

By Alameda County Environmental Health at 3:36 pm, Apr 01, 2013

RECEIVED

March 29, 2013

Deidre Mena EBMUD Environmental Services Division P.O. Box 24055, MS#702 Oakland, CA 94623-1055

Re: Semi-Annual Discharge Compliance Report – September 2012 to March 2013 Groundwater Remediation, 5175 Broadway, Oakland, California

Dear Ms. Mena:

Pangea Environmental Services, Inc. (Pangea) has prepared this *Semi-Annual Discharge Compliance Report – September 2012 to March 2013* for the subject site for the period of September 1, 2012 to March 1, 2013. As specified in the Wastewater Discharge Permit #50649181 issued August 20, 2010, discharge compliance reports are required semi-annually by the East Bay Municipal Utility District (EBMUD). Described below are background information, system operation and performance, and system sampling.

BACKGROUND INFORMATION

DPE system installation was required and approved by the Alameda County Environmental Health (ACEH) to cleanup residual petroleum hydrocarbons from a prior unauthorized release. The DPE system consists of an aboveground vacuum pump to simultaneously extract soil vapor and groundwater. The groundwater treatment equipment consists of a 200-gallon vapor/liquid separator (knockout tank), transfer pump, a particulate filter vessel, two 200-lb activated carbon vessels connected in series, and a water totalizer meter. Once the transfer tank becomes full, the transfer pump is activated by level control switches in the transfer tank and pumps the groundwater through the water treatment system prior to discharge to the sanitary sewer under permit from the EBMUD.

SYSTEM OPERATION AND PERFORMANCE

The DPE system commenced continuous operation on Wednesday, December 8, 2010. As of the end of this reporting period (March 1, 2013), the DPE system extracted and treated approximately 79,201 gallons of groundwater. The DPE system was restarted on November 27, 2012 and operated for approximately two weeks, after being temporarily off since January 31, 2012. During this reporting period, the average groundwater flow rate ranged from approximately 0.001 to 0.004 gpm, which includes system shutdown periods. GWE system performance is summarized in Table 1. No hazardous waste was removed from the site during this reporting period.

PANGEA Environmental Services, Inc.

SYSTEM SAMPLING

During this reporting period, samples were collected from the influent port of the groundwater treatment system. No effluent samples were collected this reporting period, but historical effluent sampling has indicated no detectable hydrocarbon concentrations in discharged water. System flow data and groundwater analytical results are summarized on Table 1. The DPE system was operating in compliance with discharge permit conditions.

CLOSING

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, 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.

If you have any questions, please email <u>mgillies@pangeaenv.com</u> or call me at (408)910-1783.

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

Morgan Gillies Project Manager

ATTACHMENTS

Table 1 - Groundwater Extraction System Performance Summary

Appendix A - Laboratory Analytical Report

Table 1. GWE (DPE) System Performance Summary - 5175 Broadway, Oakland, California

