

MACTEC ENGINEERING & CONSULTING INC. PROJECT
 METRO WESTSIDE EXTENSION
 WILSHIRE BOULEVARD
 LOS ANGELES, CA

H&P Project #MAC081809 TECH H2S

H2S ANALYSES OF SOIL VAPOR

Sample ID	DATE	TIME	DEPTH (feet)	H2S (ppmv)
M-8-15'	08/19/09	--	15'	--
M-8-25'	08/19/09	--	25'	--
M-8-65'	08/19/09	--	65'	--
M-8-95'	08/19/09	--	95'	--
M-10-15'	08/19/09	13:04	15'	0.17
M-10-30'	08/19/09	--	30'	--
M-10-65'	08/19/09	13:08	65'	ND
M-10-100'	08/19/09	--	100'	--
M-11-15'	08/19/09	13:50	15'	ND
M-11-35'	08/19/09	13:55	35'	ND
M-11-65'	08/19/09	13:35	65'	0.35
M-11-100'	08/19/09	13:41	100'	0.92
M-12-15'	08/19/09	14:14	15'	0.11
M-12-30'	08/19/09	14:24	30'	ND
M-12-65'	08/19/09	14:17	65'	ND
M-12-100'	08/19/09	14:20	100'	ND
M-16-15'	08/19/09	14:39	15'	ND
M-16-25'	08/19/09	14:41	25'	ND
M-16-65'	08/19/09	14:44	65'	ND
M-16-90'	08/19/09	14:46	90'	ND
MDL				0.1

H2S MEASURED BY JEROME MODEL 631-X
 ANALYSES PERFORMED BY: MR. KURT SCHINDLER
 DATA REVIEWED BY: MS. JANIS VILLARREAL

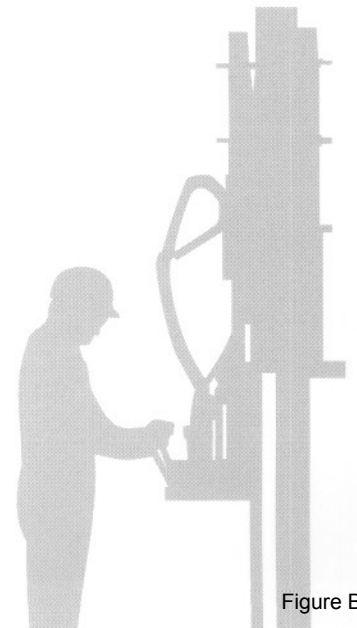


Figure B-5.7

MACTEC ENGINEERING & CONSULTING INC. PROJECT
 METRO WESTSIDE EXTENSION
 WILSHIRE BOULEVARD
 LOS ANGELES, CA

H&P Project #MAC081809 TECH H2S

H2S ANALYSES OF SOIL VAPOR

Sample ID	DATE	TIME	DEPTH (feet)	H2S (ppmv)
M-23-15'	08/20/09	9:11	15'	ND
M-23-25'	08/20/09	--	25'	--
M-23-65'	08/20/09	--	65'	--
M-23-90'	08/20/09	--	90'	--
M-24-15'	08/20/09	9:50	15'	ND
M-24-25'	08/20/09	9:53	25'	ND
M-24-65'	08/20/09	9:55	65'	ND
M-24-90'	08/20/09	9:58	90'	ND
M-18-15'	08/20/09	10:26	15'	ND
M-18-25'	08/20/09	10:30	25'	ND
M-18-65'	08/20/09	10:32	65'	ND
M-18-90'	08/20/09	10:34	90'	ND
M-19-70'	08/20/09	11:00	70'	ND
M-19-15'	08/20/09	10:56	15'	ND
M-19-40'	08/20/09	10:59	40'	ND
M-22-15'	08/20/09	11:26	15'	ND
M-22-25'	08/20/09	11:29	25'	ND
M-22-65'	08/20/09	--	65'	--
M-22-90'	08/20/09	--	90'	--
M-20-15'	08/20/09	11:48	15'	ND
M-20-25'	08/20/09	11:51	25'	ND
M-20-65'	08/20/09	11:54	65'	0.22
M-20-90'	08/20/09	11:58	90'	0.24
MDL				0.1

H2S MEASURED BY JEROME MODEL 631-X
 ANALYSES PERFORMED BY: MR. KURT SCHINDLER
 DATA REVIEWED BY: MS. JANIS VILLARREAL

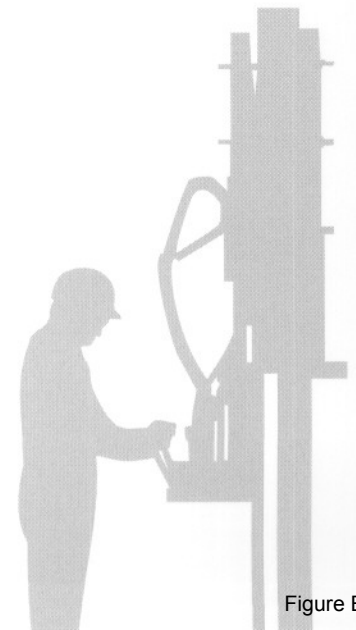


Figure B-5.8



APPENDIX C
HYDROGEOLOGIC INVESTIGATION

**FIGURES C-1.1A THROUGH C-1.3D
LOGS OF BORINGS (PE PHASE)**

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										C & L Drilling / Mayhew 1000		OB-105
										DRILLING METHOD	BOREHOLE LOCATION	
										Rotary Wash	Sta 811+70, Rt 25 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										5/27/2011 and 5/28/2011	4-7/8 inches	308 feet
										GROUND-WATER READINGS		
										Two monitoring wells installed on 5/28/2011; ground-water level measured at a depth of 47 feet on 7/1/2011. See last page of this boring for details.		
										CL	3 1/2-inch thick Asphaltic Concrete over 2-inch thick Base Course	
										SC	QUATERNARY YOUNGER ALLUVIUM [Qa1] GRAVELLY LEAN CLAY - moist, brown, trace roots	
	5			15.3	109	push	40	☒		SC	CLAYEY SAND with GRAVEL - very loose, moist, brown, fine-grained, trace fine to coarse gravel	
	10	19		11.0	-		17	☒		SM	SILTY SAND with GRAVEL - medium dense, moist, brown, fine to coarse-grained, gravel (up to 1/2 inch in size)	
	15			12.4	119	8	48	☒		SM	SILTY SAND - loose, moist, brown, fine-grained, trace coarse gravel	
	20	8		20.5	-			☒		CL	LEAN CLAY with GRAVEL - medium stiff, moist, brown, trace fine sand, coarse gravel	
	25			25.3	98	3	70	☒		CL	LEAN CLAY with SAND - soft, moist, brown, fine sand, trace coarse gravel	
	30	8						☒			Becomes medium stiff	
	35			16.9	102	6		☒		SM	QUATERNARY OLDER ALLUVIUM [Qa0] SILTY SAND - loose, moist, brown, fine sand, trace coarse gravel	
	40								PMT	SC	CLAYEY SAND - medium dense, moist, brown, fine to coarse-grained, trace fine to coarse gravel	

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: MH
 Prepared/Date: YN 8/22/2011
 Checked/Date: LT/HP/PE 9/13/11

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										C & L Drilling / Mayhew 1000		OB-105 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Rotary Wash	Sta 811+70, Rt 25 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										5/27/2011 and 5/28/2011	4-7/8 inches	308 feet
										GROUND-WATER READINGS		
										Two monitoring wells installed on 5/28/2011; ground-water level measured at a depth of 47 feet on 7/1/2011. See last page of this boring for details.		
230												
		23		19.4	-							
	45			17.1	98	9				SM	SILTY SAND - loose, moist, brown, fine to medium-grained	
										SW-SM	WELL GRADED SAND with SILT - medium dense, moist, brown, fine to medium-grained, trace fine to coarse gravel	
	50	27		11.4	-							
										SM	SILTY SAND with GRAVEL - medium dense, moist, brown, fine-grained	
	55			10.3	118	20	13					
										CL	LEAN CLAY - hard, moist, brown	
	60	40		23.2	-							
										CL	SANDY LEAN CLAY - very stiff, moist, brown, fine sand	
	65			15.1	117	21						
										CL	LEAN CLAY with SAND - hard, moist, brown	
	70	54		26.4	-							
										CL	SAN PEDRO FORMATION [Qsp] LEAN CLAY with SAND - hard, moist, brown	
	75			19.1	108	30	84					

Westwood/ UCLA Station

PMT

SILTY SAND - loose, moist, brown, fine to medium-grained

WELL GRADED SAND with SILT - medium dense, moist, brown, fine to medium-grained, trace fine to coarse gravel

SILTY SAND with GRAVEL - medium dense, moist, brown, fine-grained

LEAN CLAY - hard, moist, brown

SANDY LEAN CLAY - very stiff, moist, brown, fine sand

LEAN CLAY with SAND - hard, moist, brown

SAN PEDRO FORMATION [Qsp]
LEAN CLAY with SAND - hard, moist, brown

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: MH
 Prepared/Date: YN 8/22/2011
 Checked/Date: LT/HP/PE 9/13/11

