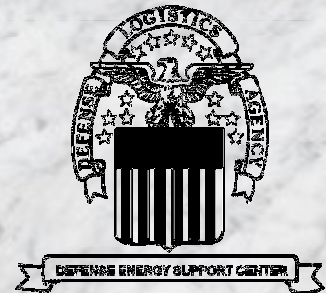


Norwalk Tank Farm Update

*Defense Energy Support Center-
Los Angeles
Norwalk Tank Farm
Restoration Advisory Board*

January 31, 2002



Central Plume Remediation

- System performance since April 1996
 - Approx. 136,379 gallons recycled and destroyed
 - 55,534 gallons of free product recovered
 - 79,506 gallons of volatile hydrocarbons recovered through soil vapor extraction
 - 35.6M gallons of water treated
 - 1,339 gallons of dissolved phase hydrocarbons recovered

July/September 2001 Sentry Event

- 30 Wells gauged
- 27 Wells sampled
- Free Product detected in three wells
- 5 wells showed TPH concentrations
 - GMW-O-3, WCW-8 show decreasing concentrations to ND
 - MW-14, MW-19(MID), and MW-22(MID) show decreasing trends since a high in August of 2000

5 Exposition Aquifer Wells

- ND for TPH, BTEX, 1,2-DCA, and MTBE
 - EXP-3 trace concentrations of benzene and toluene (0.8 and 0.6 ug/L, respectively)

Semiannual Monitoring Event

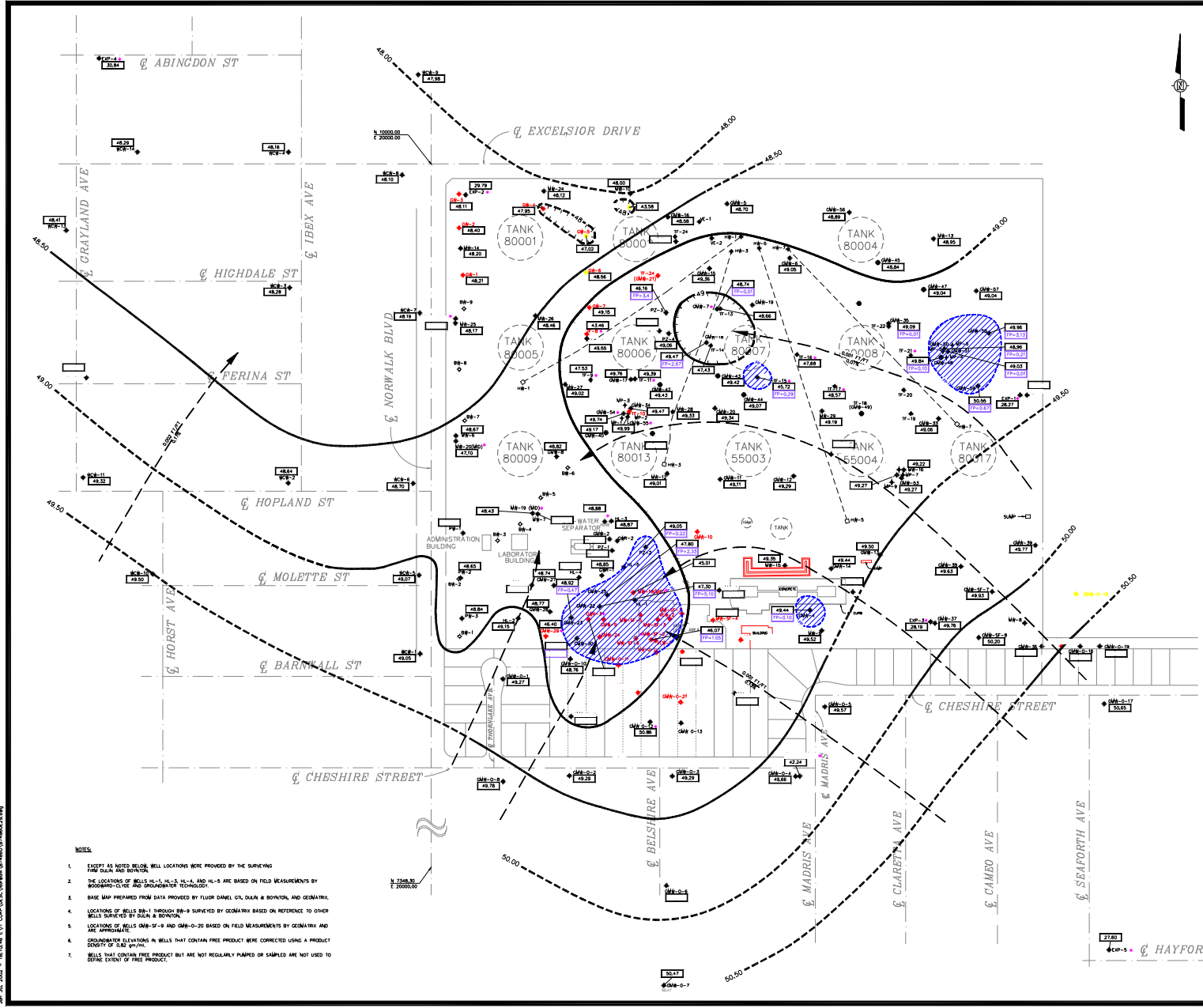
- 155 wells gauged
- 97 wells sampled
- 17 wells contained free product ranging from 0.01 to 5.10 feet in thickness (max. in GMW-22)

3 Free Product Plumes Remain

- North-central product recovery wells only TF-15 showed measurable product
- Southern plume area product wells decreased an average of 0.36 feet
- Overall Southern and Northern boundaries have decreased
- South-central area, free product detected around GMW-4
- Northern plume, free product shifted to the east around GMW-50, GMW-58, and GMW-59

Uppermost Aquifer Groundwater Gradient

- 0.001 ft/ft in northwest direction in eastern portion of the site
- 0.002 ft/ft in the northeast direction west of the site
- Groundwater elevation increased 0.66 feet since May 2001



