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*By dehloptoxic at 2:12 pm, Jan 03, 2007*



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May 23, 2006

Mr. Barney Chan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Re: **Groundwater Monitoring Report - First Quarter 2006**  
Dublin Auto Wash  
7240 Dublin Boulevard  
Dublin, California  
ACHCSA Case No. 304

Dear Mr.Chan:

On behalf of Mr. Hooshang Hadjian, Pangea Environmental Services, Inc. has prepared this *Groundwater Monitoring Report - First Quarter 2006*. The report describes groundwater monitoring, sampling, and other site activities.

Sincerely,  
**Pangea Environmental Services, Inc.**

A handwritten signature in black ink, appearing to read "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.  
Principal Engineer

Attachment: *Groundwater Monitoring Report -First Quarter 2006*

cc: Mr. Hooshang Hadjian, 2108 San Ramon Valley Blvd, San Ramon, CA 94583  
cc: Mr. Jim Lange, 6500 Dublin Blvd., Suite 202, Dublin, CA 94568

**PANGEA Environmental Services, Inc.**

1710 Franklin Street, Suite 200, Oakland, California 94612 Telephone: 510.836.3700 Facsimile: 510.836.3709 www.pangeaenv.com



**GROUNDWATER MONITORING REPORT – FIRST QUARTER 2006**

**Dublin Auto Wash  
7240 Dublin Boulevard  
Dublin, California**

**May 23, 2006**

*Prepared for:*

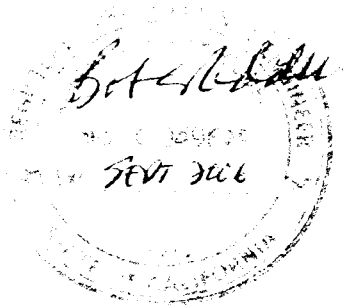
Mr. Hooshang Hadjian  
2108 San Ramon Valley Blvd  
San Ramon, CA 94583

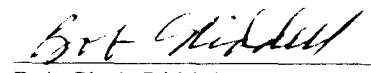
*Prepared by:*

Pangea Environmental Services, Inc.  
1710 Franklin Street, Suite 200  
Oakland, California 94612

*Written by:*

  
Morgan Gillies  
Project Manager



  
Bob Clark-Riddell, P.E.  
Principal Engineer

**PANGEA Environmental Services, Inc.**

## **INTRODUCTION**

On behalf of Mr. Hooshang Hadjian, Pangea Environmental Services, Inc. (Pangea) conducted groundwater monitoring and sampling activities during this quarter at the subject site (Figure 1). The purpose of the monitoring and sampling is to evaluate groundwater flow direction and dissolved contaminant concentrations, and to inspect site wells for separate-phase hydrocarbons (SPH). Current groundwater analytical results and elevation data are shown on Figure 2. Current and historical data are summarized on Table 1.

## **SITE BACKGROUND**

The Chevron-branded service station is located at the southwest corner of Dublin Boulevard and Village Parkway in Dublin, California (Figure 1). Currently, there are three 10,000-gallon underground storage tanks (USTs) and a carwash at the site. Land use immediately surrounding the service station is commercial with residential land use further from the site.

From approximately 1988 to 1997, Chevron Products Company performed assessment and remediation of the site. A soil vapor extraction (SVE) system was operated at the site from December 1992 through June 1995. Mr. Hadjian is the responsible party for an unauthorized release from a leaking stainless steel flex hose near the northernmost dispenser island in February 1997. Subsequently, a new product delivery system was installed and about 31 cubic yards of contaminated soil was removed from the release area. Gettler-Ryan, Inc. monitored the eight existing groundwater wells at the site until 2003, when SOMA Environmental Engineering, Inc. took over groundwater monitoring at the site. SOMA conducted further characterization of the site using electrical conductivity sensors and identified potential water-bearing zones. In November 2004, Pangea commenced coordination of groundwater monitoring and corrective action for the site.

## **GROUNDWATER MONITORING AND SAMPLING**

On February 21, 2006, groundwater monitoring and sampling was conducted at the site. Site monitoring wells were initially gauged for depth to water and inspected for SPH. Groundwater samples were obtained from six (MW-1, MW-2, MW-4, MW-5, EA-2 and EA-3) of the eight groundwater monitoring wells and three vapor wells (VW-1 through VW-3). Sampling of the three vapor wells was requested by the February 9, 2006 letter from Alameda County Environmental Health (ACEH). Monitoring well EA-1 was inaccessible and therefore was not gauged or sampled, and well MW-3 was not sampled due to the presence of SPH.

Before and after well purging, the dissolved oxygen (DO) concentration was measured in each well. DO was measured by lowering a downwell sensor to the approximate middle of the water column, and allowing the reading to stabilize during gentle height adjustment. Prior to sample collection, approximately three casing

volumes of water were purged using disposable bailers, an electric submersible pump, positive air displacement pump, or a peristaltic pump. During well purging, field technicians measured the pH, temperature and conductivity. Vapor wells VW-1 through VW-3 dewatered during purging and were sampled the next morning. Groundwater samples were collected from each well with a disposable bailer, and decanted into the appropriate containers supplied by the analytical laboratory. Groundwater samples were labeled, placed in protective plastic bags, and stored on crushed ice at or below 4° C. All samples were transported under chain-of-custody to the State-certified analytical laboratory. Purge water was stored onsite in DOT-approved 55-gallon drums. Groundwater monitoring field data sheets are presented in Appendix A.

## **MONITORING RESULTS**

Current and historical groundwater elevation data and analytical results are described below and summarized on Table 1. Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by modified EPA Method 8015C, and benzene, toluene, ethylene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE) by EPA Method 8021B. If MTBE was detected by the laboratory, a confirmation analysis was conducted by EPA Method 8260B. Samples were analyzed by McCampbell Analytical, Inc. of Pacheco, California, a State-certified laboratory. The laboratory analytical report is included in Appendix B. DO concentrations ranged from 0.14 µg/L (well MW-4) to 2.75 µg/L (well VW-2).

### **Groundwater Flow Direction**

The inferred groundwater flow direction based on depth-to-water data collected February 21, 2006 is shown on Figure 2. Groundwater apparently flowed from offsite wells MW-4 and MW-5 toward the site in the approximate southeast direction, while groundwater at the eastern portion of the site flowed toward the southwest. The groundwater elevation was lowest in onsite well MW-2, located in the southwestern corner of the site. The inferred groundwater flow direction is fairly consistent with recent monitoring events. The groundwater flow direction may be affected by the 18" diameter sanitary sewer line running beneath the southern portion of Dublin Boulevard. On March 21, 2006, Pangea measured the depth to the bottom of the sanitary sewer line through a manhole east of the site at approximately 15 feet below grade surface (bgs); the depth to water in nearby wells MW-1 and MW-3 has ranged from approximately 11 to 13 feet bgs. Depth-to-water and groundwater elevation data for the site are presented in Table 1.

## **Hydrocarbon Distribution in Groundwater**

Separate-phase hydrocarbons were measured in well MW-3 at a thickness of 0.19 ft, matching a historic high thickness for this well and the site (observed on November 27, 2005). Petroleum hydrocarbons were detected in four of the nine sampled wells (EA-3, VW-1, VW-2 and VW-3), as shown on Table 1 and Figure 2. Well EA-3 had the only detectable TPHg concentration (83 µg/L) for all site groundwater wells. The highest TPHg and benzene concentrations were detected in vapor well VW-3 at 8,900 µg/L and 390 µg/L, respectively. Vapor wells VW-1 and VW-2 also showed elevated concentrations of TPHg (860 µg/L and 1,600 µg/L, respectively) and benzene (120 µg/L and 150 µg/L, respectively).

The hydrocarbon concentrations in the vapor wells suggest that they may be useful as remediation wells in the future. Due to the long well screen for EA-3, sampling results are not likely representative of shallow groundwater conditions. The recent monitoring well abandonment and installation will allow better evaluation of site conditions.

## **Fuel Oxygenate Distribution in Groundwater**

MTBE was detected by EPA Method 8021 above reporting limits in groundwater wells MW-1, MW-2 and EA-3 and in vapor wells VW-1 and VW-2. As confirmed by EPA Method 8260B, the concentrations of MTBE in wells MW-1, MW-2, EA-3, VW-1 and VW-2 were 5,400 µg/L, 270 µg/L, 49 µg/L, 440 µg/L and 1,600 µg/L, respectively (Table 1 and Figure 2). The MTBE concentrations in well MW-1 represent an apparent increasing trend.

## **OTHER SITE ACTIVITIES**

### **Soil and Water Investigation Workplan**

As required by the February 9, 2006 letter from the ACEH, Pangea has begun implementation of the *Soil and Water Investigation Workplan* (Workplan) dated February 20, 2005 and *Workplan Addendum* dated January 20, 2006. All well abandonment and installation was recently completed on May 17 and 18, 2006. Pangea is preparing a technical report.