		Totalizer	Interval	Interval	Average	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE	
Well ID	Date	Reading ¹	Flow Volume	Duration	Flow Rate	Concentration	Concentration	Concentration	Removed	Removed	Removed	Comments
		(gallons)	(gallons)	(days)	(gpm)	(ug/L)	(ug/L)	(ug/L)	(Lbs)	(Lbs)	(Lbs)	
ystem	12/08/10	0	0	0					0.000	0.000	0.000	System startup testing, water not discharged to sewer yet.
nfluent	12/10/10	248	248	2	0.09				0.000	0.000	0.000	Off; restart.
muuum	12/14/10	1,120	872	4	0.15	300	4.6	ND (<5.0)	0.002	0.000	0.000	Startup water sampling of influent (12/14)
	12/22/10	3,585	2,465	8	0.21				0.006	0.000	0.000	On. Shutdown due to noise, restarted 12/29.
	01/07/11	7,622	4,037	16	0.18				0.010	0.000	0.000	On. System off 1/14 due to noise, restart 1/19.
	02/02/11	16,840	9,218	26	0.25	1,300	52	ND (<10)	0.100	0.004	0.000	Off on arrival; add oil and restart.
	02/22/11	25,427	8,587	20	0.30	680	8.4	ND (<5.0)	0.049	0.001	0.000	On. Add more oil.
	02/28/11	28,855	3,428	6	0.40				0.019	0.000	0.000	On. Shutdown for GWM and restarted.
	03/09/11	31,981	3,126	9	0.24				0.018	0.000	0.000	On.
	03/15/11	34,398	2,417	6	0.28				0.014	0.000	0.000	On.
	03/16/11	34,961	563	1	0.39				0.003	0.000	0.000	On.
	03/31/11	36,763	1,802	15	0.08				0.010	0.000	0.000	Off. Add more soundproffing and restart.
	04/06/11	39,571	2,808	6	0.33				0.016	0.000	0.000	On.
	04/12/11	39,671	100	6	0.01	240	4.8	ND (<5.0)	0.000	0.000	0.000	See NOTE below.
	04/26/11	41,195	1,524	14	0.08				0.003	0.000	0.000	On.
	05/04/11	41,703	508	8	0.04				0.001	0.000	0.000	Off. Pump overheating. Restart
	05/24/11	42,965	1,262	20	0.04	66	0.92	ND (<5.0)	0.001	0.000	0.000	Off. Restart
	06/02/11	43,908	943	9	0.07				0.001	0.000	0.000	On.
	06/06/11	47,392	3,484	4	0.60				0.002	0.000	0.000	Off on arrival; restart. Off on departure
	07/13/11	48,851	1,459	37	0.03				0.001	0.000	0.000	Off on arrival; restart.
	07/21/11	51,271	2,420	8	0.21				0.001	0.000	0.000	Off. Restart.
	07/26/11	53,411	2,140	5	0.30	68	0.51	ND (<5.0)	0.001	0.000	0.000	On.
	07/28/11	54,069	658	2	0.23				0.000	0.000	0.000	On.
	08/08/11	55,829	1,760	11	0.11				0.001	0.000	0.000	Off. Restart.
	08/18/11	60,036	4,207	10	0.29				0.002	0.000	0.000	On.
	08/31/11	61,771	1,735	13	0.09				0.001	0.000	0.000	Off. Restart.
	09/22/11	65,179	3,408	22	0.11				0.002	0.000	0.000	Off. Restart.
	09/26/11	65,389	210	4	0.04				0.000	0.000	0.000	Off. Restart.
	10/05/11	65,650	261	9	0.02				0.000	0.000	0.000	On.
	10/11/11	65,743	93	6	0.01				0.000	0.000	0.000	Off. Restart.
	10/18/11	65,881	138	7	0.01				0.000	0.000	0.000	Off. Restart.
	11/02/11	66,589	708	15	0.03				0.000	0.000	0.000	On.
	11/15/11	66,684	95	13	0.01				0.000	0.000	0.000	Off on arrival, restart.
	11/22/11	67,082	398	7	0.04				0.000	0.000	0.000	On.
	11/23/11	67,161	79	1	0.05				0.000	0.000	0.000	On.
	11/29/11	67,810	649	6	0.08				0.000	0.000	0.000	On.
	12/08/11	68,695	885	9	0.07				0.001	0.000	0.000	On.
	12/16/11	69,431	736	8	0.06				0.000	0.000	0.000	On.
	12/22/11	69,481	50	6	0.01	ND (<50)	ND (<0.5)	ND (<5.0)	0.000	0.000	0.000	Off. Leave off for QM event 12/29.
	01/03/12	69,841	360	12	0.02				0.000	0.000	0.000	Off. Restart.
	01/04/12	70,027	186	1	0.13				0.000	0.000	0.000	On.
	01/16/12	71,127	1,100	12	0.06				0.000	0.000	0.000	On.
	01/31/12	72,634	1,507	15	0.07				0.000	0.000	0.000	On. System shutdown.
	11/28/12	72,918	284	1	0.20	130	1.8	ND (<5.0)	0.000	0.000	0.000	On. System restarted for rebound test on 11/27.
	11/29/12	73,107	188	1	0.13				0.000	0.000	0.000	On.
	11/30/12	73,295	189	1	0.13				0.000	0.000	0.000	On.
	12/04/12	76,799	3,504	4	0.61				0.004	0.000	0.000	On.
	12/07/12	77,981	1,182	3	0.27				0.001	0.000	0.000	On.
	12/11/12	79,201	1,220	4	0.21				0.001	0.000	0.000	On. System shutdown.
									0.273	0.006	0.000	Total Cumulative Removal (Lbs)
ystem	04/12/11					ND (<50)	ND (<0.5)	ND (<5.0)				See NOTE below.
Aidpoint	05/24/11					ND (<50)	ND (<0.5)	ND (<5.0)				
• • •	07/26/11					ND (<50)	ND (<0.5)	ND (<5.0)				
						ND (<50)	ND (<0.5)	ND (<5.0)				