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ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										C & L Drilling / Mayhew 1000		OB-105 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Rotary Wash	Sta 811+70, Rt 25 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										5/27/2011 and 5/28/2011	4-7/8 inches	308 feet
										GROUND-WATER READINGS		
										Two monitoring wells installed on 5/28/2011; ground-water level measured at a depth of 47 feet on 7/1/2011. See last page of this boring for details.		
225	45			25.8	-		73	⊗				
85				27.5	92	20		⊗			Becomes stiff	
220												
90	60			17.8	-		37	⊗		SC	CLAYEY SAND - very dense, moist, brown, fine to medium-grained	
215												
95				23.4	99	18		⊗		CL	SANDY CLAY - very stiff, moist, brown, fine sand	
210												
100	32			34.4	-			⊗			Becomes hard	
205												
105				21.3	-	24		⊗		SM	SILTY SAND - medium dense, wet, greenish-gray, fine-grained	
200											(Disturbed sample recovered)	
110	94			19.8	-		14	⊗			Becomes very dense, yellowish brown	
195												
115				18.5	113	32		⊗			Becomes dense, reddish brown	
190												
120										SW		

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: MH
 Prepared/Date: YN 8/22/2011
 Checked/Date: LT/HP/PE 9/13/11

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										C & L Drilling / Mayhew 1000		OB-105 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Rotary Wash	Sta 811+70, Rt 25 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										5/27/2011 and 5/28/2011	4-7/8 inches	308 feet
										GROUND-WATER READINGS		
										Two monitoring wells installed on 5/28/2011; ground-water level measured at a depth of 47 feet on 7/1/2011. See last page of this boring for details.		
		50/5"		12.2	-				<input checked="" type="checkbox"/>	WELL GRADED SAND with GRAVEL - very dense, wet , yellow brown END OF BORING AT 121 FEET		
185										NOTES:		
125										Hand augered upper 5 feet to avoid damage to utilities.		
180										Two monitoring wells installed in the borehole on 5/28/2011; Groundwater level measured in the deeper well at a depth of 47 feet below the ground surface on 7/1/2011. Shallower well was dry.		
130										Borehole grouted with cement bentonite slurry and patched with asphalt concrete.		
175										"N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches.		
135										*Number of blows required to drive the Crandall Sampler 12 inches using a 380 pound hammer falling 18 inches.		
170										**Photo Ionization Detector used for OVA readings.		
140										PMT - Pressuremeter test		
165												
145												
160												
150												
155												
155												
150												
160												

Field Tech: MH
 Prepared/Date: YN 8/22/2011
 Checked/Date: LT/HP/PE 9/13/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING OB-106

DATE DRILLED: June 3, 2011
 EQUIPMENT USED: CME-75 - Hollow Stem Auger
 HOLE DIAMETER (in.): 8-in
 ELEVATION: **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
						ML
	5					SP ML-CL
	10					
	15					
	20				12	SP ML-CL
	25					
	30					
	35					
	40				16	ML
	45					

0.3 feet of asphalt
 SILT (ml) - dark brown, moist, some clay, no odor

FILL
 SILTY GRAVELY SAND (sp) - dark brown, moist, gravel up to 2-inches in diameter
 Refusal at 6 feet, moved boring 4 feet to the southwest

NATIVE
 CLAYEY SILT (ml-cl) - dark brown, moist

SILT (ml) - dark olive brown, moist, trace of clay
 GRAVELY SAND (sp) - brown, shale fragments up to 1-inch in diameter
 CLAYEY SILT (ml-cl) - dark olive brown, medium stiff, very moist

See S-114 for complete lithology from 21 to 40 feet

SANDY SILT (ml) - dark brown, very stiff, slightly moist, fine sand

Field Tech: PK
 Prepared By: KP
 Checked By:

(CONTINUED ON FOLLOWING FIGURE)

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING OB-106 (Continued)

DATE DRILLED: June 3, 2011
 EQUIPMENT USED: CME-75 - Hollow Stem Auger
 HOLE DIAMETER (in.): 8-in
 ELEVATION: **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
50						
55						
60					26	X ML
65						
70						
75						
80						
85						
90						

SILT (ml) - (10YR, 4/3) brown, very stiff, moist, some clay, trace of fine sand, no odor, wet sluff at top of sampler

NOTES:

Total Depth = 69 feet bgs
 Hand augered to 5 feet bgs
 SPT samples taken at 20, 40, and 60 feet bgs

Well Construction Details
 Bentonite cement grout to approximately 1.5 feet
 Medium bentonite chips to 41 feet
 0.01-inch perforated screen from 48 to 68 feet
 Monterey #3 sand from 46 to 69 feet

Field Tech: PK
 Prepared By: KP
 Checked By:

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ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Boart Longyear / 600T Trusonic drill rig		
								DRILLING METHOD	BOREHOLE LOCATION	P-103
								Sonic Coring	813+20, Rt 25 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								5/27/11 - 5/29/11	6 inches	309 feet
								GROUND-WATER READINGS		
								Ground-water level not measured.		
305	5						ML	2 1/2 inch thick Asphalt Concrete QUATERNARY YOUNGER ALLUVIUM [Qa] SILT - moist, brown, trace sand and gravel Some clay		
								5-inch shale fragment Layer of Sandy Silt with Gravel (up to 2 inches in size) No core recovery from 6 to 9 feet		
300	10	1	1, 2	75	3.5		SM	SILTY SAND with GRAVEL - medium dense, dry to slightly moist, dark greenish gray (10Y 4/1), fine to coarse grained, fine to coarse gravel (up to 2 inches in size) Layers of Sandy Silt, moist, very dark grayish brown, fine to coarse sand, some fine to coarse gravel		
295	15				5.1			No core recovery from 14 to 15 feet		
290	20				3.3	7	SW-SM	WELL GRADED SAND with SILT and GRAVEL - dry to slightly moist, dark greenish gray (10Y 4/1), fine to coarse grained, fine to coarse gravel (up to 1 1/2 inches in size)		
					15.7	47	SC-SM	SILTY CLAYEY SAND - medium dense, moist, dark grayish brown (2.5Y 3/2), fine grained, some medium to coarse, some fine gravel (up to 3/4 inch in size), trace cobble (up to 4 inches in size), alternating layers of Sandy Silt		
285	25	2	3	100			SM	SILTY SAND with GRAVEL - medium dense, moist, dark greenish gray (10Y 3/1), fine to coarse grained, fine to coarse gravel (up to 1 1/2 inches in size) Becomes yellowish-brown		
280	30	3	4	55	4.0			No core recovery from 28 to 31 feet		
275	35				6.1	25	SM	QUATERNARY OLDER ALLUVIUM [Qo] SILTY SAND with GRAVEL - medium dense, moist, dark greenish gray (10Y 3/1) Becomes brown (10YR 4/3)		
270	40						ML	SANDY SILT - very stiff to hard, moist, brown, fine sand, some fine gravel		

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: RS/RH
 Prepared/Date: YN/WL 9/30/2011
 Checked/Date: HP/PE 10/2/2011

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Boart Longyear / 600T Trusonic drill rig		P-103 (Continued)
								DRILLING METHOD	BOREHOLE LOCATION	
								Sonic Coring	813+20, Rt 25 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								5/27/11 - 5/29/11	6 inches	309 feet
								GROUND-WATER READINGS		
								Ground-water level not measured.		
265	45	4	5	100	12.9		ML	Alternating layers of Silty Sand, moist, brown, fine to coarse-grained, fine to coarse gravel		
260	50				23.6	62	CL	SANDY LEAN CLAY - moist, brown, fine to medium sand, trace coarse, occasional fine gravel (up to 3/8 inch in size)		
55	55	5	6	100	27.2		ML	Alternating Sandy Silt, trace fine to coarse gravel		
					18.7		ML	SILT with SAND - moist, brown, fine sand, trace fine gravel		
60	60				21.7	63	CL	Becomes dark greenish gray with brown spots		
					18.8		CL-ML	SANDY LEAN CLAY - medium stiff, moist, dark greenish gray, brown and varying colors, fine sand, some medium to coarse, trace fine gravel (up to 3/4 inch in size)		
65	65	6	7	100			ML	SILTY CLAY with SAND - medium stiff, moist, brown and dark greenish gray, fine to coarse sand, trace gravel		
					9.0		ML	Fine to coarse gravel		
					18.2	70	CL	SANDY SILT with GRAVEL - stiff, moist, dark greenish gray, fine to coarse sand, fine to coarse gravel (up to 2 inches in size)		
70	70						CL	LAKEWOOD FORMATION [Qlw]		
							CL	LEAN CLAY with SAND - medium stiff to stiff, moist, brown, fine sand, trace medium and coarse, occasional gravel (up to 3/8 inch in size)		
							CL	Becomes dark brown (10YR 3/3)		
235	75	7	8	100	19.6		CH	FAT CLAY - very stiff, moist, dark greenish gray with brown mottling, trace fine and medium sand, trace calcium carbonate nodules		
230	80				20.0	82	CH			
					23.6		CH			

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: RS/RH
 Prepared/Date: YN/WL 9/30/2011
 Checked/Date: HP/PE 10/2/2011