- LEGEND**
- GMW-10 - GROUNDWATER MONITORING WELL (O&A 1984)
 - MB-19 MB-14 - MONITORING WELL INSTALLED BY FLOOR DANIEL CO (1988)
 - GMW-7 - MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1987-1988)
 - GMW-SF-7 - MONITORING WELL INSTALLED BY GEOMATRA FOR SFPF (1985)
 - PR-1 - PNEUMATIC MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1982)
 - PZ-2 - PNEUMATIC WELL INSTALLED BY GROUNDWATER TECHNOLOGY (1982-1983)
 - GMW-O-18 - OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1982-1984)
 - GMW-O-17 - OFFSITE MONITORING WELL INSTALLED BY GEOMATRA FOR SFPF (1985)
 - GMW-O-19 - OFFSITE MONITORING WELL INSTALLED BY GEOMATRA FOR SFPF (1985)
 - GR-1 - GROUNDWATER RECOVERY WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1995)
 - RC-5 - OFFSITE MONITORING WELL INSTALLED BY BOOBBARD-CLOVE (1983)
 - MB-18 - MONITORING WELL INSTALLED BY BOOBBARD-CLOVE (1980-1981)
 - EXP-1 - MONITORING WELL INSTALLED BY BOOBBARD-CLOVE IN THE EXPOSITION ADJUTER (1982)
 - ML-3 - MONITORING WELL INSTALLED BY HANING LARSON ASSOCIATES (1983)
 - MB-O-1 - OFFSITE MONITORING WELL INSTALLED BY GEOMATRA FOR SFPF (1985)
 - (MO) - INDICATES WELLS SCREENED WITH THE APPROPRIATE BOTTOM OF THE FREEZE ADJUTER
 - TF-24 - TOTAL FLOW RECOVERY WELL (O&A 1985)
 - CR-3 - GROUNDWATER ONLY RECOVERY WELL (O&A 1985)
 - CR-1 - PREVIOUSLY USED FOR GROUNDWATER RECOVERY
 - VE-7 - VERTICAL VAPOR EXTRACTION WELL (O&A 1985)
 - MB-3 - MONITORING PROBE (O&A 1984)
 - MB-1 - HORIZONTAL VAPOR EXTRACTION WELLS (O&A 1985)
 - PR-9 - BEST SIZE BARBER EXTRACTION WELL (O&A 1984, 1985)
 - PR-8 - ALL WELLS SCREENED IN RED ARE IN USE FOR SPILL ZONE OR GROUNDWATER EXTRACTION
 - 50.25 - GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (RECORDED NOVEMBER 03, 2001)
 - 47.50 - LINE OF EQUAL GROUNDWATER ELEVATION IN THE UPPER MOST GROUNDWATER ZONE, DASHED WHITE SPHERES (CONTOUR INTERVAL = VARIABLE (O&A AND LO FEET))
 - - EQUIPMENTAL LINES OF LOCAL GROUNDWATER WITH STEEP GRADIENT (LOCATED ON THE BASIS OF MEASUREMENTS IN NOVEMBER 03, 2001)
 - - WELLS WITH ANALOGOUS WATER ELEVATION OR SCREENED IN DIFFERENT ADJUTER (NOT USED FOR EQUIPMENTAL (MW))
 - - GENERAL DIRECTION OF GROUNDWATER GRADIENT (IN FEET PER FOOT AND PERCENT)
 - - FREE PRODUCT (LIQUID HYDROCARBONS) IN WELL/APPOINTMENT THICKNESS IN FEET (RECORDED NOVEMBER 03, 2001)
 - - ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT (LIQUID HYDROCARBONS)
- NOTE:** GROUNDWATER ELEVATION REPRESENTS THE UPPER MOST GROUNDWATER ZONE AND DOES NOT INCLUDE O&A WELLS AND SFPF WELLS.

SIGNATURE		DATE
REVIEW ENGR:		
PROJECT ENGR:		
PROJECT MGR:		
CLIENT:		

120 0 120 240
APPROXIMATE SCALE IN FEET

GROUNDWATER TECHNOLOGY INC.
3353 MICHELSON DRIVE
IRVINE, CALIFORNIA 92698 (949) 261-6441

GROUNDWATER EQUIPOTENTIAL MAP AND FREE PRODUCT PLUMES UPPER GROUNDWATER ZONE NOVEMBER 2001

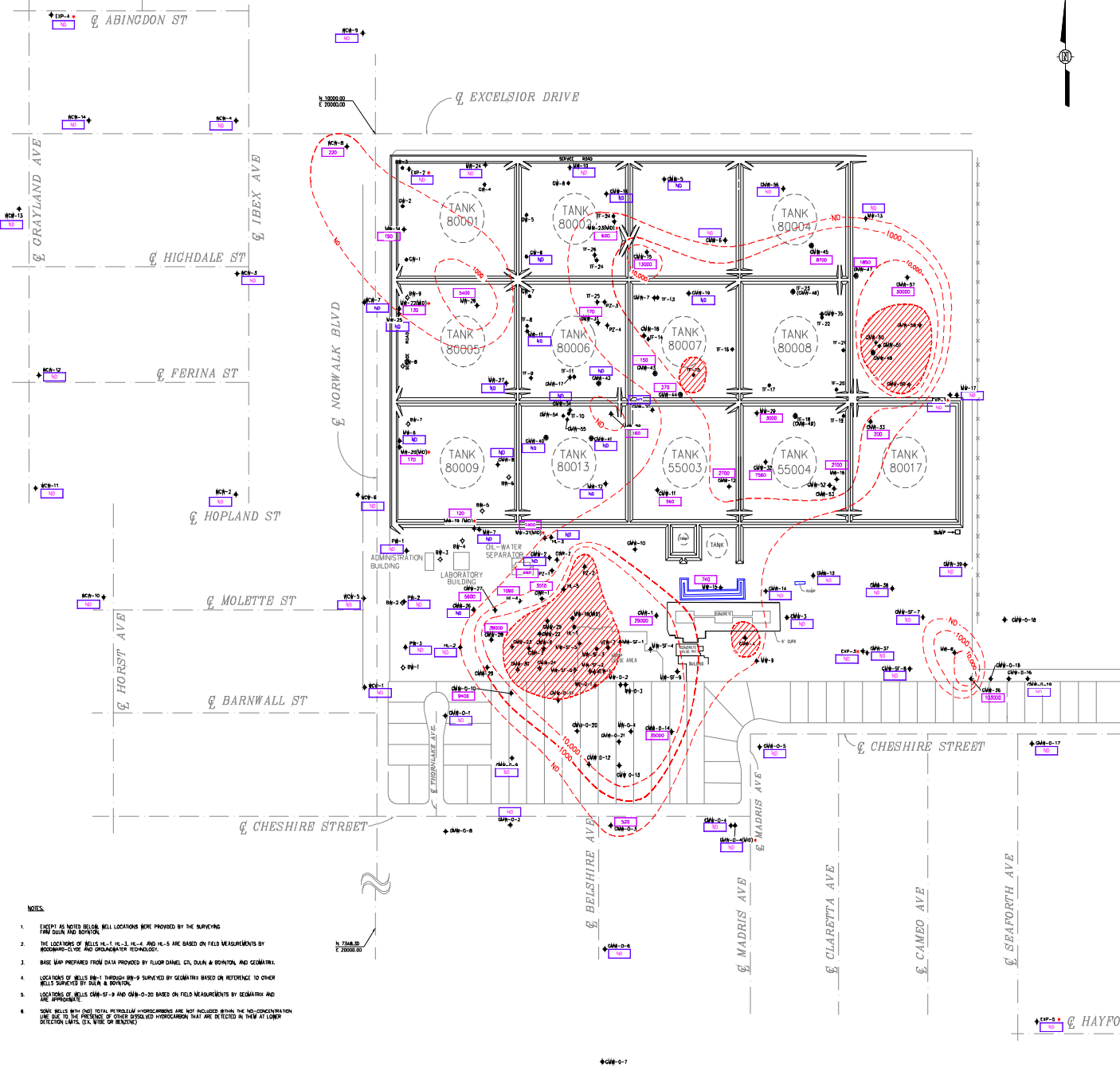
CLIENT:	DFSP NORWALK	
LOCATION:	53306 NORWALK BOULEVARD, NORWALK, CALIFORNIA	
DESIGNED BY:	DETAILED BY:	CHECKED BY:
SS	HDS	DA
DRAWING DATE:	ACAD FILE:	
12-28-01	874890-129	
PROJECT NO.:	CONTRACT:	
87486010/03	SPO-600-98-C-5842	
FIGURE:	REVISION:	
	2	