Table 1. GWE (DPE) System Performance Summary - 5175 Broadway, Oakland, California

		Totalizer	Interval	Interval	Average	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE	
Nell ID	Date	Reading ¹	Flow Volume	Duration	Flow Rate	Concentration	Concentration	Concentration	Removed	Removed	Removed	Comments
		(gallons)	(gallons)	(days)	(gpm)	(ug/L)	(ug/L)	(ug/L)	(Lbs)	(Lbs)	(Lbs)	
	12/00/10											
System	12/08/10											
Effluent	12/14/10					ND (<50)	ND (<0.5)	ND (<5.0)				Startup water sampling of effluent (12/14)
	02/22/11					ND (<50)	ND (<0.5)	ND (<5.0)				
	05/24/11					ND (<50)	ND (<0.5)	ND (<5.0)				
	07/26/11					ND (<50)	ND (<0.5)	ND (<5.0)				
	12/22/11					ND (<50)	ND (<0.5)	ND (<5.0)				
					Discharge	limits (ua/L).	5	5	5	5	7	

Discharge Limits (ug/L):	3	3	3	5	
	Benzene	Toluene	Ethylbenzene	Total Xylenes	

ABBREVIATIONS AND NOTES:

NOTE = Based on previous and subsequent analytical results Pangea switched the 4/12/11 analytical results for System Influent and Midpoint. Pangea suspects that the samples were accidently switched by the lab or mislabeled by the technician.

1 = Initial totalizer reading was 23,559. Therefore, shown reading above 0 is actual reading minus 23,559. The 12/10/10 reading of 23,807 less 23,559 equals 248 gallons discharged.

gpm = Gallons per minute

TPHd = Total Petroleum Hydrocarbon as Diesel analyzed by EPA Method 8015B with silica gel cleanup

TPHg = Total Petroleum Hydrocarbon as Gasoline analyzed by EPA Method 8015B

Benzene analyzed by EPA Method 8021B

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021 Cm

Toulene, Ethylbenzene and Total Xylenes analyzed by EPA Method 8015B

-- = not measured/not available

* Estimated contaminant mass calculated by multiplying average concentration detected during period (Table 1) by volume of extracted groundwater. Uses most recent lab data.

**Unless noted Toulene, Ethylbenzene and Total Xylenes non-detect (<0.5)

APPENDIX A

Laboratory Analytical Report

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

PANGEA Environmental Services, Inc.