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Boart Longyear / 600T Trusonic drill rig		P-103 (Continued)
								DRILLING METHOD	BOREHOLE LOCATION	
								Sonic Coring	813+20, Rt 25 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								5/27/11 - 5/29/11	6 inches	309 feet
								GROUND-WATER READINGS		
								Ground-water level not measured.		
225	85	8	9	100	24.5		CH	Trace fine gravel, abundant shell fragments, trace calcium carbonate nodules Occasional fine to medium gravel		
					28.1			Occasional fine gravel		
					18.1		ML	SANDY SILT - hard, moist, olive (5Y 5/4), trace fine gravel		
220	90							Alternating with layers of Silt and Clay, moist, olive gray to dark olive gray with brown mottling, trace fine sand		
								Some shell fragments		
								Some calcium carbonate nodules		
215	95	9	10	100	28.2		CH	FAT CLAY - hard, moist, olive gray with some brown mottling, trace fine to coarse sand, occasional fine gravel		
					24.5		ML	SILT with SAND - hard, moist, olive gray with black and brown mottling, fine sand		
210	100						ML	Some calcium carbonate nodules		
205	105	10	11	100	24.8		CH	FAT CLAY - hard, moist, brown to grayish green, very few brown mottling, trace fine to coarse sand, trace fine gravel (up to 3/8 inch in size) No brown mottling, few calcium carbonate nodules		
					22.9					
					19.5		CL	SANDY LEAN CLAY with GRAVEL - stiff, moist, dark greenish gray, fine to coarse sand, fine to coarse gravel, some calcium carbonate nodules		
200	110						SP	POORLY GRADED SAND - medium dense to dense, moist to wet, yellowish brown (10YR 5/6), trace fine black slate gravel		
195	115	11	12	100	21.0					
					20.3					
					20.5					
190							SW			
120										

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: RS/RH
 Prepared/Date: YN/WL 9/30/2011
 Checked/Date: HP/PE 10/2/2011

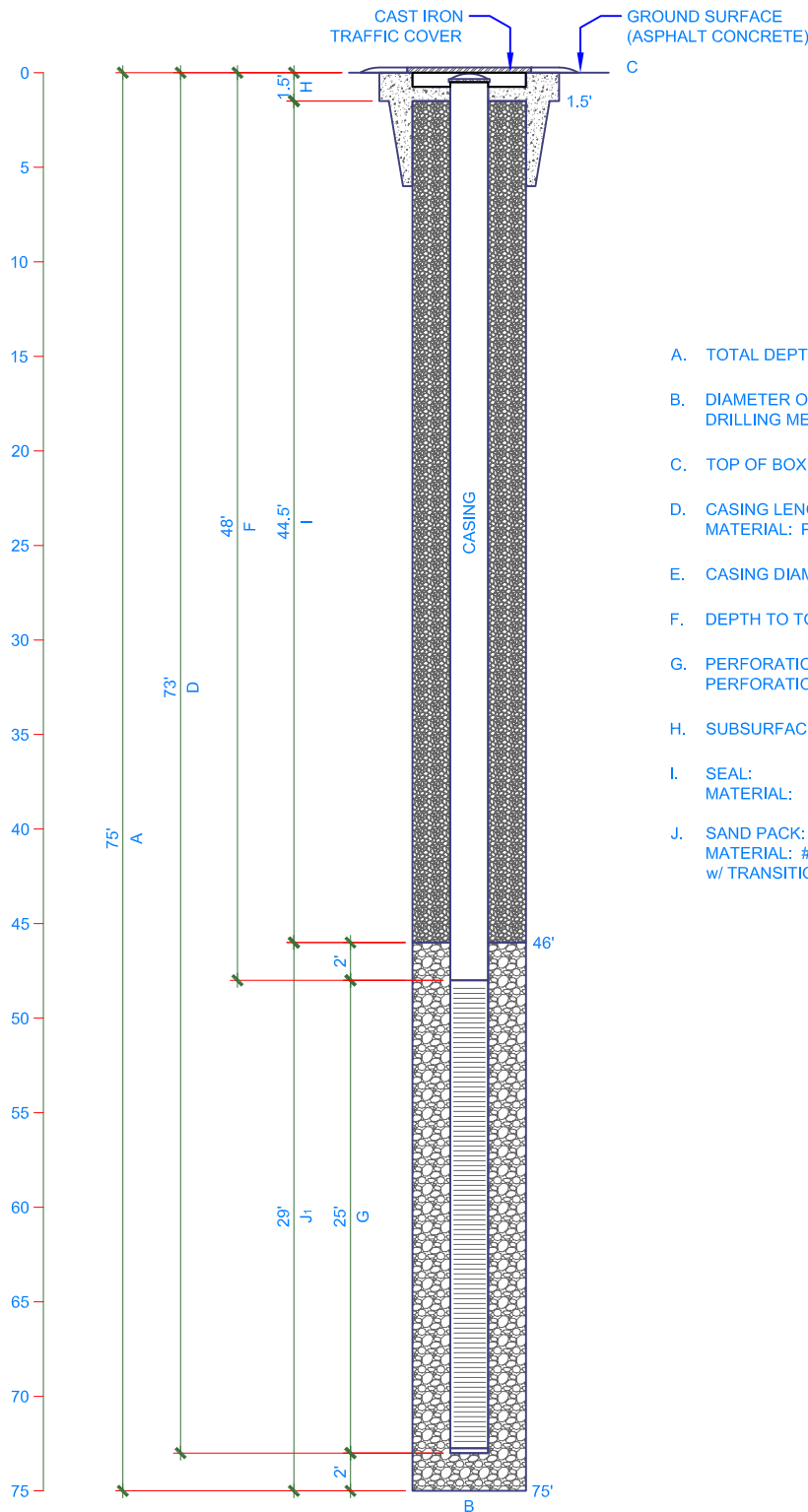
THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Boart Longyear / 600T Trusonic drill rig		P-103 (Continued)
								DRILLING METHOD	BOREHOLE LOCATION	
								Sonic Coring	813+20, Rt 25 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								5/27/11 - 5/29/11	6 inches	309 feet
								GROUND-WATER READINGS		
								Ground-water level not measured.		
185							SM	WELL GRADED SAND - medium dense, moist, yellowish brown to dark yellowish brown, fine to coarse grained, trace fine gravel SILTY SAND with GRAVEL - dense, moist, dark greenish gray, fine to coarse grained, fine to medium gravel END OF BORING AT 120 FEET		
180								NOTES: Consistency description on this log is based on pocket penetrometer test results and/or visual observation of soil samples. Hand augered upper 7 feet to avoid damage to utilities. Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.		
175										
170										
165										
160										
155										
150										
150										
160										

Field Tech: RS/RH
 Prepared/Date: YN/WL 9/30/2011
 Checked/Date: HP/PE 10/2/2011

**FIGURES C-2.1 THROUGH C-2.4
GROUNDWATER MONITORING WELL DIAGRAMS**

GROUNDWATER PUMPING TEST OBSERVATION WELLS OB-101 & OB-102



- A. TOTAL DEPTH OF BORING: 75' BGS
- B. DIAMETER OF BORING: 8"Ø
DRILLING METHOD: HOLLOW STEM AUGER
- C. TOP OF BOX ELEVATION: NA
- D. CASING LENGTH: 73'
MATERIAL: PVC
- E. CASING DIAMETER: 2"Ø
- F. DEPTH TO TOP OF SCREEN: 48'
- G. PERFORATION LENGTH: 25'
PERFORATION SIZE: 0.020" SLOTS
- H. SUBSURFACE SEAL: 1.5' CONCRETE
- I. SEAL: 1.5'-46' (BGS)
MATERIAL: MEDIUM HYDRATED BENTONITE (CHIPS)
- J. SAND PACK: 46'-75' (BGS)
MATERIAL: # 3 SAND PACK
w/ TRANSITION SAND AT TOP

