for the South El Monte OU. None of the comments received warranted a change to the proposed remedy.

11 Selected Remedy

After considering CERCLA's statutory requirements, the detailed comparison of the alternatives using the nine evaluation criteria, and public comments, EPA, in consultation with the State of California, has determined that the most appropriate remedy for this site is Alternative 3: intermediate zone control in western South El Monte OU. As described in Section 14 - Documentation of Significant Changes, the selected remedy is a slightly modified version of Alternative 3 presented in the FS and Proposed Plan. The performance standards and basic components of the selected remedy match those presented in the Proposed Plan and FS for Alternative 3, however, more facilities (e.g., extraction wells and treatment plants) will be required and the associated costs will be higher than previously assumed.

Summary of Rationale for the Selected Remedy

Alternatives 1 and 2 provide the least overall protection of human health and the environment and do not fully comply with State and Federal requirements (ARARs). Considered in conjunction with EPA's Whittier Narrows OU remedy, Alternatives 3 and 4 both satisfy the remedial action objectives and satisfactorily meet the threshold criteria of overall protection of human health and the environment and compliance with State and Federal requirements. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. Because the Whittier Narrows OU remedy will provide containment at the southern boundary of the contamination, the benefit of the additional shallow zone control provided by Alternative 4 would be to enhance mass removal, rather than migration control. However, Alternative 4 costs much more than Alternative 3 (see Table 5). For this containment remedy, EPA does not believe that additional mass removal benefits provided from the Alternative 4 shallow zone source control justify the additional cost.

The selected remedy, Alternative 3, meets the two Superfund threshold evaluation criteria, overall protection of human health and the environment and compliance with ARARs, and provides the best balance of the remaining Superfund evaluation criteria. EPA expects that this interim remedy will provide the basis for the final remedy for the South El Monte OU.

The selected remedy is an interim action and is focused on controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions. Additional actions may also be required if facility-specific cleanup or source control actions in the South El Monte OU are not progressing as expected.

11.1 Description of the Selected Remedy

The selected remedy will be implemented using a performance-based approach. The performance-based approach specifies criteria ("performance criteria") that must be met while allowing flexibility in implementation. The performance criteria described below are designed to attain the RAOs for the South El Monte OU.

The selected remedy addresses the intermediate zone groundwater contamination present in the north-western half of the South El Monte OU. For purposes of describing the remedy, this contamination has been separated into two areas: 1) the central area of intermediate zone contamination and 2) the western area of intermediate zone contamination.

The central area of intermediate zone contamination refers to the contamination located in the vicinity of Monterey Park's (MP) production wells 12 and 15 (planned) and the San Gabriel Valley Water Company (SGVWC) Plant 8 wells (8A through 8F). Figures 3 and 5 show the intermediate zone contamination and the locations of these production wells in this area. This area contains the contamination that the original version of Alternative No. 3, presented in the FS and the Proposed Plan, was designed to contain.

The western area of intermediate zone groundwater contamination refers to the recently discovered intermediate zone contamination downgradient (west) of Monterey Park well No.12 in the vicinity of the Southern California Water Company (SCWC) wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1 and additional Monterey Park wells 1, 3, 5, 6, 10 and Fern. Figures 3 and 5 show the intermediate zone contamination and the locations of the production wells in this area.

11.1.1 Performance Criteria for the Intermediate Zone

***The remedial action shall provide sufficient hydraulic control to prevent migration of intermediate zone groundwater contaminated above chemical-specific ARARs into or beyond the Central Containment Area and into or beyond the Western Containment Area* (defined in Section 11.1.3.2).**

Compliance with this criterion will be verified through monitoring of compliance wells for two parameters: hydraulic control and chemical specific ARARs. Wells to be used for monitoring compliance with chemical-specific criteria should be completed with screen lengths of 20 feet or less within the intermediate zone. Larger screened intervals may be appropriate for wells used to monitor compliance with hydraulic control requirements.

The remedial action must create inward hydraulic gradients at each of the Containment Areas. These hydraulic gradients must be sufficient to demonstrate that contaminated groundwater is captured by the extraction wells under all flow conditions (e.g., during both wet and dry periods in the hydrologic cycle).

Implementation of the remedial action cannot result in any adverse effects (i.e., increases in migration of contamination) to production wells that are not part of the remedial action. In addition, the remedial action must provide the required capture of contamination above chemical-specific ARARs without relying on the effects of wells that are not part of the remedial action.

Extracted intermediate zone groundwater will be treated by air stripping (with off-gas controls) or liquid-phase carbon adsorption. If alternative treatment technologies are identified, EPA will evaluate the alternative in accordance with the criteria specified in 40 C.F.R. Section 300.430 during remedial design.

11.1.2 Compliance with Performance Criteria

Compliance with the performance criteria will be confirmed by quarterly sampling and water level monitoring at compliance wells. In the future, if monitoring data demonstrate that the performance criteria are unlikely to be violated in the short term, monitoring intervals may be lengthened. If it appears, based on trends in monitoring data, that the performance criteria are close to being violated, monitoring intervals may be shortened.

In the Central Containment Area, compliance with the performance criteria will initially be determined through monitoring of hydraulic gradients. After hydraulic containment has been achieved and contaminant concentrations downgradient from extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs at downgradient wells.

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. Contaminant concentrations in downgradient compliance wells must meet chemical-specific criteria at all times.

In both Containment Areas, EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the chemical-specific compliance wells to provide a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance, but close enough to ensure that groundwater contamination is being contained. Imminent exceedance of the performance criteria at compliance wells indicates that groundwater contamination is continuing to migrate and improved hydraulic containment is required. Additional requirements for compliance wells are included in Section 11.1.3.4.

11.1.3 Supplemental Explanation of Performance Criteria

The following paragraphs provide additional explanation of the performance criteria.

11.1.3.1 The "Intermediate" Zone

The "intermediate" zone is a term intended to describe a general horizon within the aquifer underlying the South El Monte OU. During the course of the RI and development of the FS, the complex stratigraphy was simplified with generalizing assumptions about vertical intervals that appear to have similar characteristics throughout the area. However, actual subsurface conditions are not accurately described by terms that imply a consistent, well-layered system. The alluvial materials that underlie the South El Monte OU are heterogeneous and are made up of interfingering lenses of variable hydraulic properties.

The intermediate zone encompasses the coarser interval of the aquifer found beneath the shallow zone and the separating sequence. The shallow zone and separating sequence generally extend across the upper 200 feet of the subsurface, plus or minus 50 feet. The separating sequence is comprised of finer-grained materials that limit the vertical movement of groundwater between the shallow zone and intermediate zone. The intermediate zone is used extensively for groundwater production and generally extends across the first 200 to 300 feet of the aquifer beneath the separating sequence. In the context of this remedy, the intermediate zone extends to the deepest depths where groundwater contamination exceeds chemical-specific ARARs. In general, this is the upper 450 feet below ground surface. However, there may be isolated exceedances deeper in the aquifer. The terms shallow zone, separating sequence and intermediate zone are used in a manner consistent with their usage in the South El Monte OU Final Remedial Investigation and Feasibility Study Reports (Geosystem Consultants, 1998 and 1999, respectively).

11.1.3.2 Central and Western Containment Areas

The Central Containment Area includes production wells owned by the City of Monterey Park and the San Gabriel Valley Water Company. Intermediate zone groundwater contamination currently extends into and beyond the Central Containment Area. EPA's objective in this portion of the intermediate zone is to ensure that contamination is contained within the Central Containment Area. For purposes of this remedial action, the Central Containment Area is defined as: (1) the area encompassed by five Monterey Park wells (Nos. 7, 8, 9, 12, and 15 (planned)) and six San Gabriel Valley Water Company Plant 8 wells (Nos. 8A, 8B, 8C, 8D, 8E, 8F), and (2) the intermediate zone groundwater contaminated above ARARs that is present within 1,500 feet downgradient of these wells. The remedial action must contain all intermediate zone groundwater contamination that is migrating into the Central Containment Area.

The Western Containment Area contains production wells owned by the City of Monterey Park and Southern California Water Company. Intermediate zone groundwater contamination currently extends into the Western Containment Area. EPA's objective in this portion of the intermediate zone is to ensure that contamination does not migrate beyond the Western Containment Area. For the purposes of this remedial action, the Western Containment Area is defined as: (1) the area encompassed by the five Southern California Water Company wells (wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1) and six Monterey Park wells (wells 1, 3, 5, 6, 10, and Fern), and (2) the extent of intermediate zone

groundwater contamination above ARARs in the vicinity of these wells. The remedial action must not allow intermediate zone groundwater contamination to spread beyond its current extent.

There are two approaches that appear to meet the performance criteria for each of the Containment Areas. The first relies exclusively on installation of new extraction wells upgradient of the existing production wells. These new wells would have to provide sufficient hydraulic control to capture contamination before it migrates into the production field. Under this scenario, compliance with the performance criteria will be determined at, or upgradient from, the production wells.

The second approach incorporates the production wells into the remedial action. If this second approach is used, it must be demonstrated that pumping from the production wells alone, or in combination with new wells, provides sufficient hydraulic control to meet the performance criteria. For the production wells to be considered as part of the remedial action, the responsible parties will have to provide assurances that the wells will operate in a manner that will ensure compliance with the performance criteria.

11.1.3.3 Compliance Wells

For any remedial approach, compliance will be monitored at wells located downgradient of each Containment Area. If a new extraction system is used in either Containment Area, compliance wells will also be placed at, or upgradient from, that Containment Area's production wells.

Compliance wells in the intermediate zone will be located within 2,000 feet of the area where extraction is occurring. Compliance well screens will generally be 20 feet or less. Concentrations in wells can vary as a function of screen length because of blending. Therefore, wells with screens longer than 20 feet are not generally considered appropriate for monitoring compliance with chemical-specific standards. However, longer screened intervals may be appropriate for wells used strictly to evaluate compliance with hydraulic control requirements.

Central Containment Area

In the Central Containment Area, compliance with performance criteria will initially be determined through monitoring of hydraulic gradients. Compliance wells will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Water quality data from these wells will also be used to confirm that hydraulic control requirements are being met. After hydraulic containment has been achieved and contaminant concentrations downgradient from the extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs. Wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs.

Western Containment Area

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. As with the Central Containment Area, wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs. Wells used to monitor hydraulic control will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Compliance wells must be sufficient in number and adequately located to ensure that contamination above ARARs does not migrate beyond the Western Containment Area.

11.1.3.4 Adverse Effects

The term "adverse effects" is included in the performance criteria to prevent the design and installation of a hydraulic control system that maintains concentrations at compliance wells below specified thresholds at the expense of production wells that are not part of the remedy. The principal adverse effect of concern is implementation of the remedial action in a manner that results in increased contaminant concentrations in existing production wells that are not part of the remedial action. This requirement

prevents, for example, the installation of new extraction wells immediately upgradient of the compliance wells and downgradient of production wells that are not part of the remedial action. The hydraulic control system must be protective of the environment and not result in adverse effects on production wells or allow continued spread of groundwater contamination.

11.2 Summary of the Estimated Remedy Costs

A detailed breakdown of the estimated capital, operating and maintenance (O&M), and present worth costs associated with the selected remedy is included in Table 7. The specific facilities assumed for estimating the costs of each of the remedy components are as follows (the actual number, size and location of facilities will be determined during remedial design):

- Groundwater Extraction- Installation of three new extraction wells in the Central Containment Area and three new extraction wells in the Western Containment Area to provide containment. An average total extraction rate of 10,000 gpm is assumed.
- Groundwater Treatment- Installation of wellhead treatment facilities at four locations (two in the Central Containment Area and two in the Western Containment Area). These facilities consist of air strippers with VGAC treatment of the off-gas. Treatment is assumed to remove contaminant concentrations to less than 50% of the chemical-specific criteria.
- End Use of Treated Groundwater- Conveyance pipelines to existing water purveyor facilities in the Central Containment Area and the Western Containment Area.
- Groundwater Monitoring- Installation of two additional multiport monitoring wells and implementation of a long-term monitoring program.

The present worth cost estimates assume a 7 percent (%) discount rate and a 30 year project duration. These cost estimates are expected to be accurate within +50 to –30%. The total estimated capital costs are $5.88 million. The estimated annual O&M costs are $0.84 million and the total present worth cost estimate is $14.1 million. These costs assume land acquisition and installation of new facilities. However, there are also existing water purveyor facilities, including land, pumps, wells, and pipelines, that could be incorporated into the remedy. If agreements can be reached to use these existing facilities in place of installing new facilities, the estimated capital costs (and the present worth cost) of the remedy would go down by approximately $2.22 million. Under this scenario, the total estimated capital costs are $3.66 million, and the estimated present worth cost of the remedy is $11.9 million.

These cost estimates assume that the treated water is delivered to water purveyors and that these purveyors pay $45 per acre-foot for the water they receive. This reimbursement rate is an estimate of the purveyor's "avoided cost" of pumping the water from the ground and pressurizing it for delivery to their distribution system. Incorporating this reimbursement rate into the estimate of annual O&M reduces the estimated annual O&M costs by $0.73 million. If the necessary agreements cannot be reached to deliver water to purveyors, annual O&M costs would increase by $0.73 million.

The cost estimates also assume that the containment systems in the Western Containment Area would not need to operate as long as the systems in the Central Containment Area. The Central Containment Area cost estimate assumes an operating life of 30 years. Based on the groundwater modeling evaluations described in Section 14, it is assumed that one of the systems in the Western Containment Area would operate for 10 years and the other one for 5 years. However, it is difficult to predict the actual length of time that these systems will need to operate. If both systems only operated for 5 years, the total present worth cost estimate would drop to $13.7 million. If both systems had to operate for as long as 15 years, the present worth cost estimate would increase to $15.3 million.

11.3 Expected Outcomes of the Selected Remedy

Once implemented, this remedy will protect the existing beneficial uses of the currently uncontaminated aquifer downgradient of the compliance wells. The remedy will allow for continued use of the downgradient areas as a source of drinking water supply. It will also ensure that existing and planned production wells in the Central and Western Containment areas of the OU are protected.

Because the interim remedial action selected in this ROD is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of aquifer (both the shallow and intermediate zones) upgradient of the compliance wells and associated extraction systems is expected to remain contaminated and unusable for a considerable length of time.

12 Applicable or Relevant and Appropriate Requirements (ARARs)

Section 121(d) of CERCLA, 42 U.S.C. § 9621(d) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. These applicable or relevant and appropriate requirements are referred to as "ARARs." Federal ARARs may include requirements promulgated under any federal environmental laws. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than federal requirements and that are identified by the state in a timely manner.

An ARAR may be either "applicable," or "relevant and appropriate," but not both. If there is no specific federal or state ARAR for a particular chemical or remedial action, or if the existing ARARs are not considered sufficiently protective, then other guidance or criteria to be considered (TBCs) may be identified and used to ensure the protection of public health and the environment. The NCP, 40 C.F.R. Part 300, defines "applicable," "relevant and appropriate," and "to be considered" as follows:

- **Applicable requirements** are those cleanup standards, standards of control, or other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

- **Relevant and appropriate requirements** are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.

- **TBCs** consist of advisories, criteria, or guidance that EPA, other federal agencies, or states developed that may be useful in developing CERCLA remedies. The TBC values and guidelines may be used as EPA deems appropriate.

ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements, and pertain only to onsite activities. Offsite activities must comply with all applicable federal, state, and local laws, including both substantive and administrative requirements, that are in effect when the activity takes place. There are three general categories of ARARs:

- **Chemical-specific** ARARs are health- or risk-based concentration limits, numerical values, or methodologies for various environmental media (i.e., groundwater, surface water, air, and soil) that are established for a specific chemical that may be present in a specific media at the site, or that may be discharged to the site during remedial activities. These ARARs set limits on concentrations of specific hazardous substances, pollutants, and contaminants in the environment. Examples of this type of ARAR include state and federal drinking water standards.

- **Location-specific** ARARs set restrictions on certain types of activities based on site characteristics. Federal and state location-specific ARARs are restrictions placed on the concentration of a contaminant or the activities to be conducted because they are in a specific location. Examples of special locations possibly requiring ARARs may include flood plains, wetlands, historic places, and sensitive ecosystems or habitats.

- **Action-specific** ARARs are technology- or activity-based requirements that are triggered by the type of remedial activities under consideration. Examples of this type of ARAR are RCRA regulations for waste treatment, storage, or disposal.

EPA has evaluated and identified the ARARs for the selected remedy in accordance with CERCLA, the NCP, and EPA guidance, including the CERCLA Compliance with Other Laws Manual, Part I (Interim Final), OSWER Directive 9234.1-01 (EPA, 1988a) and CERCLA Compliance with Other Laws Manual, Part II, OSWER Directive 9234.1-02 (EPA, 1989).

12.1 Chemical-Specific ARARs

The chemicals of potential concern for the South El Monte OU are compounds that have been detected in groundwater in the South El Monte OU. Table 6 lists these compounds and their chemical-specific ARARs.

12.1.1 Federal Drinking Water Standards

EPA has established MCLs, 40 C.F.R. Part 141, under the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f-j, to protect public health from contaminants that may be found in drinking water sources. MCLs are applicable at the tap for water that is delivered directly to 25 or more people or to 15 or more service connections.

Under the SDWA, EPA has also designated Maximum Contaminant Level Goals (MCLGs), 40 C.F.R. Part 141, which are health-based goals that may be more stringent than MCLs. MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects would occur. MCLGs greater than zero are relevant and appropriate where multiple contaminants in groundwater or multiple pathways of exposure present unacceptable health risks (EPA, 1988b). One chemical detected in the South El Monte OU groundwater, 1,1,2-trichloroethane, has a non-zero MCLG that is more stringent than its MCL.

Under Section 300.430(f)(5) of the NCP, remedial actions must generally attain MCLs and nonzero MCLGs if the contaminated water is a current or potential source of drinking water. The 1995 Water Quality Control Plan for the Los Angeles Region (Basin Plan) designates all of the contaminated groundwater in the South El Monte OU as current and potential sources of drinking water. However, since this ROD selects an interim remedial action to contain contaminant migration, no final cleanup standards are established for the restoration of groundwater. Final cleanup standards will be established in a Final ROD. For this Interim ROD, EPA has determined that the federal MCLs and nonzero MCLGs listed in Table 6 are ARARs for any groundwater that is extracted and used for domestic, municipal, industrial, or agricultural purposes, and for any groundwater that is discharged to the environment. In addition, these MCLs and MCLGs are ARARs for currently uncontaminated groundwater in the intermediate zone downgradient of the existing compliance wells established by the remedial action (EPA, 1988a).

If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water in existence at the time that the water is served will have to be met because EPA considers the service of water to the public to be an offsite activity.

12.1.2 California Drinking Water Standards

California has established state MCLs for sources of public drinking water, under the California Safe Drinking Water Act of 1976, Health and Safety Code (H&SC) §§ 4010.1 and 4026(c), California Code of Regulations (CCR) Title 22, §§ 64431 and 64444. Some state MCLs are more stringent than the corresponding federal MCLs. EPA has determined that the more stringent state MCLs are relevant and appropriate for the South El Monte OU. There are also some chemicals that lack federal MCLs. Where state MCLs exist for chemicals that lack federal MCLs, EPA has determined that the state MCLs are relevant and appropriate for the South El Monte OU. State MCLs apply to remedial actions in the South El Monte OU in the same manner as federal MCLs. Table 6 identifies the state MCLs that are ARARs for this remedial action.

If contaminants not listed in Table 6 are detected during implementation of the remedy, their state or federal MCLs (or non-zero MCLGs), whichever is lower, shall be ARARs for containment and treatment of the groundwater. If a contaminant is detected that does not have established MCLs or MCLGs (e.g., 1,4-dioxane), EPA will evaluate available standards and information, such as California Department of Health Services drinking water action levels, to identify a relevant and appropriate standard for the contaminant.

12.2 Location-Specific ARARs

This ROD specifies performance criteria for the remedy. As such, the locations of remediation facilities (e.g., wells, treatment plants, and pipelines) are not specifically identified herein. Locations of remediation facilities will be determined during the remedial design, and will conform to the location-specific ARARs identified below.

12.2.1 Location Standards for TSD Facilities

California Code of Regulations, Title 22, Section 66264.18 establishes location standards for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs). Subsection 66264.18(a) prohibits the placement of TSDFs within 200 feet of a fault displaced during the Holocene epoch. Subsection 66264.18(b) requires that TSDFs located within a 100-year flood plain be capable of withstanding a 100-year flood. These standards are applicable to the construction of any new groundwater extraction and treatment facilities used as part of this remedial action.

12.2.2 Endangered Species Act

The Endangered Species Act, 15 U.S.C. §§ 1531-1544, and implementing regulations, 40 C.F.R. § 6.302(h), 50 C.F.R. Parts 17, 222 and 402, are applicable to any remedial actions that impact a proposed or listed threatened or endangered species or destroy or adversely modify the critical habitat of a listed species. No endangered species are known or suspected to occur in the locations where remedial action facilities might be constructed. If, however, it appears during the implementation of the remedial action that construction activities or the discharge of treated groundwater might adversely affect a proposed or listed species, EPA will consult with the U.S. Fish and Wildlife Service (FWS) in accordance with 50 C.F.R. Part 402 and ensure that regulatory requirements are followed so that adverse impacts are avoided or mitigated.

12.2.3 California Fish and Game Code

California Fish and Game Code sections 2080, 5650(a), (b), and (f), 12015, and 12016 prohibit the discharge of harmful quantities of hazardous materials into places that may deleteriously affect fish, wildlife, or plant life. These provisions are applicable if the remedial action will result in the discharge of treated groundwater to surface waters.