## **Upcoming Monitoring and Proposed Frequency**

Pangea will continue quarterly groundwater monitoring and sampling at the site. In accordance with the sampling frequency proposed in prior monitoring reports, Pangea will sample all site wells quarterly (MW-1, MW-2, MW-3A, MW-6A/B/C, MW-7AA/A/B/C, MW-8A, MW-9A/C, MW-10A/C, MW-11C), except MW-4 and MW-5 which will be sampled annually. All wells will be gauged for depth to water, and inspected for SPH. All groundwater samples will be analyzed for TPHg/BTEX/MTBE by EPA Method 8015Cm/8021B. Pangea will summarize groundwater monitoring activities and results in a groundwater monitoring report.

Consistent with the February 9, 2006 letter from ACEH, Pangea will also analyze groundwater samples for fuel oxygenates by EPA Method 8260B when MTBE is detected by EPA Method 8021B. The additional analysis would primarily evaluate tert-butyl alcohol (TBA) concentrations, but would also analyze for diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), ethanol and methanol. TBA in groundwater could be an indication of MTBE degradation.

## **ATTACHMENTS**

Figure 1 – Vicinity Map

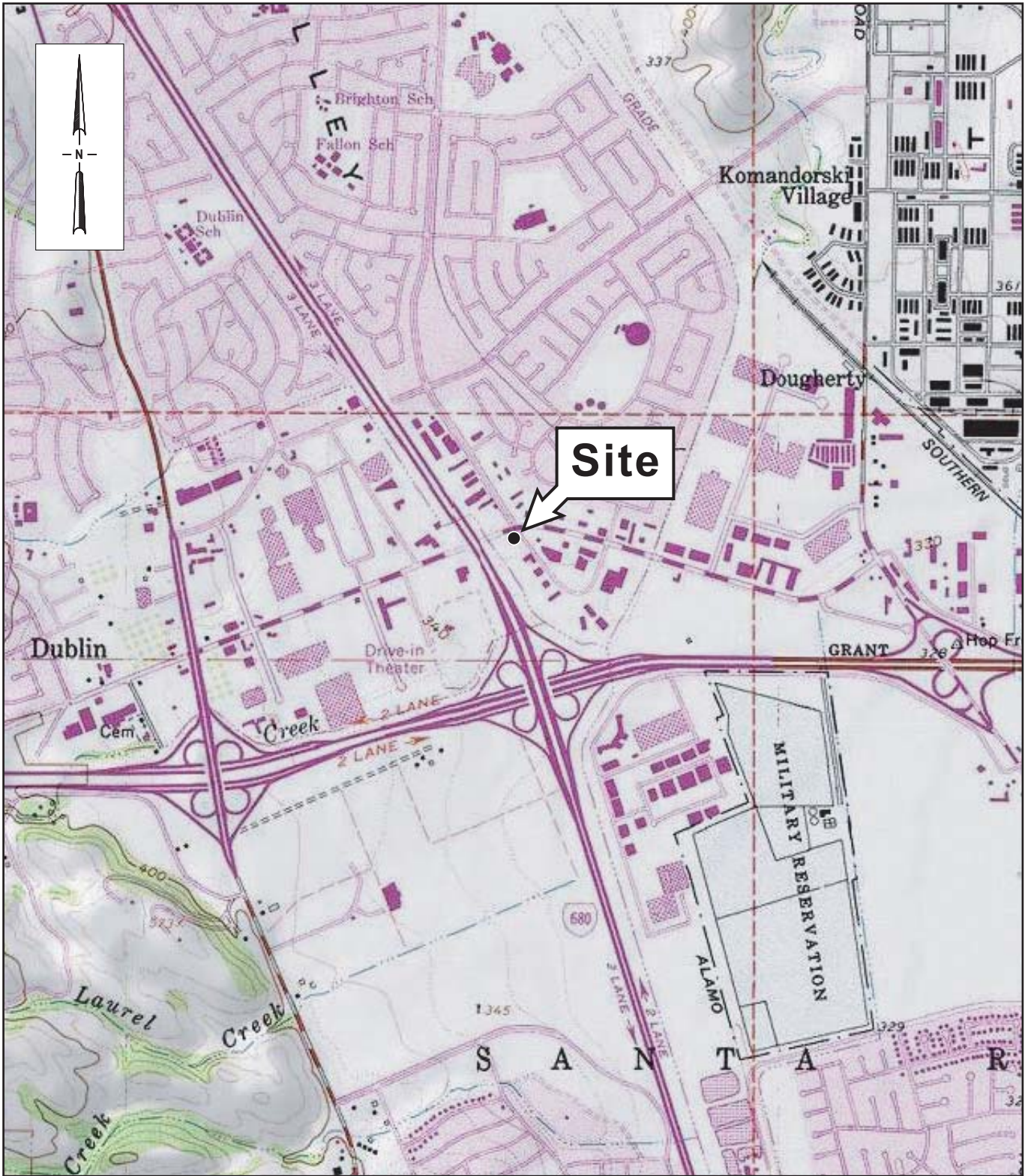
Figure 2 - Groundwater Elevation Contour and Hydrocarbon Concentration Map