Vertical Scale: 1" = 10'-0"
Horizontal Scale Exaggerated

Key	
BGS	Below Ground Surface
TOC	Top Of Casing
'	Feet
"	Inches

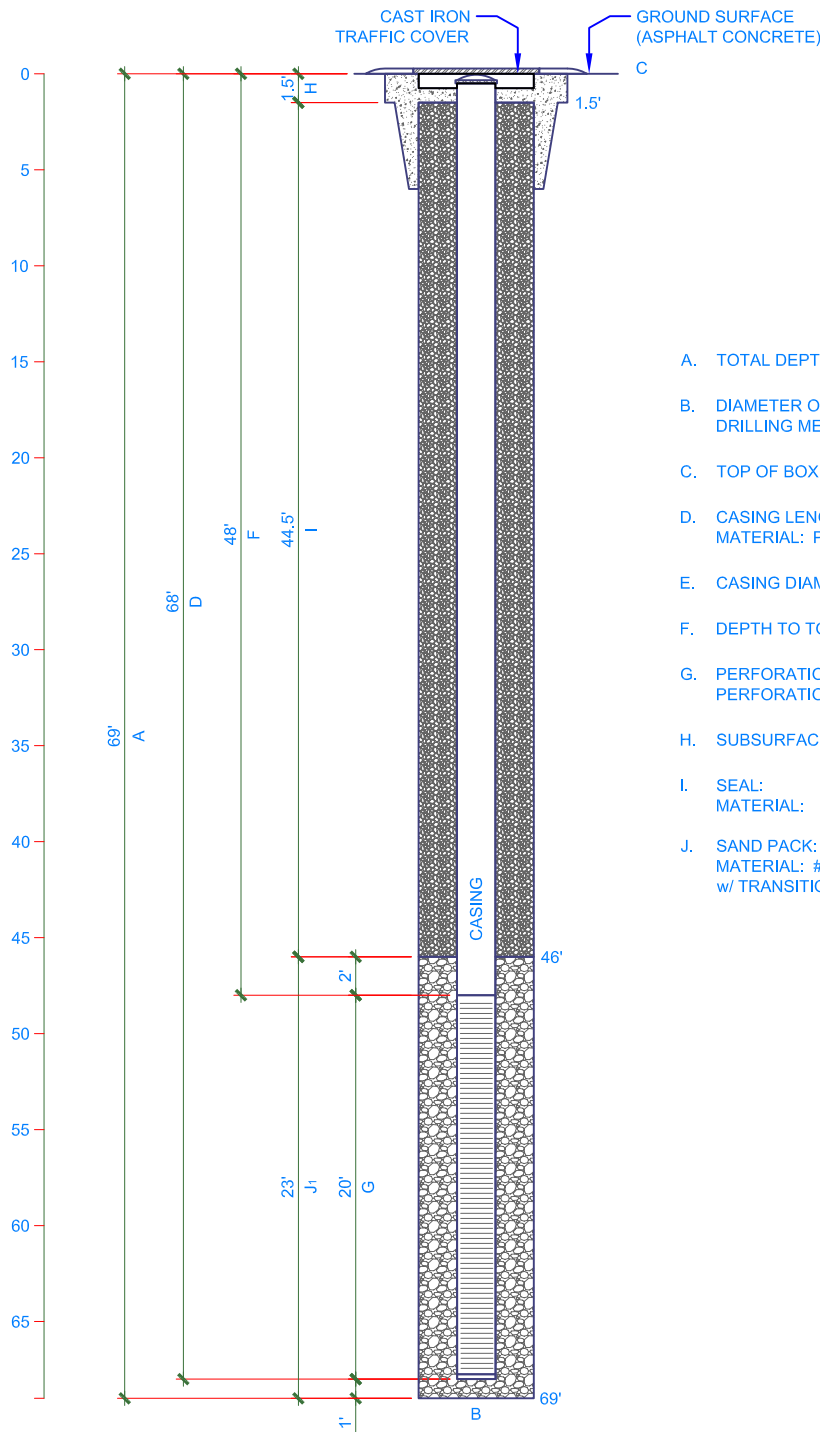


AMEC Environment & Infrastructure
5628 E. Slauson Avenue, Los Angeles, California 90040
Phone (323) 889-5300 Fax (323) 889-5398

WELL NO.: OB-101/OB-102	DRAWN: L. Morley
INSTALLED: 10/21/ 10/24/2011	CHKD: A. Marino
SCALE: 1" = 10' Vertical	DATE: December 2, 2011
DRILL CO.:	TECHNIQUE: Hollow Stem
FIELD PERSONNEL:	A. Marino / P. Kane
PROJECT NAME:	MTA Westside Subway Extension
WELL LOCATION:	Beverly Hills, CA

MTA WESTSIDE SUBWAY EXTENSION Parsons Brinckerhoff	
WELL CONSTRUCTION DETAIL	FIGURE NO. C-2.1
Pumping Test Observation Well	PROJECT NO. 4953-11-1421

GROUNDWATER PUMPING TEST OBSERVATION WELL OB-106



- A. TOTAL DEPTH OF BORING: 69' BGS
- B. DIAMETER OF BORING: 8"Ø
DRILLING METHOD: HOLLOW STEM AUGER
- C. TOP OF BOX ELEVATION: NA
- D. CASING LENGTH: 68'
MATERIAL: PVC
- E. CASING DIAMETER: 2"Ø
- F. DEPTH TO TOP OF SCREEN: 48'
- G. PERFORATION LENGTH: 20'
PERFORATION SIZE: 0.020" SLOTS
- H. SUBSURFACE SEAL: 1.5' CONCRETE
- I. SEAL: 1.5'-46' (BGS)
MATERIAL: MEDIUM HYDRATED BENTONITE (CHIPS)
- J. SAND PACK: 46'-69' (BGS)
MATERIAL: # 3 SAND PACK
w/ TRANSITION SAND AT TOP

Vertical Scale: 1" = 10'-0"
Horizontal Scale Exaggerated

Key	
BGS	Below Ground Surface
TOC	Top Of Casing
'	Feet
"	Inches

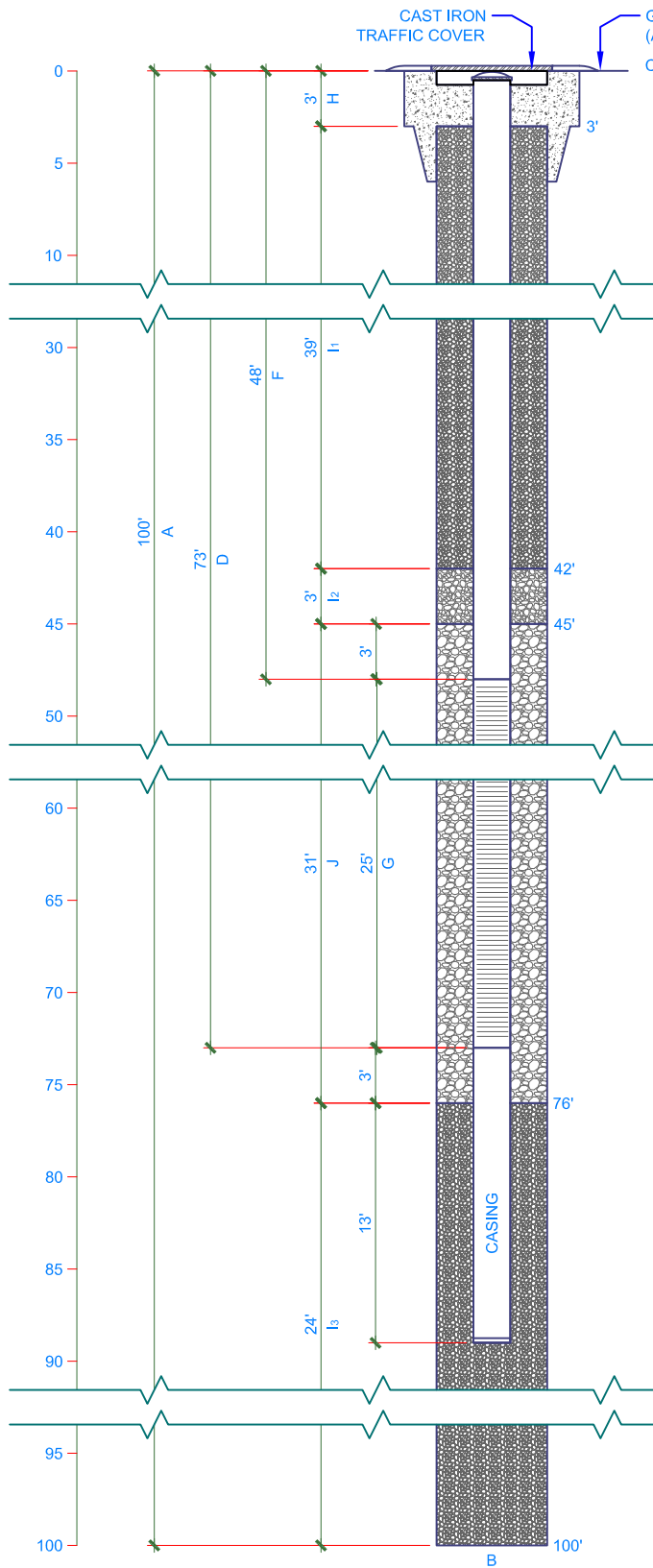


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Phone (323) 889-5300 Fax (323) 889-5398

WELL NO.:	OB-106	DRAWN:	L. Morley
INSTALLED:	06/03/2011	CHKD:	A. Marino
SCALE:	1" = 10' Vertical	DATE:	December 2, 2011
DRILL CO.:	TriCounty Drilling	TECHNIQUE:	Hollow Stem
FIELD PERSONNEL:	Paul Kane		
PROJECT NAME:	MTA Westside Subway Extension		
WELL LOCATION:	UCLA Lot # 36, Los Angeles, CA		

MTA WESTSIDE SUBWAY EXTENSION Parsons Brinckerhoff	
WELL CONSTRUCTION DETAIL Pumping Test Observation Well	FIGURE NO. C-2.2 PROJECT NO. 4953-11-1421

GROUNDWATER PUMPING TEST WELL P-101



- A. TOTAL DEPTH OF BORING: 100' BGS
- B. DIAMETER OF BORING: 8"Ø
DRILLING METHOD: HOLLOW STEM AUGER
- C. TOP OF BOX ELEVATION: NA
- D. CASING LENGTH: 89'
MATERIAL: SCHEDULE 40 PVC
- E. CASING DIAMETER: 4"Ø
- F. DEPTH TO TOP OF SCREEN: 48'
- G. PERFORATION LENGTH: 25'
PERFORATION SIZE: 0.020" SLOTS
- H. SUBSURFACE SEAL: 3' CONCRETE, 39' GROUT
- I. SEAL:
MATERIAL: HYDRATED BENTONITE (CHIPS)
 - I1 3'-42': BENTONITE CEMENT GROUT OVER 1' OF BENTONITE CHIPS HYDRATED
 - I2 42'-45': BENTONITE CHIPS MEDIUM
 - I3 76'-100': BENTONITE CHIPS HYDRATED
- J. SAND PACK: 45'-76' (BGS)
MATERIAL: # 3 SAND PACK
 - J 45'-76'