12.2.4 National Historic Preservation Act

The National Historic Preservation Act and implementing regulations (16 U.S.C. § 470, 40 C.F.R. Part 6.301(b), 36 C.F.R. Part 800) require federal agencies or federal projects to take into account the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in, or eligible for, the Register of Historic Places. If remedial action is likely to have an adverse effect on any cultural resources that are on or near the South El Monte OU, EPA will examine whether feasible alternatives exist that would avoid such effects. If effects cannot reasonably be avoided, measures will be implemented to minimize or mitigate the potential effect.

No cultural resources are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review of all impacted areas will be made.

12.2.5 Archaeological and Historic Preservation Act

This statute and implementing regulations, 16 U.S.C. § 469, 40 C.F.R. Part 6.301(c), establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program. No sites of historical interest are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review will be made of impacted areas.

12.2.6 Historic Sites, Buildings, and Antiquities Act

The Historic Sites, Buildings, and Antiquities Act, 16 U.S.C. §§ 461-467, 40 C.F.R. Part 6.301(a), requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks. The remedial action is not anticipated to affect any of the facilities regulated under the act. However, during preliminary design, a complete review will be made of impacted areas.

12.3 Action-Specific ARARs

12.3.1 Local Air Quality Management

One VOC treatment technology that may be used is air stripping. Air emissions from air strippers are regulated by the California Air Resources Board, which implements the federal Clean Air Act (CAA), as well as the air pollution control requirements of the California H&SC, through local air quality management districts. Local districts may impose additional regulations to address local air emission concerns. The local air district for the South El Monte OU is the South Coast Air Quality Management District (SCAQMD). The SCAQMD has adopted several rules that are ARARs for air stripper emissions and construction activities.

SCAQMD Regulation XIII, comprising Rules 1301 through 1313, establishes new source review requirements. Rule 1303 requires that all new sources of air pollution in the district use best available control technology (BACT) and meet appropriate offset requirements. Emissions offsets are required for all new sources that emit in excess of one pound per day.

SCAQMD Rule 1401 requires that best available control technology for toxics (T-BACT) be employed for new stationary operating equipment, so that the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of 10 in 1 million (1 x 10-5). Many of the contaminants found in the South El Monte OU groundwater are air toxics subject to Rule 1401.

SCAQMD Rules 401 through 403 are also ARARs for construction and operation of remedial action facilities. SCAQMD Rule 401 limits visible emissions from a point source. Rule 402 prohibits discharge

of material that is odorous or causes injury, nuisance, or annoyance to the public. Rule 403 limits downwind particulate concentrations.

12.3.2 Federal Clean Water Act and California Porter-Cologne Water Quality Act

California's Porter-Cologne Water Quality Act incorporates the requirements of the federal Clean Water Act (CWA) and implements additional standards and requirements for surface and groundwaters of the state.

12.3.2.1 Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The RWQCB formulates and enforces water quality standards through a Basin Plan. The Basin Plan identifies the beneficial uses of surface and groundwaters in the San Gabriel River watershed and establishes water quality objectives necessary to protect these beneficial uses. Water quality objectives impose limitations on receiving waters, rather than discharges, and are applicable to any water body that receives discharge from remedial activities in the South El Monte OU.

The selected remedial action could result in the discharge of treated groundwater to the Rio Hondo. Table 2-1 of the Basin Plan identifies the following beneficial uses for the Rio Hondo above the Rio Hondo Spreading Grounds:

- Municipal and domestic supply (potential beneficial use)
- Groundwater recharge (intermittent beneficial use)
- Water contact recreation (intermittent beneficial use)
- Noncontact water recreation (existing beneficial use)
- Warm freshwater habitat (potential/intermittent beneficial use)
- Wildlife habitat (existing beneficial use)

Because municipal and domestic water supply is a potential beneficial use of these surface waters, Federal and State MCLs and MCLGs are water quality objectives for the Rio Hondo, except where the California Toxics Rule, 33 U.S.C. § 131.38 (below) imposes more stringent criteria. In addition, the following water quality objectives from the Basin Plan are ARARs for the Rio Hondo in the SEMOU vicinity:

- Total Dissolved Solids: 750 mg/L
- Sulfate: 300 mg/L
- Chloride: 150 mg/L
- Boron: 1.0 mg/L
- Nitrogen (NO_3-N + NO_2-N): 8 mg/L

The Basin Plan also establishes water quality objectives for groundwater in the Main San Gabriel Basin (Table 3-10). These water quality objectives are applicable as water quality objectives if the remedial action will result in a discharge that impacts groundwater.

12.3.2.2 California Toxics Rule

In May 2000, EPA established numeric criteria for priority toxic pollutants in California surface waters. As amended, 33 U.S.C. § 131.38 establishes water quality criteria for 126 pollutants, including many of the VOCs found in groundwater at the South El Monte OU. If it is determind that the remedial action will discharge treated groundwater to the Rio Hondo, EPA will use these water quality criteria to develop water quality-based effluent limitations for the discharge.

12.3.2.3 State Water Resources Control Board Resolution 68-16

The Basin Plan also incorporates the State Water Resources Control Board (SWRCB) policy "Statement of Policy with Respect to Maintaining High Water Quality in California" (Resolution 68-16). Resolution 68-16 requires that existing water quality be maintained unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than prescribed by other state policies. Any activity that may increase the volume or concentration of a waste discharged to surface or groundwater is required to use the "best practicable treatment or control."

Resolution 68-16 is applicable to discharges of treated groundwater. If treated water is to be discharged to the Rio Hondo, the RWQCB may require an evaluation of the potential impact of nitrate and TDS contained in treated groundwater on receiving waters and investigate alternative discharge options. If water quality impacts are minimal and alternative discharge options infeasible, the RWQCB may allow the discharge to the Rio Hondo.

12.3.2.4 State Water Resources Control Board Resolution 92-49

Subsection III.G of the SWRCB's "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304" (Resolution 92-49) requires attainment of background water quality or, if background levels cannot be restored, the best quality of water that is reasonable. Resolution 92-49 is not an ARAR because this is an interim remedial action to contain the spread of contamination, rather than a final action to restore groundwater in the South El Monte OU.

12.3.2.5 Standards Applicable to CERCLA Section 104(b) Discharges to Surface Waters

Site investigation activities undertaken pursuant to CERCLA § 104(b) are considered to be removal actions. It is EPA policy that removal actions "comply with ARARs to the extent practicable, considering the exigencies of the circumstances." (55 Fed. Reg. 8756).

It is possible that certain site investigation activities will take place during remedial design, which will result in temporary high-flow, high-volume discharges of contaminated groundwater (e.g., discharges from aquifer testing of extraction wells). EPA has considered the best available technology economically achievable (BAT) for treatment and disposal of these discharges. The three disposal options that EPA considered are: (1) onsite storage and disposal at a Resource Conservation and Recovery Act (RCRA)-approved hazardous waste facility, (2) discharge to a sanitary sewer for treatment at a wastewater treatment plant, and (3) onsite treatment and discharge to surface water channels. EPA has concluded that compliance with chemical-specific ARARs is not practicable, considering the exigencies of the circumstances, for many temporary high-flow, high-volume discharges.

EPA has determined that compliance with chemical-specific ARARs is practicable and necessary for CERCLA § 104(b) activities that do not result in temporary high-flow, high-volume discharges. EPA will determine the application of chemical-specific ARARs to CERCLA § 104(b) activities on a case-by-case basis. Where practicable, these discharges must comply with ARARs.

12.3.3 California Hazardous Waste Management Program

The federal RCRA establishes requirements for the management and disposal of hazardous wastes. In lieu of the federal RCRA program, the State of California is authorized to enforce its Hazardous Waste Control Act, and implement regulations (CCR Title 22, Division 4.5), subject to the authority retained by EPA in accordance with the Hazardous and Solid Waste Amendments of 1984 (HSWA). California is responsible for permitting treatment, storage, and disposal facilities within its borders and carrying out

other aspects of the RCRA program. Some of the Title 22 regulations are applicable to the generation and disposal of hazardous wastes in the South El Monte OU.

12.3.3.1 Hazardous Waste Generator Requirements

CCR Title 22 establishes requirements applicable to generators of hazardous waste. Implementation of the remedial action may generate hazardous waste as a result of ground-water monitoring and well installation (e.g., contaminated soil and groundwater and used personal protective equipment). Hazardous waste may also be generated as a result of ground-water treatment to remove VOCs (e.g., spent carbon). These requirements are applicable to remedial actions in the South El Monte OU.

The preamble to the NCP clarifies that when noncontiguous facilities are treated as one site, the movement of hazardous waste from one facility to another is subject to RCRA manifest requirements (55 Fed. Reg. 8691). Manifest requirements are ARARs in the event that the remedial action involve multiple water treatment units at different locations and require the movement of hazardous wastes (e.g., spent carbon) between these locations.

12.3.3.2 Land Disposal Restrictions

CCR Title 22 defines hazardous wastes that cannot be disposed of to land without treatment. Land disposal requirements are applicable to the disposal of spent carbon generated during the treatment of groundwater for removal of VOCs, if carbon adsorption is used, and the disposal of residuals associated with groundwater monitoring and well installation (e.g., contaminated soil and groundwater, used personal protective equipment).

12.3.3.3 Hazardous Waste TSD Facility Requirements

CCR Title 22, Division 4.5, Chapter 14, specifies Hazardous Waste TSDF requirements that regulate the design, construction, operation, and closure of RCRA-permitted TSDFs. Since the contaminated groundwater is sufficiently similar to RCRA hazardous wastes, Title 22 TSDF requirements are relevant and appropriate for the design, construction, operation, and closure of any ground-water treatment systems. The Title 22 ARARs include the substantive requirements of the following provisions:

- Section 66264.14: Security Requirements
- Section 66264.25: Seismic and Precipitation Standards
- Section 66264.94: Groundwater Protection Standards
- Sections 66264.111-115: Closure of Treatment Units
- Sections 66264.170-178: Use and Management of Containers
- Sections 66264.600-603: Standards for Miscellaneous Treatment Units

12.4 ARARs Waivers

This interim remedial action shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining onsite. These ARARs will be addressed in the Final ROD for the South El Monte OU.

13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy (in conjunction with the interim remedial action in the downgradient Whittier Narrows OU) will protect human health and the environment by limiting further downgradient migration of contaminated groundwater and preventing the existing groundwater contamination from impacting current groundwater users. The remedy will also remove contaminant mass from the aquifer. The selected remedy will reduce potential risks by decreasing the likelihood and magnitude of future exposure to contaminated groundwater. Contaminant concentrations in the groundwater in the areas to be addressed by the remedy are currently well above acceptable levels. Available treatment technologies are technically feasible and proven effective in meeting ARARs for VOCs in the treated groundwater and air. Implementation of the remedy will not pose unacceptable short-term risks. In addition, no adverse cross-media impacts are expected.

13.2 Compliance with ARARs

The selected remedy shall comply with all ARARs described in Section 12 of this interim ROD. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

13.3 Cost-Effectiveness

EPA believes the selected remedy is cost-effective for addressing migration of contaminated groundwater in the South El Monte OU. Section 300.430(f)(ii)(D) of the NCP requires EPA to determine cost-effectiveness by evaluating the cost of an alternative relative to its overall effectiveness. Effectiveness is defined by three of the five balancing criteria: long-term effectiveness, short-term effectiveness, and reduction of toxicity, mobility and volume through treatment. The overall effectiveness is then compared to cost to ensure that the selected remedy is cost-effective.

The estimated present worth cost of the selected remedy is $14.1 million. The selected remedy is the lowest cost alternative that meets EPA's RAOs for the South El Monte OU. The less expensive groundwater-monitoring only alternative (Alternative 2) does not actively contain migration of groundwater contamination in the South El Monte OU.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

As an interim remedial action, EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner in the South El Monte OU. EPA has also determined that the selected remedy provides the best balance of

tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and considering state and community acceptance.

The selected remedy satisfies the long-term effectiveness criterion by removing VOC contamination from the groundwater and destroying the VOCs during carbon regeneration. Groundwater containment through extraction effectively reduces the mobility and volume of and potential for exposure to site-related contamination. The selected remedy does not present any short-term risks that can not be readily mitigated and EPA expects that the implementability issues associated with the selected remedy can be resolved in a timely manner.

13.5 Preference for Treatment as a Principal Element

By treating the contaminated groundwater through air stripping or liquid-phase carbon adsorption, the selected remedy addresses the site contamination through the use of treatment technologies. By using treatment as a component of the interim remedial action, the statutory preference for remedies that employ treatment as a principal element is supported.

13.6 Five-Year Reviews

Because the remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, EPA shall conduct a review of the remedy at least once every 5 years after initiation of remedial action. The review will assess whether the remedy continues to provide adequate protection of human health and the environment. If it is determined that the remedy is no longer protective of human health and the environment, then modifications to the remedy will be evaluated and implemented as necessary.

14 Documentation of Significant Changes

The Proposed Plan for the South El Monte OU was released for public comment in September 1999. The Proposed Plan identified Alternative 3, Intermediate Zone Control in the Western South El Monte OU, as the Preferred Alternative for addressing groundwater contamination in the South El Monte OU. EPA received and reviewed a large number of written and verbal comments submitted during the public comment period. During this period, EPA was made aware of additional data on the extent of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. This data indicated that the intermediate zone groundwater contaminated in excess of MCLs had migrated further west than was depicted in the FS Report (Geosystem Consultants, 1999) and Proposed Plan. EPA confirmed the larger extent of intermediate zone contamination by installing and sampling two new multiport monitoring wells in the spring of 2000. Because of this migration, the western boundary of the South El Monte OU described as Walnut Grove Avenue in the Feasibility Study and Proposed Plan, has moved with the contamination to the vicinity of San Gabriel Boulevard.

Although the change in the extent of intermediate zone contamination does not require changes to the general structure of the preferred alternative, it does impact the locations and cost of the facilities that will be required to meet the RAOs. In the Proposed Plan, the preferred alternative only discussed the need for containment in the vicinity of the San Gabriel Valley Water Company (SGVWC) and Monterey Park well fields (referred to as the "Central Containment Area" in Section 11). The discovery of significant contamination downgradient of these locations required EPA to evaluate the potential need for additional downgradient containment to meet the migration control objectives of the remedy. To assess the magnitude and location of potential supplemental containment, EPA performed groundwater modeling simulations. The groundwater modeling results are described in a memorandum (EPA, 2000) and summarized below.

To develop a revised containment scenario, the extraction scenario simulated for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999) was modified to include additional pumping further west (referred to as the "Western Containment Area" in Section 11) at the downgradient edge of the plume. In the modified containment scenario, consistent with the simulations performed for the FS, all of the extraction is provided by existing water purveyor wells. However, this containment could instead be provided by extraction from new wells located upgradient of the existing wells. The modified containment scenario simulation includes the following:

- Operation of existing production wells at close to maximum capacity on a continuous basis if they have wellhead treatment systems currently operating or if the water purveyors have plans to install wellhead treatment systems in the near future. These wells include Monterey Park's wells 5, 12 and 15; selected SGVWC Plant 8 (8B, 8C, and 8D) wells; and SCWC's San Gabriel 1 and 2 wells
- Operation of selected additional purveyor wells as necessary to meet peak demands or to maintain system pressures
- Sufficient extraction from existing production wells to match historic average annual production rates for each purveyor's system
- Operation of EPA's planned remedy in the Whittier Narrows OU.

The average extraction rates for each of the wells assumed to be operating as part of the modified Alternative No. 3 are summarized as follows:

- Monterey Park No. 5 well- 1,620 gpm
- Monterey Park No. 12 and 15 wells- 4,050 gpm
- SGVWC Plant 8 wells- 2,500 gpm
- SCWC San Gabriel 1 and 2 wells- 1,850 gpm

TOTAL- 10,020 gpm

It should be noted that the extraction rates simulated for the Monterey Park's No. 12 and 15 wells are higher than those used in the simulations for Alternative No. 3 performed for the South El Monte OU FS Report (Geosystem Consultants, 1999). Figure 5 shows the simulation results for the modified Alternative No. 3. The figure shows the simulated paths of groundwater particles within and around the interpreted area of VOC contamination in the intermediate zone of the South El Monte OU. The simulated particle tracks presented in Figure 5 confirm that the extraction wells included in the original Alternative No. 3 (i.e., Monterey Park Nos. 12 and 15; SGVWC's Plant 8 wells) provide containment of the upgradient (i.e., the "Central Area") intermediate zone contamination. These extraction wells would also capture some of the contamination that has migrated downgradient. The remainder of the contamination that has migrated further downgradient (the "Western Area") beyond the capture zone of these wells can be contained by extraction from the Monterey Park No. 5 and the Southern California Water Company (SCWC) San Gabriel Nos. 1 and 2 wells.

These simulation results show that containment can be achieved using extraction from existing wells. As noted above, containment could also be achieved by using new wells installed upgradient of the existing wells. Two of the existing well clusters included in the modified Alternative No. 3 simulations were not included in the original Alternative No. 3 presented in the Proposed Plan. These are the Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2 wells. Because these wells are located downgradient of the primary containment provided by the upgradient Monterey Park/SGVWC wells, they may not need to be operated for as long to provide containment of this downgradient contamination.

The length of time that the additional containment systems would need to operate has been estimated using groundwater velocities derived from the simulation illustrated in Figure 5. The simulated groundwater velocities in the downgradient western area are about 400 feet/year and suggest that all of the groundwater would be captured by Monterey Park well No. 5 within about 6 years. Because retardation of contaminants such as PCE likely occurs in the intermediate zone, the estimated time to remove the contamination from the intermediate aquifer would be longer, approximately 10 years. This assumes a retardation factor of 1.8, as was used in the FS Report (Geosystem Consultants, 1999). Less time should be required to remove the contamination migrating towards the SCWC San Gabriel 1 and 2 wells because these wells capture a smaller area of contamination. Using the groundwater velocity and retardation factor described above, the estimated operational time frame for the SCWC wells is 5 years. These estimates are based on a number of assumptions; the actual amount of time needed to operate the containment systems in the Western Containment Area could be considerably different. However, the times cited above provide an adequate basis for estimating costs.

Revised Remedy Costs

The estimated present worth cost of the modified Alternative No. 3, assuming use of all new facilities (i.e., none of the existing water purveyor wells, pumps, land or other facilities would be used in the containment systems), is $14.1 million (see Table 7). This cost estimate relies on all of the same cost assumptions and cost factors used in developing costs for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999), and includes the costs of installing and operating additional facilities in the vicinity of Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2. The cost estimate assumes that these facilities would need to operate for 10 and 5 years, respectively. The estimated present worth cost of the

modified Alternative No. 3 would be reduced to $11.9 million if it is assumed that existing facilities are used (EPA 2000).

The actual amount of time that the supplemental containment systems for the Western Containment Area would need to operate is uncertain. Accordingly, the actual costs of the remedy could be higher or lower than those described above. For example, if both containment systems only needed to operate for 5 years, the estimated cost of the remedy would be $13.7 million, rather than $14.1 million. Conversely, if both wellhead treatment facilities had to operate for 15 years, the estimated cost of the remedy would increase to $15.3 million (EPA 2000).

Part III
Responsiveness Summary

Part III – Responsiveness Summary

This Responsiveness Summary portion of the interim Record of Decision (ROD) presents the U.S. Environmental Protection Agency's (EPA) responses to the written and significant oral comments received at the public meeting and during the public comment period. The section is divided into responses to written comments and responses to oral comments. Comments are expressed in italics, EPA's responses in plain text.

1 Responses to Written Comments

This section provides responses to written comments received by EPA during the public comment period. Written comments were received from eight local agencies and cities (Cities of Monterey Park, Pico Rivera, and South El Monte; Main San Gabriel Basin Watermaster; San Gabriel Basin Water Quality Authority; Upper San Gabriel Valley Municipal Water District; Southeast Water Coalition [SEWC]; the Water Replenishment District); two local water purveyors (San Gabriel Valley Water Company and Southern California Water Company); seventeen individual South El Monte OU potentially responsible parties and their representatives (Aircraft Stamping Co., Inc.; APW-Electronic Solutions; Artistic Polishing and Plating, Inc.; Art Weiss Industrial Properties; Bassett & Obbink; Clamp Manufacturing Company, Inc.; CraneVeyor Corporation; Eagle Metal Finishing Co., Inc.; Earl Butler and Associates; EEMUS Manufacturing Corp; Ray Finkle; Jebbia Trust; Roc-Aire Corporation; Seachrome Corporation; Smittybilt, Inc.;Tri-Fitting Mfg. Company; and Robert Glenn Vanderbosch); Geosystem Consultants, Inc. (on behalf of the South El Monte OU Participants); two individuals (R. Brown and Allan Hill); and Congressman Matthew G. Martinez.

1.1 Responses to Comments from the City of Monterey Park

Monterey Park Comment No. 1. *Thank you for the presentation made on October 27, 1999 about the South El Monte Operable Unit (SEMOU) treatment alternatives. We appreciate the opportunity to hear the status and the progress of the SEMOU. We support the EPA's choice of Alternative 3. We feel that it provides the required control for the intermediate contamination and the flexibility to allow the choice to either treat the shallow contamination at South El Monte or in Whittier Narrows, which ever is more cost effective.*

The model that we have all seen for the past three years shows contaminant flow coming west in the intermediate aquifer from the SEMOU. The City of Monterey Park Water System (City) has 11 drinking water supply wells located in the city of Rosemead, south of Garvey Ave. and east of San Gabriel Blvd. In the past we have had a history of generally low levels of VOC contamination in the City's wells. Unfortunately, in 1995, the PCE level for Well no. 12 (2,500 gpm) went to a level that it was placed on standby status. The PCE level currently stands at 34 µg/L.

In addition, Well no. 6 (700 gpm) was put on standby status in October 1999 because of TCE contamination and Fern Well (1,800 gpm) may have to be put on standby status this winter because of PCE contamination. In September 1998, Well no. 5 (2, 100 gpm) was taken out of service due to PCE contamination. It was put back in service in September 1999 with a GAC treatment plant (cost $680,000).