McCampbell Analytical, Inc. "When Quality Counts" 1534 Willow Pass Road, Pittsburg, CA 94565-1701 Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269 http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Pangea Environmental Svcs., Inc.	Client Project ID: #1145.001; Rockridge	Date Sampled:	11/28/12
1710 Franklin Street, Ste. 200		Date Received:	11/28/12
1710 Franklin Street, Ste. 200	Client Contact: Morgan Gillies	Date Reported:	12/03/12
Oakland, CA 94612	Client P.O.: 5157 Broadway	Date Completed:	12/03/12

WorkOrder: 1211771

December 04, 2012

Dear Morgan:

Enclosed within are:

- 1) The results of the 2 analyzed samples from your project: **#1145.001; Rockridge,**
- 2) QC data for the above samples, and
- 3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius Laboratory Manager McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

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	/		SAM	PLING				N	1AT	RIX					FHOD ERVE	D	Gas (8021/ 8015 or 8260) / MTBE	2)	1& G	Total Petroleum Hydrocarbons (418.1)	MTBE / BTEX ONLY (EPA 8260/ 8021)	EPA 505/ 608 / 8081 (CI Pesticides)	608 / 8082 PCB's ; Aroclors / Congene	8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	524.2 / 624 / 8260 (VOCs)	525.2 / 625 / 8270 (SVOCs)	8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUET 5 Metals (200.7 / 200.8 / 6010 / 6020)	Metals (200.7 / 200.8 / 6010 / 6020)	for DISSOLVED metals analysis				
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McCampbell Analytical, Inc.



Page 1 of 1

(925) 252-9262				WorkO	order: 1211771	Clie	entCode: PEC)	
	WaterTrax	WriteOn	✓ EDF	Excel	EQuIS	✓ Email	HardCo	py ThirdParty	_J-flag
Report to:				Bi	ill to:		I	Requested TAT:	5 days
Morgan Gillies	Email:	mgillies@pangea	env.com; tdela	afuente@pa	Bob Clark-Rid	ldell			
Pangea Environmental Svcs., Inc.	cc:				Pangea Envir	onmental Svc	s., Inc.		
1710 Franklin Street, Ste. 200	PO:	5157 Broadway			1710 Franklin	Street, Ste. 2	00	Date Received:	11/28/2012
Oakland, CA 94612	ProjectNo:	#1145.001; Rock	ridge		Oakland, CA	94612	1	Date Printed:	11/28/2012
(510) 836-3700 FAX: (510) 836-3709			-						

				Requested Tests (See legend below)											
Lab ID	Client ID	Matrix	Collection Date Hol	d 1	2	3	4	5	6	7	8	9	10	11	12
1211771-001	INF-W	Water	11/28/2012 16:00]	Α	Α									
1211771-002	INF-V	Air	11/28/2012 16:15	A											

Test Legend:

1	G-MBTEX_AIR
6	
11	

2	G-MBTEX_W
7	
12	

3	PREDF REPORT
8	

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The following SampID: 002A contains testgroup.

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



Sample Receipt Checklist

Client Name:	Pangea Environme	ntal Svcs., Inc.			Date	and Time Received:	11/28/2012 6:15:44 PM
Project Name:	#1145.001; Rockrid	ge			LogIn	Reviewed by:	Jena Alfaro
WorkOrder N°:	1211771	Matrix: <u>Air/Water</u>			Carrie	er: <u>Client Drop-In</u>	
		<u>Cha</u>	iin of Cu	ustody (C	OC) Informa	ation	
Chain of custody	present?		Yes	✓	No 🗌		
Chain of custody	signed when relinqui	shed and received?	Yes	✓	No 🗌		
Chain of custody	agrees with sample I	abels?	Yes	✓	No 🗌		
Sample IDs note	d by Client on COC?		Yes	✓	No 🗌		
Date and Time o	f collection noted by C	Client on COC?	Yes	✓	No 🗌		
Sampler's name	noted on COC?		Yes	✓	No 🗌		
			Sample	Receipt	Information	1	
Custody seals in	tact on shipping conta	iner/cooler?	Yes		No 🗌		NA 🗹
Shipping contain	er/cooler in good cond	dition?	Yes	✓	No 🗌		
Samples in prope	er containers/bottles?		Yes	✓	No 🗌		
Sample containe	ers intact?		Yes	✓	No 🗌		
Sufficient sample	e volume for indicated	test?	Yes	✓	No 🗌		
		Sample Pres	servatio	n and Ho	old Time (HT) Information	
All samples rece	ived within holding tim	ne?	Yes	✓	No 🗌		
Container/Temp	Blank temperature		Coole	er Temp:	16°C		
Water - VOA vial	ls have zero headspa	ce / no bubbles?	Yes		No 🗌	No VOA vials subm	itted 🗸
Sample labels ch	necked for correct pre	servation?	Yes	✓	No 🗌		
Metal - pH accep	otable upon receipt (pł	H<2)?	Yes		No 🗌		NA 🗹
Samples Receive	ed on Ice?		Yes		No 🖌		