Vertical Scale: 1" = 10'-0"
Horizontal Scale Exaggerated

Key	
BGS	Below Ground Surface
TOC	Top Of Casing
'	Feet
"	Inches

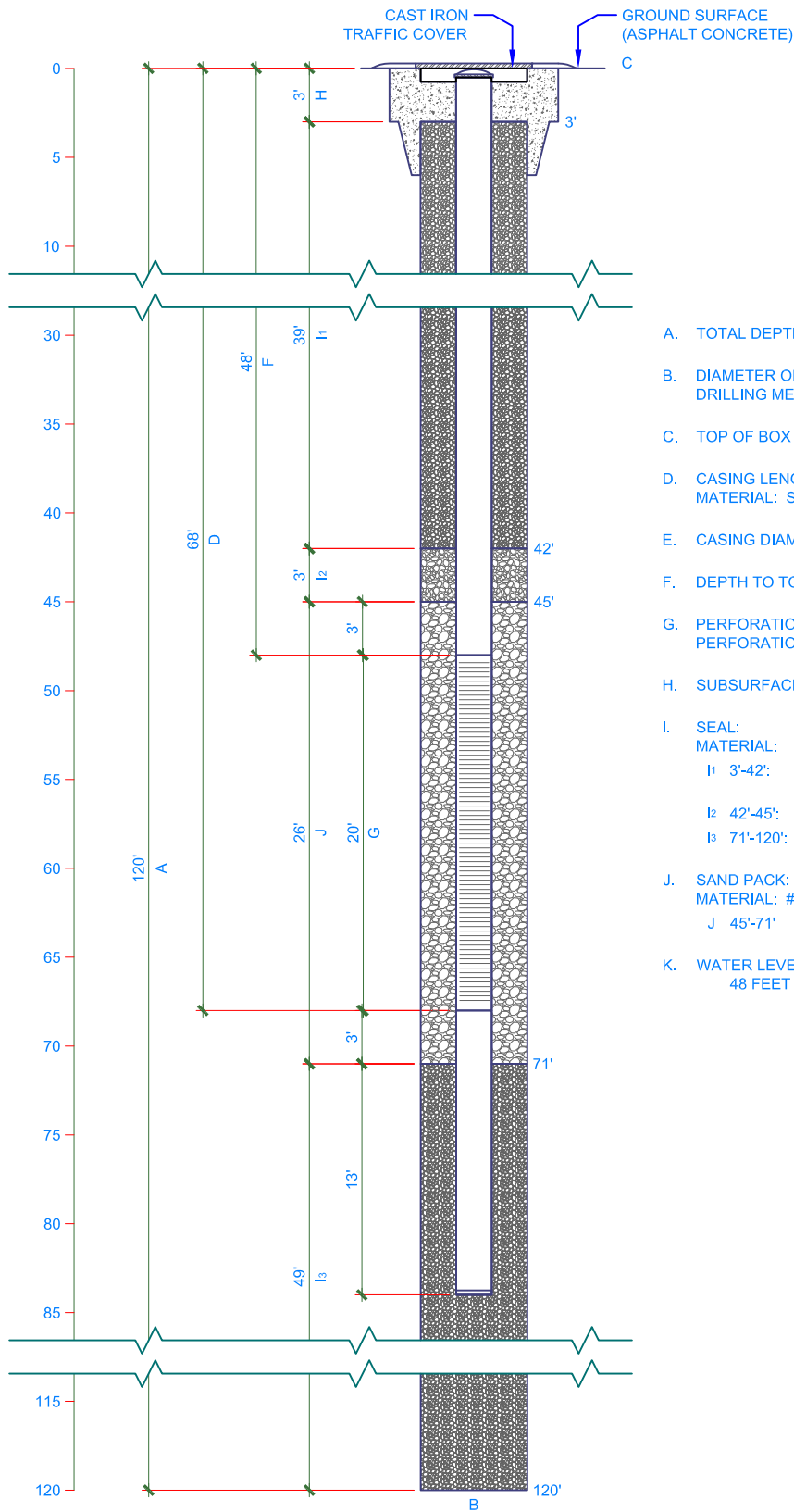


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5628 E. Slauson Avenue, Los Angeles, California 90040
Phone (323) 889-5300 Fax (323) 889-5398

WELL NO.:	P-101	DRAWN:	L. Morley
INSTALLED:	10/20/2011	CHKD:	Anthony Marino
SCALE:	1" = 10' Vertical	DATE:	December 2, 2011
DRILL CO.:		TECHNIQUE:	Hollow Stem
FIELD PERSONNEL:			P. Kane
PROJECT NAME:	MTA Westside Subway Extension		
WELL LOCATION:	Beverly Hills, CA		

MTA WESTSIDE SUBWAY EXTENSION Parsons Brinckerhoff	
WELL CONSTRUCTION DETAIL	FIGURE NO. C-2.3
Groundwater Pumping Test Well	PROJECT NO. 4953-11-1421

GROUNDWATER PUMPING TEST WELL P-103



- A. TOTAL DEPTH OF BORING: 120' BGS
- B. DIAMETER OF BORING: 8"Ø
DRILLING METHOD: SONIC CORE
- C. TOP OF BOX ELEVATION: NA
- D. CASING LENGTH: 84'
MATERIAL: SCHEDULE 40 PVC
- E. CASING DIAMETER: 4"Ø
- F. DEPTH TO TOP OF SCREEN: 48'
- G. PERFORATION LENGTH: 20'
PERFORATION SIZE: 0.020" SLOTS
- H. SUBSURFACE SEAL: 3' CONCRETE, 39' GROUT
- I. SEAL:
MATERIAL: HYDRATED BENTONITE (CHIPS)
I1 3'-42': BENTONITE CEMENT GROUT OVER
1' OF BENTONITE CHIPS HYDRATED
I2 42'-45': BENTONITE CHIPS MEDIUM
I3 71'-120': BENTONITE CHIPS HYDRATED
- J. SAND PACK: 45'-71' (BGS)
MATERIAL: # 3 SAND PACK
J 45'-71'
- K. WATER LEVELS ON 05/28/2011 WERE AS FOLLOWS:
48 FEET BELOW TOC

Vertical Scale: 1" = 10'-0"
Horizontal Scale Exaggerated

Key	
BGS	Below Ground Surface
TOC	Top Of Casing
'	Feet
"	Inches



AMEC Environment & Infrastructure
5628 E. Slauson Avenue, Los Angeles, California 90040
Phone (323) 889-5300 Fax (323) 889-5398

WELL NO.:	P-103	DRAWN:	L. Morley
INSTALLED:	05/28/2011	CHKD:	Anthony Marino
SCALE:	1" = 10' Vertical	DATE:	December 2, 2011
DRILL CO.:	Boart Longyear	TECHNIQUE:	Sonic Core
FIELD PERSONNEL:	Rajni Sukhwani		
PROJECT NAME:	MTA Westside Subway Extension		
WELL LOCATION:	Los Angeles, CA		

MTA WESTSIDE SUBWAY EXTENSION Parsons Brinckerhoff	
WELL CONSTRUCTION DETAIL	FIGURE NO. C-2.4
Groundwater Pumping Test Well	PROJECT NO. 4953-11-1421

**FIGURES C-3.1 THROUGH C-3.84
NOTICE OF INTENT (NOI)**



California Regional Water Quality Control Board



Los Angeles Region

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

NOTICE OF INTENT

TO COMPLY WITH GENERAL WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

SECTION I. DISCHARGE STATUS

Check only one item.

A. New Discharge

B. Material Change

C. Existing Discharge

CI # _____

SECTION II. OWNER/OPERATOR & FACILITY INFORMATION

A. OWNER

Name/Agency LOS ANGELES COUNTY METROPOLITAN TRANSIT AUTHORITY		Contact Person DAVID MIEGER		
Mailing Address 1 GATEWAY PLAZA		Title of Contact Person PROJECT DIRECTOR		
City LOA ANGELES	County LOS ANGELES	State CA	ZIP 90012	Phone 213 -922-6934

B. OPERATOR (If different from owner)

Name/Agency AMEC		Contact Person ANTHONY MARINO		
Mailing Address 2171 Campus Drive, Suite 100		Title of Contact Person SENIOR GEOLOGIST		
City Irvine	County Orange	State CA	ZIP 92612	Phone 949-224-0050 X32

C. FACILITY

Name ANTHONY MARINO		Owner Type (check one) 1. <input type="checkbox"/> City 2. <input type="checkbox"/> County 3. <input checked="" type="checkbox"/> State 4. <input type="checkbox"/> Fed 5. <input type="checkbox"/> Private		
Address 11020 Kinross Avenue UCLA Lot 36		Contact email address AAMARINO@MACTEC.COM		
City LOS ANGELES	County LOS ANGELES	State CA	ZIP 90024	Phone 949 - 224 - 0050 X32

D. STANDARD INDUSTRIAL CLASSIFICATION CODE (SIC) (4 digit code in order of priority)

1.) 8742	SERVICES - MANAGEMENT CONSULTING	2.) 8722	SERVICES - ENGINEERING
3.)	(specify)	4.)	(specify)

Nature of Business (provide a brief description)

AMEC IS A CONSULTING FIRM THAT PROVIDES ENVIRONMENTAL, ENGINEERING AND DESIGN SERVICES.

SECTION III. APPLICABLE GENERAL PERMIT FOR DISCHARGE

Check only one item.

- Volatile Organic Compounds Contaminated Groundwater (Order No. R4-2007-0022), Include Supplemental Analysis
- Wastewaters from Investigation and/or Cleanup of Petroleum Fuel Pollution (Order No. R4-2007-0021), Include Supplemental Analysis
- Discharges of Groundwater from Potable Water Supply Wells (Order No. R4-2003-0108), Include Attachment A – Screening Levels
- Discharges of Groundwater from Construction and Project Dewatering (Order No. R4-2008-0032), Include Supplemental Analysis
- Discharge of Nonprocess Wastewater (Order No. R4-2009-0047), Include Supplemental Analysis
- Hydrostatic Test Water (Order No. 2009-0068), Include Attachment A – Screening Levels

SECTION IV. EXISTING REQUIREMENTS/PERMITS (Skip if not applicable)

List any active Orders or Permits adopted by this Regional Board for the facility.

A. Order No. _____

B. NPDES Permit(s) _____

SECTION V. OUTFALL AND RECEIVING WATER INFORMATION

List outfall and receiving waterbody (river; stream; channel; lake; ocean; etc.)