Table 1 – Groundwater Elevation and Analytical Data

Appendix A – Groundwater Monitoring Field Data Sheets

Appendix B – Laboratory Analytical Report

Hadjain Dublin\QM\1Q06 Hadjain Dublin.doc



SOURCE: TOPOI MAPS



SCALE : 1" = 1/4 MILE

Figure 1

Dublin Auto Wash  
 7240 Dublin Boulevard  
 Dublin, California



Site Location Map

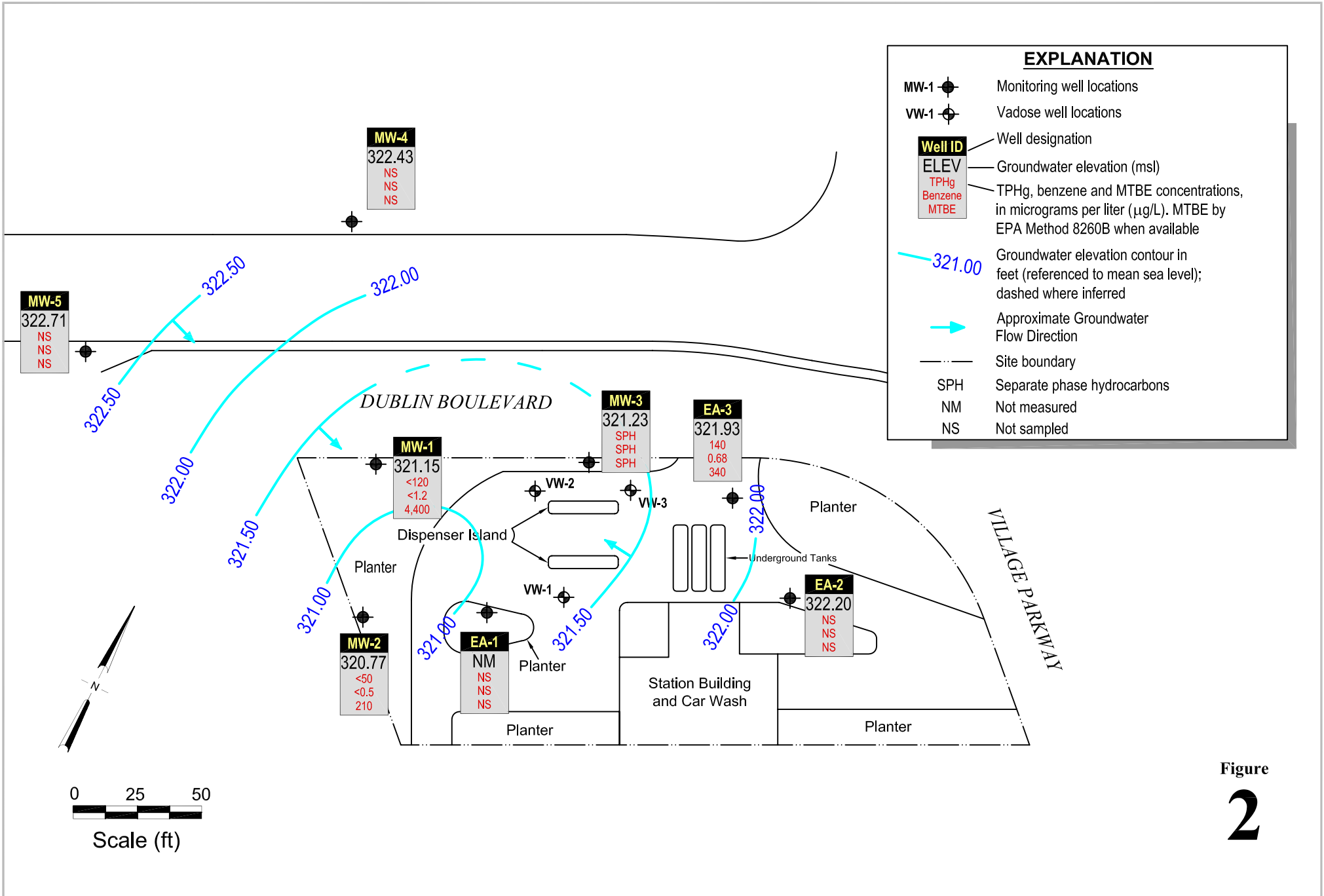


Figure  
**2**



**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID <i>TOC Elev</i> <i>(ft)</i>	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft, msl)	←----- μg/L -----→						Dissolved Oxygen mg/L	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
EA-1 331.21	10/17/88	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	
	10/24/88	10.64	322.77	--	--	--	--	--	--	--	
	11/02/88	10.69	322.72	--	--	--	--	--	--	--	
	12/20/88	10.51	322.9	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	
	03/28/89	9.87	323.54	<250	<0.5	<0.5	<0.5	<0.5	<0.5	--	
	08/02/89	10.34	323.07	<50	<0.1	<0.1	<0.1	<0.1	<0.1	--	
	11/06/89	10.65	322.76	<500	<3.0	<5.0	<5.0	<5.0	<5.0	--	
	01/25/90	10.6	322.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	
	04/23/90	10.58	322.83	71	2	5	3	8	8	--	
	08/01/90	10.88	322.53	300	86	21	10	33	33	--	
	10/24/91	11.12	322.29	280	69	13	11	16	16	--	
	01/31/91	11.16	322.25	460	160	11	17	17	17	--	
	08/21/91	10.8	322.61	2,400	400	220	44	120	120	--	
	08/21/91	10.8	322.61	2,300	390	210	42	120	120	--	Duplicate
	10/07/91	10.79	322.62	--	--	--	--	--	--	--	
	01/28/92	10.79	322.62	3,600	320	360	110	310	310	--	
	01/28/92	10.79	322.62	3,000	290	320	99	270	270	--	Duplicate
	06/05/92	10.84	322.57	1,700	290	89	61	130	130	--	
	09/30/92	11.06	322.35	2,100	160	260	80	350	350	--	
	12/30/92	10.15	323.26	3,200	240	180	110	310	310	--	
	03/29/93	9.42	323.99	23,000	700	3,000	610	3,000	3,000	--	
	06/25/93	10.42	322.99	2.7	130	590	130	590	590	--	
	09/16/93	10.66	322.75	3.9	410	830	220	890	890	--	
	12/20/93	10.6	322.81	27	1,200	2,600	1,100	4,200	4,200	--	
	03/29/94	10.41	323	6.3	250	700	200	830	830	--	
	06/22/94	10.4	323.01	4.1	71	240	110	460	460	<30	
	09/20/94	10.37	323.04	8,500	1,200	1,300	370	1,400	1,400	--	
	10/04/94	10.34	323.07	7,600	97	360	150	620	620	--	
	11/30/94	9.46	323.95	8,800	180	490	240	900	900	--	
	03/02/95	9.96	321.07	6.9	82	570	210	970	970	--	
	06/15/95	9.8	321.23	4.8	44	210	160	620	620	<25	
	09/26/95	10.48	320.55	13,000	150	620	370	1,400	1,400	<125	
	12/28/95	10.14	320.89	11,000	74	250	200	750	750	79	
02/29/96	8.74	322.29	17,000	59	480	350	1,600	1,600	<125		
06/27/96	10.21	320.82	3,600	22	130	130	49	46	46		
09/12/96	10.49	320.72	2,000	20	<10	18	44	44	<50		
03/31/97	10.19	321.02	17,000	87	230	330	1,200	1,200	310		
12/23/98	9.83	321.38	290	20	0.88	1.1	16	16	<2.5		
03/25/99	9.13	322.08	500	21	<0.5	21	<0.5	18	18		
02/03/00	9.05	322.16	2,310	35.7	90	21.8	147	147	1,280 (365)		
01/23/01	--	--	--	--	--	--	--	--	--	Inaccessible	
05/01/01	9.82	321.39	7,710	19.9	12.6	22.3	64	64	31.8		
08/28/01	10.04	321.17	4,800	69	<2.5	50	140	140	160		
11/27/01	10.05	321.16	5,300	25	<5.0	30	120	120	<20		
02/28/02	--	--	--	--	--	--	--	--	--	Inaccessible	
05/22/02	9.05	322.16	110	<1.0	<0.50	1	<1.5	<2.5	<2.5		
08/20/02	9.21	322	410	2.6	<0.50	8.5	29	29	<5.0		
11/11/02	9.01	322.2	3,800	<0.50	1.3	17	47	47	<5.0		

# Pangea

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID	Date	Depth	Groundwater							Dissolved	Notes	
			TOC Elev	to Water	Elevation	TPHg	Benzene	Toluene	Ethylbenzene			Xylenes
(ft)	Sampled	(ft)	(ft, msl)	←----- μg/L ----->							mg/L	
EA-1 (Cont'd)	05/08/03	8.23	322.98	1,700	11	0.97	63	161	<2.0			
	12/15/04	--	--	--	--	--	--	--	--		Inaccessible	
	02/21/05	--	--	--	--	--	--	--	--		Inaccessible	
	05/17/05	--	--	--	--	--	--	--	--		Inaccessible	
	08/17/05	--	--	--	--	--	--	--	--		Inaccessible	
	11/27/05	--	--	--	--	--	--	--	--		Inaccessible	
	02/21/06	--	--	--	--	--	--	--	--		Inaccessible	
EA-2 330.41	10/17/88	--	--	<50	<0.5	<0.5	<0.5	1.2	--			
	10/24/88	9.7	322.89	--	--	--	--	--	--			
	11/02/88	10.03	322.56	--	--	--	--	--	--			
	12/20/88	9.98	322.61	<50	<0.5	<0.5	<0.5	<0.5	--			
	03/28/89	8.8	323.79	<250	<2	<0.5	<0.5	<0.5	--			
	08/02/89	9.44	323.15	<50	<0.1	<0.1	<0.1	<0.1	--			
	11/06/89	9.53	323.06	<500	<3.0	<5.0	<5.0	<5.0	--			
	01/25/90	9.27	323.32	<50	<0.5	<0.5	<0.5	<0.5	--			
	04/23/90	9.35	323.24	<50	0.6	0.8	<0.5	2	--			
	08/01/90	9.71	322.88	<50	<0.5	<0.5	<0.5	<0.5	--			
	10/24/90	10.08	322.51	<50	<0.5	<0.5	<0.5	<0.5	--			
	01/31/91	10.21	322.38	<50	<0.5	<0.5	<0.5	<0.5	--			
	01/31/91	10.21	322.38	<50	<0.5	<0.5	<0.5	<0.5	--		Duplicate	
	08/21/91	9.8	322.79	<50	<0.5	<0.5	<0.5	<0.5	--			
	10/07/91	9.98	322.61	--	--	--	--	--	--			
	01/28/92	9.81	322.78	<50	0.8	<0.5	<0.5	<0.5	--			
	06/05/92	9.86	322.73	<50	<0.5	<0.5	<0.5	<0.5	--			
	09/30/92	10.6	321.99	66	1	3.2	1.3	7.4	--			
	12/30/92	9.11	323.48	<50	<0.5	<0.5	<0.5	<0.5	--			
	03/29/93	7.73	324.86	<50	<0.5	<0.5	<0.5	<1.5	--			
	06/25/93	9.22	323.37	<50	<0.5	<0.5	<0.5	<1.5	--			
	09/16/93	10	322.59	<50	<0.5	<0.5	<0.5	<1.5	--			
	12/20/93	9.38	323.21	<50	<0.5	<0.5	<0.5	<0.5	--			
	03/29/94	9.3	323.29	<50	<0.5	0.6	<0.5	<0.5	--			
	06/22/94	9.49	323.1	<50	<0.5	<0.5	<0.5	<0.5	--			
	09/26/94	9.72	322.87	<50	<0.5	<0.5	<0.5	<0.5	--			
	10/04/94	9.58	323.01	<50	<0.5	<0.5	<0.5	<0.5	--			
	11/30/94	8.7	323.89	<50	<0.5	<0.5	<0.5	<0.5	--			
	03/02/95	8.54	321.67	<50	<0.5	<0.5	<0.5	<0.5	--			
	06/07/95	8.42	321.79	<50	<0.5	<0.5	<0.5	<0.5	<2.5			
09/26/95	9.34	320.87	540	6.8	<0.5	47	29	13				
12/28/95	8.84	321.37	<50	<0.5	<0.5	<0.5	<0.5	<2.5				
02/29/96	7.44	322.77	<50	<0.5	<0.5	<0.5	1.5	<2.5				
06/27/96	8.83	321.38	<50	<0.5	<0.5	<0.5	<0.5	<2.5				
09/12/96	9.4	321.01	<50	<0.5	<0.5	<0.5	<0.5	<2.5				
03/31/97	9.11	321.3	<50	<0.5	<0.5	<0.5	<0.5	<2.5				
12/23/98	8.91	321.5	<50	<0.5	<0.5	<0.5	<0.5	<2.5				
03/25/99	8.1	322.31	<50	<0.5	<0.5	<0.5	<0.5	2.7				
02/03/00	8.36	322.05	<50	<0.5	<0.5	<0.5	<0.5	<2.5 (<2.0)				
01/23/01	9.08	321.33	441 (1)	1.27	0.542	40.3	31	72.9				