We look forward to working with you for solutions to contain and eliminate the contamination in SEMOU in a timely manner. We are planning to start construction of a treatment plant at the City's Well no. 12 within the next year. As I discussed with Ms. Adams on the 27th, anything that can be done to assist the RPRs in SEMOU to receive some type of credit for financial assistance for this project would help this portion of the remedy progress faster. As we first wrote you in April 1997, we have a concern that the migrating contamination from SEMOU will continue to reduce the number of wells available to us. This would be a big problem for us because our only water source is from our wells.

EPA's Response. EPA understands the significant financial and operational impacts of South El Monte OU contamination on the City's water supply wells and believes that the selected remedy will ensure that the City has access to clean water over the long-term. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the City, to reach these agreements in a timely manner.

1.2 Responses to Comments from the City of Pico Rivera

Pico Rivera Comment No. 1. *Under Alternative 3, proposed wells would be located on the westerly portion of the South El Monte Operable Unit (SEMOU) where they would provide containment of contaminated groundwater moving towards groundwater pumping centers to the west.*

Under Alternative 4, the wells would be located within the central portion (between Rosemead Boulevard and Chico Avenue) where they would also provide containment of contaminated groundwater migrating through the Whittier Narrows.

Perhaps location of wells in the central portion as a Revision to Alternative 3 would be more effective. Ideally, for maximum effectiveness, wells should be located in areas where the shallow and intermediate zones of VOC contamination overlap.

EPA's Response. The selected remedy (Alternative 3) includes containment in the western portion of the South El Monte OU because this is where the contamination has already migrated. If containment were implemented in the central portion of the OU, large amounts of contamination would continue to migrate downgradient, impacting additional water supply wells in clean areas. Thus, the containment would be less effective. Alternative 4 additionally called for pumping in the central portion of the OU. This pumping would primarily act as a source control measure, rather than containment.

Pico Rivera Comment No. 2. *Assuming completion of the ROD for the Whittier Narrows OU by mid-2000, construction on the plan may not be completed until 2003. It is estimated that the Whittier Narrows plan, which is running approximately one year ahead of the proposed South El Monte Plan, will be completed on or around mid-2002.*

Comment: Since migration of contaminated groundwater will continue southerly for two to three years if Alternative 3 is selected, perhaps installation of an emergency interim containment remedy within the Whittier Narrows OU would be appropriate.

EPA's Response. EPA expects that the Whittier Narrows OU remedy will be operational by the end of 2001. There is currently an interim containment action operated by the San Gabriel Valley Water Quality Authority just north of San Gabriel Boulevard in Whittier Narrows to contain the most contaminated portion of the shallow zone. EPA is planning to perform additional interim extraction in the shallow zone in Whittier Narrows in 2000.

Pico Rivera Comment No. 3. *How will the matter of adjudicated water rights be addressed for any water drawn?*

EPA's Response. EPA's preference is for local water purveyors to be the recipients of treated water from the South El Monte OU remedy. If this is the case, those water purveyors would be expected to count any water they accept from the project towards their water rights allocation. If agreements cannot be reached to provide the treated water to local water purveyors, the water will most likely be recharged to the aquifer within the San Gabriel Basin. In either of these scenarios, EPA expects that arrangements will be made with local water management agencies to address groundwater management issues.

Pico River Comment No. 4. *Will all water purveyors within the Whittier Narrows OU be afforded water at $45 per acre foot as is contemplated within the South El Monte OU?*

EPA's Response. Currently, EPA is expecting purveyors, and perhaps other entities, would bid on operation of the treatment facilities for the Whittier Narrows OU. The operator would be expected to pay all of the necessary fees to local water agencies, including fees for replacement or replenishment water for any water they accept that is in excess of their water right for that year. EPA also expects that the operator would use the treated groundwater as a domestic water supply.

The cost of $45 per acre-foot is used for cost estimating purposes only and is based on a rough estimate of the "avoided cost" for a purveyor that is no longer paying the costs to pump their own water to the ground surface.

Pico Rivera Comment No. 5. *Would EPA consider remodeling existing purveyor wells to increase extraction rates?*

EPA's Response. The South El Monte OU Feasibility Study does include the costs of retrofitting existing wells with new pumps to provide the appropriate capacity for the remedial pumping. In the Whittier Narrows OU, EPA concluded that there were not any existing purveyor wells ideally located to provide efficient containment of the groundwater contamination.

1.3 Responses to Comments from the City of South El Monte

South El Monte Comment No. 1. *I have been directed to draft a letter notifying the United State Environmental Protection Agency of the South El Monte City Council's decision to support alternative three, the USEPA's preferred alternative, from among the four cleanup alternatives presented during the community meeting held Wednesday, October 27, 1999, at the South El Monte High School.*

The action was taken at the regularly scheduled November 22, 1999, meeting. A letter signed by mayor Art Olmos will follow. This letter is being sent to you in order to have the City Council's decision on the record prior to the close of the comment period.

EPA's Response. Comment noted. EPA has selected Alternative No. 3 for the South El Monte remedy in this Interim ROD. The majority of the written comments received by EPA during the public comment period were in support of Alternative No. 3.

1.4 Responses to Comments from the Main San Gabriel Basin Watermaster

Watermaster Comment No. 1. *Watermaster strongly supports the use of existing water purveyors facilities as a part of the remedial action. Use of wells owned by San Gabriel Valley Water Company and*

the City of Monterey Park will reduce project costs while assuring a reliable water supply for the purveyors and their customers. The recharge of treated water is not a preferred alternative, especially in the downstream areas of the Main San Gabriel Basin. The recharge capabilities, which are required for the spreading of storm runoffs and Replenishment Water, will likely become markedly diminished with the constant spreading of treated water. In addition to losses in the capture of storm water, the constant flow of treated water will require a mitigation program to control vectors, such as midges. The utilization of the treated water by the two Producers will avoid these problems.

EPA's Response. Comment noted. EPA also strongly prefers that local water purveyors be the recipients of treated water from the South El Monte OU remedy. In addition, EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors and Watermaster, to reach these agreements in a timely manner.

1.5 Responses to Comments from the San Gabriel Basin Water Quality Authority

Water Quality Authority Comment No. 1. *In general, WQA supports EPA's Proposed Plan for the SEMOU. The containment specified for the intermediate zone in the northwestern portion of the operable unit will be essential in arresting the flow of contaminants and protecting down gradient groundwater production centers. The three extraction wells and associated treatment facilities that make up the intermediate zone containment barrier must be implemented immediately to properly mitigate this significant threat. In addition, WQA is committed to assuring that the remedy include, to the extent possible, existing water supply facilities so that impacts to the local water supply are minimized in conjunction with the cleanup.*

EPA's Response. Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner.

Water Quality Authority Comment No. 2. *WQA also acknowledges that an integrated solution is required to address the contamination found in both the SEMOU and Whittier Narrows Operable Unit (WNOU). Furthermore, WQA agrees that when implemented, the proposed extraction barrier for the WNOU will provide the necessary containment to protect the central basin from the contamination emanating from a portion of the SEMOU. However, WQA is concerned that the complexities associated with the comprehensive WNOU barrier remedy may significantly delay its implementation.*

In light of the uncertainties surrounding the implementation of the WNOU barrier, WQA has and will continue to support actions that can be quickly implemented to remove sources of contamination in SEMOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. Continued operation of both these projects, in conjunction with the comprehensive remedy proposed by the EPA, will be essential to minimizing the threat to Central Basin.

EPA's Response. Although there are a number of factors that make implementation of the Whittier Narrows OU remedy quite complex, EPA is attempting to accelerate implementation of the Whittier Narrows OU remedy and expects it to be operational within the next 12 months. In the interim, EPA continues to support installation and operation of early actions that address the most critical areas of contamination. The early action that WQA is currently operating in Whittier Narrows addresses the most highly contaminated portion of the shallow zone in Whittier Narrows and should continue to operate until the full-scale Whittier Narrows remedy is available to take over containment at this location.

Water Quality Authority Comment No. 3. *Although EPA has chosen not to include the SEMOU early action extraction barrier in its preferred alternative for the SEMOU, it has in the past, supported and encouraged supplemental source removal actions that would complement actions taken under CERCLA. EPA's prior support of the SEMOU early action extraction barrier was essential in getting the project implemented and will be essential in keeping it operational since long-term funding remains unsecured. Because the South El Monte early action extraction barrier is primarily a source removal action, additional commitments by both the EPA and the Los Angeles Regional Quality Control Board (Regional Board) will be necessary to mandate continuance of the barrier operation under the Regional Board's site cleanup authority. Such enforcement actions will isolate responsibility to those companies directly linked to the groundwater contamination now being cleaned up by the extraction barrier.*

EPA's Response. EPA fully supports implementation of source control actions at individual facilities or groups of facilities in the South El Monte OU, including WQA's shallow barrier project. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities. These types of source removal actions are critical to EPA's long-term remedial goals in the South El Monte OU and throughout the San Gabriel Basin.

Water Quality Authority Comment No. 4. *In summary, WQA supports a combination of EPA's preferred alternative (alternative No. 3), the SEMOU early action extraction barrier, the WNOU early extraction barrier, and EPA's WNOU comprehensive barrier as the remedial actions that are necessary to address the contamination present within the SEMOU and WNOU. These actions are best implemented using a combination of regulatory vehicles, including EPA enforcement, EPA fund lead, Regional Board enforcement and voluntary actions.*

EPA's Response. Comment noted. EPA concurs with the ongoing need for both regional containment actions as EPA is implementing in the Whittier Narrows and South El Monte OUs and localized source control actions in contaminant source areas.

1.6 Responses to Comments from the Upper San Gabriel Valley Municipal Water District (USGVMWD)

USGVMWD Comment No. 1. *The Upper District strongly encourages the U.S. Environmental Protection Agency (USEPA) to adopt Alternative 4, the intermediate zone control in western SEMOU and shallow zone source control for the following reasons:*

1. *Shallow zone extraction would remove significant high-level contamination in a relatively short period of time. This will reduce the impact of continued contaminant migration towards the Whittier Narrows. Shallow zone source control satisfies the primary balancing criteria as listed in the proposed plan. It is our feeling that Alternative 4 will reduce costs in the long-run.*

2. *The increased estimate costs of shallow zone source control are reduced by increased local participation already taking place. The San Gabriel Valley Water Quality Authority, along with local water producers, are working with local partnerships to develop local cleanup projects.*

3. *These complicated negotiations hinge on the adoption of shallow zone source control in the Record of Decision for South El Monte. By not including shallow zone source control, the USEPA is not taking into consideration local participation and funds.*

EPA's Response. Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA firmly believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. Further, as we have in the past, EPA will continue to support the development of local partnerships to fund and implement source control actions such as the shallow zone extraction barrier pilot project (SEPP) currently operating in the South El Monte OU.

Based on comments received from the San Gabriel Basin Water Quality Authority (see Section 1.5 above), we do not believe that agreements for continued operation of local cleanup projects, such as the SEPP, hinge on this ROD incorporating shallow zone source control into the South El Monte OU interim remedy.

1.7 Responses to Comments from the Southeast Water Coalition (SEWC)

SEWC Comment No. 1. *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional $4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. SEWC feels that the $4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.

SEWC reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte seems very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, SEWC strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.

EPA's Response. EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU.

EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

SEWC Comment No. 2. *Additionally, SEWC will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as SEWC stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

The SEWC strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the SEWC Technical Advisory Committee and the Water Replenishment District.

EPA's Response. As described in the Whittier Narrows OU ROD Amendment, EPA's objective for the Whittier Narrows OU remedy is to contain and extract groundwater contaminated with chemicals in excess of drinking water standards in Whittier Narrows. The intent of this containment is to limit migration of all groundwater exceeding MCLs into the Central Basin.

As is described further in the Responsiveness Summary portion of the Whittier Narrows OU ROD Amendment, EPA did not include a wellhead treatment contingency in the ROD Amendment. EPA intends to continue to apply Agency resources towards the task of protecting the quality of the groundwater aquifer by containing contaminant source areas and capturing contamination in the aquifer.

Once the Whittier Narrows remedy is implemented, EPA considers it unlikely that any additional Central Basin production wells will require wellhead treatment. The remedy should stop migration of contamination through the Narrows, thereby reducing the threat of significant contamination reaching the Central Basin.

However, EPA does expect that some of the contamination currently in the Narrows will continue to move into the Central Basin aquifer before the proposed remedy can take effect. EPA will continue to monitor the wells along the Whittier Narrows Dam. Should contaminant levels increase such that groundwater contamination poses a significant threat to Central Basin production wells, EPA may implement a focused, fast-track temporary extraction system to protect Central Basin wells.

1.8 Responses to Comments from the Water Replenishment District of Southern California (WRD)

WRD Comment No. 1. *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional $4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. WRD feels that the $4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.

EPA's Response. EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

WRD Comment No. 2. *WRD believes that both shallow and intermediate zone control in the South El Monte Operable Unit, in conjunction with the proposed shallow and intermediate zone remediation in the Whittier Narrows Operable Unit (WNOU), are vital to the protection of the Central Basin from San Gabriel Valley contamination. Due to the complexities associated with implementation of the WNOU remediation project, WRD has and will continue to support actions that can be quickly implemented to remove sources of contamination in both the SEMOU and the WNOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. The USEPA needs to assure that these projects will be included in the comprehensive remedy proposed by the USEPA to minimize the contamination threat to the Central Basin. The USEPA has recently stated interest in implementing an early removal project in the intermediate zone of the WNOU. WRD supports that interest and encourages prompt execution of this project, while the USEPA continues to implement the regional remediation project in the WNOU.*

EPA's Response. Although there are definite benefits associated with shallow zone control in the South El Monte OU, EPA does not concur that South El Monte OU shallow zone control is "vital" to the protection of the Central Basin from San Gabriel contamination.

EPA will continue to move forward on accelerated implementation of the full containment remedy in the Whittier Narrows OU. EPA also supports local stakeholder cooperation that facilitates early implementation of components of the ultimate remedy in either the Whittier Narrows or South El Monte OUs.

WRD Comment No. 3. *WRD reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte would be very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, WRD strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.*

EPA's Response. EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU. As described above in the response to WRD Comment No. 1, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. EPA will continue to support source removal and source control through other avenues, as described above.

WRD Comment No. 4. *Additionally, WRD will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as WRD stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

WRD strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the Water Replenishment District and the SEWC Technical Advisory Committee.

EPA's Response. See response to SEWC Comment No. 2 above in Section 1.7.

1.9 Responses to Comments from the San Gabriel Valley Water Company

San Gabriel Valley Water Company (SGVWC) Comment No. 1. *San Gabriel Valley Water Company ("San Gabriel") is a public utility providing water service to all or portions of 18 cities in Los Angeles County, including nearly all of the area within the South El Monte Operable Unit ("OU"). San Gabriel fully supports EPA's Preferred Alternative: Alternative 3 - Intermediate Zone Control in Western South El Monte OU.*

The discussion of Alternative 3 states that "the preferred alternative provides the option of using San Gabriel Valley Water Company well field extraction systems." This refers to San Gabriel's Plant No. 8 which is a key water production facility located near the intersection of Rosemead Boulevard and Garvey Avenue in South El Monte in the northeast portion of the OU. VOC contamination has been

detected in four of the five wells at Plant No. 8 with three of these wells currently exceeding the MCL for PCE. In response, San Gabriel is planning to install a wellhead treatment facility in the year 2000.

As stated in Michael L. Whitehead's March 24, 1999 letter to Gavin McCabe (copy enclosed), "if agreement can be reached with EPA and the South El Monte Operable Unit participants, San Gabriel is willing and able to operate its facilities and commit to meeting [the] operational requirements [of EPA] for the duration of the EPA required cleanup" at our Plant No. 8.

San Gabriel endorses the use of existing wells to resolve both groundwater cleanup and drinking water supply issues, and we are pleased that EPA has chosen such a plan as the Preferred alternative in South El Monte.

EPA's Response. EPA appreciates SGVWC's interest in participating in the South El Monte OU remedy. In addition to the water supply benefits gained by providing the treated water to water purveyors, EPA believes that the use of existing water supply wells and facilities will likely be the most cost-effective way to implement the South El Monte OU remedy. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and we are optimistic that the necessary agreements can be reached to allow the use of existing facilities to the maximum extent possible to meet the objectives of the selected remedy described in this ROD. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely manner.

San Gabriel Valley Water Company (SGVWC) Comment No. 2. *These comments are offered to assist the EPA in its evaluation of the South El Monte Operable Unit ("SEMOU") Draft Feasibility Study ("Draft FS"). In particular we urge the EPA to endorse the use of existing wells and planned wellhead treatment facilities of San Gabriel Valley Water Company ("San Gabriel") as an important element of the groundwater remediation plan in the SEMOU.*

San Gabriel is a public utility water company which is subject to the regulatory jurisdiction of the California Public Utilities Commission (the "CPUC"). San Gabriel has operated since 1937 and provides public utility water service to a population of over 160,000 in 15 cities including all of South El Monte, and in unincorporated county areas in the San Gabriel Valley. San Gabriel produces nearly 40,000 acre feet of water per year from 31 wells in Los Angeles County, including 27 wells in the Main San Gabriel Basin. San Gabriel's Plant No. 8 is a key water facility with 5 wells and is within the SEMOU.

Rising VOC levels necessitated the drilling of a new well at Plant No. 8 in 1998 and a treatment plant is planned for later this year. The need to provide reliable water supply that meets all federal and state safe drinking water standards dictates that we design and construct this facility now, regardless of the cleanup plan required by EPA in the SEMOU. But the cost of building and operating these facilities will be borne, at least initially, by San Gabriel and it customers. Clearly, in the interest of sound public policy, EPA should encourage and allow the SEMOU PRPs to help pay for and incorporate the Plant No. 8 facilities into their cleanup plan, thereby minimizing their own costs while lifting the cost burden from San Gabriel and its customers.

Plant No. 8's location at the western edge of the SEMOU VOC plume makes it a logical location for containment and treatment of the westward migration of VOCs and it has been identified as such in the Draft FS. The operational requirements of Plant No. 8 for containment of VOCs in the western SEMOU as outlined in the Draft FS are achievable with existing facilities and at historic pumping rates. If agreement can be reached with EPA and the SEMOU participants, San Gabriel is able to operate its facilities and commit to meeting those operational requirements for the duration of the EPA required cleanup and San Gabriel is prepared to meet and confer with EPA and the SEMOU participants to discuss the terms and conditions of such an agreement.

In that regard, San Gabriel's longstanding management, technical expertise, and financial resources should provide EPA ample assurance of San Gabriel's ability to carry out such a cleanup plan. As previously stated, San Gabriel has provided reliable public utility water service in the San Gabriel Valley since 1937. San Gabriel's entire water system, including Plant No. 8, is dedicated to public use and is necessary and useful to San Gabriel in the performance of its obligations as a public utility as provided in the Public Utilities Code and pursuant to CPUC regulations. As such, none of the facilities in that water system can be freely transferred, sold or even encumbered as long as they remain necessary and useful to San Gabriel in the performance of those obligations.

San Gabriel strongly urges EPA to endorse the use of Plant No. 8 as proposed in the Draft FS. Doing so will advance the legitimate and appropriate public policy objective of assuring that already contaminated sources of public water supply are directly remedied in a way that will benefit and bring much needed relief to San Gabriel and its customers who rely so heavily on groundwater produced within the SEMOU area. We would be happy to meet with you to discuss this possibility at the earliest possible date.

EPA's Response. As stated in the response to SGVWC's Comment No. 1, EPA appreciates SGVWC's willingness to participate in the South El Monte OU remedy. EPA also understands the significant financial and operational impacts of South El Monte OU contamination on SGVWC's water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and supports the use of existing water supply wells and facilities to the maximum extent possible to help meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely fashion. EPA does not expect that any operational agreements would need to include provisions that SGVWC give up control of any portion of their system. However, SGVWC would need to commit to operating their facilities in a manner that would ensure that the performance standards described in this ROD are met.

1.10 Responses to Comments from the Southern California Water Company (SCWC)

SCWC Comment No. 1. *By way of background, SCWC provides retail water service to approximately 4,600 customers within the cities of Rosemead and South San Gabriel, and portions of the unincorporated county of Los Angeles. SCWC has relied on groundwater pumped from within the OU to meet the majority of its customers' needs for many years.*

In particular, SCWC operates two groundwater wells within the OU: San Gabriel Wells 1 and 2. Both wells have been impacted by PCE and TCE contamination. One well was shut down in April 1999 because the maximum contaminate level for PCE was exceeded. Low levels of PCE and TCE have been detected in the other well, and it is currently in a six-month monitoring period under Department of Health scrutiny.

SCWC's customers face a substantial cost increase in responding to the shutdown of the Company's wells. Either SCWC will be forced to install expensive well head treatment, or rely entirely on more expensive imported water purchased from the Upper San Gabriel Valley Municipal Water District.

SCWC encourages the EPA to continue its aggressive effort to remediate as quickly and efficiently as possible the contamination in the OU and the San Gabriel Valley Groundwater Basin generally. To that end, SCWC has several comments on the Proposed Plan which it hopes will be incorporated in the Record of Decision (ROD).

- ***The Plume Boundary Should be Expanded to the West.*** *The western boundary of the OU plume is generally limited by Walnut Grove Boulevard. However, several production wells to the west of this boundary, including SCWC's, have detected substantial levels of PCE and TCE. As mentioned above, one of SCWC's wells is shut down because it has PCE levels above the MCL. The plume has clearly migrated to the west and north. Based on the current contaminant levels, a more accurate representation of the western plume boundary would be San Gabriel Boulevard. As discussed below, effective plume management depends on proper placement of extraction facilities, which in turn is dependent on proper delineation of the plume boundaries.*

  Modification of the plume boundary in this manner is consistent with actions taken by the EPA in the Baldwin Park OU. Indeed, the plume boundary in that OU has been shifted south and west several times to account for the plume migration.