Outfall Number (list)	Latitude			Longitude			Receiving Water (Name)
	Deg	Min	Sec	Deg	Min	Sec	
P103	34	03	29	118	26	51	BALLONA CREEK

SECTION VI. PROJECT DESCRIPTION AND TREATMENT PROCESS DESCRIPTION (if applicable)

Provide description of the project and the discharge requiring NPDES permit. If additives are added to your process, briefly describe their composition if the information is available. If treatment is necessary prior to discharge, attached a schematic flow diagram and provide description of all treatment processes. In addition, include the proposed maximum daily discharge volume in gallons per day (gpd), the approximate start-up date for the project and discharge, and the projected discharge duration. (attach additional sheets, if necessary)

AS PART OF THE PROPOSED METRO WESTSIDE SUBWAY EXTENSION PROJECT, AMEC WILL CONDUCT A PUMPING TEST TO OBTAIN HYDROGEOLOGIC DATA THAT CAN BE USED FOR ESTIMATING GROUNDWATER FLOW RATES, EVALUATING DEWATERING OPTIONS AND PROVIDING DESIGN PARAMETERS FOR A DEWATERING SYSTEM. EXTRACTED WATER WOULD BE PUMPED TO A DUPLEX BAG FILTRATION UNIT PRIOR TO DISCHARGE INTO THE STORM DRAIN. THIS PUMPING TEST WILL CONSIST OF AN 8-HOUR STEP-RATE TEST FOLLOWED BY A 24-HOUR PUMPING TEST.

IT IS NOT ECONOMICALLY FEASIBLE TO HAUL ALL THE GROUNDWATER FOR OFF-SITE DISPOSAL. IT IS NOT FEASIBLE TO DISCHARGE TO THE SANITARY SEWER SYSTEM. THERE ARE NO OTHER FEASIBLE REUSE OPTIONS FOR THE DISCHARGE.

Proposed Maximum Discharge Flow (gallons per day (gpd))	96,000
Proposed discharge startup date	August 2011
Estimated discharge duration	32 hours

SECTION VII. DISCHARGE QUALITY INFORMATION

This NOI requires that you obtain and analyze representative influent wastewater sample for the pollutants listed on Attachment A.

Have you included a completed Supplemental Pollutants Analysis/Measurements Form? Yes No

OR:

Have you included a completed Attachment A – Screening for Potential Pollutants of Concern in Potable Water? (Applies only to potable water related discharges.) Yes No

If No, explain.

(Note: Include the analytical data from the laboratory with the screening forms)

SECTION VIII. OTHER REQUIRED INFORMATION

Provide a 7.5' USGS Quadrangle Map (Scale 1:24,000) showing the project location and identifying surface water to which you propose to discharge.

Fees: Have you included appropriate filing fee with this submittal? (Applicable to new enrollees only)
Make checks payable to the Water Resources Control Board

SECTION IX. CERTIFICATION AND SIGNATURE (see appendix on who is authorized to sign)

"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. In addition, I assure that the provisions of the permit will be complied with."

ANTHONY MARINO
 Printed Name of Person Signing

JULY 5, 2011
 Date

Anthony Marino
 Signature

Senior Geologist
 Title

SECTION X. FORM SUBMITTAL

Send this completed Notice of Intent to:
 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION
 320 W. 4th Street, Suite 200
 Los Angeles, CA 90013

Assistance with this form may be obtained by contacting the Regional Board at:
 Phone (213) 576-6600
 Fax (213) 576-6660

NPDES Application Supplemental Requirements

I. Pollutants Analysis/Measurements

Analysis/measurement for the following pollutants should accompany the NPDES application for discharges of wastewater to surface waters.

Table I. List of Pollutants Analysis/Measurements

ID Num.	Pollutant	Quantitation Level	Screening Levels		Minimum Levels (ML)
			MUN ^a	Others ^b	
		Unit -- (µg/L)	Unit -- (µg/L)		Unit -- (µg/L)
Metals^(a)					
1097	Antimony (Sb)	0.19	14	4300	5
1000	Arsenic (As)	1.8	50	36	10
1012	Beryllium (Be)	ND	4	--	0.5
1027	Cadmium (Cd)	0.19	2.4	9.4	0.5
1033	Chromium III (Cr3+)	1.23	50	--	10
1032	Chromium VI (Cr6+)	0.57	11	50	5
1119	Copper (Cu)	1.1	9.4	3.7	0.5
720	Cyanide (CN)	1.5	5.2	--	5
1051	Lead (Pb)	ND	3.2	8.5	0.5
71900	Mercury (Hg)	ND	0.050	0.051	0.2
1067	Nickel (Ni)	5.4	52	8.3	1
1147	Selenium (Se)	7.5	5.0	71	2
1077	Silver (Ag)	0.076	4	2.2	0.25
1059	Thallium (Tl)	ND	1.7	6.3	1
1092	Zinc (Zn)	7.3	122	86	20
(a) = Metals concentrations are expressed as total recoverable					
Volatile Organic Compounds					
34496	1,1 Dichloroethane	ND	5	5	1
34501	1,1 Dichloroethylene	ND	0.057	3.2	0.5
34506	1,1,1 Trichloroethane	ND	200	200	2
34511	1,1,2 Trichloroethane	ND	0.60	42	0.5
34516	1,1,2,2 Tetrachloroethane	ND	0.17	11	0.5
34536	1,2 Dichlorobenzene	ND	600	17000	0.5
32103	1,2 Dichloroethane	ND	0.38	99	0.5
34541	1,2 Dichloropropane	ND	0.52	39	0.5
34549	1,2-Trans Dichloroethylene	ND	10	140000	1
34566	1,3 Dichlorobenzene	ND	400	2600	2
34561	1,3 Dichloropropylene	ND	0.5	0.5	0.5
34571	1,4 Dichlorobenzene	ND	5	0.5	0.5
34576	2-Chloroethyl vinyl ether	ND	--	--	1
34210	Acrolein	ND	100	100	5
34215	Acrylonitrile	ND	0.059	0.66	2.0
34030	Benzene	ND	1.0	1.0	0.5
32104	Bromoform	ND	4.3	360	0.5
32102	Carbon Tetrachloride	ND	0.25	4.4	0.5
34301	Chlorobenzene	ND	30	21000	2
34306	Chlorodibromo-methane	ND	0.401	34	0.5
85811	Chloroethane	ND	100	100	2
32106	Chloroform	1.9	100	100	2
32101	Dichlorobromo-methane	ND	0.56	46	0.5
78113	Ethylbenzene	ND	700	700	2
34413	Methyl Bromide	ND	10	4000	2
34418	Methylene Chloride	ND	4.7	1600	0.5
34475	Tetrachloroethylene	0.47	0.8	8.85	0.5
34010	Toluene	ND	150	150	2
39180	Trichloroethylene	ND	2.7	5	0.5
39175	Vinyl Chloride	ND	0.5	0.5	0.5
63	Xylenes	ND	1750	1750	na
	Acetone	ND	700	700	na
	Ethylene Dibromide	ND	0.05	0.05	na
	Methyl Chloride	ND	3	3	0.5

^a Applies to water with Municipal and Domestic Supply (MUN) (indicated with E and I in the Basin Plan) beneficial uses designations.

^b Applies to all other receiving waters.