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID <i>TOC Elev</i> <i>(ft)</i>	Date Sampled	Depth to Water <i>(ft)</i>	Groundwater Elevation <i>(ft, msl)</i>	←----- μg/L ----->						Dissolved Oxygen <i>mg/L</i>	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
EA-2 (Cont'd)	05/01/01	8.87	321.54				SAMPLED ANNUALLY				
	08/28/01	9.45	320.96				SAMPLED ANNUALLY				
	11/27/01	9.5	320.91				SAMPLED ANNUALLY				
	02/28/02	9.05	321.36	<50	<0.50	<0.50	<0.5	<1.5	74		
	05/22/02	9.04	321.37				SAMPLED ANNUALLY				
	08/20/02	9	321.41				SAMPLED ANNUALLY				
	11/11/02	9.03	321.38				SAMPLED ANNUALLY				
	05/08/03	7.26	323.15	<50	<0.5	<0.5	<0.5	<0.5	2.2/0.9		
	12/15/04	8.96	321.45	<50	<0.5	<0.5	<0.5	<0.5	<5.0		
	02/21/05	7.20	323.21	<50	<0.5	<0.5	<0.5	<0.5	13 (11)	0.64	
	05/17/05	8.21	322.20				SAMPLED ANNUALLY			0.77	
	08/17/05	7.97	322.44				SAMPLED ANNUALLY			0.85	
	11/27/05	9.83	320.58				SAMPLED ANNUALLY			0.84	
	02/21/06	8.78	321.63	<50	<0.5	<0.5	<0.5	<0.5	<5.0	0.51/0.68	
EA-3 331.5	10/17/88	--	--	<50	1.8	<0.5	<0.5	3	--		
	10/24/88	11.03	322.61	--	--	--	--	--	--		
	11/02/88	11.03	322.61	--	--	--	--	--	--		
	12/20/88	10.96	322.68	240	90	1.2	13	3.3	--		
	03/28/89	9.77	323.87	2,300	380	130	240	910	--		
	08/02/89	10.65	322.99	<50	<0.1	<0.1	<0.1	<0.1	--		
	11/06/89	10.78	322.86	<500	<3.0	<5.0	<5.0	<5.0	--		
	01/25/90	10.66	322.98	<50	<0.5	<0.5	<0.5	<0.5	--		
	04/23/90	10.68	322.96	<50	0.8	<0.5	0.9	<0.5	--		
	08/01/90	11.03	322.61	<50	<0.5	<0.5	<0.5	<0.5	--		
	10/24/90	11.35	322.29	<50	<0.5	<0.5	<0.5	<0.5	--		
	01/31/91	11.52	322.12	<50	<0.5	<0.5	<0.5	<0.5	--		
	08/21/91	--	--	--	--	--	--	--	--		
	10/07/91	11.15	322.49	180	40	20	4.7	8.4	--		
	10/7/1991	--	--	200	43	17	4.1	6.7	--		Duplicate
	01/28/92	11.08	322.56	640	69	85	13	46	--		
	06/05/92	10.98	322.66	250	63	8.3	3	9.5	--		
	09/30/92	11.38	322.26	330	120	33	6.3	22	--		
	12/30/92	10.48	323.16	58	7.6	1.3	2.5	5.4	--		
	03/29/93	9.3	324.34	120	11	4.5	6.2	13	--		
	06/25/93	10.46	323.18	<50	<0.5	<0.5	<0.5	<1.5	--		
	09/16/93	10.9	322.74	85	3.9	8.8	4.5	22	--		
	12/20/93	10.66	322.98	190	12	12	13	50	--		
03/29/94	10.5	323.14	<50	<0.5	1.2	<0.5	0.9	--			
06/22/94	10.64	323	<50	<0.5	<0.5	<0.5	<0.5	<3.0			
09/26/94	10.72	322.92	<50	<0.5	<0.5	<0.5	<0.5	--			
10/04/94	10.68	322.96	<50	<0.5	<0.5	<0.5	0.7	--			
11/30/94	9.66	323.98	170	6.1	3	6.5	28	--			
03/02/95	9.92	321.38	<50	<0.5	<0.5	<0.5	<0.5	--			
06/07/95	9.72	321.58	<50	<0.5	<0.5	<0.5	<0.5	3.2			
09/26/95	10.6	320.7	2,000	140	<5.0	<5.0	190	280			
12/28/95	9.82	321.48	<50	<0.5	<0.5	<0.5	<0.5	26			
02/29/96	8.28	323.02	<50	2.1	<0.5	2.5	6	31			

# Pangea

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID <i>TKC Elev</i> <i>(ft)</i>	Date Sampled	Depth to Water <i>(ft)</i>	Groundwater Elevation <i>(ft, msl)</i>	Groundwater						Dissolved Oxygen <i>mg/L</i>	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
				←————— μg/L —————→							
EA-3 (Cont'd)	06/27/96	9.91	321.39	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	09/12/96	10.59	320.91	13,000	<20	<20	<20	<20	48		
	03/31/97	--	--	--	--	--	--	--	--		Inaccessible
	04/15/97	10.25	321.25	<125	2	<1.2	<1.2	<1.2	680		
	12/23/98	--	--	--	--	--	--	--	--		Inaccessible
	03/25/99	--	--	--	--	--	--	--	--		Inaccessible
	02/03/00	--	--	--	--	--	--	--	--		Inaccessible
	01/23/01	10.31	321.19	862 (1)	3.97	1.15	18.9	48.6	289		
	05/01/01	10.15	321.35	SAMPLED SEMI-ANNUALLY							
	08/28/01	10.56	320.94	<50	<0.5	<0.5	<0.5	<0.5	37		
	11/27/01	10.65	320.85	SAMPLED SEMI-ANNUALLY							
	02/28/02	10.37	321.13	<50	1.3	<0.50	2	1.8	90		
	05/22/02	10.27	321.23	SAMPLED SEMI-ANNUALLY							
	08/20/02	10.3	321.2	<50	<0.50	<0.50	<0.50	<1.5	40		
	11/11/02	9.05	322.45	SAMPLED SEMI-ANNUALLY							
	05/08/03	8.83	322.67	<50	<0.5	<0.5	<0.5	<0.5	39/37		
	12/15/04	10.39	321.11	<50	<0.5	<0.5	<0.5	<0.5	18 (17)		
	02/21/05	8.80	322.70	<50	<0.5	<0.5	2.3	1.4	180 (290)	0.69	
	05/17/05	9.57	321.93	140	0.68	<0.5	6.6	0.94	250 (340)	0.86	
	08/17/05	9.23	322.27	3,800	11	3.7	110	24	200 (200)	0.99	
11/27/05	11.05	320.45	150	<0.5	1.8	2.4	0.56	88 (85)	0.81		
02/21/06	10.10	321.40	83	<0.5	0.72	1.7	<0.5	40 (49)	0.38/0.65		
MW-1 333.66	10/04/94	12.8	320.76	2,100	150	170	61	320	--		
	11/30/94	12.38	321.18	1,500	210	17	73	130	--		
	03/02/95	12.88	320.68	2,600	510	<10	160	<10	--		
	06/07/95	12.58	320.98	710	160	<2.0	45	<2.0	<10		
	09/26/95	13.15	320.41	1,100	140	1.4	92	1.8	<5.0		
	12/28/95	13.09	320.47	750	96	2.5	61	7.4	37		
	02/29/96	12.17	321.39	250	17	<0.5	18	0.81	9		
	06/27/96	12.95	320.61	710	72	<2.0	92	2.2	<10		
	09/12/96	13.11	320.55	300	53	<0.5	32	0.65	21		
	03/31/97	12.99	320.67	<200	4.1	<2.0	4.8	<2.0	640		
	12/23/98	13.87	319.79	<50	<50	<0.5	<0.5	<0.5	3200		
	03/25/99	12.01	321.65	<50	<0.5	<0.5	<0.5	<0.5	5,200 (5,200)		
	02/03/00	11.91	321.75	<500	<5.0	<5.0	<5.0	<5.0	3,180 (3,350)		
	01/23/01	12.57	321.09	<50.0	<0.5	<0.5	<0.5	<0.5	4,420		
	05/01/01	12.6	321.06	SAMPLED SEMI-ANNUALLY							
	08/28/01	12.74	320.92	<50	<0.5	<0.5	<0.5	<0.5	4,800		
	11/27/01	12.7	320.96	SAMPLED SEMI-ANNUALLY							
	02/28/02	12.7	320.96	<50	<0.5	<0.5	<0.5	<1.5	1,400		
	05/22/02	12.38	321.28	SAMPLED SEMI-ANNUALLY							
	08/20/02	12.57	321.09	<50	<0.5	<0.5	<0.5	<1.5	1,400		
11/11/02	11.31	322.35	SAMPLED SEMI-ANNUALLY								
05/08/03	11.85	321.81	<50	<0.5	<0.5	<0.5	<0.5	1,300 (1,200)			
12/15/04	12.80	320.86	<50	<0.5	<0.5	<0.5	<0.5	1,700 (1,900)			
02/21/05	11.81	321.85	<100	<1.0	<1.0	<1.0	<1.0	3,000 (3,800)	0.82		
05/17/05	12.51	321.15	<120	<1.2	<1.2	<1.2	<1.2	3,400 (4,400)	0.75		