EPA's Response. At the time the Proposed Plan was prepared, EPA was not aware that MCL exceedances had been detected further west than Walnut Grove Boulevard. As shown in Figures 3 and 5 in this ROD, the interpreted extent of contamination has been revised to incorporate more recent data, including new monitoring wells EPA installed in this area since the Proposed Plan was issued. The updated figure shows the intermediate zone contamination extending further west to encompass the SCWC and Monterey Park wells that exceed MCLs in this area.

SCWC Comment No. 2. ***Pump and Treat Facilities Should be Located on the Leading Edge of the Plume.*** *Normally, optimal plume management through the EPA Alternative 3 methodology (pump and treat) would involve locating the extraction facilities at the leading edge of the plume. Any other location may result in creation of multiple plumes or incomplete remediation. Given the migration westward, location of the pump and treat facilities on the westernmost boundary of the plume would be optimal. We request that the EPA consider this criteria carefully, particularly in light of the westerly plume migration, before selecting the site or sites for the pump and treat facilities. Instead of identifying the exact location of the proposed pump and treat facilities, the EPA ROD should simply require as one criterion the location of the wells on the leading edge of the plume.*

EPA's Response. EPA's performance standards for this remedy (described in Section 11 of this ROD) do address the entire extent of the intermediate zone contamination in the western portion of the South El Monte OU, including the leading edge of contamination. EPA has not indicated the specific locations of extraction wells in this ROD (see Section 11). This will allow the parties responsible for implementing the remedy flexibility in determining where extraction wells should be located and to work out agreements with water purveyors and local stakeholders to use existing infrastructure as much as possible to help meet the performance standards for the South El Monte OU remedy.

SCWC Comment No. 3. ***Pump and Treat Facilities Should be Located to Take Advantage of Localized Groundwater Gradients and Pumping Holes.*** *According to the Main San Gabriel Basin Watermaster hydrologic model of the OU, there is a pumping hole in the immediate area around SCWC's San Gabriel well facilities. Pumping holes such as this tend to maximize the groundwater inflow gradient to the pumping depression. This characteristic might be used to further optimize the placement of pump and treat facilities. Indeed, SCWC's San Gabriel wells may be an optimal location because they are both at the leading edge of the plume and within this pumping depression. However, neither SCWC's wells nor this general region are listed within the Proposed Plan as possible locations for the pump and treat facilities. Again, rather than simply identifying the exact location of the proposed pump and treat facilities, the EPA should include reference to the existence of a localized pumping hole in the western area of the OU unit and list as a criterion that the pump and treat facilities be located to take advantage of this characteristic.*

EPA's Response. As noted above, at the time the Proposed Plan was prepared EPA was not aware that contamination in excess of MCLs had migrated so far west, so the City of Monterey Park and SCWC

wells located west of Walnut Grove Boulevard were not evaluated as potential locations for containment of the intermediate zone contamination. This ROD does not specify the precise locations of extraction wells to be used to provide the containment necessary to meet the performance standards described in Section 11. A more detailed evaluation of groundwater flow directions in this area, including the influence of the "pumping hole" and the individual production wells in this area (including SCWC's wells) will be needed during the remedial design phase to select the final extraction locations for the South El Monte remedy.

SCWC Comment No. 4. *Use of Existing Facilities Should be Maximized. SCWC encourages the EPA to pursue its approach of maximizing the incorporation and use of existing facilities within the final remedial action. Where practical, existing treatment facilities should be incorporated into the EPA's imposed remediation effort so that water suppliers can recover some of the added costs forced on them by contamination. To the extent feasible, the responsible parties should be required to treat the contaminated groundwater resources so that the treated water is safe for human consumption. The water consumers in the OU have been forced to pay substantially higher water costs because of the contamination. This expense should be placed on the entities responsible for the contamination to the full extent possible. This priority criterion is implied in the EPA preferred alternative, but it should be listed more definitively in the ROD.*

EPA's Response. Although this ROD does not require the use of existing water purveyor facilities to implement the remedy in the South El Monte OU, EPA believes that maximizing the use of existing facilities will likely be the most cost effective way to implement the remedy. EPA is optimistic that the necessary agreements can be reached to allow the use of existing facilities to help meet the objectives of the selected remedy described in this ROD and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders and water purveyors to reach these agreements in a timely manner.

1.11 Responses to Comments from South El Monte Businesses (Group A)

The following eight South El Monte OU businesses and/or property owners all submitted the same set of comments: CraneVeyor Corporation; Jebbia Trust; Seachrome Corporation; Earl Butler & Associates, Inc.; Smittybilt Corporation; Roc-Aire Corporation; Bassett & Obbink; and Ray Finkle. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group A for presentation purposes.

Group A General Comment No. 1. *Of the four remedial alternatives considered by EPA, Alternative 3, EPA's preferred remedy: (1) adequately protects human health and the environment; (2) attains applicable or relevant and appropriate requirements ("ARARS") under federal and state environmental laws; and (3) most optimally balances all of the "primary balancing criteria" required to be considered under Section 300.430 of the National Oil and Hazardous Substances Pollution Contingency Plan, Title-40, Code of Federal Regulations Part 300 (the "NCP").*

EPA's Response. EPA concurs with this conclusion and has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

Group A General Comment No. 2. *Conversely, the alleged marginal increased environmental benefits associated with Alternative 4 are far outweighed by the known marginal increased costs of implementing this alternative. Alternative 4 costs over 47 percent more than Alternative 3 but does not generate commensurate health and safety benefits for the added dollars.*

EPA's Response. EPA has also concluded that the additional benefits gained from Alternative No. 4 are not significant enough to justify the considerable additional costs. EPA has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

Group A General Comment No. 3. *EPA should continue to encourage stakeholders to implement supplemental voluntary remediation programs, (including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP"). However, EPA should not include the SEPP in the SEMOU Record of Decision ("ROD") as it is not necessary to comply with the NCP.*

EPA's Response. EPA has not included the Shallow Zone Extraction Pilot Project (SEPP) in this ROD. However, EPA remains very interested in continued implementation of source control and source removal actions, such as the SEPP, in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that appropriate site-specific cleanup is occurring at individual facilities or groups of facilities.

Group A General Comment No. 4. *Additional source identification is warranted. Presently unidentified or uninvestigated sources within the SEMOU could significantly impact the details and costs of a final remedy. Moreover, it is extremely inequitable and against public policy for the presently identified potentially responsible parties ("PRPs") to pay for past or possibly ongoing releases of contaminants from neighboring properties. Failure of the Agency to identify a wider group of responsible parties increases the risk that future response actions would be funded with Superfund money or after incurring unnecessary litigation costs better used for remediation.*

EPA's Response. Extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs.

Group A General Comment No. 5. *EPA should rapidly complete its assessment of candidates for early cashout settlements based on financial and technical criteria. Proceeds raised from such settlements should be earmarked for future response actions listed in the ROD and not used merely to offset past EPA oversight costs. Past oversight costs should be collected from recalcitrant parties.*

EPA's Response. EPA is evaluating "ability to pay" information for interested South El Monte PRPs and considering candidates for early settlements and expects to offer settlements to qualifying parties. EPA expects to issue Special Notice Letters to South El Monte OU PRPs following release of this ROD and at this time cannot respond to comments on allocation of settlement proceeds. Further, EPA will not know if there are any "recalcitrant" parties until after Special Notice Letters have been issued and consent decree negotiations initiated.

Group A Specific Comment No. 1. *Alternative 3 versus Alternative 4. The primary difference between Alternative 3 and 4 is that the latter includes a "Shallow Zone Extraction" component in addition to the "Localized Intermediate Zone Extraction" common to both alternatives. As discussed below in Specific Comment 2, an ongoing Shallow Zone Extraction Pilot Project (which would arguably satisfy the supplemental requirements of Alternative 4) already is being conducted on a voluntary basis.*

The comparative water quality benefits of Alternatives 3 and 4 can be seen by looking at the projected concentrations of key contaminants at downgradient monitoring points. The two most important downgradient monitoring points in this case are: a) the Whittier Narrows Dam, where the cost of the Whittier Narrows Operable Unit remedy could be impacted; and b) the Montebello Forebay, a source of drinking water for the Los Angeles Central Basin.

Attached to this letter is a copy of Figures 45 and 46 from the SEMOU Feasibility Study ("FS") that was reviewed and approved by EPA. Figure 45 is a "Comparison of Projected PCE[1] concentrations at [the] Whittier Narrows Dam." The left side of Figure 45 compares PCE concentrations in the shallow zone, while the right side makes the same comparison for the intermediate zone. Figure 46 makes similar comparisons at the Montebello Forebay.[2]

In both figures, there is extremely little difference between the PCE concentrations in these locations, regardless of whether Alternative 3 or 4 are used. As EPA plans to conduct a significant[3] groundwater pump and treat remedy at the Whittier Narrows dam regardless of whether shallow zone extraction is conducted in the SEMOU, there is little reason to absolutely require that shallow zone extraction in the SEMOU be made part of the Record of Decision.

EPA estimates the net present value ("NPV") of Alternative 3 is approximately $8,334,400. The estimated NPV of Alternative 4 is $12,285,000, representing a 47.4 percent cost increase over Alternative 3. When viewing the projected PCE concentrations at the Dam and the Forebay under both alternatives, there is insufficient marginal increased protection of human health and the environment to warrant the mandatory inclusion of shallow extraction in the ROD. In gross overview, implementation of Alternative 3 (and of a reasonable remedy which will occur in the WNOU) adequately protects human health and the environment while complying with all ARARS. Alternative 3 satisfies the threshold criteria in 40 C.F.R. Section 300.430(f)(1)(i)(A).

Furthermore, analysis of the NCP's five "primary balancing criteria" in 40 C.F.R. Section 300.430(f)(1)(i)(B) does not support a 47.4 percent increase in the cost of the remedy either.

- *First, there is no evidence in the FS to support a claim that Alternative 3 (and some reasonable response action in the WNOU) will not achieve "long-term effectiveness and permanence" in both the SEMOU and the WNOU.*
- *Second, "reduction of toxicity, mobility, or volume through treatment" should be considered. Admittedly, any additional groundwater extraction well strategically placed in the SEMOU will likely remove some COCs from the groundwater. However, when balanced with the 47.4 percent increase in costs, it is unlikely that the SEPP will reduce toxicity, mobility or volume at drinking water wellheads by 47.4 percent, the point most critical to human exposure to contaminated groundwater. Again, the SEPP is helpful but should not be required in the ROD.*
- *Third, EPA should consider "short-term effectiveness" of the SEPP when looking at the overall SEMOU remedy. While the SEPP is already showing early positive results in remediating shallow zone contaminants, it does not have any short term impact on contaminants in the intermediate zone, which is more likely a source of drinking water. Implementation of the SEPP will not shorten the overall SEMOU remedy by 47.4 percent.*

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[1] *Although PCE is not the only constituent of concern in the SEMOU, it was viewed as one of the most significant contaminants of concern ("COCs") and a representative of how other COCs will migate under various remedial alternatives.*

[2] *The FS also compared PCE concentrations at a point under Highway 60. However, this was an arbitrarily chosen point based only on a major surface landmark and is not relevant to the location of a remedial action point (the dam) or a major source of drinking water (the Forebay).*

[3] *At present, we understand that EPA plans to pump and treat approximately 9,000 gallons per minute of groundwater at the Whittier Narrows Dam. To our knowledge, EPA has not made any commitments about reducing the scope of its WNOU remedy, even if the SEPP were made part of the SEMOU ROD.*

- *Fourth, EPA should consider "implementability" of the SEPP. The SEPP is being implemented and is likely to continue being implemented on a voluntary basis by private parties. This is not a significant factor in the analysis.*

- *Fifth, the agency must consider the "cost" of the final remedy. This has been discussed above as a function of the other balancing criteria. We concur with EPA's initial position that, while shallow zone extraction is beneficial to the overall remedy, the cost of requiring additional shallow zone extraction in the ROD outweighs the associated benefits.*

EPA's Response. EPA believes that the figures included in the South El Monte OU FS Report (Geosystems, 1999) showing projected simulated future PCE concentrations at various locations in the aquifer should only be used for very general comparisons of the remedial alternatives. However, EPA has reached the same conclusion as the commentor regarding the increased cost of Alternative No. 4 compared to its additional benefits. This ROD selects Alternative No. 3 for the interim remedy in the South El Monte OU.

Group A Specific Comment No. 2. *Shallow Zone Extraction Pilot Project. Although it should not be included as a component of the SEMOU ROD, EPA should encourage stakeholders to pursue additional response actions including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP"). The SEPP is a voluntary project undertaken in part by some private parties and the San Gabriel Valley Water Quality Authority to remove COCs in shallow groundwater. EPA has also provided valuable assistance in the SEPP.*

The SEPP is currently funded for at least one more year. Now that initial remediation statistics are being generated, additional private parties are showing an interest in raising additional funds to continue operating the SEPP voluntarily. These actions are laudable and should be recognized in the equitable apportionment of response costs. However, these efforts go above and beyond what is required under the NCP and should not be required in the ROD.

EPA's Response. EPA appreciates the efforts of the various entities, including selected South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU aid cleanup efforts by removing significant concentration of contaminant mass. EPA will continue to work with the RWQCB and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

Group A Specific Comment No. 3. *Additional Source Identification. Regardless of what Alternative is chosen by EPA, additional source identification is necessary if a SEMOU remedy is to be funded by private parties. To date, EPA and the California Regional Water Quality Control Board identified a limited number of PRPs who happened to be in business at the time a PRPs search was conducted. More effort is needed to identify facilities that engaged in operations similar to those conducted by listed PRPs. Because other parties were not actively engaged in targeted industrial operations when the initial screening exercise was conducted, the properties were not required to conduct subsurface investigations or remediation, even though many other facilities used the same COCs and manufacturing procedures as the listed PRPs. Sites with similar histories of operations and chemical usage should be held to the same standards of subsurface investigation, remediation and liability.*

Based on personal knowledge of the South El Monte area built up over a number of years, I believe that enough financially viable parties could be traced to additional sites to warrant additional PRPs search activities. Based upon its preliminary screening work to date, EPA is in the most economically efficient position to complete its source identification program. The resulting groundwater remediation funds likely to be generated by newly added PRPs would more than offset this initial investment. These

additional costs are easier for EPA to recover than a private party who has a different burden of proving compliance with the NCP in a cost recovery action, let alone economic hurdles for funding such work.

Source identification should also take place for sources outside of the SEMOU. For example, attached Figure 13 from the FS shows a "straight line cut-off" of the PCE and PCE plume in the northeast comer of the SEMOU. This straight line represents a data gap that can be re-drawn using existing data from hydrologically upgradient sources to determine the impact on the SEMOU from the Baldwin Park Operable Unit ("BPOU").

In addition to source identification, this combined information would be helpful in projecting long term remediation strategies. For example, recent sampling of SEMOU monitoring wells shows evidence of perchlorate contamination. Perchlorates are most likely traceable to sources in the BPOU and not to the SEMOU. Using perchlorates as a tracer element, it would not be unreasonable to assume that other COCs released in the BPOU are also migrating into the SEMOU.

In closing, the failure to identify more responsible parties' could well result in insufficient funds being raised by existing PRPs to support EPA's proposed remedy for the SEMOU. Additional funding would have to come from either the Superfund or through inefficient cost recovery litigation.

EPA's Response. As noted in the response to General Comment No. 4 above, extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs. The commentor references personal knowledge of the South El Monte area that may help identify additional PRPs. EPA and the RWQCB are interested in additional information that could help in identifying potential source areas and would gladly evaluate any new information provided.

Regarding source areas outside of the South El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU (including the Baldwin Park OU) is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. If not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

Group A Specific Comment No. 4. ***Early Cashout Settlements.*** *EPA is aware of the fact that, unlike certain other operable units in the Site, the SEMOU primarily consists of relatively small businesses and individuals who are particularly impacted by the transaction costs associated with participation in the CERCLA process. It would be most economically efficient to reach an early, equitable cashout with financially limited parties as well as parties with demonstrated low impacts to the groundwater.*

As the PRP identification process has failed to identify many facilities and PRPs within the SEMOU, the proceeds from the early cashout settlements must be used for the highest priority: implementation of the ROD. EPA's past response costs should be collected from recalcitrant PRPs who have not participated in past response actions and who do not plan to contribute to future response actions.

EPA's Response. See the response above to General Comment No. 5.

1.12 Responses to Comments from South El Monte Businesses (Group B)

The following three South El Monte OU businesses all submitted the same set of comments: Clamp Manufacturing Company, Inc.; Eagle Metal Finishing Co. Inc.; and Tri-Fitting Manufacturing Company. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group B for presentation purposes.

Group B Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. ". . . selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU interim remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Group B Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Group B Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

Lastly, the action orientation that birthed the SEPP needs flexibility that performance requirements would only hamper. The SEPP is the only mitigating action now in operation within the area. It's results could be very helpful to the long run containment efforts, for both the SEMOU and the WNOU.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.13 Responses to Comments from South El Monte Businesses (Group C)

The following two South El Monte OU businesses both submitted the same set of comments: Artistic Polishing and Plating, Inc. and APW-Electronic Solutions. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group C for presentation purposes. .

Group C Comment No. 1. *Artistic agrees with EPA's selection of "Alternative 3" as its preferred remedial plan. Artistic believes Alternative 3 achieves EPA's overall strategy in the San Gabriel Valley Ground Water Basin which is to control contaminant migration. Alternative 3, when viewed in light of the Whittier Narrows OU ("WNOU") remedy, is a cost effective interim remedial action that controls contaminant migration. Additionally, the WNOU remedy and Alternative 3 are complimentary of each other in that the WNOU remedy will control contaminant migration to the South of the SEMOU and Alternative 3 will control contaminant migration to the west of the SEMOU.*

Alternative 4, on the other hand, should not be selected for the SEMOU because it will provide nothing more than a costly redundancy to the WNOU remedy. Alternative 4 would cause an extraction field and treatment system to be installed between the southern boundary of the SEMOU and the WNOU extraction wells. Such a costly remedy will not achieve any greater control over contaminant migration than that provided by the WNOU remedy. Thus, Alternative 4 can not be justified on a cost or technical basis.

EPA's Response. For clarification, the shallow zone source control component of Alternative No. 4 would not have been installed "between the southern boundary of the SEMOU and the WNOU extraction wells." It would have been just downgradient of South El Monte OU source areas.

EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs.

Group C Comment No. 2. *Moreover, certain PRPs, which includes Artistic, and the WQA have already implemented a shallow zone extraction pilot program ("SZEPP") in the southern portion of the SEMOU. Artistic and certain other PRPs participated in funding the SZEPP with the expectation and understanding that the system would not be the subject of EPA control or oversite. Rather, Artistic believed that the SZEPP was implemented to start mass removal from the shallow zone. Artistic urges the EPA to view the SZEPP as being similar to the many site specific remedies that have been implemented in the SEMOU. The suggestion of adding the SZEPP into the EPA's proposed plan (Alternative 4) is as illogical as adding all of the SEMOU site specific remedies to its proposed plan. The SZEPP is a separate remedial measure and should remain as such.*

Artistic supports EPA's selection of Alternative 3 as its proposed plan and urges EPA to reject Alternative 4.

EPA's Response. EPA views the SEPP as a site-specific source control action for a group of facilities. And, although EPA has not included the SEPP in this ROD, EPA remains very supportive of the SEPP and will continue to work with the Regional Water Quality Control Board, local stakeholders and South El Monte OU PRPs to ensure that appropriate source control and source removal actions are implemented (or continued) at individual facilities or groups of facilities in the South El Monte OU.

1.14 Responses to Comments from Art Weiss Industrial Properties

Art Weiss Industrial Properties Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. ". . . selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Art Weiss Industrial Properties Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Art Weiss Industrial Properties Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP will be an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.15 Responses to Comments from EEMUS Manufacturing Corp.

EEMUS Manufacturing Corp. Comment No. 1. *I support the EPA's selection of Alternative 3 from the Feasibility Study to address ground water contamination in the South El Monte Operable Unit (SEMOU). The Remedial Action Objectives outlined by the EPA will be met by implementation of Alternative 3 particularly when considering other efforts that are planned by the EPA in the adjacent Whittier Narrows Operable Unit.*

At the October 27th EPA presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) several individuals provided comment that Alternative 4 be implemented instead of Alternative 3. These requests do not take into consideration the need for providing a sound remedial approach but are the more is better solution.

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA's evaluations conclude that the additional benefits gained from Alternative No. 4 are not significant enough to justify its much higher cost.

EEMUS Manufacturing Corp. Comment No. 2. *The addition of the shallow zone extraction barrier that would be added as the result of selection of Alternative 4 has already been implemented in the SEMOU. We believe that this project is beneficial and addresses shallow zone contamination removal in the southern area of the SEMOU. Adding this to the SEMOU ROD will not impact the EPA's overall solution to containment of contamination to the south in the intermediate ground water levels flowing from the SEMOU, El Monte and Baldwin Park Operable Units.*

EPA's Response. As noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU.

For clarification, the selected remedy for the South El Monte OU addresses containment of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. The comment refers to containment to the south, rather than west. Containment to the south is a component of the Whittier Narrows OU remedy. The comment also references containment of contaminated groundwater flowing from the El Monte and Baldwin Park OUs. This remedy only addresses the contamination flowing out of the South El Monte OU.