- NOTES:**
- EXCEPT AS NOTED BELOW, WELL LOCATIONS WERE PROVIDED BY THE SURVEYING FIRM O&A AND BORTON.
 - THE LOCATIONS OF WELLS MB-1, MB-2, MB-4, AND MB-5 ARE BASED ON FIELD MEASUREMENTS BY BOOBBARD-CLOVE AND GROUNDWATER TECHNOLOGY.
 - BASE MAP PREPARED FROM DATA PROVIDED BY FLOOR DANIEL CO, O&A & BORTON, AND GEOMATRA.
 - LOCATIONS OF WELLS MB-1 THROUGH MB-9 SURVEYED BY GEOMATRA BASED ON REFERENCE TO OTHER WELLS SURVEYED BY O&A & BORTON.
 - LOCATIONS OF WELLS GMW-SF-8 AND GMW-O-20 BASED ON FIELD MEASUREMENTS BY GEOMATRA AND ARE APPROXIMATE.
 - GROUNDWATER ELEVATIONS IN WELLS THAT CONTAIN FREE PRODUCT WERE CORRECTED USING A PRODUCT DENSITY OF 0.82 g/cm³.
 - WELLS THAT CONTAIN FREE PRODUCT BUT ARE NOT REGULARLY PUMPED OR SAMPLED ARE NOT USED TO DEFINE EXTENT OF FREE PRODUCT.

JAN. 20, 2002 - 10:26 AM - INTX.DWG - C:\PROJECTS\Norwalk\Map\DFSP\Map\DFSP.dwg

97 Wells Sampled (November 2001)

- TPH detected in 32 wells: dissolved phase decreased since May 2001 in all areas



- LEGEND**
- GWH-10 • GROUNDWATER MONITORING WELL (O&L 1991)
 - GWH-52 • MONITORING WELL INSTALLED BY FLUOR DANIEL CO (1986)
 - NCB-14 • MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991-1993)
 - GWH-7 • MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1985)
 - GWH-57-7 • MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1985)
 - PH-1 • PNEUMATIC MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1982)
 - PZ-2 • PNEUMATIC WELL INSTALLED BY GROUNDWATER TECHNOLOGY (1982-1983)
 - GWH-D-1 • OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1982-1984)
 - GWH-D-16 • OFFSITE MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1985)
 - GWH-D-17 • OFFSITE MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1985)
 - GWH-D-18 • OFFSITE MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1985)
 - GWH-1 • GROUNDWATER RECOVERY WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1987)
 - HC-5 • OFFSITE MONITORING WELL INSTALLED BY HOOKING-CLIVE (1987)
 - WH-18 • MONITORING WELL INSTALLED BY HOOKING-CLIVE (1980-1985)
 - EXP-1 • MONITORING WELL INSTALLED BY THE EXPOSITION AQUATIC CENTER
 - HL-2 • MONITORING WELL INSTALLED BY HARDING LABOR ASSOCIATES (1982)
 - WH-D-1 • OFFSITE MONITORING WELL INSTALLED BY GEMATRIX FOR SFP (1980)
 - (RAD) • INDICATES WELLS SCREENED NEAR THE AIRWAY BOTTOM OF THE WATER TABLE AQUICLIF
 - TR-24 • TOTAL FLOWS RECOVERY WELL (O&L 1985)
 - OR-4 • GROUNDWATER ONLY RECOVERY WELL (O&L 1985)
 - 100 • TOTAL PETROLEUM HYDROCARBON CONCENTRATION IN MICROGRAMS PER LITER (µg/L) NOVEMBER 2001 (HIGHEST CONCENTRATIONS ARE LISTED WHERE DUPLICATE SAMPLES WERE ANALYZED)
 - ND • NOT DETECTED ABOVE THE LABORATORY DETECTION LIMIT
 - 1000 • LINE OF EQUAL TOTAL PETROLEUM HYDROCARBON CONCENTRATION IN GROUNDWATER
 - 10000 • ESTIMATED EXTENT OF DETECTABLE TOTAL PETROLEUM HYDROCARBON IN GROUNDWATER
 - ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT
 - WELLS SCREENED IN DIFFERENT ZONE (NOT USED FOR CONTOURING)