# Pangea

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID <i>TOC Elev</i> <i>(ft)</i>	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft, msl)	←————— μg/L —————→						Dissolved Oxygen mg/L	Notes	
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE			
<b>MW-1 (Cont'd)</b>	08/17/05	12.35	321.31	<170	<1.7	<1.7	<1.7	<1.7	<1.7	4,500 (4,900)	0.77	
	11/27/05	13.18	320.48	<170	<1.7	<1.7	<1.7	<1.7	<1.7	5,400 (4,400)	0.90	
	02/21/06	12.61	321.05	<170	<1.7	<1.7	<1.7	<1.7	<1.7	5,000 (5,400)	0.29/0.71	
<b>MW-2</b> 329.29	10/04/94	8.56	320.62	2300	160	280	96	480	--			
	11/30/94	8.33	320.85	1,600	170	16	110	120	--			
	03/02/95	8.35	320.83	1,200	220	5.6	140	36	--			
	06/07/95	8.62	320.56	160	25	<0.5	16	<0.5	240			
	09/26/95	8.71	320.47	150	15	<0.5	7.2	<0.5	120			
	12/28/95	8.78	320.4	400	34	1.3	26	5.1	170			
	02/29/96	7.82	321.36	120	29	<0.5	<0.5	<0.5	790			
	06/27/96	8.72	320.46	150	13	<0.5	7	<0.5	850			
	09/12/96	8.81	320.48	<1,000	18	<10	<10	<10	3,100			
	03/31/97	8.65	320.64	<500	<5.0	<5.0	<5.0	<5.0	1,400			
	12/23/98	8.32	320.97	<50	<0.5	<0.5	<0.5	<1.5	900			
	03/25/99	7.89	321.4	<50	2.6	<0.5	<0.5	<0.5	1,100 (670)			
	02/03/00	7.53	321.76	<125	<1.25	<1.25	<1.25	<1.25	1,020 (1,100)			
	01/23/01	8.18	321.11	<50.0	<0.5	<0.5	<0.5	<0.5	642			
	05/01/01	8.43	320.86	70.8	<0.5	<0.5	<0.5	<0.5	342			
	08/28/01	8.39	320.9	<50	<0.5	<0.5	<0.5	<0.5	530			
	11/27/01	8.46	320.83	210	<0.5	<0.5	<0.5	<1.5	260			
	02/28/02	8.48	320.81	<50	<0.5	<0.5	<0.5	<1.5	180			
	05/22/02	8.14	321.15	<50	<0.5	<0.5	<0.5	<1.5	180			
	08/20/02	8.24	321.05	<50	<0.5	<0.5	<0.5	<1.5	160			
11/11/02	8.06	321.23	<50	<0.5	<0.5	<0.5	<1.5	130				
05/08/03	7.86	321.43	<50	<0.5	<0.5	<0.5	<0.5	180 (160)				
12/15/04	8.60	320.69	<50	<0.5	<0.5	<0.5	<0.5	1,400 (1,600)				
02/21/05	7.55	321.74	<50	<0.5	<0.5	<0.5	<0.5	800 (1,100)		1.35		
05/17/05	8.52	320.77	<50	<0.5	<0.5	<0.5	<0.5	160 (210)		1.06		
08/17/05	8.16	321.13	<50	<0.5	<0.5	<0.5	<0.5	190 (210)		0.90		
11/27/05	9.00	320.29	<50	<0.5	<0.5	<0.5	<0.5	200 (210)		0.92		
02/21/06	8.51	320.78	<50	<0.5	<0.5	<0.5	<0.5	240 (270)		0.33/0.46		
<b>MW-3</b> 332.86	10/04/94	12.06	320.67	6,300	610	750	68	670	--			
	11/30/94	11.38	321.35	17	3,600	490	430	610	--			
	03/02/95	11.97	320.76	8,500	2,200	<50	240	<50	64,000			
	06/07/95	11.54	321.19	3,000	710	18	220	44	3,100			

# Pangea

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID TOC Elev (ft)	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft, msl)	Groundwater						Dissolved Oxygen mg/L	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
MW-3 (Cont'd)	09/26/95	12.36	320.37	<10,000	230	<100	130	<100	64,000		
	12/28/95	12.07	320.66	<12,500	760	<125	<125	<125	100,000		
	02/29/96	11.01	321.72	1,600	380	<10	84	17	33,000		
	06/27/96	11.93	320.8	1,400	<2.5	4.3	130	4	96,000		
	09/12/96	12.26	320.6	<10,000	560	<100	110	<100	100,000		
	03/31/97	12.04	320.82	<25,000	1,200	370	<250	380	130,000		
	12/23/98	12.92	319.94	--	--	--	--	--	--		0.1' SPH; 0.079 gal SPH removed
	03/25/99	12.56	320.3	--	--	--	--	--	--		0.05' SPH; 0.05 gal SPH removed
	02/03/00	11.12	321.74	92,100	4,780	11,400	2,270	15,800	137,000 (162,000)		
	1/23/2001	11.78	321.08	60,600	4,810	7,500	1,870	11,000	148,000		Absorbent sock in well
	5/1/2001	10.66	322.2	56,000	3,760	5,640	<2,500	8,740	136,000		Absorbent sock in well
	8/28/2001	11.79	321.07	32,000	3,800	2,600	1,200	7,500	160,000		Absorbent sock in well
	11/27/2001	11.98	320.88	110,000	1,300	2,400	1,500	9,400	90,000		Absorbent sock removed
	02/28/02	11.81	321.05	24,000	1,900	820	520	3,100	90,000		
	05/22/02	11.6	321.26	110,000	4,000	3,200	2,800	18,000	140,000		
	08/20/02	11.81	321.05	37,000	2,600	1,500	890	4,800	110,000		
	11/11/02	11.63	321.23	81,000	2,900	2,100	2,100	14,000	110,000		
	05/08/03	10.91	321.95	5,700	770	69	130	365	76,000 (70,000)		
	12/15/04	11.97	320.89	33,000	1,700	430	1,300	7,000	70,000 (89,000)		
	02/21/05	10.81	322.06	--	--	--	--	--	--	1.29	0.01 SPH
	05/17/05	11.63	321.29	--	--	--	--	--	--	1.06	0.08 SPH
	08/17/05	10.83	322.03	39,000	1,500	260	780	2,700	42,000 (47,000)	0.93	
	11/27/05	12.29	320.72	--	--	--	--	--	--	--	0.19 SPH
02/21/06	11.73	321.28	--	--	--	--	--	--	--	0.19 SPH	
MW-4 332.63	03/01/96	9.9	322.74	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	04/02/96	9.77	322.87	--	--	--	--	--	--		
	06/27/96	10	322.64	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	09/12/96	11.67	320.96	<50	<0.5	<0.5	<0.5	<0.5	3.5		
	03/31/97	10.59	322.04	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	12/23/98	10.37	322.26	<50	<0.5	<0.5	<0.5	<1.5	<2.5		
	03/25/99	9.91	322.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	02/03/00	10.32	322.31	<50	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0 (3)		
	01/23/01	10.54	322.09	<50	<0.5	<0.5	<0.5	<0.5	<5.0		
	05/01/01	10.32	322.31								SAMPLED ANNUALLY
	08/28/01	10.57	322.06								SAMPLED ANNUALLY
	11/27/01	10.29	322.34								SAMPLED ANNUALLY
	02/28/02	10.3	322.33	<50	<0.5	<0.5	<0.5	<1.5	<2.5		
	05/22/02	10.12	322.51								SAMPLED ANNUALLY
	08/20/02	10.43	322.2								SAMPLED ANNUALLY
	11/11/02	9.89	322.74								SAMPLED ANNUALLY
	05/08/03	9.79	322.84	<50	<0.5	<0.5	<0.5	<0.5	<2		
	12/15/04	10.56	322.07	<50	<0.5	<0.5	<0.5	<0.5	<5.0		
	02/21/05	9.50	323.13	<50	<0.5	<0.5	<0.5	<0.5	<5.0 (<0.5)	1.60	
	05/17/05	10.20	322.43							1.29	
08/17/05	10.50	322.13							1.10		
11/27/05	11.07	321.56							1.01		
02/21/06	10.53	322.10	<50	<0.5	<0.5	<0.5	<0.5	<5.0	0.14/0.90		