EEMUS Manufacturing Corp. Comment No. 3. *The EPA, in its October 27th presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) indicated that contamination from the SEMOU had migrated to Whittier Narrows. Some indication was also made that the EPA may attempt to recover costs for investigation and implementation of a remedial solution in the Whittier Narrow Operable Unit from the SEMOU participants. The EPA should consider the following issues if its costs for the Whittier Narrows project are allocated to others.*

1. *Many of the individuals designated as PRPs in the SEMOU have worked on the development of the feasibility study and contributed funding for this project voluntarily. The EPA should look to allocate any of their costs to those PRPs that have not contributed to these efforts.*

2. *There are properties in the SEMOU that are known to have soil contamination where the owners have made no effort to cleanup the sites. This unaddressed soil contamination has the potential of undermining the effectiveness and length of any ground water cleanup. These PRPs should be looked at by EPA for collection of any additional costs as their sites continue to be sources of contamination to ground water. .*

EPA's Response. EPA expects the South El Monte OU PRPs to allocate costs amongst themselves.

The allocation negotiations are the time to take into account past contributions, including facility-specific cleanup activities.

However, for any PRPs that do not resolve their liability, EPA will take into consideration any failure to contribute to past investigation and cleanup efforts.

EEMUS Manufacturing Corp. Comment No. 4. *There is evidence of ground water contamination flowing into the SEMOU and to Whittier Narrows from the Baldwin Park Operable Unit and the El Monte Operable Unit. The model provided by EPA shows the contamination flowing from these Operable Units to be under drinking water limits. EPA has taken the position that this level of contamination is not a factor at Whittier Narrows. The contamination that is flowing from these Operable Units is additive and there may have been slugs of higher concentrations that have entered or are yet to enter the SEMOU or Whittier Narrows from these neighboring Operable Units. If the EPA chooses to allocate costs for its' Whittier Narrows Operable Unit it is obligated to identify all those that potentially contributed to contamination, that would clearly include the Baldwin Park and El Monte Operable Units.*

EPA's Response. Regarding contamination flowing from Baldwin Park OU and El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

1.16 Responses to Comments from Aircraft Stamping Co., Inc.

Aircraft Stamping Co. Comment No. 1. *In your meeting of October 27, 1999 at South El Monte High School, EPA stated that in pumping and treating the intermediate zone, the water pumped or treated would either be discharged into the river bed or distributed to the water purveyors in that area. It would be my hope that the water purveyors would be given the first opportunity to purchase the water thereby alleviating some of the cost that would otherwise have to be borne by the EPA and/or the PRPs.*

EPA's Response. EPA's preference is that the treated water be supplied to water purveyors in the South El Monte OU. We are optimistic that the necessary agreements can be reached to allow the water purveyors to accept the water from the remedy.

Aircraft Stamping Co. Comment No. 2. *Will EPA be doing a cost benefit and health benefit to determine whether or not their project in the Whittier Narrows area is even necessary to order to protect the health and the environment?*

EPA's Response. EPA completed the Whittier Narrows OU Feasibility Study Addendum and released a Proposed Plan in October 1998. These documents describe the evaluations conducted to determine the need for an active remedy in the Whittier Narrows OU, including comparisons to the nine Superfund evaluation criteria. The ROD Amendment for the Whittier Narrows OU, issued in November 1999 further details the need for the selected remedy.

1.17 Responses to Comments from Mr. Robert Vanderbosch

Mr. Vanderbosch Comment No. 1. *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum.*

EPA's Response. EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

Mr. Vanderbosch Comment No. 2. *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).

EPA's Response. For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

Mr. Vanderbosch Comment No. 3. *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its

higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

1.18 Responses to Comments from Geosystem Consultants, Inc. (representing the South El Monte OU Participants)

Geosystem Consultants Comment No. 1. *Overall, the SEMOU Participants and Geosystem concur with EPA's selection of Alternative 3 as the preferred remedy in the Proposed Plan. Moreover, the SEMOU Participants and Geosystem are encouraged by EPA's willingness to entertain the use of existing infrastructure in the preferred remedy. This existing infrastructure is owned by the two SEMOU water purveyors whose wells have been impacted by volatile organic compounds (VOCs); namely the San Gabriel Valley Water Quality Company (SGVWC) and the City of Monterey Park. The SEMOU Participants and Geosystem have maintained all along that using existing infrastructure is both practical and cost-effective. Just as importantly, it may help get the remedy implemented several years earlier than if the "conventional" approach were adopted.*

EPA's Response. Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and supports the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

Geosystem Consultants Comment No. 2. *Shallow Zone Extraction Barrier Pilot Program. As EPA is aware, Cardinal Industrial Finishes (Cardinal) and, more recently, the San Gabriel Basin Water Quality Authority (WQA) have long advocated some type of "early action" in the SEMOU. In brief, the stated objective of the early action has consistently been to inhibit the migration of high VOC concentrations in the shallow zone toward Whittier Narrows and to remove VOC mass. After years of effort; and with the enthusiastic support of the state regulatory agencies, an early action was initiated in September 1999. Specifically, the SEMOU shallow zone extraction barrier pilot program (SEPP) became operational. The SEPP involves the extraction of a total of approximately 1,100 gpm from two extraction wells, treatment using liquid-phase granular activated carbon, and recharge of the treated ground water back into the shallow zone aquifer via engineered infiltration galleries. Based on the influent concentrations to the treatment systems, Geosystem estimates that the SEPP will remove around 72 pounds of VOCs per month (866 pounds per year) from the shallow zone aquifer. Moreover, ground water level data suggest that the combined effect of extraction via the two wells and recharge via the two infiltration galleries has created a hydraulic barrier that inhibits most, if not all, VOC migration at concentrations over 200 µg/l.*

The SEMOU Participants and Geosystem believe that an early action program that removes 72 pounds of VOCs per month and that achieves even partial hydraulic containment is a worthwhile effort. In the Proposed Plan, however, EPA does not mention the SEPP other than as a component of Alternative 4, which is not EPA's preferred remedy. While not advocating the selection of Alternative 4 as the preferred remedy, Geosystem and the SEMOU Participants believe that their efforts to inhibit shallow zone VOC migration toward Whittier Narrows and to remove VOC mass from the shallow zone aquifer should be

acknowledged in the Proposed Plan. Indeed, Geosystem and the SEMOU Participants believe that the SEPP should be given time to have a beneficial impact on downgradient ground water quality before EPA finalizes its plans for the fund-lead remedy in the Whittier Narrows Operable Unit (WNOU). Even if EPA believes the SEPP is or could be redundant because of its Whittier Narrows remedy, it could still be acknowledged and given credit as a VOC mass removal and/or source control measure.

EPA's Response. EPA appreciates the efforts of the various entities, including Cardinal Industrial Finishes, other South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. Source removal actions like the SEPP provide considerable long-term benefits in cleaning up South El Monte OU groundwater. Although it has not been selected as a specific component of the interim containment remedy described in this ROD, EPA believes that source control/removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU will continue to be an important component of the overall remedial efforts in the OU. EPA will continue to work with the RWQCB, South El Monte PRPs and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

EPA also acknowledges that operation of the SEPP does provide partial containment of high-level contamination migrating away from facilities in the South El Monte OU. However, the degree of containment provided by the SEPP does not mitigate the need for containment of shallow and intermediate groundwater contamination in the downgradient Whittier Narrows OU. If it continues to operate for a number of years, the SEPP will eventually affect the contaminant concentrations observed at containment wells in Whittier Narrows. But, EPA does not expect that the SEPP will significantly change the size of the area requiring containment in Whittier Narrows for many years to come.

Geosystem Consultants Comment No. 3. ***Identification of SEMOU PRPs.*** *The search for PRPs in the SEMOU involved sending a chemical use questionnaire to selected industrial/commercial facilities. It is Geosystem's understanding that the questionnaire recipients were selected based on a "drive-by" or "windshield" survey by Los Angeles Regional Water Quality Control Board (LARWQCB) personnel. If the completed questionnaires indicated that chlorinated solvents were used, stored, or handled at a particular facility, LARWQCB personnel conducted a physical site inspection. The inspections focused on features such as chemical storage areas, degreasing units, subsurface clarifiers, stained or degraded surface paving, and the like. Facilities at which LARWQCB personnel suspected releases may have occurred were required to conduct preliminary subsurface investigations of soil and, at some facilities, ground water quality.*

Because chemical use questionnaires were not sent to every commercial and industrial facility in the SEMOU, it is almost certain that not all solvent users were identified. Furthermore, the source identification program did not address anything other than the then current land use. As such, businesses that had used, stored, or handled solvents in the past, but which had ceased operating by the time the questionnaires were issued, escaped LARWQCB's follow-up inspections. The industrial properties in the SEMOU are predominantly small and most have had multiple owners and/or operators over the last 40 to 50 years. Accordingly, it is almost certain that many facilities that should have been inspected were not identified. Moreover, there are anecdotal indications that some questionnaires may not have been filled out correctly and that housekeeping at certain facilities improved dramatically prior to LARWQCB's inspections; thus, prospective PRPs may have avoided having to conduct subsurface investigations. Improvements in housekeeping at some facilities reportedly included remodeling and repaving.

Based on the above, Geosystem and the SEMOU Participants believe that there are more, as yet unidentified, PRPs in the SEMOU and that past land use should be considered in a renewed attempt to identify more PRPs, and spread the financial burden of the SEMOU remedy more equitably.

EPA's Response. Given the great number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential contaminant sources have not been identified. In addition to the "windshield" surveys, the RWQCB reviewed public records to identify potential solvent users. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU were very thorough. EPA is still collecting data and evaluating individual facilities in the South El Monte OU. EPA expects to name additional PRPs to participate in implementation of this remedy.

If the South El Monte OU Participants have relevant information about specific facilities that were not investigated by the RWQCB, they should present this information to EPA so that it can be determined if additional investigation is warranted.

Geosystem Consultants Comment No. 4. ***Site-Specific Remediation.*** *Drafts of several of the early RI/FS documents included language to the effect that remediation at individual SEMOU facilities is critical as part of a broader source mitigation program. Specifically, Geosystem and the SEMOU Participants reasoned that the systematic elimination of significant vadose zone contamination and/or ground water "hot spots" is of paramount importance to the success of any remedial alternative, be it containment or otherwise. In response to requests from EPA, however, the language pertaining to site-specific remediation was ultimately deleted from the text of the final deliverables. In parallel with the above, there are several SEMOU facilities with significant vadose zone and/or ground water contamination that have not been forced by local and state regulatory agencies to remediate. By way of example, a Cleanup and Abatement Order (CAO) issued by the LARWQCB to a SEMOU PRP in 1986 has still not been enforced to this day. In another instance in 1987, the LARWQCB refused a PRP permission to initiate a vapor extraction system to mitigate contamination by alcohols, ketones, and aromatic VOCs on the basis that "evidence" of PCE contamination would be destroyed.*

More recently, LARWQCB has begun to rectify this situation by applying pressure on certain PRPs to initiate site-specific vadose zone remediation programs and/or ground water remediation programs. Geosystem and the SEMOU Participants believe that more vigorous regulatory agency action against recalcitrant PRPs should be a critical component of the remedy in the SEMOU.

EPA's Response. The commentor does not provide enough information for EPA to speak to the specific references regarding the lack of site-specific cleanup action. EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

Geosystem Consultants Comment No. 5. ***Inflow of Contaminants from Other Areas.*** *Consistent with EPA's presumed remedy of containment using some type of ground water pump-and-treat system, the emphasis in the SEMOU RI was rightly on where the contaminants are going rather than where they came from. This emphasis was such that during the preparation of the RI/FS deliverables, EPA repeatedly requested that any references to the possible inflow of contaminants to the SEMOU from adjacent areas be deleted. However, the sources of contamination are critical to the cost allocation process, without which there may not be a viable PRP group to fund the remedy. In that context, there are several strong indications that inflows of contaminants are occurring or have occurred in the past. These indications are as follows:*

- *Perchlorate has been reported in ground water samples collected from two wells in the SEMOU; a City of Monterey Park well in the Whittier Narrows Golf Course (Well No. 12) and in an EPA multiport monitoring well on Meeker Avenue (Well No. EPAW417). So far as Geosystem is aware, perchlorate in the Main San Gabriel Basin is almost exclusively attributable to sources in the Baldwin Park Operable Unit (BPOU). While the isolated occurrence of perchlorate in Well No. 12 is difficult to explain, the proximity of Well EPAW417 to the BPOU is a strong indication that*

contaminants, possibly including VOCs, from that operable unit have impacted SEMOU ground water.

- *EPA's own interpretations of VOC distribution in the intermediate zone have consistently shown a plume extending from Whittier Narrows to the northeastern corner of the SEMOU, at which point it terminates with an arbitrary straight line immediately southwest of the BPOU. Although EPA stops short of showing a continuous VOC plume extending from the WNOU into the BPOU, the inference is clearly that it does. Moreover, it is likely that the isolated areas of higher VOC concentration along the west side of the San Gabriel River are attributable to migration from the BPOU. In other words, these apparently isolated areas may be the residual of a larger, more concentrated VOC plume that has since largely dissipated. Despite having largely dissipated, however, VOCs migrating out of the BPOU have contributed to the overall VOC contamination in the WNOU.*

- *The area of high VOC concentrations in the so-called "duck farm" area on the eastern SEMOU boundary appear to originate from a source or sources east of the San Gabriel River and the 605 Freeway. Again, this and other areas of higher VOC concentrations have probably contributed to overall ground water contamination in the SEMOU and the WNOU.*

- *Ground water modeling during the SEMOU FS indicates that the active and formerly active production wells in the northwestern corner of the SEMOU create significant pumping depressions in the intermediate zone and possibly in the shallow zone. These depressions may be (or may have been) large and deep enough to draw in ground water from the north and northwest, i.e., ground water that may contain contaminants originating from the adjacent El Monte Operable Unit.*

Geosystem had planned to use the basin-wide CFEST model to perform particle track modeling to show that ground water and, hence, VOCs from adjacent operable units could enter the SEMOU. Unfortunately, the particle tracking module of the CFEST model was not working correctly in the version of the model provided to Geosystem by EPA. Considering the widespread occurrence of VOCs throughout the San Gabriel Basin, however, it is almost inconceivable that VOC-contaminated water from one or more of the surrounding operable units has not flowed into, through, and out of the SEMOU at some time in the past. Even if VOCs are not currently entering the SEMOU from adjacent operable units, past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy. As EPA is well aware, the cost allocation process is often based on the volume of impacted ground water as well as the mass and concentrations of VOCs in ground water. Thus, a large volume of ground water contaminated by only low concentrations of VOCs still contributes significantly to the cost of the remedy.

EPA's Response. There is evidence that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. The areas of contamination being addressed in these interim remedies are in the southwest portion of the South El Monte OU. As shown in Figures 2 and 3, this is a considerable distance from the Baldwin Park OU contamination present in the northeast corner of the South El Monte OU.

In response to some of the specific issues cited in the comment:

- Low concentrations of perchlorate (similar to those detected in the City of Monterey Park and EPA monitoring wells referenced in the comment) have recently been detected in the shallowest zone in a multi-port monitoring well located within one of the primary source areas in the South El Monte OU. This indicates the potential presence of a local perchlorate source.

- Based on available hydrogeologic data, EPA does not believe that the isolated area of high VOC concentrations in the shallow aquifer in the far eastern portion of the South El Monte OU has any impact on groundwater contamination being addressed by the interim containment remedies in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs

- EPA has installed an additional monitoring well to help assess the potential impact of El Monte OU contamination on the wells in the pumping center west of the South El Monte OU.

EPA does not believe that available data support the conclusion stated in the comment that "past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy." The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data clearly indicate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

Geosystem Consultants Comment No. 6. *Central Basin Ground Water Quality. Preventing VOCs from migrating through Whittier Narrows and into the adjoining Central Basin is an undeniably valid objective and there has been much discussion during the WNOU FS about the relative merits of allowing only nondetectable VOC concentrations into the Central Basin versus concentrations between detection limits and MCLs. There has, however, been no discussion whatsoever about existing ground water quality in the Central Basin. Readers of San Gabriel Basin RI/FS documents could be forgiven for assuming that Central Basin ground water is pristine in every respect. In reality, however, the Central Basin has its own ground water contamination problems attributable to decades of industrial activity over a longer period of time and at a high intensity than in the San Gabriel Valley. While Central Basin ground water contamination should in no way change the remedial objectives for the San Gabriel Basin operable units, its acknowledgment would help keep things in perspective.*

EPA's Response. It is true that there are numerous groundwater contamination problems across the large Central Basin. However, the Montebello Forebay portion of the Central Basin immediately south of Whittier Narrows Dam is relatively free of contamination except for that migrating in from the San Gabriel Basin. In most of the Central Basin, the drinking water aquifers are relatively deep and isolated from the shallow aquifers by competent aquitards. However, in the Montebello Forebay, these drinking water aquifers are shallower and are connected directly with the shallow aquifers and the Montebello Forebay is the primary recharge location for the entire Central Basin. These physical features highlight the significant threat to the Central Basin drinking water aquifers posed by the San Gabriel Basin contamination.

1.19 Responses to Comments from R Brown

R Brown Comment No. 1. *I must object to the lack of an alternative that would limit the pumping of contaminated water to near where it was contaminated. In South El Monte the groundwater is very shallow and any spills of chemicals will quickly pollute the shallow zone. As a result, I request the consideration of an alternative that only involves pumping of water from the shallow zone in South El Monte Operable Unit.*

In addition on the west side of the South El Monte Operable Unit there long has been a ground water depression caused by over pumping by well owners. It is this high demand for ground water that has resulted in the contamination migrating down into the immediate zone from the shallow zone. If there

was less pumping of water on the west side of this operable unit the contaminated water would have migrated south which is the historic direction of ground water movement in the area where the contamination occurred.

EPA's Response. There is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Regardless of the reasons for westerly flow, at this time it is not feasible to eliminate flow towards the west. Accordingly, to meet EPA's objectives for this remedy (described in Section 8), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

R Brown Comment No. 2. *A few years ago the EPA in the Baldwin Park Operable Unit strongly advised the water pumpers in the valley to stop drilling wells away from the plume and start installing clean up equipment on wells that would extract water from the contaminated zone. This is a good policy. And it should be part of the solution in the South El Monte Operable Unit. The EPA fact sheet shows that the highest levels of contamination are only east of Rosemend Blvd in the shallow zone. Only with removal of the highly contaminated water will the public see a quick solution to the South El Monte problem. Therefore I favor an alternative that removes and treats water from the shallow zone.*

EPA's Response. The selected remedy does in fact shift extraction to focus on the contaminated portions of the aquifer as is recommended in this comment. EPA's expectation is that local water purveyors will take the treated water from the remedy. These purveyors would reduce extraction from deeper or downgradient production wells that are currently extracting from less contaminated or uncontaminated areas.

Although this ROD selects Alternative No. 3 as the interim remedy for the South El Monte OU, EPA believes that shallow zone source control at individual facilities or groups of facilities will continue to be an important component of overall cleanup in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring.

R Brown Comment No. 3. *The ground water users of this basin have for a long time had an effort to deal with the over draft of ground water to the west of the South El Monte Operable Unit. The Cooperative Water Exchange Agreement has the Main San Gabriel Basin Watermaster collect money from valley users of ground water to pay for the higher cost imported water to be delivered to the City of Alhambre through USG 5 by Upper San Gabriel Valley Municipal Water District so the City of Alhambra can refrain from pumping ground water in the area of the water table depression. The increased pumping of ground water from the intermediate zone on the West Side of the South El Monte Operable Unit will complicate the long term correction of the west side ground water over draft. This can be avoided if the EPA selects an alternative that emphisizes pumping from the shallow zone near to where the contamination originally occurred. Alternative 4 as published is closest to my ideal solution, and if there is not to be an only shallow zone pumping alternative, I would favor Alternative Four.*

EPA's Response. EPA's hope is that the selected remedy will not result in a net increase in pumping from the intermediate zone in the western portion of the South El Monte OU. The most likely implementation scenario is for the treated water to go to local water purveyors in the vicinity. These purveyors would then reduce the amount they are currently extracting from other nearby wells. As noted above in the response to Comment No. 1, because of the magnitude and extent of contamination present in the intermediate zone, EPA must select a remedy that includes intermediate zone pumping to prevent the further spread of this contamination and to protect water supply wells and areas of the aquifer that are currently uncontaminated.

1.20 Responses to Comments from Mr. Allan Hill

Allan Hill Comment No. 1. *I recommend that Alternative 4 be implemented. Alternative 3 does not include shallow zone source control which is where a substantial part of the problem exists.*

EPA's Response. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs. This ROD selects Alternative No. 3 for the South El Monte OU remedy. However, as is noted throughout this responsiveness summary, EPA believes that source control/source removal actions are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

1.21 Responses to Comments from Congressman Matthew G. Martinez

Congressman Martinez Comment No. 1. *I am a strong supporter of EPA's position that the polluters should pay for the cost of the cleanup. For that reason, I think it is important that we made sure that those companies selected have, in fact, been responsible for the pollution through good scientific determinations. Many of those PRP's which were named by the California Water Regional Control Board did nothing but have shallow soil contamination with no physical scientific evidence showing a linkage to ground water. Even through EPA may be able to hold any PRP named accountable, I believe that the spirit of the law and of EPA's credo would stipulate that we do not punish people that didn't do anything. There is no way that you will [sic]*

***It is my hope that when EPA issues their special notice letters to the PRPs, they will only notify those** that had scientific variable traceable link to ground water pollution and not those companies that simply had minor soil contamination.*

EPA's Response. In the South El Monte OU, the Regional Board's role has been to oversee and direct investigations at industrial facilities suspected of contaminant releases and, if necessary, to require site-specific cleanup actions. However, EPA has the responsibility for identifying and naming the PRPs that will be responsible for implementing the remedy selected in this ROD. EPA will only name as PRPs those companies or individuals where there is sufficient scientific evidence to support a conclusion that activities at their property have contributed to the groundwater contamination.