ID Num.	Pollutant	Quantitation Level	Screening Levels		Minimum Levels (ML)
			MUN ^a	Others ^b	
			Unit -- (µg/L)		
	Methyl ethyl ketone		700	700	na
	Pesticides and PCBs				
39310	4,4'-DDD	ND	0.00083	0.00084	0.05
39320	4,4'-DDE	ND	0.00059	0.00059	0.05
39300	4,4'-DDT	ND	0.00059	0.00059	0.01
78428	Alpha-Endosulfan	ND	0.056	0.0087	0.02
39336	Alpha-BHC	ND	0.0039	0.013	0.01
39330	Aldrin	ND	0.00013	0.00014	0.005
34356	Beta-Endosulfan	ND	0.056	0.0087	0.01
39338	beta-BHC	ND	0.014	0.046	0.005
39350	Chlordane	ND	0.00057	0.00059	0.1
34198	delta-BHC	ND	--	--	0.005
39380	Dieldrin	ND	0.00014	0.00014	0.01
34351	Endosulfan Sulfate	ND	110	240	0.05
39390	Endrin	ND	0.036	0.0023	0.01
34366	Endrin Aldehyde	ND	0.76	0.81	0.01
39410	Heptachlor	ND	0.00021	0.00021	0.01
39420	Heptachlor Epoxide	ND	0.0001	0.00011	0.01
39340	gamma-BHC	ND	0.019	0.063	0.02
4166	PCB 1016	ND	0.00017	0.00017	0.5
4166	PCB 1221	ND	0.00017	0.00017	0.5
4166	PCB 1232	ND	0.00017	0.00017	0.5
4166	PCB 1242	ND	0.00017	0.00017	0.5
4166	PCB 1248	ND	0.00017	0.00017	0.5
4166	PCB 1254	ND	0.00017	0.00017	0.5
4166	PCB 1260	ND	0.00017	0.00017	0.5
39400	Toxaphene	ND	0.00073	0.00075	0.5
	Semi - Volatile Organic Compounds				
34536	1,2 Dichlorobenzene	ND	600	17000	0.5
34346	1,2 Diphenylhydrazine	ND	0.040	0.54	1
34551	1,2,4 Trichlorobenzene	ND	70	--	5
34566	1,3 Dichlorobenzene	ND	400	2600	2
34571	1,4 Dichlorobenzene	ND	5	2600	2
34586	2 Chlorophenol	ND	120	400	5
34601	2,4 Dichlorophenol	ND	93	790	5
34606	2,4 Dimethylphenol	ND	540	2300	2
34616	2,4 Dinitrophenol	ND	70	14000	5
34611	2,4 Dinitrotoluene	ND	0.11	9.1	5
34624	2,4,6 Trichlorophenol	ND	2.1	6.5	10
34626	2,6 Dinitrotoluene	ND	--	--	5
34591	2-Nitrophenol	ND	--	--	10
34581	2-Chloronaphthalene	ND	1700	4300	10
34631	3,3' Dichlorobenzidine	ND	0.04	0.077	5
	3-Methyl-4-Chlorophenol	ND	--	--	1
3615	2-Methyl-4,6-Dinitrophenol	ND	13	765	5
34646	4-Nitrophenol	ND	--	--	5
34636	4-Bromophenyl phenyl ether	ND	--	--	5
34641	4-Chlorophenyl phenyl ether	ND	--	--	5
34205	Acenaphthene	ND	1200	2700	1
34200	Acenaphthylene	ND	--	--	10
34220	Anthracene	ND	9600	110000	5
39120	Benzidine	ND	0.00012	0.00054	5
34526	Benzo (a) Anthracene	ND	0.0044	0.049	5
34247	Benzo (a) Pyrene	ND	0.0044	0.049	2
34230	Benzo (b) Fluoranthene	ND	0.0044	0.049	10
34521	Benzo (g,h,i) Perylene	ND	--	--	5
34242	Benzo (k) Fluoranthene	ND	0.0044	0.049	2
34278	Bis (2-Chloroethoxy) methane	ND	--	--	5
34273	Bis(2-Chloroethyl) ether	ND	0.031	1.4	1
34283	Bis(2-Chloroisopropyl) ether	ND	1400	170000	10
39100	Bis(2-Ethylhexyl) phthalate	ND	1.8	5.9	5
34292	Butyl benzyl phthalate	ND	3000	5200	10
34320	Chrysene	ND	0.0044	0.049	5
34556	Dibenzo(a,h)-anthracene	ND	0.0044	0.049	0.1

Revised April 7, 2004

ID Num.	Pollutant	Quantitation Level	Screening Levels		Minimum Levels (ML)
			MUN ^a	Others ^b	
			Unit -- (µg/L)		
34336	Diethyl phthalate	ND	23000	120000	10
34341	Dimethyl phthalate	ND	313000	2900000	10
39110	di-n-Butyl phthalate	ND	2700	12000	10
34596	di-n-Octyl phthalate	ND	--	--	10
34376	Fluoranthene	ND	300	370	10
34381	Fluorene	ND	1300	14000	10
39700	Hexachlorobenzene	ND	0.00075	0.00077	1
39702	Hexachlorobutadiene	ND	0.44	50	1
34386	Hexachloro-cyclopentadiene	ND	50	17000	5
34396	Hexachloroethane	ND	1.9	8.9	1
34403	Indeno(1,2,3,cd)-pyrene	ND	0.0044	0.049	0.05
34408	Isophorone	ND	8.4	600	1
34438	N-Nitrosodimethyl amine (NDMA)	ND	0.00069	8.1	5
34428	N-Nitroso-di-n-propyl amine	ND	0.005	1.4	5
34433	N-Nitrosodiphenyl amine	ND	5.0	16	1
34696	Naphthalene	ND	21	--	10
34447	Nitrobenzene	ND	17	1900	10
39032	Pentachlorophenol	ND	0.28	7.9	1
34461	Phenanthrene	ND	--	--	5
34694	Phenol	ND	21000	4600000	50
34469	Pyrene	ND	960	11000	10
Miscellaneous					
82698	2,3,7,8-TCDD (Dioxin)	-	1.3E-08	1.3E-08	na
948	Asbestos (in fibers/L k.s.)	-	7000000	7000000	na
	Perchlorate	ND	4	4	na
	1,4-Dioxane	ND	3	3	na
	Methyl tertiary butyl ether (MTBE)	ND	5	5	2
	Di-isopropyl Ether (DIPE)	ND	0.8	0.8	2
	Ethyl Tertiary Butyl Ether (ETBE)	ND	2	2	2
	Tertiary Amyl Methyl Ether (TAME)	ND	2	2	2
	Tertiary Butyl Alcohol (TBA)	ND	12	12	10
	Methanol	ND	1000	1000	1000
	Ethanol	ND	1000	1000	1000
	Total Petroleum Hydrocarbons Using both EPA 418.1 and EPA 8015 (modified) methods	ND	100	100	100
* Analysis required for petroleum-fuel impacted water only.					
	Conventional	mg/L	mg/L	mg/L	mg/L
	Hardness	580	na	na	na
	pH (pH unit)	7.0	na	na	na
	Suspended solids	ND	na	na	na
	BOD520°C	ND	na	na	na
	Oil and grease	ND	na	na	na
	Settleable Solids (ml/L)	ND	na	na	na
	Turbidity	5.0	na	na	na
	Total Dissolved Solids	970	na	na	na
	Chlorides	120	na	na	na
	Sulfates	230	na	na	na
	Nitrites+Nitrates (as Nitrogen)	5.4	na	na	na
	Sulfides	0.0082	na	na	na
	Boron	0.39	na	na	na
Note: na = not applicable -- = no screening level					

II. Alternative Method of Disposal

The application should also be accompanied by a feasibility study of reuse of the wastewater, and if reuse is not feasible, alternatives for disposal other than surface waters.

CHECK NO: 656391

DATE June 30, 2011

VENDOR NAME STATE WATER RESOURCES CONTROL BOARD

PAGE: 1 of 1

VENDOR NO 117774

INVOICE NO.	INVOICE DATE	DESCRIPTION	VO #	NET AMOUNT
CKREQ06271	27-JUN-11	IRV	1156492	3,480.00

PLEASE DETACH AND RETAIN THIS STATEMENT AS YOUR RECORD OF PAYMENT.

\$ 3,480.00

THIS CHECK IS VOID WITHOUT A BLUE & RED BACKGROUND AND A WATERMARK - HOLD TO THE LIGHT TO VIEW



1105 Lakewood Parkway, Suite 300
Alpharetta, GA 30004
Accounts Payable

Bank of America
Atlanta, Dekalb County, GA

64-1278/611

656391

June 30, 2011

\$ *****3,480.00

PAY: **Three Thousand Four Hundred Eighty Dollars And 00 Cents*******

TO THE ORDER OF: STATE WATER RESOURCES CONTROL BOARD
320 W. 4TH STREET
SUITE 200
LOS ANGELES, CA 90013

(VOID AFTER 90 DAYS)

SIGNATURE HAS A COLORED BACKGROUND * BORDER CONTAINS MICROPRINTING

⑈ 656391 ⑈ ⑆ 061112788 ⑆ 003299832149 ⑈

June 14, 2011



Anthony Marino
MACTEC
2171 Campus Drive, Suite 100
Irvine, CA 92612
TEL: (949) 224-0050
FAX:

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 118188

RE: MTA Westside Extention, 4953101561/6.2.3.3.

Attention: Anthony Marino

Enclosed are the results for sample(s) received on June 03, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie F. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



CLIENT: MACTEC
Project: MTA Westside Extention, 4953101561/6.2.3.3.
Lab Order: 118188

CASE NARRATIVE

Sample Receiving / General Comments

Sample received beyond holding time for SM4500-H+B (pH) analysis.

The result for Trivalent Chromium is the calculation of total chromium subtracts hexavalent chromium:

Sample ID	Total Cr - Hex Cr	= Trivalent Cr (ug/L)
P-103/UCLA LOT 36	1.8 - 0.57	= 1.23

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical Comments for EPA 200.8

Sample 118188-001G, dilution was necessary due to internal standard failure for Beryllium.

Analytical Comments for EPA 300.0

Samples 118188-001A-MS and 118188-001A-MSD, Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for SM4500-S=D

Samples 118151-001I-MS and 118151-001I-MSD, Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001A		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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PERCHLORATE BY ION CHROMATOGRAPHY

EPA 314.0

RunID: IC4_110603A	QC Batch: R133810	PrepDate:	Analyst: PT
Perchlorate	ND 1.3	2.0	6/3/2011 02:44 PM
		µg/L	1

DISSOLVED HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_110603A	QC Batch: R133649	PrepDate:	Analyst: PT
Chromium, Hexavalent	0.57 0.029	0.20	6/3/2011 04:56 PM
		µg/L	1

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_110603A	QC Batch: R133674	PrepDate:	Analyst: PT
Chloride	120 1.3	5.0	6/3/2011 05:02 PM
		mg/L	10

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_110603A	QC Batch: R133674	PrepDate:	Analyst: PT
Nitrogen, Nitrite	ND 0.094	0.20	6/3/2011 04:51 PM
		mg/L	2

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_110603A	QC Batch: R133674	PrepDate:	Analyst: PT
Nitrogen, Nitrate (As N)	5.4 0.072	0.20	6/3/2011 04:51 PM
		mg/L	2

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_110603A	QC Batch: R133674	PrepDate:	Analyst: PT
Sulfate	230 2.2	10	6/3/2011 05:02 PM
		mg/L	10

PH

SM4500-H+B

RunID: PH4_110603A	QC Batch: R133714	PrepDate:	Analyst: FD
pH	7.0 0.10	0.10	6/3/2011
		H pH Units	1