# Pangea

**Table 1. Groundwater Elevation and Analytical Data - Dublin Auto Wash, 7240 Dublin Boulevard, Dublin, CA**

Well ID	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft, msl)	←----- µg/L ----->						Dissolved Oxygen mg/L	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
<b>MW-5</b> 333.47	03/01/96	10.62	322.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	04/02/96	10.14	323.06	--	--	--	--	--	--		
	06/27/96	10.22	322.98	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	09/12/96	10.85	322.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	03/31/97	10.44	322.6	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	12/23/98	10.21	322.83	<50	<0.5	<0.5	<0.5	<1.5	<2.5		
	03/25/99	9.92	323.12	<50	<0.5	<0.5	<0.5	<0.5	<2.5		
	02/03/00	9.63	323.41	<50	<0.5	<0.5	<0.5	<0.5	<2.5/<2.03		
	01/23/01	10.35	322.69	<50	<0.5	<0.5	<0.5	<0.5	<5.0		
	05/01/01	10.34	322.7				SAMPLED ANNUALLY				
	08/28/01	10.44	322.6				SAMPLED ANNUALLY				
	11/27/01	10.17	322.87				SAMPLED ANNUALLY				
	02/28/02	10.2	322.84	<50	<0.5	<0.5	<0.5	<1.5	<2.5		
	05/22/02	10.38	322.66				SAMPLED ANNUALLY				
	08/20/02	10.36	322.68				SAMPLED ANNUALLY				
	11/11/02	10.03	323.01				SAMPLED ANNUALLY				
	05/08/03	9.56	323.48	<50	<0.5	<0.5	<0.5	<0.5	3.4/<0.5		
	12/15/04	10.08	322.96	<50	<0.5	<0.5	<0.5	<0.5	<5.0		
	02/21/05	9.90	323.14	<50	<0.5	<0.5	<0.5	<0.5	<5.0 (0.54)	1.62	
	05/17/05	10.33	322.71				SAMPLED ANNUALLY			1.47	
08/17/05	10.40	322.64				SAMPLED ANNUALLY			1.18		
11/27/05	10.43	322.61				SAMPLED ANNUALLY			1.19		
<b>02/21/06</b>	<b>10.32</b>	<b>322.72</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	<b>0.48/0.76</b>	
<b>VW-1</b>	<b>02/21/06</b>	<b>7.95</b>	<b>--</b>	<b>860</b>	<b>120</b>	<b>1.4</b>	<b>32</b>	<b>4.4</b>	<b>390 (440)</b>	<b>1.97</b>	
<b>VW-2</b>	<b>02/21/06</b>	<b>6.01</b>	<b>--</b>	<b>1,600</b>	<b>150</b>	<b>2.7</b>	<b>55</b>	<b>20</b>	<b>1,700 (1,600)</b>	<b>1.97</b>	
<b>VW-3</b>	<b>02/21/06</b>	<b>6.10</b>	<b>--</b>	<b>8,900</b>	<b>390</b>	<b>29</b>	<b>490</b>	<b>650</b>	<b>&lt;50</b>	<b>2.28</b>	

**ABBREVIATIONS AND NOTES:**

SPH = Separate-phase hydrocarbons, calculated groundwater elevation corrected for SPH by the relation: Groundwater Elevation = Well Elevation - Depth to Water +(0.8xSPH Thickness)

Groundwater monitoring data and laboratory analytical results prior to December 14, 2004, were scanned from a report by SOMA

(ft) = Feet

(msl) = Mean sea level

TOC Elev. (ft) = Top of casing elevation

µg/L. = micrograms per liter - approximately equal to parts per billion = ppb

mg/L. = milligrams per liter - approximately equal to parts per million = ppm

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015C

BTEX by EPA Method 8020/8021.

MTBE = Methyl tertiary butyl ether by EPA Method 8020/8021 (Concentrations in parentheses are by EPA Method 8260B)

1,2-DCA = 1,2-Dichloroethane

-- = Not Measured/Not Analyzed

1 = Laboratory report indicates weathered gasoline C6-C12

Dissolved oxygen concentrations measured downhole pre-purge or pre-purge/post-purge.

## **APPENDIX A**

### **Groundwater Monitoring Field Data Sheets**



Well Gauging Data Sheet

Project.Task #: 1001.001 206			Project Name: Dublin Cor Mac h				
Address: 7420 Dublin Blvd Dublin, CA						Date: 2-21-2006	
Name: Sanjiv Gill			Signature: <i>[Signature]</i>				
Well ID	Well Size (in.)	Time	Depth to Immiscible Liquid (ft)	Thickness of Immiscible Liquid (ft)	Depth to Water (ft)	Total Depth (ft)	Measuring Point
EA-1			Inaccessible				TOC
EA-2	4"	6:20			8.78	39.16	
EA-3	4"	6:25			10.10	34.65	
MW-1	2"	6:15			12.61	25.32	
MW-2		6:10			8.51	20.00	
MW-3		6:30	11.54	0.19	11.73		
MW-4		6:00			10.53	19.78	
MW-5		6:05			10.32	20.56	
VW-1		7:15			7.95	8.40	
VW-2		7:20			6.01	8.30	
VW-3	*	7:25			6.10	8.40	*

Comments:

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**MONITORING FIELD DATA SHEET**

Well ID: MU-2

Project.Task #: 1001.001 206		Project Name: Dublin Car Wash						
Address: 7420 Dublin Boulevard Dublin, CA								
Date: 2/21/2006		Weather: <u>Sunny</u>						
Well Diameter: <u>2"</u>		Volume/ft. <u>1" = 0.04</u> <u>3" = 0.37</u> <u>6" = 1.47</u> <u>2" = 0.16</u> <u>4" = 0.65</u> radius <sup>2</sup> <u>0.163</u>						
Total Depth (TD): <u>20.00</u>		Depth to Product:						
Depth to Water (DTW): <u>8.51</u>		Product Thickness:						
Water Column Height: <u>11.49</u>		1 Casing Volume: <u>1.83</u> gallons						
Reference Point: TOC		<u>3</u> Casing Volumes: <u>5.51</u> gallons						
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp @	pH	Cond (us)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>11:25</u>	<u>18.2</u>	<u>7.28</u>	<u>1492</u>				<u>1.5</u>	
<u>11:30</u>	<u>17.9</u>	<u>7.35</u>	<u>1610</u>				<u>3</u>	
<u>11:35</u>	<u>18.8</u>	<u>7.37</u>	<u>1659</u>				<u>5.5</u>	

Comments: Oakton DO meter pre purge DO = 0.33 mg/l  
post purge DO = 0.46 mg/l

Sample ID: <u>MU-2</u>	Sample Time: <u>11:40</u>
Laboratory: <u>McCampbell Analytical, INC.</u>	Sample Date: <u>2/21/2006</u>
Containers/Preservative: <u>Voal/HCl</u>	
Analyzed for: <u>8015, 8021, confirmation by 8260</u>	
Sampler Name: <u>Sanjiv Gill</u>	Signature: _____



## MONITORING FIELD DATA SHEET

Well ID: MW-4

Project Task #: 1001.001 206      Project Name: Dublin Car Wash

Address: 7420 Dublin Boulevard Dublin, CA

Date: 2/21/2006

Weather: Sunny

Well Diameter: 2"

Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47
	2" = 0.16	4" = 0.65	radius = 0.163

Total Depth (TD): 19.78

Depth to Product:

Depth to Water (DTW): 10.53

Product Thickness:

Water Column Height: 9.25

1 Casing Volume: 1.48 gallons

Reference Point: TOC

3 Casing Volumes: 4.44 gallons

Purging Device: Disposable Bailer, 3" PVC Bailer, What Pump

Sampling Device: Disposable Bailer

Time	Temp (°C)	pH	Cond (µs)	NTU	DO (mg/L)	ORP (mV)	Vol (gal)	DTW
9:15	18.7	7.22	1247				1.5	
9:20	18.9	7.16	1510				3	
9:25	18.9	7.19	1496				4.5	

Comments: Oakton DO meter      pre purge DO = .14 mg/l  
 post purge DO = .90 mg/l

Sample ID: MW-4      Sample Time: 9:30

Laboratory: McCampbell Analytical, INC.      Sample Date: 2/21/2006

Containers/Preservative: Voal/HCl

Analyzed for: 8015, 8021, confirmation by 8260

Sampler Name: Sanjiv Gill      Signature: [Signature]