* NOTE: If the "No" box is checked, see comments below.

Comments:

	McCam		Analytico	al, Inc.		oll Free Telepho	Pass Road, Pittsburg one: (877) 252-9262 apbell.com / E-mail:	/ Fax: (925) 252	2-9269		
Pangea	a Environmental S	vcs., Inc.		Project ID:	#1145.001;		Date Sample	ed: 11/2	8/12		
1710 F	Franklin Street, Ste	e. 200	Rockr	luge			Date Receiv	ed: 11/2	8/12		
			Client	Contact: M	organ Gillies	5	Date Extract	ted: 11/2	9/12		
Oaklar	nd, CA 94612		Client	P.O.: 5157	Broadway		Date Analyz	ed: 11/2	9/12		
Extraction	Ga n method: SW5030B	asoline Ra	nge (C6-C12)	-		5 as Gasoli 5W8021B/8015	ne with BTE	X and MT		rk Order:	1211771
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
002A	INF-V	А	720	ND	1.9	1.7	ND	1.2	1	#	d1

Reporting Limit for DF =1; ND means not detected at or	А	25	2.5	0.25	0.25	0.25	0.25	μg/L
above the reporting limit	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

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

cluttered chromatogram; sample peak coelutes with surrogate peak; %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: d1) weakly modified or unmodified gasoline is significant

	McCan		ell Anal Quality Cou	ytical, Inc. ents"		Toll Free Telepho	Pass Road, Pittsburg one: (877) 252-9262 npbell.com / E-mail:	/ Fax: (925) 252-92			
Pange	ea Environmental	Svcs., Iı	nc.	Client Project II	D: #1145.0	01;	Date Sample	ed: 11/28/1	2		
1710 Franklin Street, Ste. 200 Rockridge Date Received: 11/28/12											
1710	i ruikiii Street, S	W . 200		Client Contact:	Morgan Gil	lies	Date Extract	ted: 11/29/1	2		
Oakland, CA 94612 Client P.O.: 5157 Broadway					7	Date Analyz	zed: 11/29/1	2			
			nge (C6-C	12) Volatile Hyd				nd BTEX in j			
Extracti	Client ID	Matrix	TPH(g)	Ai MTBE	Benzene	SW8021B/801 Toluene	5Bm Ethylbenzene	Xylenes	Wo DF	rk Order: % SS	1211771 Comments
002A	INF-V	А	200	ND	0.58	0.44	ND	0.28	1	#	d1
	ppm (mg/L) to p	opmv (ul/L) c	onversion for TPH(g)	assumes the m	olecular weight o	of gasoline to be e	equal to that of h	exane.		
	ting Limit for $DF = 1$;	А	7.0	0.68	0.077	0.065	0.057	0.057	1		uL/L
	eans not detected at or ve the reporting limit	S	NA	NA	NA	NA	NA	NA	1	1	ng/Kg
	samples are reported i P & SPLP extracts are			d samples in mg/kg,	wipe samples i	n μg/wipe, produ	uct/oil/non-aqueo	us liquid sample	s in mg/	L, water	samples and
# clutter	ed chromatogram; sar	nple peak	coelutes with	surrogate peak; %S	S = Percent Rec	covery of Surroga	ate Standard; DF	= Dilution Facto	or		
	owing descriptions of kly modified or unmo				e and McCamp	bell Analytical is	not responsible f	or their interpret	ation:		