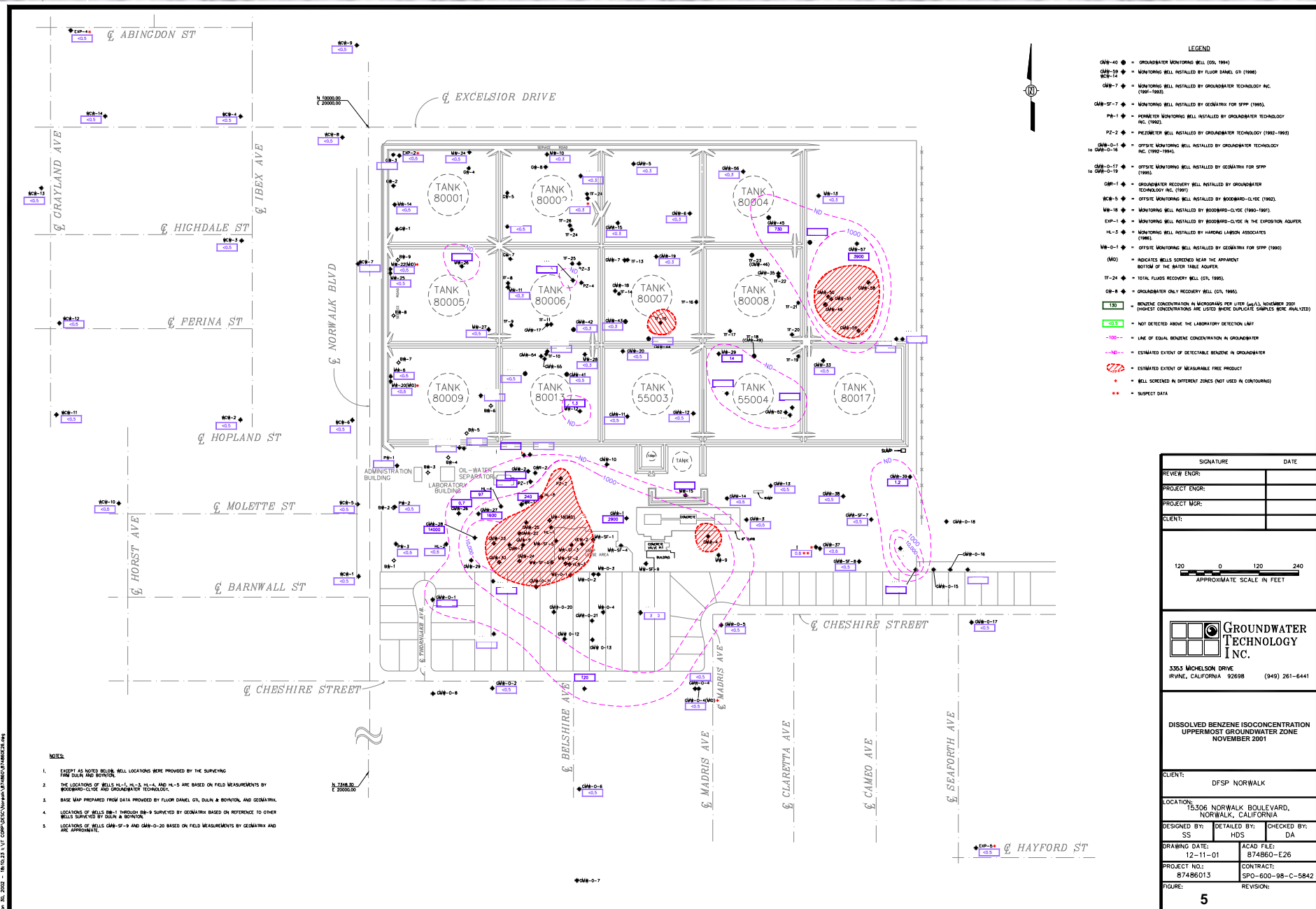
- NOTES**
1. EXCEPT AS NOTED BELOW, WELL LOCATIONS WERE PROVIDED BY THE SURVEYING FIRM DUNA AND BOYNTON.
 2. THE LOCATIONS OF WELLS HL-1, HL-2, HL-4, AND HL-5 ARE BASED ON FIELD MEASUREMENTS BY HOOKING-CLIVE AND GROUNDWATER TECHNOLOGY.
 3. BASE MAP PREPARED FROM DATA PROVIDED BY FLUOR DANIEL, CEA, DUNA & BOYNTON, AND GEMATRIX.
 4. LOCATIONS OF WELLS PH-1 THROUGH PH-4 SURVEYED BY GEMATRIX BASED ON REFERENCE TO OTHER WELLS SURVEYED BY DUNA & BOYNTON.
 5. LOCATIONS OF WELLS GWH-SF-3 AND GWH-D-30 BASED ON FIELD MEASUREMENTS BY GEMATRIX AND ARE APPROXIMATE.
 6. SOME WELLS WITH ONLY TOTAL PETROLEUM HYDROCARBONS ARE NOT INCLUDED WITHIN THE NO-CONCENTRATION LINE DUE TO THE PRESENCE OF OTHER SPECIATED HYDROCARBONS THAT ARE DETECTED IN THEM AT LOWER DETECTION LIMITS, (E.G. XYL OR BENZENE).

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	
GROUNDWATER TECHNOLOGY INC. 3303 MICHELSON DRIVE IRVINE, CALIFORNIA 92698 (949) 261-6441	
DISSOLVED TOTAL PETROLEUM HYDROCARBONS ISOCENTRATION UPPERMOST GROUNDWATER ZONE NOVEMBER 2001	
CLIENT:	DFSP NORWALK
LOCATION:	15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA
DESIGNED BY:	SS
DETAILED BY:	HDS
CHECKED BY:	DA
DRAWING DATE:	12-11-01
ACAD FILE:	874860-E28
PROJECT NO.:	SPO-600-98-C-5842
CONTRACT:	
FIGURE:	4
REVISION:	

APR 30, 2002 - 10:10:41 AM - G:\PROJECTS\NORWALK\WATER\DWG\874860-E28.DWG

97 Wells Sampled (November 2001)

- Benzene detected in 25 wells
 - Northern dissolved phase plume decreased significantly since May 2001
 - South-central benzene plume extended slightly to west and east compared to May 2001 plume
- Southeastern Benzene plume decreased in size to the May 2001 plume



- NOTES:**
- EXCEPT AS NOTED BELOW, WELL LOCATIONS WERE PROVIDED BY THE SURVEYING FIRM DULAN AND BOYNTON.
 - THE LOCATION OF WELLS MW-1, MW-2, MW-3, MW-4, AND MW-5 ARE BASED ON FIELD MEASUREMENTS BY BOODWARD-CLYDE AND GEOMATRIX TECHNOLOGY.
 - BASE MAP PREPARED FROM DATA PROVIDED BY FLUOR DANIEL GIL DULAN & BOYNTON AND GEOMATRIX.
 - LOCATIONS OF WELLS MW-1 THROUGH MW-9 SURVEYED BY GEOMATRIX BASED ON REFERENCE TO OTHER WELLS SURVEYED BY DULAN & BOYNTON.
 - LOCATIONS OF WELLS GWB-17-9 AND GWB-10-20 BASED ON FIELD MEASUREMENTS BY GEOMATRIX AND ARE APPROXIMATE.

- LEGEND**
- GWB-10 - GROUNDWATER MONITORING WELL (05/1994)
 - GWB-15 - MONITORING WELL INSTALLED BY FLUOR DANIEL GIL (1998)
 - MW-14 - MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991-1993)
 - GWB-7 - MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1995)
 - MW-57-7 - MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1995)
 - PR-1 - RECOVERY MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992)
 - PZ-2 - PNEUMETER WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1994)
 - GWB-0-1 - OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1994)
 - GWB-0-11 TO GWB-0-19 - OFFSITE MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1995)
 - GWR-1 - GROUNDWATER RECOVERY WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991)
 - MCB-5 - OFFSITE MONITORING WELL INSTALLED BY BOODWARD-CLYDE (1982)
 - MW-16 - MONITORING WELL INSTALLED BY BOODWARD-CLYDE (1980-1981)
 - EXP-1 - MONITORING WELL INSTALLED BY BOODWARD-CLYDE IN THE EXPOSITION AQUIFER
 - M-1-2 - MONITORING WELL INSTALLED BY MARSH LABSON ASSOCIATES (1985)
 - MW-0-1 - OFFSITE MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1995)
 - (MD) - INDICATES WELLS SCREENED NEAR THE APPARENT BOTTOM OF THE WATER TABLE AQUIFER
 - TF-24 - TOTAL FLUIDS RECOVERY WELL (07/1995)
 - GR-8 - GROUNDWATER ONLY RECOVERY WELL (07/1995)
 - 150 - BENZENE CONCENTRATION IN MONITORING WELL (µg/L), NOVEMBER 2001 (HIGHEST CONCENTRATIONS ARE LISTED WHERE DUPLICATE SAMPLES WERE ANALYZED)
 - <0.5 - NOT DETECTED ABOVE THE LABORATORY DETECTION LIMIT
 - 100 - LINE OF EQUAL BENZENE CONCENTRATION IN GROUNDWATER
 - NO - ESTIMATED EXTENT OF DETECTABLE BENZENE IN GROUNDWATER
 - NO - ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT
 - - WELL SCREENED IN DIFFERENT ZONES (NOT USED IN CONTOURING)
 - - SUSPECT DATA