## MONITORING FIELD DATA SHEET

Well ID: MW-5

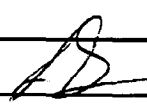
Project.Task #: 1001.001 206		Project Name: Dublin Car Wash	
Address: 7420 Dublin Boulevard Dublin, CA			
Date: 2/21/2006		Weather: <u>Sunny</u>	
Well Diameter: <u>2"</u>		Volume/ft. <u>1" = 0.04</u> <u>3" = 0.37</u> <u>6" = 1.47</u> <u>2" = 0.16</u> <u>4" = 0.65</u> <u>radius<sup>2</sup> = 0.163</u>	
Total Depth (TD): <u>20.56</u>		Depth to Product:	
Depth to Water (DTW): <u>10.32</u>		Product Thickness:	
Water Column Height: <u>10.24</u>		1 Casing Volume: <u>1.63</u> gallons	
Reference Point: TOC		<u>3</u> Casing Volumes: <u>4.91</u> gallons	

Purging Device: Disposable Bailer 3" PVC Bailer, What Pump

Sampling Device: Disposable Bailer

Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
9:45	18.1	6.98	1046				1.5	
9:50	18.5	7.14	1195				3	
9:55	17.9	7.18	1172				5	

Comments: Oakton DO meter pre purge DO = 0.48 mg/l  
post purge DO = 0.76 mg/l

Sample ID: <u>MW-5</u>	Sample Time: <u>10:00</u>
Laboratory: <u>McCampbell Analytical, INC.</u>	Sample Date: <u>2/21/2006</u>
Containers/Preservative: <u>Voal/HCl</u>	
Analyzed for: <u>8015, 8021, confirmation by 8260</u>	
Sampler Name: <u>Sanjiv Gill</u>	Signature: 



**MONITORING FIELD DATA SHEET**

Well ID: EA-1

Project.Task #: 1001.001 206	Project Name: Dublin Car Wash
Address: 7420 Dublin Boulevard Dublin, CA	
Date: 2/21/2006	Weather:
Well Diameter:	Volume/ft. 1" = 0.04 3" = 0.37 6" = 1.47
	2" = 0.16 4" = 0.65 radius <sup>2</sup> * 0.163
Total Depth (TD):	Depth to Product:
Depth to Water (DTW):	Product Thickness:
Water Column Height:	1 Casing Volume: gallons
Reference Point: TOC	Casing Volumes: gallons

Purging Device: Disposable Bailer, 3" PVC Bailer, What Pump

Sampling Device: Disposable Bailer

Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
		Inaccessible						

Comments: Oakton DO meter pre purge DO = mg/l  
 post purge DO = mg/l

Sample ID:	Sample Time:
Laboratory: McCampbell Analytical, INC.	Sample Date: 2/21/2006
Containers/Preservative: Voa/HCl	
Analyzed for: 8015, 8021, confirmation by 8260	
Sampler Name: Sanjiv Gill	Signature:

**MONITORING FIELD DATA SHEET**

Well ID: *EA-2*

Project Task #: 1001.001 206		Project Name: Dublin Car Wash						
Address: 7420 Dublin Boulevard Dublin, CA								
Date: 2/21/2006		Weather: <i>Sunny</i>						
Well Diameter: <i>4"</i>		Volume/ft. <i>1" = 0.04</i> <i>3" = 0.37</i> <i>6" = 1.47</i> <i>2" = 0.16</i> <i>4" = 0.65</i> <i>radius = 0.163</i>						
Total Depth (TD): <i>39.16</i>		Depth to Product:						
Depth to Water (DTW): <i>8.78</i>		Product Thickness:						
Water Column Height: <i>30.38</i>		1 Casing Volume: <i>19.74</i> gallons						
Reference Point: TOC		3 Casing Volumes: <i>59.24</i> gallons						
Purging Device: Disposable Bailer, 3" PVC Bailer, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>10:20</i>	<i>19.1</i>	<i>7.05</i>	<i>942</i>				<i>20</i>	
<i>10:40</i>	<i>18.6</i>	<i>6.95</i>	<i>917</i>				<i>40</i>	
<i>11:00</i>	<i>18.2</i>	<i>6.90</i>	<i>930</i>				<i>59</i>	

Comments: Oakton DO meter pre purge DO = *0.51* mg/l  
post purge DO = *0.68* mg/l

Sample ID: <i>EA-2</i>	Sample Time: <i>11:05</i>
Laboratory: McCampbell Analytical, INC.	Sample Date: 2/21/2006
Containers/Preservative: <i>Voal/HCl</i>	
Analyzed for: 8015, 8021, confirmation by 8260	
Sampler Name: Sanjiv Gill	Signature: <i>[Signature]</i>





## MONITORING FIELD DATA SHEET

Well ID: VW-1

Project Task #: 1001.001 206		Project Name: Dublin Car Wash	
Address: 7420 Dublin Boulevard Dublin, CA			
Date: 2/21/2006		Weather: <u>Sunny</u>	
Well Diameter: <u>2"</u>		Volume/ft. <u>1" = 0.04</u> <u>3" = 0.37</u> <u>6" = 1.47</u> <u>2" = 0.16</u> <u>4" = 0.65</u> radius <sup>2</sup> * 0.163	
Total Depth (TD): <u>8.40</u>		Depth to Product:	
Depth to Water (DTW): <u>7.95</u>		Product Thickness:	
Water Column Height: <u>0.45</u>		1 Casing Volume: <u>0.072</u> gallons	
Reference Point: TOC		3 Casing Volumes: <u>0.21</u> gallons	

Purging Device: Disposable Bailer, 3" PVC Bailer, Whal Pump


Sampling Device: Disposable Bailer

Time	Temp @	pH	Cond (us)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
7:40		Insufficient water		unable to obtain any water in bailer				
1:35		Well did not recharge						
2/22 10:20		DTW = 8.00		sampled, water reactive with HCL, pouly enough to fill 2 voas				

Comments: Oakton DO meter

pre purge DO = 1.97 mg/l

post purge DO = - mg/l

Sample ID: <del>VW-1</del> <u>VW-1</u>	Sample Time: <u>1025</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <del>2/21/2006</del> <u>2/22/06</u>
Containers/Preservative: Voal/HCl	
Analyzed for: 8015, 8021, confirmation by 8260	
Sampler Name: Sanjiv Gill / Morgan Gillies	Signature: 



**MONITORING FIELD DATA SHEET**

Well ID: VW-2

Project Task #: 1001.001 206		Project Name: Dublin Car Wash							
Address: 7420 Dublin Boulevard Dublin, CA									
Date: 2/21/2006		Weather: <u>Sunny</u>							
Well Diameter: <u>2"</u>		Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius<sup>2</sup> = 0.163</td> </tr> </table>		1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius <sup>2</sup> = 0.163
1" = 0.04	3" = 0.37	6" = 1.47							
2" = 0.16	4" = 0.65	radius <sup>2</sup> = 0.163							
Total Depth (TD): <u>8.30</u>		Depth to Product:							
Depth to Water (DTW): <u>6.01</u>		Product Thickness:							
Water Column Height: <u>2.29</u>		1 Casing Volume: <u>0.36</u> gallons							
Reference Point: TOC		3 Casing Volumes: <u>1.09</u> gallons							
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Whal Pump									
Sampling Device: Disposable Bailer									
Time	Temp @	pH	Cond (us)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
8:00		<u>Well dewatered</u>					<u>1 liter</u>		
1:45		<u>Well did not recharge</u>							
<u>2/22</u> 1010		<u>DTW = 6.25, Sampled.</u>							

Comments: Oakton DO meter pre purge DO = 2.75 mg/l  
 post purge DO =    mg/l

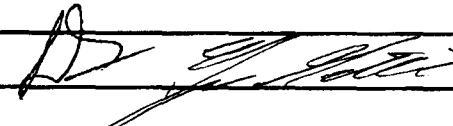
Sample ID: <u>VW-2</u>	Sample Time: <u>1015</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <del>2/21/2006</del> <u>2/22/2006</u>
Containers/Preservative: <u>Voa/HCl</u>	
Analyzed for: 8015, 8021, confirmation by 8260	
Sampler Name: Sanjiv Gill	Signature: <u>[Signature]</u>

## MONITORING FIELD DATA SHEET

Well ID: VW-3

Project Task #: 1001.001 206				Project Name: Dublin Car Wash				
Address: 7420 Dublin Boulevard Dublin, CA								
Date: 2/21/2006				Weather:				
Well Diameter: 2"				Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47	
					2" = 0.16	4" = 0.65	radius = 0.163	
Total Depth (TD): 8.40				Depth to Product:				
Depth to Water (DTW): 6.10				Product Thickness:				
Water Column Height: 2.30				1 Casing Volume: 0.36		gallons		
Reference Point: TOC				3 Casing Volumes: 1.09		gallons		
Purging Device: Disposable Bailer, 3" PVC Bailer, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
8:35		Well de-aerated					1 liter	
1:58		Well did not re-aer.						
2/22 1000		DTW = 6.50, Sampled						