It is important to understand that the historic nature of many of the contaminant releases combined with the physical conditions in the South El Monte OU (and nearly everywhere else in the San Gabriel Basin), often complicate the evaluation of the link between soil contamination and groundwater contamination. EPA carefully reviews all of the available data before making a determination that the owners or operators of a specific facility are PRPs. EPA intends to only name PRPs where there is sufficient information to reasonably conclude that the contaminant releases at the facility have resulted in groundwater contamination.

Congressman Martinez Comment No. 3. *It is my opinion that soil cleanup should be the duty and responsibility of the California Water Regional Control Board. I would further hope that those PRPs which had only soil contamination, but no traceable link to ground water, would also receive third party litigation protection from EPA.*

EPA's Response. To date, the Regional Board has maintained the responsibility for directing all cleanup actions (both soil and shallow groundwater) at individual facilities. EPA anticipates that for the foreseeable future, the Regional Board will continue in this capacity.

After EPA has determined which parties will receive Special Notice Letters for implementation of the interim remedy selected in this ROD, EPA may notify those parties not receiving Special Notice that they are not currently suspected of having contributed to groundwater contamination in the South El Monte OU. EPA cannot offer third party litigation protection to parties such as these except through settlements resolving potential liability. EPA will consider making settlement offers to some or all of these parties if circumstances warrant.

Congressman Martinez Comment No. 4. *I am very interested in reviewing which PRP's the EPA intends to include, and which will not be included. If such a list has not yet been compiled, I would appreciate notification at least 10 days in advance of issuance of the notice letters.*

If EPA is not going to take what I believe to be a reasonable approach as stated above as to who should and should not receive notice letters, would you please reply to me and give me your reasons regarding this subject.

EPA's Response. Because this information may be used in potential enforcement actions, EPA cannot share its determinations regarding Special Notice recipients prior to the issuance of the letters. However, EPA can keep the Congressman informed as to the expected date for issuing Special Notice Letters.

EPA has every intention of following a reasonable, technically-sound approach in making the final determination as to who will receive Special Notice Letters for this remedy.

2 Responses to Oral Comments

In this section, EPA provides responses to oral comments received at the public meeting held on October 27, 1999 EPA responded to a number of questions directly at the public meeting. This section provides responses only to formal oral comments that were not fully addressed at the meeting. Formal oral comments were received from five parties: Mr. Royal Brown, a member of the public; Mr. Philip Miller, representing Geosystem Consultants, consultants for the South El Monte OU Participants; Mr. Bill Robinson, representing the Upper San Gabriel Valley Municipal Water District; Mr. Kirby Brill, representing the San Gabriel Basin Water Quality Authority; and Mr. Lawrence Felix, representing the South El Monte OU Participants. The full transcript of the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

2.1 Responses to Comments from Mr. Royal Brown

Mr. Brown Comment No. 1, Transcript Page 25, Line 24. *First of all, the presentation tonight simplified the groundwater flow in this area drastically. It completely forgot the vertical flow, up and down, as an important part of the component of what happens in geology.*

It is not just a single zone that's separated from another area. This is not a pressure aquifer in here, this is free-flowing ground water, and as a result there can be interchange upon the amount of pumping that occurs. So any pumping you do from a particular area will have a tendency even to move water through clay; and clearly, the simplified presentation that we've heard tonight --it appears that that has been the idea of the EPA all along -- is to go with a simplified presentation.

Frankly, I've seen elsewhere in groundwater basins that a major component of the problem has been, historically, vertical movement of water; therefore, a simplified concept that we have a separate action possible for shallow and another action for intermediate is really not reflective of what mother nature has set down here as the geology of this area.

If we had clearly identifiable, sealed areas with a common water table level, there wouldn't be much movement; but there is no clearly identifiable, sealed zone that's constant. This area was laid down by flood action, and it is very complex; water can move different directions because of water pressure and the water table and water pumping.

EPA's Response. EPA acknowledges that there is vertical movement of water in the South El Monte OU and the evaluations of groundwater flow performed during the RI/FS did take into account potential vertical flow. However, unlike most of the San Gabriel Basin, where the aquifer is not clearly separated into specific zones, the South El Monte OU does have distinctly different shallow and intermediate aquifer zones. It is important to account for these differing groundwater conditions in the evaluation and selection of remedial actions in the South El Monte OU. In much of the South El Monte OU, there is a fairly substantive sequence of fine-grained materials that limits vertical movement of groundwater and results in relatively large head differences (up to 25 feet) between the shallow and intermediate zones. Further, in portions of the OU groundwater flow directions are very different between the shallow and intermediate zone. These differing flow directions indicate that intermediate zone pumping has limited impacts on the shallow zone.

Mr. Brown Comment No. 2, Transcript Page 27, Line 5. *An important part of the evaluation of this area is the pumping depression that has historically occurred west of this area. That pumping depression basically is the cause of the water moving west.*

If we go back and look at early models of this basin, the constant flow was toward Whittier Narrows. It's only with the pumping that we can establish that there's a constant flow, now, to avoid a fill-in of the pumping depression to the west.

So basically, the important thing here in the long run for the public is the flow to the south, both in the intermediate zone and in the shallow zone. As a result, only Alternative 4 really protects the public interest, and that is of all the groundwater.

Alternative 3 does not protect the shallow area. It only directs action toward the intermediate zone; therefore, I strongly urge the EPA to discard Alternative 3 as not fulfilling the needs of the American public for protection of its groundwater, the groundwater that's owned in California by all the citizens of California, no matter whether they live in San Gabriel Valley or in northern California or over on the Colorado River.

According to our constitution in California, all the people of California own this water; and as a result of that, we've got to protect all of it, not just one zone.

EPA's Response. Regardless of the reasons for the westerly flow in the intermediate zone, there is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Based on current purveyor operations in the San Gabriel Basin, there is no indication that this westerly flow will dissipate in the foreseeable future. Accordingly, to meet EPA's objectives for this remedy (described in Section 8 of Part II), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

All of the contamination (both shallow and intermediate) flowing towards the south will be contained by EPA's remedy in the downgradient Whittier Narrows Operable Unit. Concurrent with the containment actions in the South El Monte and Whittier Narrows OUs, EPA will continue to work with the RWQCB and South El Monte PRPs to ensure that source control and source removal actions are implemented to reduce contaminant loading and migration in the shallow zone.

Mr. Brown Comment No. 3. Transcript Page 28, Line 9. *There is a current project that points toward cleanup of the shallow zone done by the Water Quality Authority. I'm afraid the EPA has not had good data about that project.*

Historically, what is estimated is one thing; but that project is about to go online and produce real costs. When you have real costs, you can find real benefits, not projected benefits.

There are two areas where we're going to see real benefits from that shallow project bound by the Water Quality Authority. First of all, there's direct removal of the chemicals from the groundwater at the wells at which they're pulling the water from;

Secondly, they treat that water, clean it up to above drinking water standards and discharge it as recharge water south of the wells. That water adds to the groundwater flow going in the shallow zone -- as the EPA calls it -- towards the south.

Since it's good quality water -- better than drinking water requirements -- and there is pollution to the south, that good water will dilute the existing pollution to the south of this project. That's a second major benefit.

If the water was sold to water companies by the Water Quality Authority, we would not be getting that benefit. So the Water Quality Authority's project really gives us two classes of benefits, and that's very important for the quick cleanup of the groundwater in this area.

I think that realization, an understanding of the costs and the time factor, is what's necessary for the EPA to understand that in the long run, a quick cleanup with lots of groundwater extraction immediately with

this cleanup and recharge action could reduce the costs of Alternative 4 in a major way. Therefore, I think it's important for the public to rise up and demand that both local people and responsible parties can take their local property, do shallow water treatment easily, and discharge it to the drainage system that we have in this area.

EPA's Response. Although this ROD does not select Alternative No. 4 as the interim remedy for the South El Monte OU, EPA agrees that the Water Quality Authority's shallow extraction pilot project does provide substantial benefits towards long-term cleanup of the South El Monte OU. EPA believes that shallow zone source control actions (such as the Water Quality Authority's project) at individual facilities or groups of facilities will continue to be an important component of the overall cleanup activities in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring. These source control activities are critical to accelerating cleanup of the groundwater in the South El Monte and Whittier Narrows OUs.

Mr. Brown Comment No. 4. Transcript Page 29, Line 25. *We have a whole series of rubber dams. Any water -- some percent of all the water that falls in this water shed is conserved by these rubber dams. That means if you dump it into the waste channel, the water is captured again, put into spreading basins, and is reused downstream by somebody from a well down there in Pico Rivera, Commerce, Downey, as drinking water. So we get a major benefit again.*

So I think Alternative 4 -- if it would understand that any of this water dumped on the ground or dumped into a waste channel has a positive benefit for the public in Los Angeles area, that's important, because there is a serious pumping depression down in central basin that needs to be corrected. The more recharge we have, the more cleanup projects on the shallow zone, that means more drainage water coming toward the central basin, which means correction in the long run, pumping deficiency that we've historically had in the Montebello Forebay. So for those reasons, I think it's paramount upon the EPA to adopt Alternative No. 4.

EPA's Response. This comment implies that Alternative No. 4 included discharge of treated water to surface water channels with subsequent flow into the Montebello Forebay as a component of the remedy. This is not the case. Just as in Alternative No. 3, the presumption is that the treated water from Alternative No. 4 would either be distributed to water purveyors or would recharge within the San Gabriel Basin. Further, an alternative that extracts water from the San Gabriel Basin (in the South El Monte OU) then discharges the treated water for recharge in the Montebello Forebay portion of the Central Basin would likely be cost prohibitive to implement. Neither EPA nor the South El Monte OU PRPs have water rights in the San Gabriel Basin. Thus, if water were extracted and allowed to leave the basin as part of this remedy, it would need to be off-set with the purchase of the replacement water. This would substantially increase the estimated operations and maintenance cost of the remedy.

2.2 Responses to Comments from Mr. Philip Miller, Geosystem Consultants, Inc. (representing the South El Monte OU Participants)

Mr. Miller Comment No. 1, Transcript Page 31, Line 13. *The reason I don't get to do that tonight is we don't disagree with the EPA.'s Alternative 3 as the preferred alternative for South El Monte. Further, use of infrastructure water in the preferred alternative -- we've maintained all along that it makes sense technically and financially to use infrastructure water, namely, the San Gabriel Water Company and the City of Monterey Park. As an added bonus, we believe it will help get the remedy off the ground or part of the remedy off the ground rather than the years it would take to happen with the traditional route.*

EPA's Response. Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and support the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

Mr. Miller Comment No. 2, Transcript Page 32, Line 7. *The first issue is that the early action project that was recently started up in South El Monte wasn't acknowledged in the proposed plan. As some of you may know, we started the system in September. We estimated we're moving 72 pounds of VOC a month, if concentrations stay more or less uniform. We think that's significant and should be given some acknowledgment in the proposed plan*

EPA's Response. EPA concurs that there are significant source control and mass removal benefits associated with operation of the shallow extraction pilot project (SEPP). EPA believes that source removal actions like the SEPP and other site-specific remediation activities occurring in the South El Monte OU provide considerable long-term benefits in cleaning up South El Monte OU groundwater.

Mr. Miller Comment No. 3, Transcript Page 32 Line 15. *The second issue is the strong suspicion that there are probably more, as yet, unidentified PRPs in the South El Monte Operable Unit.*

EPA's Response. With the large number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential sources of contamination have not been identified. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU have been very thorough. Extensive source identification and investigation activities occurred throughout the South El Monte OU and EPA is still collecting data and evaluating individual facilities. EPA expects to name additional PRPs to participate in implementation of this remedy.

Mr. Miller Comment No. 4, Transcript Page 32, Line 18. *Third is that the site-specific remediation has been under-emphasized throughout the RI/FS process.*

EPA's Response. The focus of the RI/FS and the interim remedy selected in this ROD is the regional groundwater contamination, rather than site-specific remediation of individual facilities. However, EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup activities. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities are occurring at individual facilities or groups of facilities.

Mr Miller Comment No. 5. Transcript Page 32, Line 21. *And fourth -- and perhaps most significantly -- we think that there's a strong likelihood that contaminants from other operable units have migrated into the South El Monte Operable Units. In some cases they may have migrated right through the operable unit and into Whittier Narrows.*

We understand EPA's emphasis in the RI/FS had to be where the contaminants were going to as opposed to where they came from; but at this stage in the process, with the impending cost allocation process, the issue of where the contamination came from comes much more to the forefront. We believe EPA. should consider the possible contributions from other operable units in its cost recovery efforts for the Whittier Narrows Operable Unit.

EPA's Response. EPA acknowledges that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not

believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU.

The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data demonstrate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

2.3 Responses to Comments from Mr. Bill Robinson, Upper San Gabriel Valley Municipal Water District (USGVMWD)

Mr. Robinson Comment No. 1, Transcript Page 33, Line 20. *I support the shallow zone source control plan even at an added cost of $ million. I think cleanup using containment is a bad approach because it increases the long-term costs of the solution.*

Perhaps the responsible parties are looking at this from a narrow perspective, from their own interests, and I think the EPA. needs to look at the total problem and the entire community interest when they choose an alternative.

I'm neutral on Alternative 3, but I've already said I support Alternative 4. I recommend that more attention be paid to the shallow aquifer.

EPA's Response. Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement appropriate source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. This could include continued operation of the WQA's shallow barrier project.

Mr. Robinson Comment No. 2, Transcript Page 34, Line 8. *Some comments have been made tonight about the treatment of the cleaned up water -- the question of encouragement of distribution of the cleaned up water to customers or discharge to the aquifer -- and I think the EPA. should support the plan that maximizes the beneficial use of that water if it's discharged to the aquifer, if that helps the long-term community interests.*

But I think you should also look real hard at working out deals that allow the cleaned up water to be distributed to customers. You have to balance that and pursue the best approach for the entire community, not necessarily for the responsible parties.

EPA's Response. The intermediate zone contamination in the South El Monte OU that is migrating towards the west has had significant financial and operational impacts on the water supply wells operated by local water purveyors. EPA believes that the best use of the treated intermediate zone water is to provide it as drinking water supply to local purveyors. This will provide the greatest benefit to the local community whose water supply has already been impacted. EPA is optimistic that the necessary agreements can be reached to allow for local use of the treated water and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner. If these agreements can not be reached in a timely manner, EPA will likely require aquifer recharge as the designated end use for the treated water.

Mr. Robinson Comment No. 3, Transcript Page 34, Line 22. *Just to wrap up, 20 years is a long time, and I just wish that we could increase the pace that we're crawling towards a solution. I mean, I don't want to come back here in 10 years. So I just urge the plan that reduces the long-term costs of the total solution. I believe that -- if you look at the community interests, I think that would be Alternative 4.*

EPA's Response. EPA's primary objective for this interim remedy is to provide containment of the regional groundwater contamination migrating away from source areas in the South El Monte OU. In that context, the additional present worth costs of Alternative No. 4 are not justified. However, this does not mean that source control and source removal actions will not continue in the South El Monte OU. Concurrent with implementation of this interim remedy, EPA will be continuing to work with the Regional Board to facilitate appropriate remedial actions at individual facilities or groups of facilities in the South El Monte OU. These parallel activities provide for a cost-effective approach to addressing the contamination in the South El Monte OU.

2.4 Responses to Comments from Mr. Kirby Brill, San Gabriel Basin Water Quality Authority

Mr. Brill Comment No. 1, Transcript Page 35, Line 9. *First of all, I'd like to state Water Quality's support of EPA.'s objectives. I think the Remedial Action Objectives that were spoken of earlier we can stand behind 100 percent.*

In support of those objectives, I think feel it's very important that the intermediate zone extraction system that's been explained, to the northwest, be implemented as soon as possible. The groundwater contamination is flowing to the northwest.

There are downgraded wells that are in the path of that contamination, so I think it's very important that we all move expeditiously towards a quick resolution of that project with quick implementation of that project.

EPA's Response. Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU

Mr. Brill Comment No. 2, Transcript Page 35, Line 24. *In addition to that, I think we feel it's very important for the South El Monte shallow extraction barrier to remain operational. It was constructed and funded within a consensus of this community, and I think there was a realization of the need of that project and the positive impacts of that. I would certainly hate to see that project shut down because of lack of funding.*

If that is best achieved through implementation or approval of Alternative 4 as EPA's proposed plan, then we would certainly support that. If there's other ways of keeping that shallow extraction barrier operational, we would support that as well.

I don't believe we're necessarily locked into one alternative or another and how it's named rather than the projects that are listed. I think that those should be implemented as quickly as possible, and in the case of the shallow extraction barrier that's already up and running -- as was mentioned earlier -- and already having significant positive benefits on the removal of contamination, I think it's very essential and crucial that that cleanup project remain operational.

I would underscore on some of the comments made earlier, that there will be significant long-term benefits that will occur with action occurring immediately. By keeping that project going, it has a strong likelihood of reducing the overall scope that would be required at a downgraded extraction barrier located at Whittier Narrows.

I really feel it's in everyone's best interests to move forward not only with the intermediate zone extraction and northwest of the operable unit, but maintaining the shallow extraction barrier. I think the overall fear with us and I believe fear of everyone in this room is that implementation of Alternative 3 will provide no incentive for financial participation to keep the shallow extraction barrier going.

If that concern is mitigated through other means, then we would certainly support those alternative actions. I think we feel, at least at this point in time, that's best achieved in including the barrier extraction plant as part of Alternative Plan 4.

EPA's Response. Although this ROD does not select Alternative No. 4, or include the Water Quality Authority's SEPP as a specific component of the interim remedy, EPA fully supports its continued operation as a source control action that provides mass removal and partial containment of the most contaminated portion of the aquifer in the South El Monte OU. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities or groups of facilities. These could potentially include mechanisms for ensuring continued operation of the shallow barrier project.

2.5 Responses to Comments from Mr. Larry Felix, South El Monte OU Participants

Mr. Felix Comment No. 1- Transcript Page 38, Line 15. *Early actions in the South El Monte Operable Unit have also been developed, signed to, and implemented due to the efforts of the same people responsible for the delivery of the Remedial Investigation/Feasibility Study. We encourage the continued operation of these early actions on the volunteer basis upon which they were undertaken.*

EPA's Response. EPA greatly appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU and spearheading implementation of the Shallow Extraction Pilot Project (SEPP) as an early action. EPA did not specifically include the SEPP as a component of the interim remedy selected in this ROD, however EPA remains very interested in continued implementation of source control and source removal actions in the South El Monte OU. EPA is encouraging the RWQCB and SEMOU PRPs to take the necessary steps to ensure that appropriate source control actions (such as the SEPP) continue at individual facilities or groups of facilities.

Mr. Felix Comment No. 2- Transcript Page 38, Line 22. *We would also now petition you, EPA, Regional Water Quality Control Board, Department of Toxic Substance Control, the San Gabriel Basin Water Quality Authority, and all other agencies and stakeholders responsible for the implementation of the remedy to use their creative abilities and to utilize whatever resources are currently available to them to develop programs and policies that address groundwater contamination problems in the South El Monte Operable Unit in a manner that provides equity to those who have brought us to this position.*

EPA's Response. As noted above, EPA appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU. EPA will continue to work with South El Monte OU PRPs and other local stakeholders to implement the interim remedy in the South El Monte OU in an efficient, cost-effective manner. EPA concurs that the effort already expended by members of the South El Monte OU Participants is a factor to be taken into account in allocating the costs of future remedial action.