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

120 0 120 240
APPROXIMATE SCALE IN FEET

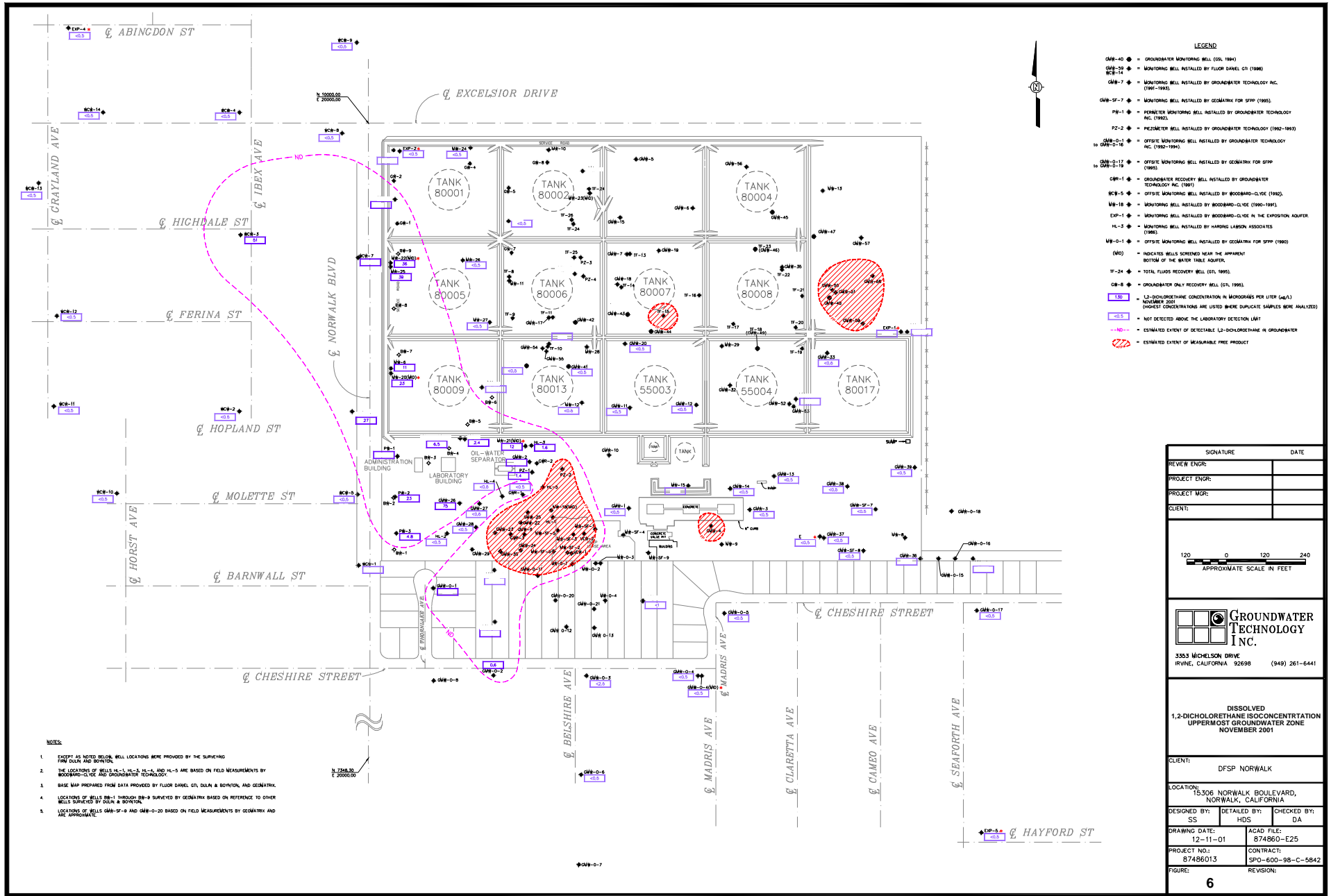
GROUNDWATER TECHNOLOGY INC.
 3355 MICHELSON DRIVE
 IRVINE, CALIFORNIA 92698 (949) 261-6441

DISSOLVED BENZENE ISOCONCENTRATION UPPERMOST GROUNDWATER ZONE NOVEMBER 2001

CLIENT:	DFSP NORWALK
LOCATION:	15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA
DESIGNED BY:	SS
DETAILED BY:	HDS
CHECKED BY:	DA
DRAWING DATE:	12-11-01
ACAD FILE:	874860-E26
PROJECT NO.:	87486013
CONTRACT:	SPD-600-98-C-5842
FIGURE:	REVISION:

97 Wells Sampled (November 2001)

- 1,2-DCA was detected in 21 monitoring wells
 - Plume has decreased in area and average concentration (May average 130 ug/L, November average 21 ug/L)



- LEGEND**
- GWB-10 ● = GROUNDWATER MONITORING WELL (05/1994)
 - GWB-12 ● = MONITORING WELL INSTALLED BY FLOOR DANIEL CTI (1986)
 - MCB-14 ● = MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991-1993)
 - GWB-7 ● = MONITORING WELL INSTALLED BY GEOMATIX FOR SFPD (1990)
 - PH-1 ● = PERMATEX MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992)
 - PZ-2 ● = PNEUMATIC WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1994)
 - GWB-0-12 ● = OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1994)
 - GWB-0-11 ● = OFFSITE MONITORING WELL INSTALLED BY GEOMATIX FOR SFPD (1995)
 - GWB-0-10 ● = OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991)
 - MCB-5 ● = OFFSITE MONITORING WELL INSTALLED BY WOODBARD-CLYDE (1982)
 - W-18 ● = MONITORING WELL INSTALLED BY WOODBARD-CLYDE (1990-1991)
 - EXP-1 ● = MONITORING WELL INSTALLED BY WOODBARD-CLYDE IN THE EXPOSITION ADJUTER (1988)
 - HL-3 ● = MONITORING WELL INSTALLED BY HARRING LABSON ASSOCIATES (1988)
 - W-0-1 ● = OFFSITE MONITORING WELL INSTALLED BY GEOMATIX FOR SFPD (1990)
 - (WB) ● = INDICATES WELLS SCREENED NEAR THE APPARENT BOTTOM OF THE WATER TABLE ADJUTER
 - TF-24 ● = TOTAL FLUXES RECOVERY WELL (05/1995)
 - CR-6 ● = GROUNDWATER ONLY RECOVERY WELL (05/1995)
 - HL-4 ● = 1,2-DICHOLOETHANE CONCENTRATION IN MONOSAMPLES PER LITER (µg/L) NUMBER 2001
 - HL-5 ● = NOT DETECTED ABOVE THE LABORATORY DETECTION LIMIT
 - NO ● = ESTIMATED EXTENT OF DETECTABLE 1,2-DICHOLOETHANE IN GROUNDWATER
 - RE ● = ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT

- NOTES:**
1. EXCEPT AS NOTED BELOW, WELL LOCATIONS WERE PROVIDED BY THE SURVEYING FIRM DULIN AND BOYNTON.
 2. THE LOCATIONS OF WELLS HL-1, HL-2, HL-3, HL-4, AND HL-5 ARE BASED ON FIELD MEASUREMENTS BY WOODBARD-CLYDE AND GROUNDWATER TECHNOLOGY.
 3. BASE MAP PREPARED FROM DATA PROVIDED BY FLOOR DANIEL CTI, DULIN & BOYNTON, AND GEOMATIX.
 4. LOCATIONS OF WELLS GWB-1 THROUGH GWB-9 SURVEYED BY GEOMATIX BASED ON REFERENCE TO OTHER WELLS SURVEYED BY DULIN & BOYNTON.
 5. LOCATIONS OF WELLS GWB-SF-8 AND GWB-0-20 BASED ON FIELD MEASUREMENTS BY GEOMATIX AND ARE APPROXIMATE.