Comments: Oakton DO meter pre purge DO = 2.28 mg/l  
 post purge DO = \_\_\_\_\_ mg/l

Sample ID: VW-3	Sample Time: 1005
Laboratory: McCampbell Analytical, INC.	Sample Date: <del>2/21/2006</del> 2/22/06
Containers/Preservative: Voa/HCl	
Analyzed for: 8015, 8021, confirmation by 8260	
Sampler Name: Sanjiv Gill, Morgan Gillies	Signature: 

## **APPENDIX B**

### **Laboratory Analytical Report**



**McC Campbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: www.mcccampbell.com E-mail: main@mcccampbell.com

Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #1001.01 206; Dublin Auto Wash	Date Sampled: 02/21/06
		Date Received: 02/22/06
	Client Contact: Bob Clark-Riddell	Date Reported: 02/28/06
	Client P.O.:	Date Completed: 03/03/06

**WorkOrder: 0602382**

March 03, 2006

Dear Bob:

Enclosed are:

- 1). the results of 9 analyzed samples from your **#1001.01 206; Dublin Auto Wash project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager





# McC Campbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
 Telephone : 925-798-1620 Fax : 925-798-1622  
 Website: www.mcccampbell.com E-mail: main@mcccampbell.com

Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1001.01 206; Dublin Auto Wash	Date Sampled: 02/21/06-02/22/06
	Client Contact: Bob Clark-Riddell	Date Received: 02/22/06
	Client P.O.:	Date Extracted: 03/02/06
		Date Analyzed: 03/02/06

### Methyl tert-Butyl Ether\*

Extraction method: SWS030B

Analytical methods: SW8260B

Work Order: 0602382

Lab ID	Client ID	Matrix	Methyl-t-butyl ether (MTBE)	DF	% SS
001B	MW-1	W	5400	200	85
002B	MW-2	W	270	10	88
006B	EA-3	W	49	2	88
007B	VW-1	W	440	20	89
008B	VW-2	W	1600	1000	88

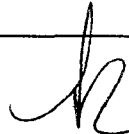
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.5	µg/L
	S	NA	NA

\* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

 Angela Rydelius, Lab Manager





QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0602382

EPA Method: SW8021B/8015Cm		Extraction: SW5030B			BatchID: 20434			Spiked Sample ID: 0602382-003A		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex) <sup>£</sup>	ND	60	109	111	2.56	105	106	0.660	70 - 130	70 - 130
MTBE	ND	10	106	97.5	8.12	106	102	4.30	70 - 130	70 - 130
Benzene	ND	10	97.2	92.4	5.03	94.2	92.5	1.84	70 - 130	70 - 130
Toluene	ND	10	98.4	93	5.69	95.1	94	1.17	70 - 130	70 - 130
Ethylbenzene	ND	10	98	93.1	5.13	95	94.4	0.587	70 - 130	70 - 130
Xylenes	ND	30	100	95	5.13	95.7	95.3	0.349	70 - 130	70 - 130
%SS:	114	10	98	97	0.518	98	97	1.30	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 20434 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0602382-001A	2/22/06 12:05 PM	2/23/06	2/23/06 4:44 AM	0602382-001A	2/22/06 12:05 PM	2/23/06	2/23/06 7:31 PM
0602382-002A	2/21/06 11:40 AM	2/23/06	2/23/06 6:42 AM	0602382-003A	2/21/06 9:30 AM	2/23/06	2/23/06 7:11 AM
0602382-004A	2/21/06 10:00 AM	2/23/06	2/23/06 7:41 AM	0602382-005A	2/21/06 11:05 AM	2/23/06	2/23/06 8:07 AM
0602382-006A	2/21/06 1:15 PM	2/23/06	2/23/06 8:40 AM	0602382-007A	2/22/06 10:25 AM	2/23/06	2/23/06 5:13 AM
0602382-007A	2/22/06 10:25 AM	2/23/06	2/23/06 9:00 PM	0602382-008A	2/22/06 10:15 AM	2/23/06	2/23/06 5:43 AM
0602382-008A	2/22/06 10:15 AM	2/23/06	2/23/06 10:29 PM	0602382-009A	2/22/06 10:05 AM	2/23/06	2/23/06 9:59 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.  
 % Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).  
 MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.  
 £ TPH(btex) = sum of BTEX areas from the FID.  
 # cluttered chromatogram, sample peak coelutes with surrogate peak.  
 N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.  
 NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0602382

EPA Method: SW8260B		Extraction: SW5030B				BatchID: 20539			Spiked Sample ID: 0602501-006B	
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
Methyl-t-butyl ether (MTBE)	ND	10	105	106	1.68	104	105	1.68	70 - 130	70 - 130
%SS1:	102	10	100	99	0.832	103	103	0	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 20539 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0602382-001B	2/22/06 12:05 PM	3/02/06	3/02/06 6:26 PM	0602382-002B	2/21/06 11:40 AM	3/02/06	3/02/06 7:17 PM
0602382-006B	2/21/06 1:15 PM	3/02/06	3/02/06 8:08 PM	0602382-007B	2/22/06 10:25 AM	3/02/06	3/02/06 8:53 PM
0602382-008B	2/22/06 10:15 AM	3/02/06	3/02/06 9:42 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



# McCAMPBELL ANALYTICAL, INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (925) 798-1620 Fax: (925) 798-1622

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY  
EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Morgan Gillies Bill To: Pangea  
Company: Pangea Environmental Services, Inc.  
1710 Franklin Street, Suite 200, Oakland, CA 94612  
E-Mail: [mgillies@pangeaenv.com](mailto:mgillies@pangeaenv.com)  
Tele: (510) 836-3702 Fax: (510) 836-3709  
Project #: 1001.001 Project Name: Dublin Auto Wash  
Project Location: 7240 Dublin Blvd., Dublin, CA  
Sampler Signature: *[Signature]*

Analysis Request											Other	Comments					
BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010 / 8021	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8081	EPA 608 / 8082 PCB's ONLY	EPA 8140 / 8141	EPA 8150 / 8151	EPA 524.2 / 624 / 8260	EPA 525 / 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals (6010 / 6020)	LUFT 5 Metals (6010 / 6020)	Lead (200.8 / 200.9 / 6010)		Filter Samples for Metals analysis: Yes / No

*IF MTBE detected by 8260 confirm by 8260.*

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other			
+ VW-1		7/22	10:25	2	WA	X					X	X					
+ VW-2		↓	10:15	3	↓	X					X	X					
+ VW-3		↓	10:05	3	↓	X					X	X					

Relinquished By: *[Signature]* Date: 7/22 Time: 11:30 Received By: *[Signature]*  
Relinquished By: Date: Time: Received By:  
Relinquished By: Date: Time: Received By:

COMMENTS:  
ICE/° \_\_\_\_\_  
GOOD CONDITION \_\_\_\_\_  
HEAD SPACE ABSENT \_\_\_\_\_  
DECHLORINATED IN LAB \_\_\_\_\_  
APPROPRIATE CONTAINERS \_\_\_\_\_  
PRESERVED IN LAB \_\_\_\_\_  
VOAS O&G METALS OTHER  
PRESERVATION pH<2

**McC Campbell Analytical, Inc.**



110 Second Avenue South #D7  
 Pacheco, CA 94553-5560  
 (925) 798-1620

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0602382

ClientID: PEO

EDF: YES

**Report to:**

Bob Clark-Riddell  
 Pangea Environmental Svcs., Inc.  
 1710 Franklin Street, Ste. 200  
 Oakland, CA 94612

TEL: (510) 836-3700  
 FAX: (510) 836-3709  
 ProjectNo: #1001.01 206; Dublin Auto Wash  
 PO:

**Bill to:**

Bob Clark-Riddell  
 Pangea Environmental Svcs., Inc.  
 1710 Franklin Street, Ste. 200  
 Oakland, CA 94612

**Requested TAT:**

**5 days**

*Date Received:* 02/22/2006

*Date Printed:* 03/01/2006

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0602382-001	MW-1	Water	2/22/2006	<input type="checkbox"/>	A	B	A										
0602382-002	MW-2	Water	2/21/2006	<input type="checkbox"/>	A	B											
0602382-003	MW-4	Water	2/21/2006 9:30:00	<input type="checkbox"/>	A												
0602382-004	MW-5	Water	2/21/2006	<input type="checkbox"/>	A												
0602382-005	EA-2	Water	2/21/2006	<input type="checkbox"/>	A												
0602382-006	EA-3	Water	2/21/2006 1:15:00	<input type="checkbox"/>	A	B											
0602382-007	VW-1	Water	2/22/2006	<input type="checkbox"/>	A	B											
0602382-008	VW-2	Water	2/22/2006	<input type="checkbox"/>	A	B											
0602382-009	VW-3	Water	2/22/2006	<input type="checkbox"/>	A												

Test Legend:

1	G-MBTEX_W	2	MTBE_W	3	PREFD REPORT	4		5
6		7		8		9		10
11		12						

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.