Angela Rydelius, Lab Manager

	<u>McCam</u>	pbell A When Quali		al, Inc.		oll Free Telepho	Pass Road, Pittsburg one: (877) 252-9262 pbell.com / E-mail: 1	/ Fax: (925) 252	2-9269				
Pange	a Environmental S	vcs., Inc.			#1145.001;		Date Sample	ed: 11/2	8/12				
1710	Franklin Street, Ste	e. 200	Rockri	dge			Date Receiv	ed: 11/2	8/12				
1,10			Client	Contact: M	organ Gillies	3	Date Extracted: 11/30/12						
Oakla	nd, CA 94612		Client	P.O.: 5157 I	Broadway		Date Analyz	ed: 11/3	0/12				
Extractio	Ga on method: SW5030B	asoline Rar	nge (C6-C12)	•		as Gasoli 8W8021B/8015	ne with BTE	X and MT		rk Order:	1211771		
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments		
001A	INF-W	W	130	ND	1.8	0.63	0.97	6.3	1	86	d7,d1,b6		

Reporting Limit for DF =1; ND means not detected at or	W	50	5.0	0.5	0.5	0.5	0.5	μg/L
above the reporting limit	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

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

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference. %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

b6) lighter than water immiscible sheen/product is present

d1) weakly modified or unmodified gasoline is significant

d7) strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Air	QC Matrix: Water				BatchID	: 72784	WorkOrder: 1211771			
EPA Method: SW8021B/8015Bm Extraction: S	W5030B					:	Spiked Sam	ple ID:	N/A	
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acc	eptance	Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS	
TPH(btex) [£]	N/A	60	N/A	N/A	N/A	110	N/A	N/A	80 - 120	
MTBE	N/A	10	N/A	N/A	N/A	93.8	N/A	N/A	80 - 120	
Benzene	N/A	10	N/A	N/A	N/A	110	N/A	N/A	80 - 120	
Toluene	N/A	10	N/A	N/A	N/A	111	N/A	N/A	80 - 120	
Ethylbenzene	N/A	10	N/A	N/A	N/A	111	N/A	N/A	80 - 120	
Xylenes	N/A	30	N/A	N/A	N/A	111	N/A	N/A	80 - 120	
%SS:	N/A	10	N/A	N/A	N/A	103	N/A	N/A	70 - 130	
All target compounds in the Method Blank of this extraction ba NONE	tch were ND	less than th	e method	RL with tl	he following	g exception	s:			

			BATCH 72784 S	<u>UMMARY</u>			
Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1211771-002A	11/28/12 4:15 PM	11/29/12	11/29/12 3:17 AM				

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.

 \pounds TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

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.



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water	QC Matrix: Water				BatchID	: 72842		WorkOrder: 1211771			
EPA Method: SW8021B/8015Bm Extraction: S	W5030B						Spiked Sam	ple ID:	1211749-001B		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acc	eptance	nce Criteria (%)		
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS		
TPH(btex) [£]	ND	60	106	114	7.68	108	70 - 130	20	80 - 120		
MTBE	ND	10	93.9	110	15.5	91.1	70 - 130	20	80 - 120		
Benzene	ND	10	103	114	10.8	101	70 - 130	20	80 - 120		
Toluene	ND	10	106	116	8.66	103	70 - 130	20	80 - 120		
Ethylbenzene	ND	10	106	118	10.8	104	70 - 130	20	80 - 120		
Xylenes	ND	30	110	122	10.1	108	70 - 130	20	80 - 120		
%SS:	92	10	90	92	2.11	93	70 - 130	20	70 - 130		
All target compounds in the Method Blank of this extraction ba NONE	tch were ND	less than th	e method	RL with tl	ne following	g exceptio	ns:				

			BATCH 72842 S	UMMARY			
Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1211771-001A	11/28/12 4:00 PM	11/30/12	11/30/12 5:49 AM				

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.

 \pounds TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

NR = matrix interference and/or 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, or inconsistency in sample containers.

QA/QC Officer