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Tables

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations in Groundwater
South El Monte Operable Unit

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
Production Well 01900725	PCE	8/8	1.4	2	1.6	95% UCL
Production Well 01900791	PCE	1/3	0.4	0.7	0.7	Maximum
Production Well 01900792	PCE	3/4	1.4	1.9	1.9	Maximum
	TCE	3/4	0.54	0.7	0.7	Maximum
Production Well 01901694	PCE	1/1	NA	4	4	Maximum
Production Well 01902612	PCE	1/1	NA	7	7	Maximum
Production Well 01902664	PCE	1/1	NA	3	3	Maximum
	TCE	1/1	NA	5	5	Maximum
Production Well 01903057	None of the 8 risk drivers detected	NA	NA	NA	NA	NA
Production Well 01903081	PCE	9/9	0.9	1.3	1.1	95% UCL
Production Well 08000113	PCE	1/3	0.4	0.8	0.8	Maximum
Production Well 31900746	PCE	7/8	0.8	1.6	1.1	95% UCL
	TCE	2/4	1.6	0.6	0.6	Maximum
Production Well 31900747	PCE	5/8	0.6	1	0.8	95% UCL
Production Well 31903103	PCE	8/8	1.4	1.7	1.5	95% UCL
	TCE	1/2	2.0	1.4	1.4	Maximum
Production Well 41900745	PCE	7/7	1.9	3.3	2.4	95% UCL
	TCE	1/7	0.3	0.5	0.4	95% UCL
Production Well 41902713	PCE	5/8	0.4	1.6	0.7	95% UCL
Well Group 1	1,2-DCA	4/4	6.7	7.1	7.1	95% UCL

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
Well Group 2	Benzene	1/16	0.3	1.1	0.4	95% UCL
	PCE	16/16	123	710	196	95% UCL
	TCE	14/16	27	400	70	95% UCL
Well Group 3	Benzene	13/52	0.42	2.44	0.66	95% UCL
	1,2-DCA	2/52	0.60	2.78	0.83	95% UCL
	Cis-1,2-DCE	24/27	3.76	12.1	4.99	95% UCL
	PCE	47/52	399	8,900	692	95% UCL
	TCE	50/52	95	620	127	95% UCL
	Vinyl Chloride	11/52	1.64	18	2.44	95% UCL
Well Group 4	Benzene	18/31	134	880	212	95% UCL
	1,2-DCA	13/31	16.2	110	24.5	95% UCL
	Cis-1,2-DCE	9/31	2.8	3.2	3.2	Maximum
	PCE	14/31	13	42	17	95% UCL
	TCE	18/31	13.9	63	19.7	95% UCL
Well Group 5	1,2-Dichloroethene	3/3	37	98	98	Maximum
	PCE	1/3	27	72	72	Maximum
	TCE	3/3	46	79	79	Maximum
Well Group 6	Benzene	1/2	0.5	0.7	0.7	Maximum
	1,2-DCA	2/2	2.5	3.8	3.8	Maximum
	Cis-1,2-DCE	2/2	190	348	348	Maximum
	1,2-DCP	1/2	1.8	3.4	3.4	Maximum
	PCE	2/2	67	132	132	Maximum

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	2/2	56.5	99	99	Maximum
	Vinyl Chloride	2/2	16	29	29	Maximum
Well Group 7	1,2-DCA	1/3	5.3	6	6	Maximum
	1,2-DCE	1/3	5	5	5	Maximum
	PCE	2/3	22	43	43	Maximum
	TCE	2/3	16	29	29	Maximum
Well Group 8	1,2-DCA	1/16	0.3	0.5	0.3	95% UCL
	Cis-1,2-DCE	14/16	9.7	22	13	95% UCL
	PCE	16/16	43	170	67	95% UCL
	TCE	16/16	10.5	23	13.5	95% UCL
	Vinyl Chloride	1/16	0.4	0.6	0.5	95% UCL
Well Group 9	Benzene	2/17	2.2	0.8	0.8	Maximum
	1,2-DCE	2/6	9.2	19	13.7	95% UCL
	Cis-1,2-DCE	4/9	1.1	5.4	2.2	95% UCL
	PCE	17/17	171	790	272	95% UCL
	TCE	14/17	18	120	32	95% UCL
Well Group 10	PCE	4/4	155	348	320	95% UCL
	TCE	4/4	6.3	12	11	95% UCL
Well Group 11	Benzene	2/3	6	5	5	Maximum
	1,2-DCA	1/3	9	11	11	Maximum
	1,2-DCE	3/3	1,019	2,800	2,800	Maximum
	PCE	3/3	37	78	78	Maximum

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	3/3	60	110	110	Maximum
Well Group 12	PCE	7/7	362	640	482	95% UCL
	TCE	5/7	7.4	8.6	8.6	Maximum
Well Group 13	Benzene	1/3	1.7	0.2	0.2	Maximum
	Cis-1,2-DCE	1/2	0.3	0.6	0.6	Maximum
	PCE	3/3	260	536	536	Maximum
	TCE	3/3	9.1	12.2	12.2	Maximum
Well Group 14	1,2-DCA	8/11	1.8	2.7	2.5	95% UCL
	Cis-1,2-DCE	1/1	0.4	0.4	0.4	Maximum
	PCE	11/11	29	58	38.7	95% UCL
	TCE	11/11	13	32	17.5	95% UCL
Well Group 15	PCE	30/30	220.5	620	268.3	95% UCL
	TCE	3/30	1.1	2	1.6	95% UCL
Well Group 16	Benzene	2/6	13	12	12	Maximum
	1,2-DCE	4/5	89.4	310	210.1	95% UCL
	1,2-DCP	1/7	12.2	14	14	Maximum
	PCE	6/7	14.2	25	21	95% UCL
	TCE	6/7	212.4	760	435.8	95% UCL
Well Group 17	1,2-DCA	4/12	1.0	1.3	1.3	Maximum
	Cis-1,2-DCE	11/12	9.4	52.1	17.3	95% UCL
	1,2-DCP	1/12	0.8	0.5	0.5	Maximum
	PCE	12/12	238.5	480	298	95% UCL

Production Well or Well Group	Chemical of Concern	Frequency of Detection	Mean Concentration (ppb)	Maximum Concentration (ppb)	RME Exposure Point Concentration (ppb)	Statistical Measure
	TCE	12/12	24.3	96.2	36.8	95% UCL

Notes:
ND = non-detect
Ppb = parts per billion or µg/L (micrograms per liter)
95% UCL = 95 per cent upper confidence limit on the arithmetic mean groundwater concentration.

Table 2
Toxicity Values for Chemicals of Potential Concern
South El Monte Operable Unit

Chemical Name	Systemic Toxicity (mg/kg/day)						Carcinogenic Potency (mg/kg/day)						
	Oral Reference Dose	Source	Oral Critical Effect	Inhalation Reference Dose	Source	Inhalation Critical Effect	Weight of Evidence[1]	Source	Oral Slope Factor	Source	Inhalation Slope Factor	Source	Tumor Site
Benzene	0.0011	Route Extrapolation	--	0.0017	NCEA	--	A	IRIS	0.029	IRIS	0.029	IRIS[3]	Leukemia
1,2-DCA	0.01	NCEA	--	0.0029	NCEA	--	B2	IRIS	0.091	IRIS	0.091	IRIS[3]	Stomach, Mammary, Lung, Circulatory
1,2-DCE	0.006	HEAST	Liver Lesions	0.009	Route Extrapolation	--	--	--	--	--	--	--	--
Cis-1,2-DCE	0.0017	HEAST	Blood- decreased hematocrit and hemoglobin	0.01	Route Extrapolation	--	D	IRIS	--	--	--	--	--
1,2-DCP	0.0029	Route Extrapolation	--	0.0011	Iris[2]	Increased nasal mucosa	B2	HEAST	0.068	HEAST	0.068	Route Extrapolation	Liver
PCE	0.009	IRIS	Hepatotoxicity in mice, weight gain in rats	0.01	Route Extrapolation	--	C-B2	HEAST	0.052	NCEA	0.002	NCEA[3]	Liver, Leukemia
TCE	0.01	NCEA	Liver – Toxicity	0/006	Route Extrapolation	-	B2	HEAST	0.011	NCEA	0.006	NCEA[3]	Lungs, Liver
Vinyl Chloride	--	--	--	--	--	--	A	HEAST	1.9	HEAST	0.3	HEAST[3]	Lungs, Liver

HEAST = Health Effects Assessment Summary Tables (EPA, 1995b)

IRIS = Integrated Risk Information System (EPA, 1996a)

NCEA = National Center for Environmental Assessment (EPA, 1996b)

[1] Weight of Evidence Classification: A is Human Carcinogen; B is Probable Human Carcinogen (B1-limited evidence of carcinogenicity in humans, B2-sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans); C is a Possible Human Carcinogen; D is not classifiable as to Human Carcinogenicity.

[2] Inhalation Reference Dose calculated from unit risk.

[3] Inhalation Slope Factor calculated from unit risk.

Table 3a
Estimated Total Excess Lifetime Cancer Risk from Potential Current Domestic Use of Groundwater
South El Monte Operable Unit

Wells/Well Groups[1]	Average Exposure				Reasonable Maximum Exposure				
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	Major Chemical Contributors
01900725	1.4×10^{-7}	5.3×10^{-9}	1.6×10^{-8}	2×10^{-7}	9.8×10^{-7}	3.8×10^{-8}	1.3×10^{-7}	1×10^{-6}	PCE
01900791	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.3×10^{-7}	1.6×10^{-8}	5.9×10^{-8}	5×10^{-7}	
01900792	1.5×10^{-7}	1.1×10^{-8}	1.6×10^{-8}	2×10^{-7}	1.3×10^{-6}	9.4×10^{-8}	1.6×10^{-7}	2×10^{-6}	PCE
01901694	3.9×10^{-7}	1.5×10^{-8}	4.6×10^{-8}	5×10^{-7}	2.4×10^{-6}	9.4×10^{-8}	3.4×10^{-7}	3×10^{-6}	PCE
01902664	4.0×10^{-7}	6.8×10^{-8}	3.8×10^{-8}	5×10^{-7}	2.5×10^{-6}	4.2×10^{-7}	2.8×10^{-7}	3×10^{-6}	PCE
01903057	7.0×10^{-8}	7.0×10^{-8}	3.7×10^{-9}	1×10^{-7}	5.0×10^{-7}	5.0×10^{-7}	3.1×10^{-8}	1×10^{-6}	Carbon Tetrachloride
01903081	1.3×10^{-7}	4.3×10^{-8}	1.2×10^{-8}	2×10^{-7}	1.0×10^{-6}	4.0×10^{-7}	1.2×10^{-7}	2×10^{-6}	Carbon Tetrachloride, PCE
08000113	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.9×10^{-7}	1.9×10^{-8}	6.7×10^{-8}	6×10^{-7}	
31900746	9.6×10^{-8}	7.1×10^{-8}	9.7×10^{-9}	2×10^{-7}	8.1×10^{-7}	8.3×10^{-7}	9.8×10^{-8}	2×10^{-6}	PCE, Chloroform
31900747	5.9×10^{-8}	2.3×10^{-9}	6.9×10^{-9}	7×10^{-8}	4.9×10^{-7}	1.9×10^{-8}	6.7×10^{-8}	6×10^{-7}	
31903103	1.7×10^{-7}	2.1×10^{-8}	1.7×10^{-8}	2×10^{-7}	1.1×10^{-6}	1.3×10^{-7}	1.3×10^{-7}	1×10^{-6}	PCE
41900745	1.9×10^{-7}	1.1×10^{-8}	2.2×10^{-8}	2×10^{-7}	1.5×10^{-6}	8.5×10^{-8}	2.0×10^{-7}	2×10^{-6}	PCE
41902713	3.9×10^{-8}	1.5×10^{-9}	4.6×10^{-9}	5×10^{-8}	4.3×10^{-7}	1.6×10^{-8}	5.9×10^{-8}	5×10^{-7}	

[1] Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

Table 3b
Estimated Total Excess Lifetime Cancer Risk from Potential Future Domestic Use of Groundwater
South El Monte Operable Unit

Wells/Well Groups[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Well Group 1	1.2×10^{-5}	1.2×10^{-6}	1.5×10^{-6}	2×10^{-5}	7.6×10^{-5}	7.6×10^{-6}	1.2×10^{-7}	2×10^{-5}	1,2-DCA
Well Group 2	1.3×10^{-5}	7.9×10^{-7}	1.4×10^{-6}	1×10^{-5}	1.3×10^{-4}	9.7×10^{-6}	1.7×10^{-6}	2×10^{-4}	PCE
Well Group 3	4.7×10^{-5}	3.9×10^{-6}	4.8×10^{-6}	6×10^{-5}	5.0×10^{-4}	3.7×10^{-6}	6.0×10^{-6}	6×10^{-4}	PCE, TCE, VC
Well Group 4	1.2×10^{-5}	1.1×10^{-5}	5.7×10^{-7}	2×10^{-5}	1.1×10^{-4}	1.0×10^{-4}	6.3×10^{-6}	2×10^{-4}	Benzene, PCE, TCE, 1,2-DCA
Well Group 5	3.6×10^{-5}	6.2×10^{-7}	3.5×10^{-7}	5×10^{-5}	5.4×10^{-5}	7.3×10^{-6}	6.5×10^{-6}	7×10^{-5}	PCE, TCE
Well Group 6	6.6×10^{-5}	1.1×10^{-5}	1.8×10^{-5}	8×10^{-5}	7.5×10^{-4}	1.2×10^{-4}	2.5×10^{-5}	9×10^{-4}	PCE, TCE, VC, 1,2-DCP, 1,2-DCA
Well Group 7	3.4×10^{-5}	1.2×10^{-5}	2.8×10^{-7}	5×10^{-5}	3.6×10^{-5}	9.5×10^{-6}	3.9×10^{-6}	5×10^{-5}	PCE, TCE, 1,2-DCA
Well Group 8	5.9×10^{-5}	5.6×10^{-7}	5.3×10^{-7}	7×10^{-5}	5.4×10^{-5}	4.6×10^{-6}	6.0×10^{-6}	6×10^{-5}	PCE, TCE, VC
Well Group 9	1.8×10^{-5}	1.5×10^{-6}	2.0×10^{-6}	2×10^{-5}	1.8×10^{-4}	1.5×10^{-5}	2.3×10^{-5}	2×10^{-4}	PCE
Well Group 10	1.5×10^{-5}	6.6×10^{-7}	1.8×10^{-6}	2×10^{-5}	2.0×10^{-4}	8.3×10^{-6}	2.7×10^{-5}	2×10^{-4}	PCE
Well Group 11	7.0×10^{-5}	2.8×10^{-6}	5.1×10^{-7}	1×10^{-5}	7.8×10^{-5}	2.4×10^{-5}	7.5×10^{-6}	1×10^{-4}	PCE, TCE, 1,2-DCA
Well Group 12	3.6×10^{-5}	1.5×10^{-6}	4.1×10^{-6}	4×10^{-5}	3.0×10^{-4}	1.2×10^{-5}	4.1×10^{-5}	3×10^{-4}	PCE
Well Group 13	2.6×10^{-5}	1.1×10^{-6}	3.0×10^{-6}	3×10^{-5}	3.3×10^{-4}	1.4×10^{-5}	4.5×10^{-6}	4×10^{-4}	PCE
Well Group 14	3.5×10^{-5}	7.9×10^{-7}	3.5×10^{-7}	5×10^{-5}	3.0×10^{-5}	7.1×10^{-6}	3.4×10^{-6}	4×10^{-5}	PCE
Well Group 15	2.2×10^{-5}	8.5×10^{-7}	2.5×10^{-6}	3×10^{-5}	1.6×10^{-4}	6.5×10^{-6}	2.3×10^{-6}	2×10^{-4}	PCE
Well Group 16	8.1×10^{-5}	4.7×10^{-6}	4.1×10^{-7}	1×10^{-5}	8.6×10^{-5}	4.7×10^{-5}	4.9×10^{-6}	1×10^{-4}	PCE, TCE, 1,2-DCP
Well Group 17	2.4×10^{-5}	1.6×10^{-5}	2.8×10^{-6}	3×10^{-5}	1.9×10^{-4}	1.2×10^{-5}	2.5×10^{-5}	2×10^{-4}	PCE

[1] Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

Table 4a
Estimated Total Noncancer Hazard Index from Potential Current Domestic Use of Groundwater
South El Monte Operable Unit

Wells[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
01900725	0.00214	0.00219	0.00024	0.005	0.00455	0.00463	0.00061	0.010	
01900791	0.00059	0.00059	0.00007	0.001	0.00192	0.00192	0.00026	0.004	
01900792	0.00338	0.00338	0.00029	0.007	0.00840	0.00840	0.00087	0.02	
01901694	0.00587	0.00587	0.00068	0.01	0.01096	0.01096	0.00151	0.02	
01902664	0.01664	0.01664	0.00099	0.03	0.03105	0.03105	0.00218	0.06	
01903057	0.01468	0.01803	0.00078	0.03	0.03131	0.03845	0.00198	0.07	
01903081	0.00971	0.01163	0.00060	0.02	0.02650	0.03185	0.00190	0.06	
08000113	0.00059	0.00059	0.00007	0.001	0.00219	0.00219	0.00030	0.005	
31900746	0.00323	0.00323	0.00021	0.007	0.00795	0.00795	0.00060	0.02	
31900747	0.00088	0.00088	0.00010	0.002	0.00219	0.00219	0.00030	0.005	
31903103	0.00548	0.00548	0.00037	0.01	0.01050	0.01050	0.00086	0.02	
41900745	0.00352	0.00352	0.00035	0.007	0.00840	0.00840	0.00099	0.02	
41902713	0.00059	0.00059	0.00007	0.001	0.00192	0.00192	0.00026	0.004	

[1] Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

Table 4b
Estimated Total Noncancer Hazard Index from Potential Future Domestic Use of Groundwater
South El Monte Operable Unit

Wells[1]	Average Exposure				Reasonable Maximum Exposure				Major Chemical Contributors
	Ingestion	Inhalation	Dermal	All Routes	Ingestion	Inhalation	Dermal	All Routes	
Well Group-1	0.0339	0.0339	0.0004	0.07	0.671	0.671	0.001	0.1	
Well Group 2	0.2496	0.2495	0.0238	0.5	0.8638	0.8638	0.0893	2	PCE
Well Group 3	0.8565	0.8602	0.0788	2	2.5736	2.5832	0.2929	5	PCE, TCE
Well Group 4	1.3635	1.4074	0.0792	3	4.0191	4.1858	0.2790	8	Benzene
Well Group 5	0.2126	0.2126	0.0113	0.4	0.8563	0.8563	0.0575	2	TCE
Well Group 6	0.5799	0.5748	0.0252	1	1.9678	1.9525	0.1039	4	Cis-1,2-DCE
Well Group 7	0.1100	0.1090	0.0059	0.2	0.3350	0.3313	0.0240	0.7	
Well Group 8	0.1069	0.1068	0.0088	0.2	0.2897	0.2893	0.0295	0.6	
Well Group 9	0.4435	0.3412	0.0339	0.8	1.3065	1.0015	0.1185	2	PCE
Well Group 10	0.2433	0.2432	0.0271	0.5	0.9277	0.9276	0.1233	2	PCE
Well Group 11	2.0284	2.0846	0.0586	4	9.6574	9.8138	0.3170	20	1,2-DCE, TCE
Well Group 12	0.5850	0.5852	0.0666	1	1.4799	1.4810	0.1954	3	PCE
Well Group 13	0.4072	0.4071	0.0455	0.9	1.5316	1.5311	0.2055	3	PCE
Well Group 14	0.1302	0.1266	0.0078	0.3	0.3407	0.3317	0.0237	0.7	
Well Group 15	0.3299	0.3293	0.0380	0.7	0.7565	0.7548	0.1024	2	PCE
Well Group 16	0.9605	0.9580	0.0356	2	3.2491	3.2404	0.1401	7	TCE, 1,2-DCE
Well Group 17	0.4448	0.4441	0.0440	0.9	1.0809	1.0790	0.1230	2	PCE

[1] Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

Table 5
Cost Comparison of Alternatives
($1,000s)

Alternative	Capital Costs		Annual O&M Costs	Net Present Worth (30-years @ 7%)	
	Using New Facilities	Using Existing Facilities		Using New Facilities	Using Existing Facilities
2	450		90	1,540	
3	5,880	3,670	840	14,150	11,930
4	6,290	4,080	1,130	18,110	15,890

Table 6
Chemical-Specific ARARs for Chemicals of Concern

Compound	ARAR (ug/L)	Source
Acetone	-	-
Benzene	1	California MCL
Bromochloromethane	-	-
Carbon Disulfide	-	-
Carbon Tetrachloride	0.5	California MCL
Chlorobenzene	70	California MCL
Chloroethane	-	-
Chloroform[1]	100	Federal MCL
Chloromethane	-	-
1,2-Dibromomethane	0.05	Federal MCL
1,4-Dichlorobenzene	5	California MCL
1,1-Dichloroethane	5	California MCL
1,1-Dichloroethene	6	California MCL
1,2-Dichloroethane	0.5	California MCL
1,2-Dichloroethene	-	-
cis-1,2-Dichloroethene	6	California MCL
trans-1,2-Dichloroethene	10	California MCL
1,2-Dichloropropane	5	Federal MCL
2,2-Dichloropropane	-	-
1,1-Dichloropropene	-	-
1,3-Dichloropropene	0.5	California MCL
Ethylbenzene	700	Federal MCL
Isopropylbenzene	-	-
Methyl Ethyl Ketone	-	-
Methylene Chloride	5	Federal MCL
Naphthalene	-	-
n-Propylbenzene	-	-
Styrene	100	Federal MCL
Tetrachloroethene	5	Federal MCL
Toluene	150	California MCL
1,1,2-Trichloro-1,2,2-trifluoroethane	1,200	California MCL
1,1,1-Trichloroethane	200	Federal MCL
1,1,2-Trichloroethane	5	Federal MCL
Trichloroethene	5	Federal MCL
Trichlorofluoromethane	150	California MCL
1,2,4-Trimethylbenzene	-	-
1,3,5-Trimethylbenzene	-	-
Vinyl Chloride	0.5	California MCL
Xylenes, Total	1,750	California MCL

[1]This chemical is one of the four trihalomethanes (THMs); the MCL listed is for all four THMs combined: chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

Notes: - indicates "no MCL has been established or proposed."

Table 7
Detailed Costs Estimates for the Selected Remedy
South El Monte OU - Interim ROD

Component Capital Costs (including Engineering and Management)	Quantity	Unit	Unit Cost ($)	Cost ($) Capital Costs
Monitoring				
New MP® monitoring wells	2	ea.	$108,900	$217,800
Initial ground water monitoring	1	ls.	$52,000	$52,000
Monterey Park Module No. 1 (near wells 12 and 15)				
Install and equip. extraction wells	2	ea.	$229,050	$458,100
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$705,600	$705,600
Conveyance piping	2	ls.	$133,500	$267,000
Monterey Park Module No. 2 (near Well 5)				
Install and equip. extraction well	1	ea.	$226,500	$226,500
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$464,700	$464,700
Conveyance piping	1	ls.	$125,000	$125,000
SCWC Module (near wells San Gabriel 1 and 2)				
Install and equip. extraction wells	2	ea.	$226,500	$453,000
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$518,400	$518,400
Conveyance piping	1	ls.	$125,000	$125,000
SGVWC Module (near Plant 8)				
Install and equip. extraction wells	1	ea.	$226,500	$226,500
Land Acquisition	1	ls.	$125,000	$125,000
Treatment system	1	ls.	$650,100	$650,100
Conveyance Piping	1	ls.	$125,000	$125,000
		Capital Cost Subtotal		$5,115,000
		Contingencies (15 percent)		$767,000
		TOTAL ESTIMATED CAPITAL COST		$5,882,000

Annual Operations & Maintenance Costs	Quantity	Unit Cost	Annual Cost ($)	Present Worth Cost (1) ($)
Long-term Ground Water Monitoring	1	$85,100	$85,100	$1,056,000
Monterey Park Module No. 1 (Wells 12 and 15)		*30 years operation*		
Treatment system monitoring	1	$40,200	$40,200	$499,000
Remediation system operation	1	$146,000	$146,000	$1,812,000
Monterey Park Module No. 2 (Well 5)		*10 years operation*		
Treatment system monitoring	1	$28,400	$28,400	$199,000
Remediation system operation	1	$95,500	$95,500	$671,000
SCWC Module (Wells San Gabriel 1 and 2)		*5 years operation*		
Treatment system monitoring	1	$32,400	$32,400	$133,000
Remediation system operation	1	$109,000	$109,000	$447,000
SGVWC Module (Wells 8B, C and D)		*30 years operation*		
Treatment system monitoring	1	$43,800	$43,800	$544,000
Remediation system operation	1	$147,300	$147,300	$1,828,000
		Annual O&M Subtotal:	$727,700	$7,189,000
		O&M Contingencies (15 percent)(1)	$109,200	$1,078,000
		Annual O&M Total:	$837,000	
		TOTAL DISCOUNTED O&M COST(1)		$8,267,000
		TOTAL CAPITAL COSTS		$5,882,000
		ESTIMATED PRESENT WORTH COST		$14,149,000

Notes
(1) Based on 5 to 30-year project and a 7% discount rate.
(2) Net Present Value Factors = 12.409 for 30 years, 7.024 for 10 years, and 4.100 for 5 years.