SIGNATURE	DATE
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PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	



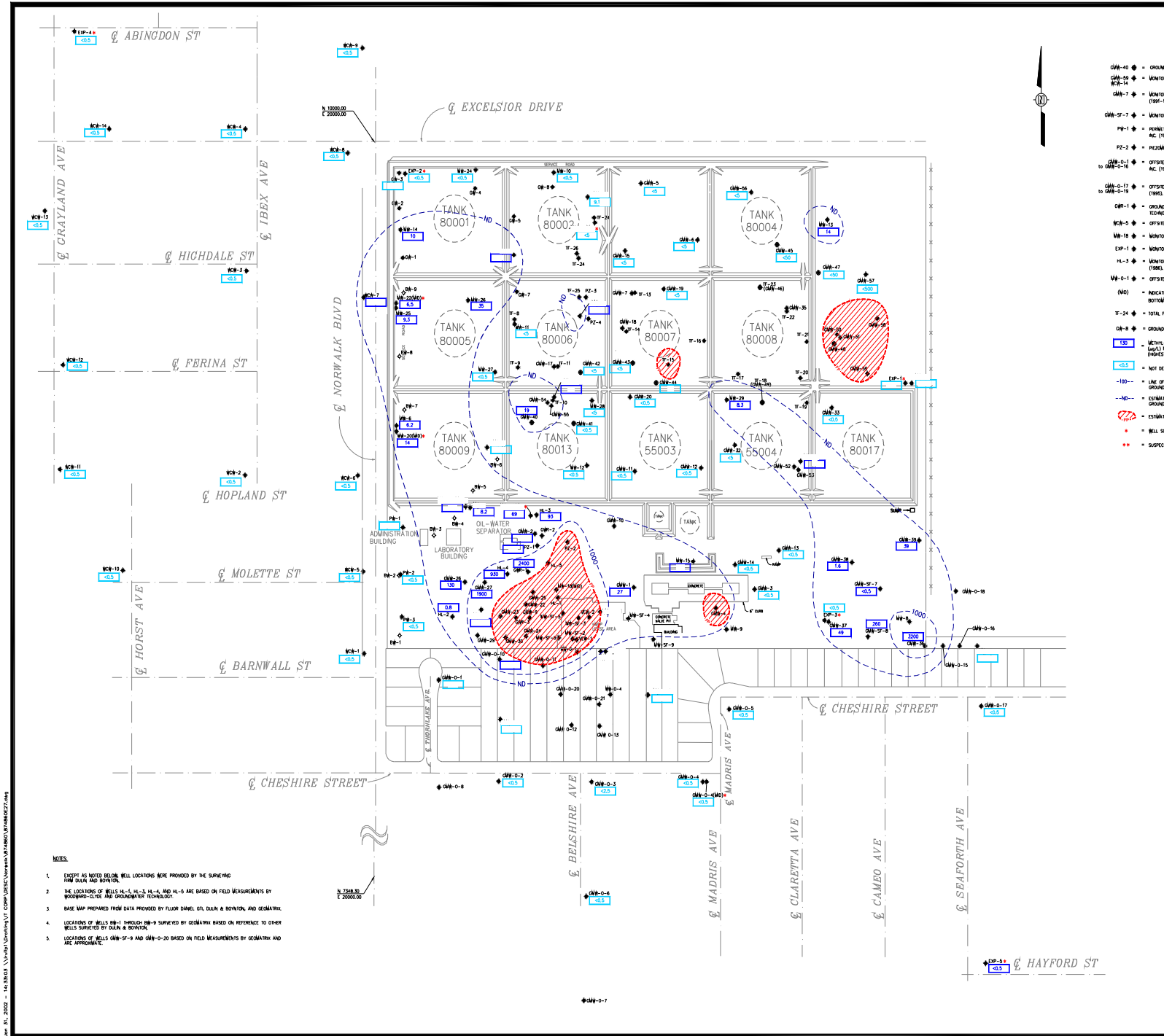
GROUNDWATER TECHNOLOGY INC.
 3353 MICHELSON DRIVE
 IRVINE, CALIFORNIA 92698 (949) 261-6441

DISSOLVED
 1,2-DICHOLOETHANE ISOCOCONCENTRATION
 UPPERMOST GROUNDWATER ZONE
 NOVEMBER 2001

CLIENT:	DFSP NORWALK		
LOCATION:	15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA		
DESIGNED BY:	SS	DETAILED BY:	HDS
CHECKED BY:	DA		
DRAWING DATE:	12-11-01	ACAD FILE:	874860-E25
PROJECT NO.:	87486013	CONTRACT:	SPO-600-98-C-5842
FIGURE:	6	REVISION:	

97 Wells Sampled (November 2001)

- MTBE was detected in 35 wells
 - Western plume similar to the May 2001 plume
 - Southeast plume has extended further to the northwest
 - Detected in three areas in the north tank farm area