Capital cost estimates are not discounted because the construction work will be performed in the early stages of the project. O&M costs are reported as present worth estimates given a 7% discount rate for a duration that varies between 5 and 30 years. Cost estimates are based on extraction rates and influent quality estimates that may be refined during remedial design. Cost estimates are expected to be within a +50 to -30% accuracy range.

"ls. = lump sum; ea. = each

Figures

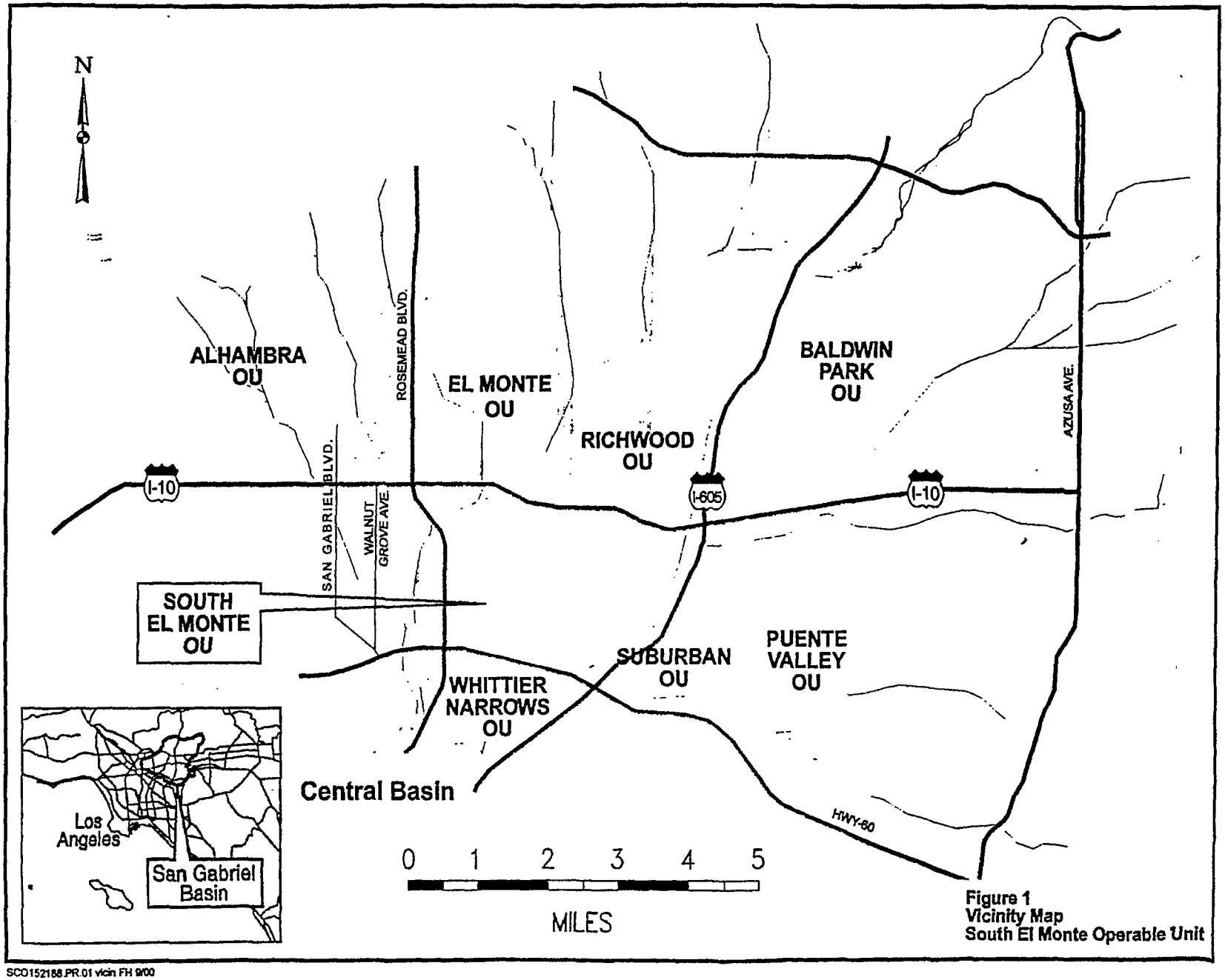

Figure 1
Vicinity Map
South El Monte Operable Unit

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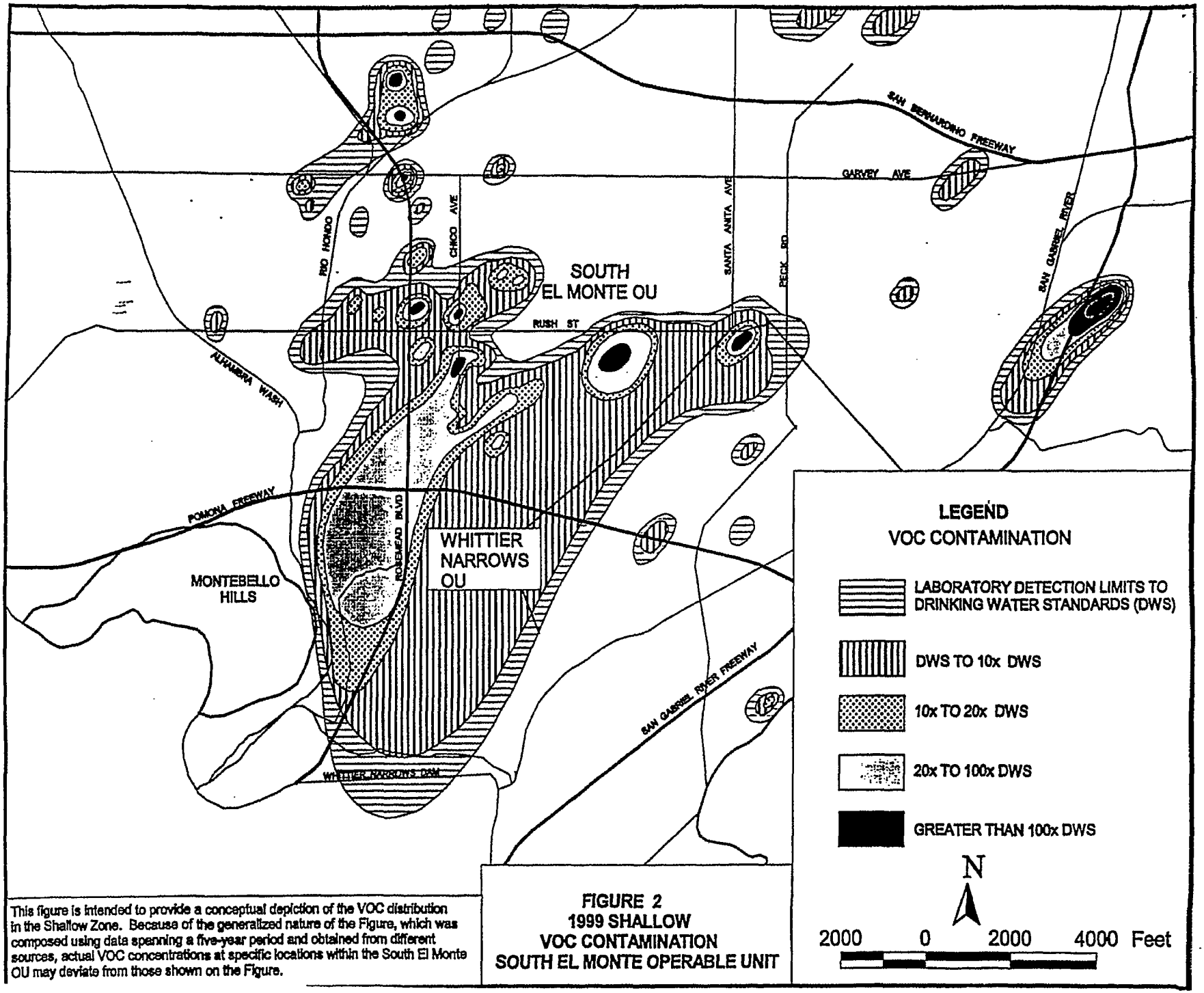
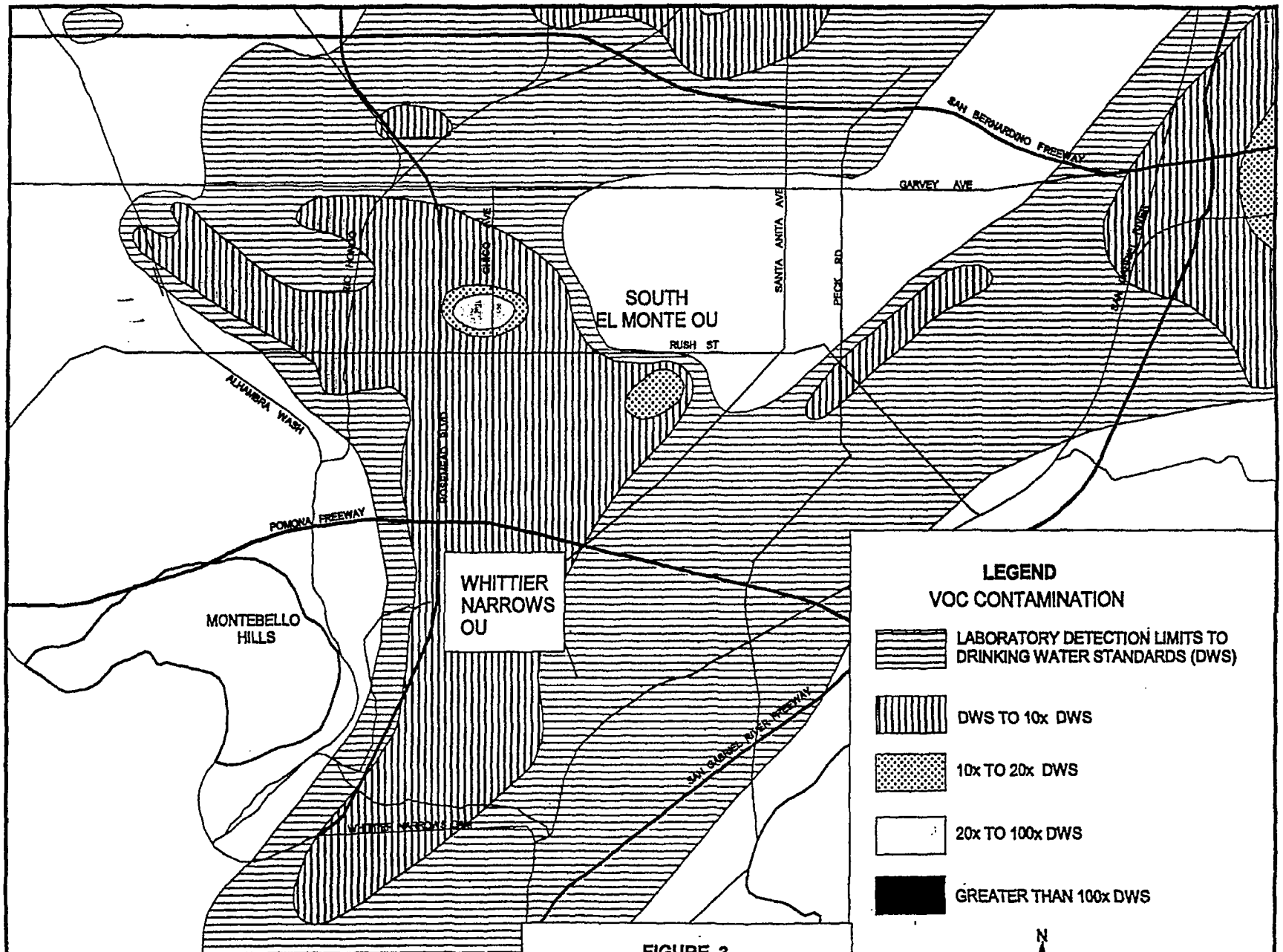


This figure is intended to provide a conceptual depiction of the VOC distribution in the Shallow Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different sources, actual VOC concentrations at specific locations within the South El Monte OU may deviate from those shown on the Figure.

FIGURE 2
1999 SHALLOW
VOC CONTAMINATION
SOUTH EL MONTE OPERABLE UNIT



This figure is intended to provide a conceptual depiction of the VOC distribution in the Intermediate Zone. Because of the generalized nature of the Figure, which was composed using data spanning a five-year period and obtained from different sources, actual VOC concentrations at specific locations within the South El Monte OU may deviate from those shown on the Figure.

FIGURE 3
1999 INTERMEDIATE
VOC CONTAMINATION
SOUTH EL MONTE OPERABLE UNIT

Figure 4: Alternative Evaluation Matrix - South El Monte Operable Unit

Evaluation Criteria	Alternative 1 No action	Alternative 2 Groundwater monitoring	Alternative 3 *Selected Remedy* Intermediate Zone Control in Western South El Monte OU	Alternative 4 Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control
Overall Protectiveness	○	○	●	●
Compliance with ARARs	○	○	●	●
Long-term Effectiveness & Permanence	○	◒	●	●
Implement-ability	not applicable	●	●	●
Short-term Effectiveness	not applicable	◒	●	●
Reduction of Toxicity, Mobility or Volume by Treatment	○	○	◒	●
Capital Cost O&M PWC	$0 $0 $0	$0.45 million $0.09 million $1.54 million	$5.88 million $0.84 million $14.15 million	$6.29 million $1.13 million $18.11 million
State Agency Acceptance	○	○	●	◒
Community Acceptance	○	○	●	◒

● = High ◒ = Medium ○ = Low

Note: The capital costs of Alternatives 3 and 4 are based on using primarily new production wells and infrastructure. If agreements are reached to use existing water purveyor-owned production wells and infrastructure, the capital costs of Alternatives 3 and 4 could decrease by an estimated $2,210,000. Annual operations and maintenance (O&M) costs for Alternatives 3 and 4 are based on purveyors using treated water for which they contribute $45/ac-ft to offset O&M costs. If purveyors do not use the treated water, annual O&M costs for Alternatives 3 and 4 will increase by at least an estimated $730,000.

O&M = Annual Operations and Maintenance Cost
PWC = Present Worth Cost: 7% Discount Rate, 30 Years

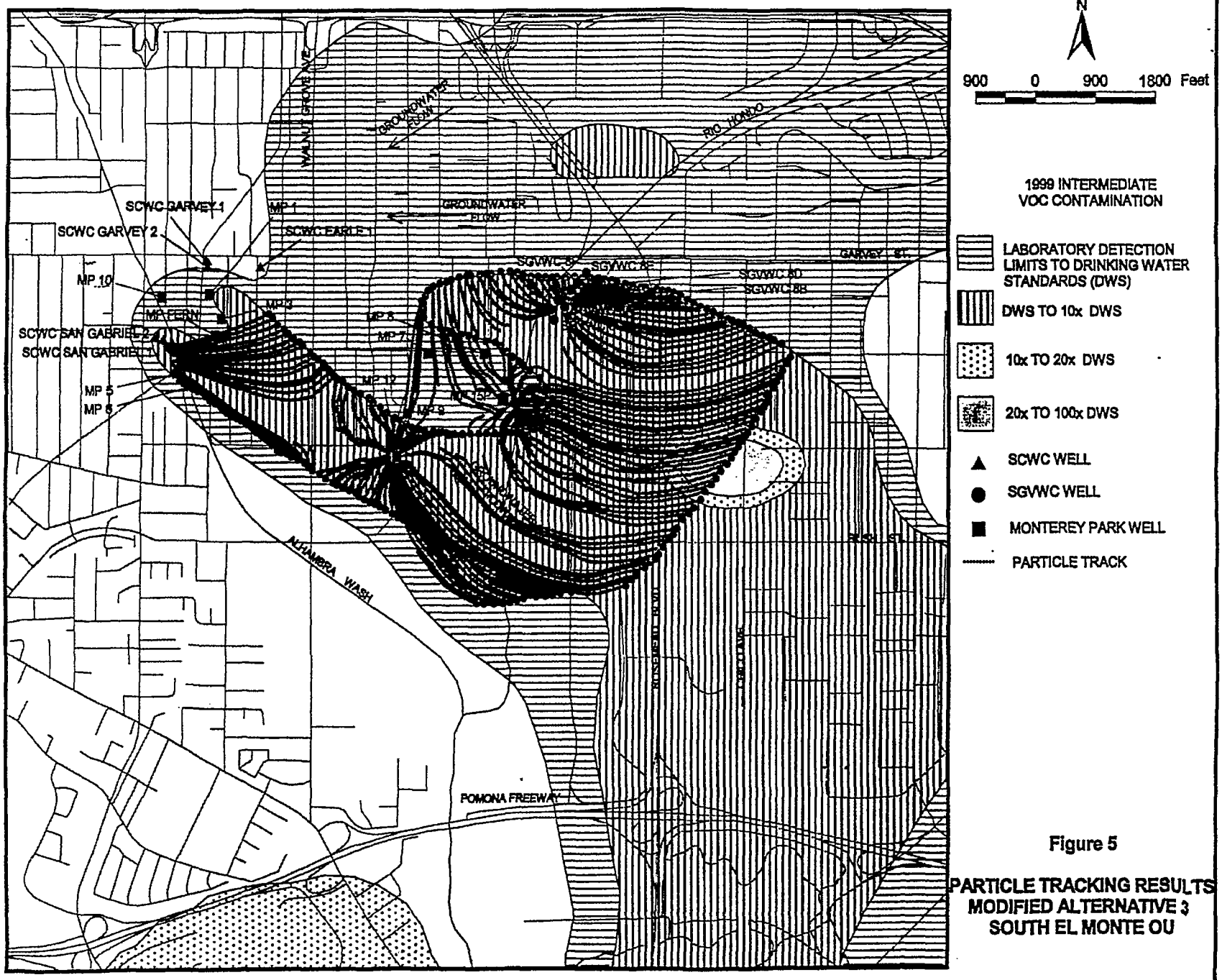


Figure 5

PARTICLE TRACKING RESULTS
MODIFIED ALTERNATIVE 3
SOUTH EL MONTE OU

Attachment 2

Summary of Post-RI/FS and Pre-Remedial Design Work

Attachment 2
Summary of Post-RI/FS and Pre-Remedial Design Work
South El Monte Operable Unit

Since completion of the RI/FS, water purveyors in the western SEMOU have taken a number of actions to address VOC and perchlorate contamination in their production wells. To date these actions include:

- Construction of a 2,250 gpm capacity granular activated carbon treatment facility at SCWC's San Gabriel 1 and 2 well site (construction complete)
- Construction of a pilot-scale perchlorate treatment facility at SCWC's San Gabriel 1 and 2 well site (construction in progress)
- Construction of a 2,100 gpm capacity granular activated carbon treatment facility at Monterey Park's No. 5 well site (construction complete)
- Construction of a 5,000 gpm capacity air stripping treatment facility at SGVWC's plant 8 site (construction complete)
- Design (complete) of a 5,000 gpm capacity granular activated carbon secondary treatment facility at SGVWC's plant 8 site
- Construction of an upgradient sentinel well for SGVWC's plant 8 site (complete)
- Construction of a 4,500 gpm capacity air stripping treatment facility at Monterey Park's No. 12 well site (construction complete)
- Construction of a 4,500 gpm perchlorate treatment facility for Monterey Park well Nos. 9, 12, and 15 (construction complete)
- Construction of an interim secondary VOC treatment facility for Monterey Park well Nos. 9, 12, and 15 (construction in progress)
- Construction (construction complete) of a new extraction well (Monterey Park well No. 15) that matches the extraction scenario evaluated and described in the Record of Decision and construction of pipelines from Monterey Park well Nos. 9 (construction complete) and 15 (construction in progress) to transport VOC-contaminated water to the Monterey Park well No. 12 treatment facility.

If the Respondents propose to use any of these facilities from the SGVWC, SCWC, or Monterey Park Well Fields as part of the remedial action then the appropriate requirements of Sections III and IV of this SOW must be met. If EPA concurs that the existing facilities installed by the water purveyors (described above) can be incorporated into the remedy, then these actions may be considered as post-RI/FS and pre-RD work consistent with EPA's RAOs for the SEMOU.

EPA has also completed post-RI/FS and pre-RD activities in the SEMOU, including monitoring well installation (as described in the ROD) and groundwater sampling. Table 1 summarizes the sampling results for RI/FS and post-RI/FS monitoring wells in the SEMOU.