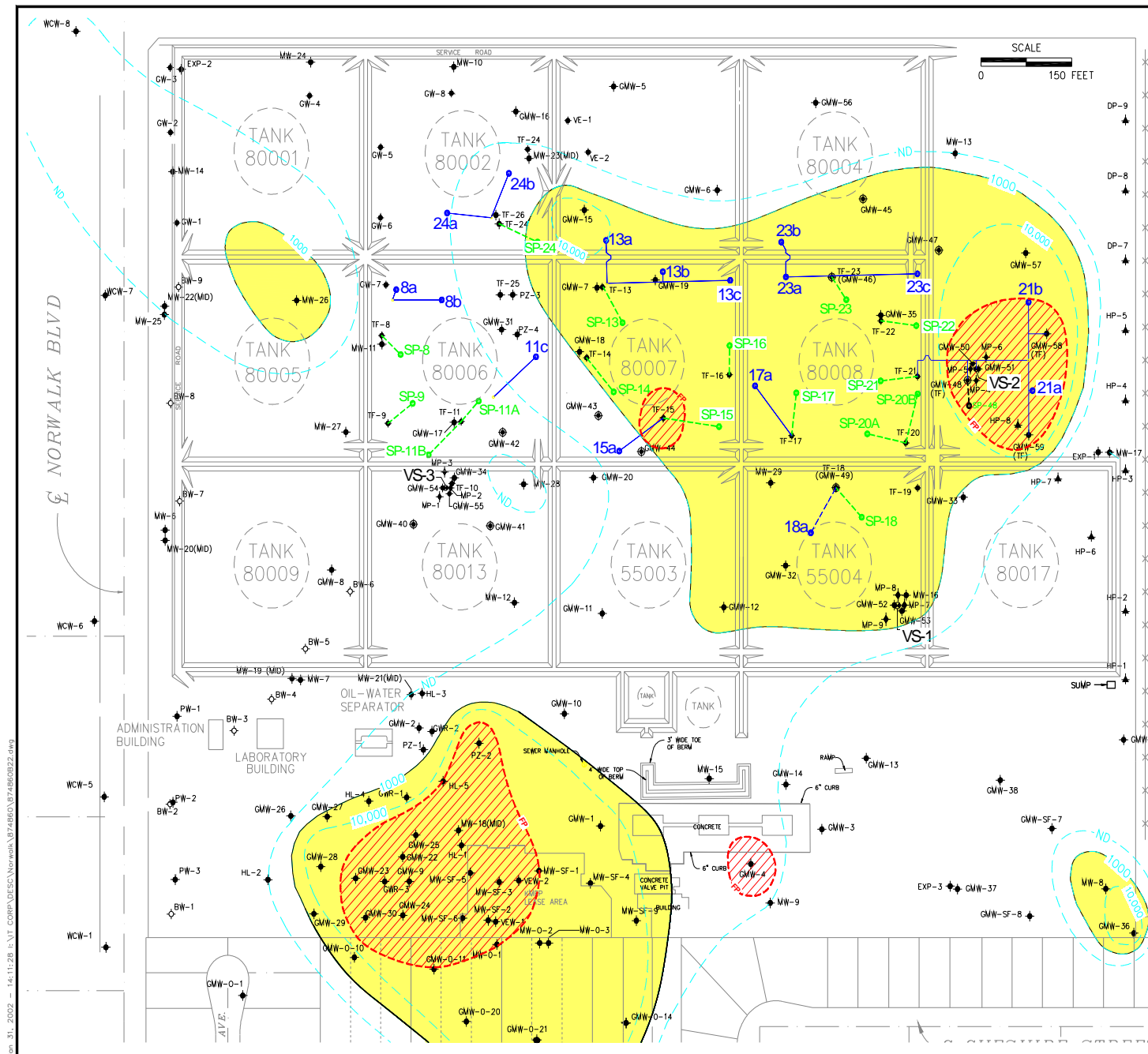
- LEGEND**
- GMR-40 ● = GROUNDWATER MONITORING WELL (CGL 1994)
 - GMR-59 ● = MONITORING WELL INSTALLED BY FLUOR DANIEL CO (1998)
 - GMR-14 ● = MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1994-1995)
 - GMR-7 ● = MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1995)
 - GMR-57-7 ● = MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1995)
 - PH-1 ● = PERMEATE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992)
 - PZ-2 ● = PEZZOMETR WELL INSTALLED BY GROUNDWATER TECHNOLOGY (1992-1993)
 - GMR-0-1 ● = OFFICE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1995)
 - GMR-0-16 ● = OFFICE MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1995)
 - GMR-0-17 ● = OFFICE MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1995)
 - GMR-0-19 ● = OFFICE MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1995)
 - GMR-1 ● = GROUNDWATER RECOVERY WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1995)
 - GMR-5 ● = OFFSITE MONITORING WELL INSTALLED BY BOODARD-CLIVE (1992)
 - MR-18 ● = MONITORING WELL INSTALLED BY BOODARD-CLIVE (1990-1993)
 - EXP-1 ● = MONITORING WELL INSTALLED BY BOODARD-CLIVE IN THE EXPOSITION AQUIFER (1986)
 - HL-3 ● = MONITORING WELL INSTALLED BY HARDING LARSON ASSOCIATES (1986)
 - MR-0-1 ● = OFFSITE MONITORING WELL INSTALLED BY GEOMETRIX FOR SFP (1990)
 - (NO) ● = INDICATES WELLS SCREENED NEAR THE APPARENT BOTTOM OF THE WATER TABLE AQUIFER.
 - TF-24 ● = TOTAL FLUIDS RECOVERY WELL (CGL 1995)
 - GR-8 ● = GROUNDWATER ONLY RECOVERY WELL (CGL 1995)
 - LS-5 ● = METHYL-TERTIARY-BUTYL-ETHER CONCENTRATION IN MONITORING WELL LITER (M/L) NOVEMBER 2001. HIGHEST CONCENTRATIONS ARE LISTED WHERE DUPLICATE SAMPLES WERE ANALYZED.
 - <LS> ● = NOT DETECTED ABOVE THE LABORATORY DETECTION LIMIT
 - 100- ● = LINE OF EQUAL METHYL-TERTIARY-BUTYL-ETHER CONCENTRATION IN GROUNDWATER
 - ND- ● = ESTIMATED EXTENT OF DETECTABLE METHYL-TERTIARY-BUTYL-ETHER IN GROUNDWATER
 - (with red hatching) = ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT
 - (with red star) = WELL SCREENED IN DIFFERENT ZONE, NOT USED FOR CONTINUING
 - (with red asterisk) = SUSPECT DATA

- NOTES:**
1. EXCEPT AS NOTED BELOW, WELL LOCATIONS WERE PROVIDED BY THE SURVEYING FIRM DULAN AND SONITOR.
 2. THE LOCATIONS OF WELLS HL-3, HL-4, AND HL-5 ARE BASED ON FIELD MEASUREMENTS BY BOODARD-CLIVE AND GROUNDWATER TECHNOLOGY.
 3. BASE MAP PREPARED FROM DATA PROVIDED BY FLUOR DANIEL OIL, DULAN & SONITOR, AND GEOMETRIX.
 4. LOCATIONS OF WELLS MR-1 THROUGH MR-9 SURVEYED BY GEOMETRIX BASED ON REFERENCE TO OTHER WELLS SURVEYED BY DULAN & SONITOR.
 5. LOCATIONS OF WELLS GMR-57-8 AND GMR-0-20 BASED ON FIELD MEASUREMENTS BY GEOMETRIX AND ARE APPROXIMATE.

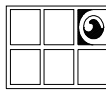
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REVIEW ENGR:			
PROJECT ENGR:			
PROJECT MGR:			
CLIENT:			
<p>APPROXIMATE SCALE IN FEET</p>			
<p>GROUNDWATER TECHNOLOGY INC. 3353 MICHELSON DRIVE RYNE, CALIFORNIA 92598 (949) 261-6441</p>			
<p>DISSOLVED METHYL-TERTIARY-BUTYL ETHER ISOCENTRATION UPPERMOST GROUNDWATER ZONE NOVEMBER 2001</p>			
CLIENT:	DFSP NORWALK		
LOCATION:	15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA		
DESIGNED BY:	SS	DETAILED BY:	HDS
CHECKED BY:	DA		
DRAWING DATE:	12-11-01	ACAD FILE:	874860-E27
PROJECT NO.:	87486013	CONTRACT:	SPD-600-98-C-5842
FIGURE:	REVISION:		

Expanded Sparging System

- 33 sparging wells currently active
 - Connected to TF wells for air supply
 - Sparging system alternates 1/3 on for 1 hour, in 3 hour intervals



- LEGEND**
- GW-40 = GROUNDWATER MONITORING WELL (GSL 1994)
 - GW-50 = MONITORING WELL INSTALLED BY FLOOR DRAIN CH (1998)
 - GW-7 = MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1991-1993)
 - GW-SF-7 = MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1995)
 - PW-1 = PIEZOMETER MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992)
 - PZ-2 = PIEZOMETER WELL INSTALLED BY GROUNDWATER TECHNOLOGY (1992-1993)
 - GW-0-1 = OFFSITE MONITORING WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1992-1994)
 - GW-0-17 = OFFSITE MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP TO GW-0-19 (1995)
 - GWR-1 = GROUNDWATER RECOVERY WELL INSTALLED BY GROUNDWATER TECHNOLOGY INC. (1995)
 - MW-5 = OFFSITE MONITORING WELL INSTALLED BY WOODWARD-CLYDE (1992)
 - MW-18 = MONITORING WELL INSTALLED BY WOODWARD-CLYDE (1990-1991)
 - EXP-1 = MONITORING WELL INSTALLED BY WOODWARD-CLYDE IN THE EXPOSITION ADJUTER
 - MW-3 = MONITORING WELL INSTALLED BY HARDING LABSON ASSOCIATES (1986)
 - MW-0-1 = OFFSITE MONITORING WELL INSTALLED BY GEOMATRIX FOR SFP (1990)
 - (MD) = INDICATES WELLS SCREENED NEAR THE APPARENT BOTTOM OF THE WATER TABLE ADJUTER
 - TF-24 = TOTAL FLUIDS RECOVERY WELL (GTL 1995)
 - GWR-5 = GROUNDWATER ONLY RECOVERY WELL (GTL 1995)
 - VC-2 = VERTICAL VAPOR EXTRACTION WELL (GTL 1995)
 - VS-3 = VENT/SPARGE WELL (GTL 1994)
 - MP-9 = MONITORING PROBE (GSL 1994)
 - PW-9 = BEST SIDE BANNER EXTRACTION WELL (GEOMATRIX 1990)
 - SP-15 = SPARGE WELL - EXISTING
 - 15a = SPARGE WELL - NEW (AUGUST 2001)
 - TRENCH - EXISTING
 - TRENCH - NEW
 - GW-48 (TF) = NEW TOTAL FLUID RECOVERY WELLS
 - 100- = LINE OF EQUAL TOTAL PETROLEUM HYDROCARBON CONCENTRATION IN GROUNDWATER
 - 20- = ESTIMATED EXTENT OF DETECTABLE TOTAL PETROLEUM HYDROCARBON IN GROUNDWATER
 - = ESTIMATED EXTENT OF MEASURABLE FREE PRODUCT



GROUNDWATER TECHNOLOGY, INC.

NEW BIOSPARGE AND TOTAL FLUID RECOVERY WELLS LOCATION MAP

CLIENT: DFSP NORWALK

LOCATION: 15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA

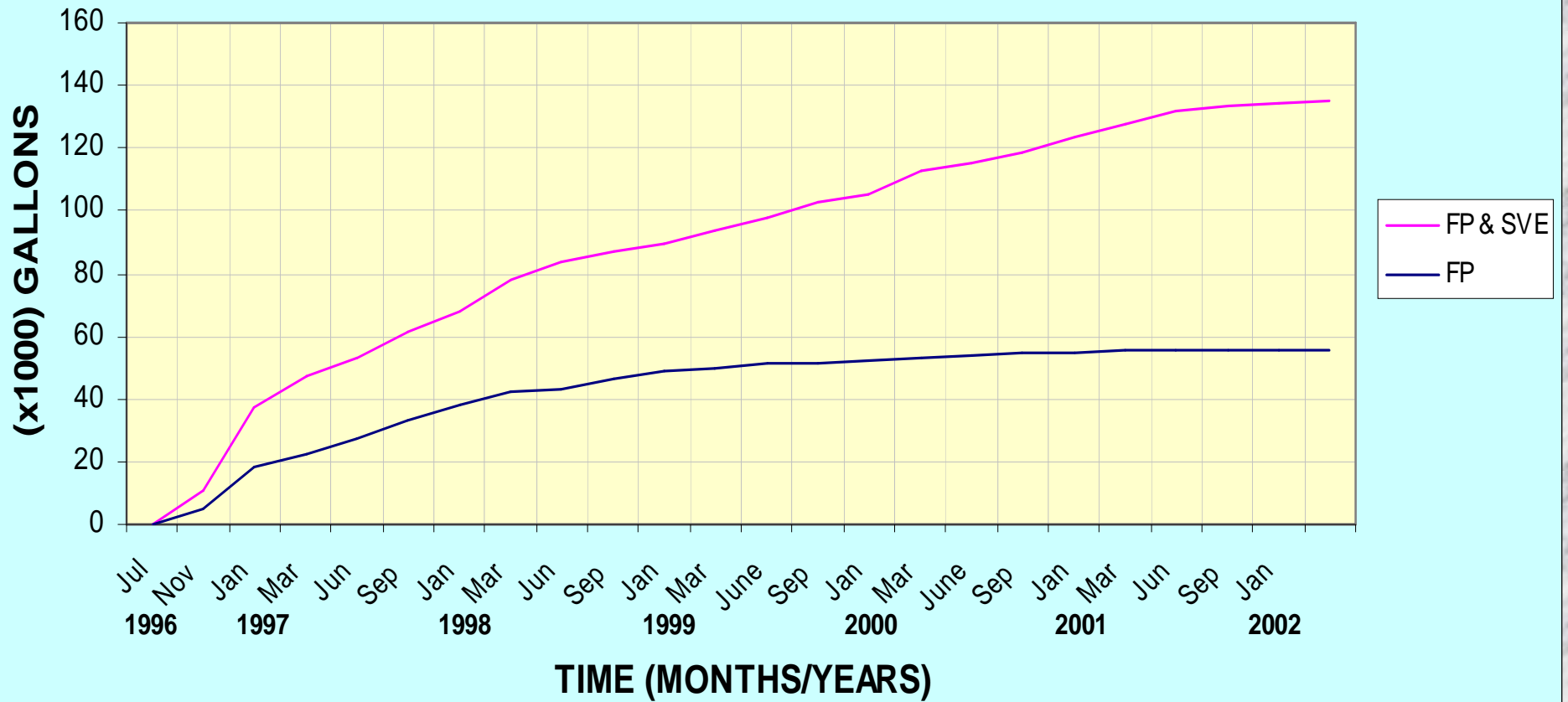
DESIGNED BY:	DETAILED BY:	CHECKED BY:
JH	MBM-RP	DA

DRAWING DATE: 1/31/02	ACAD FILE: 874860-B22
PROJECT NO.: 874860	CONTRACT: SPO-600-98-C-5842

FIGURE: **8** REVISION:

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HYDROCARBONS & FREE PRODUCT-CENTRAL PLUME



Environmental Baseline Survey (EBS) Update

- EBS Report completed in September 2001
- Submitted to U.S. Air Force Reserve Command (USAFRC) for review in November 2001
- USAFRC submitted document to USAF Air Staff in January 2002
- Air Staff review estimated to take 1 to 6 months
- EBS Report will then be submitted to General Services Administration (GSA)