TURBIDITY

EPA 180.1

RunID: TURB_110603A	QC Batch: R133657	PrepDate:	Analyst: MP
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Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



**Advanced Technology
Laboratories**

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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001A		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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TURBIDITY

EPA 180.1

RunID: TURB_110603A	QC Batch: R133657			PrepDate:		Analyst: MP
Turbidity	5.0	0.10	0.10	NTU	1	6/3/2011

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_110607E	QC Batch: 73393			PrepDate:	6/6/2011	Analyst: PT
Total Dissolved Solids (Residue, Filterable)	970	10	10	mg/L	1	6/6/2011 03:03 PM

TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_110607B	QC Batch: 73379			PrepDate:	6/6/2011	Analyst: PT
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	6/6/2011 04:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified	DO	Surrogate Diluted Out



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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001B	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD

EPA 3510C

EPA 608

RunID: GC9_110608B	QC Batch: 73426	PrepDate: 6/8/2011	Analyst: HL			
4,4'-DDD	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
4,4'-DDE	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
4,4'-DDT	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
Aldrin	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
alpha-BHC	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Aroclor 1016	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
Aroclor 1221	ND	0.10	1.0	µg/L	1	6/8/2011 05:25 PM
Aroclor 1232	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
Aroclor 1242	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
Aroclor 1248	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
Aroclor 1254	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
Aroclor 1260	ND	0.10	0.50	µg/L	1	6/8/2011 05:25 PM
beta-BHC	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Chlordane	ND	0.0050	0.25	µg/L	1	6/8/2011 03:00 PM
delta-BHC	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Dieldrin	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
Endosulfan I	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Endosulfan II	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
Endosulfan sulfate	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
Endrin	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
Endrin aldehyde	ND	0.0050	0.050	µg/L	1	6/8/2011 03:00 PM
gamma-BHC	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Heptachlor	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Heptachlor epoxide	ND	0.0050	0.025	µg/L	1	6/8/2011 03:00 PM
Toxaphene	ND	0.50	2.5	µg/L	1	6/8/2011 03:00 PM
Surr: Decachlorobiphenyl	102	0	29-137	%REC	1	6/8/2011 03:00 PM
Surr: Decachlorobiphenyl	76.9	0	29-137	%REC	1	6/8/2011 05:25 PM
Surr: Tetrachloro-m-xylene	78.5	0	47-117	%REC	1	6/8/2011 05:25 PM
Surr: Tetrachloro-m-xylene	92.1	0	47-117	%REC	1	6/8/2011 03:00 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001C	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 625

RunID: MS 13_110613C	QC Batch: 73374	PrepDate: 6/7/2011	Analyst: JSD
1,2,4-Trichlorobenzene	ND 0.46	2.0	µg/L 1 6/13/2011 09:10 PM
1,2-Diphenylhydrazine	ND 0.42	2.0	µg/L 1 6/13/2011 09:10 PM
2,4,6-Trichlorophenol	ND 2.3	10	µg/L 1 6/13/2011 09:10 PM
2,4-Dichlorophenol	ND 2.4	5.0	µg/L 1 6/13/2011 09:10 PM
2,4-Dimethylphenol	ND 1.9	5.0	µg/L 1 6/13/2011 09:10 PM
2,4-Dinitrophenol	ND 1.3	20	µg/L 1 6/13/2011 09:10 PM
2,4-Dinitrotoluene	ND 0.36	5.0	µg/L 1 6/13/2011 09:10 PM
2,6-Dinitrotoluene	ND 0.33	5.0	µg/L 1 6/13/2011 09:10 PM
2-Chloronaphthalene	ND 0.44	10	µg/L 1 6/13/2011 09:10 PM
2-Chlorophenol	ND 2.1	5.0	µg/L 1 6/13/2011 09:10 PM
2-Nitrophenol	ND 2.5	10	µg/L 1 6/13/2011 09:10 PM
3,3'-Dichlorobenzidine	ND 1.4	5.0	µg/L 1 6/13/2011 09:10 PM
4,6-Dinitro-2-methylphenol	ND 1.1	20	µg/L 1 6/13/2011 09:10 PM
4-Bromophenyl-phenylether	ND 0.47	5.0	µg/L 1 6/13/2011 09:10 PM
4-Chloro-3-methylphenol	ND 2.1	5.0	µg/L 1 6/13/2011 09:10 PM
4-Chlorophenyl-phenylether	ND 0.44	5.0	µg/L 1 6/13/2011 09:10 PM
4-Nitrophenol	ND 0.86	5.0	µg/L 1 6/13/2011 09:10 PM
Acenaphthene	ND 0.49	2.0	µg/L 1 6/13/2011 09:10 PM
Acenaphthylene	ND 0.47	2.0	µg/L 1 6/13/2011 09:10 PM
Anthracene	ND 0.32	2.0	µg/L 1 6/13/2011 09:10 PM
Benzidine (M)	ND 1.2	5.0	µg/L 1 6/13/2011 09:10 PM
Benzo(a)anthracene	ND 0.32	2.0	µg/L 1 6/13/2011 09:10 PM
Benzo(a)pyrene	ND 0.25	2.0	µg/L 1 6/13/2011 09:10 PM
Benzo(b)fluoranthene	ND 0.27	2.0	µg/L 1 6/13/2011 09:10 PM
Benzo(g,h,i)perylene	ND 0.29	2.0	µg/L 1 6/13/2011 09:10 PM
Benzo(k)fluoranthene	ND 0.36	2.0	µg/L 1 6/13/2011 09:10 PM
Bis(2-chloroethoxy)methane	ND 0.48	5.0	µg/L 1 6/13/2011 09:10 PM
Bis(2-chloroethyl)ether	ND 0.48	5.0	µg/L 1 6/13/2011 09:10 PM
Bis(2-ethylhexyl)phthalate	ND 0.43	5.0	µg/L 1 6/13/2011 09:10 PM
Butylbenzylphthalate	ND 0.46	10	µg/L 1 6/13/2011 09:10 PM
Chrysene	ND 0.32	2.0	µg/L 1 6/13/2011 09:10 PM
Di-n-butylphthalate	ND 0.41	10	µg/L 1 6/13/2011 09:10 PM
Di-n-octylphthalate	ND 0.42	10	µg/L 1 6/13/2011 09:10 PM
Dibenz(a,h)anthracene	ND 0.32	2.0	µg/L 1 6/13/2011 09:10 PM
Diethylphthalate	ND 0.38	10	µg/L 1 6/13/2011 09:10 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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Laboratories**

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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001C		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 625

RunID: MS 13_110613C	QC Batch: 73374	PrepDate: 6/7/2011	Analyst: JSD
Dimethylphthalate	ND 0.38	10	µg/L 1 6/13/2011 09:10 PM
Fluoranthene	ND 0.31	2.0	µg/L 1 6/13/2011 09:10 PM
Fluorene	ND 0.41	2.0	µg/L 1 6/13/2011 09:10 PM
Hexachlorobenzene	ND 0.50	5.0	µg/L 1 6/13/2011 09:10 PM
Hexachlorobutadiene	ND 0.54	5.0	µg/L 1 6/13/2011 09:10 PM
Hexachlorocyclopentadiene	ND 0.35	5.0	µg/L 1 6/13/2011 09:10 PM
Hexachloroethane	ND 0.37	5.0	µg/L 1 6/13/2011 09:10 PM
Indeno(1,2,3-cd)pyrene	ND 0.30	2.0	µg/L 1 6/13/2011 09:10 PM
Isophorone	ND 0.47	5.0	µg/L 1 6/13/2011 09:10 PM
N-Nitrosodi-n-propylamine	ND 0.82	5.0	µg/L 1 6/13/2011 09:10 PM
N-Nitrosodimethylamine	ND 0.55	10	µg/L 1 6/13/2011 09:10 PM
N-Nitrosodiphenylamine	ND 0.36	5.0	µg/L 1 6/13/2011 09:10 PM
Naphthalene	ND 0.47	2.0	µg/L 1 6/13/2011 09:10 PM
Nitrobenzene	ND 0.51	10	µg/L 1 6/13/2011 09:10 PM
Pentachlorophenol	ND 1.6	20	µg/L 1 6/13/2011 09:10 PM
Phenanthrene	ND 0.37	2.0	µg/L 1 6/13/2011 09:10 PM
Phenol	ND 1.3	10	µg/L 1 6/13/2011 09:10 PM
Pyrene	ND 0.28	2.0	µg/L 1 6/13/2011 09:10 PM
Surr: 1,2-Dichlorobenzene-d4	62.6 0	46-97	%REC 1 6/13/2011 09:10 PM
Surr: 2,4,6-Tribromophenol	87.1 0	59-124	%REC 1 6/13/2011 09:10 PM
Surr: 2-Chlorophenol-d4	58.7 0	49-93	%REC 1 6/13/2011 09:10 PM
Surr: 2-Fluorobiphenyl	70.8 0	57-107	%REC 1 6/13/2011 09:10 PM
Surr: 2-Fluorophenol	39.3 0	27-60	%REC 1 6/13/2011 09:10 PM
Surr: 4-Terphenyl-d14	81.4 0	69-132	%REC 1 6/13/2011 09:10 PM
Surr: Nitrobenzene-d5	64.4 0	52-107	%REC 1 6/13/2011 09:10 PM
Surr: Phenol-d5	31.9 0	15-50	%REC 1 6/13/2011 09:10 PM

1,4-DIOXANE BY GC/MS: ISOTOPE DILUTION TECHNIQUE

EPA 3510C

EPA 8270C(M)

RunID: MS 13_110607A	QC Batch: 73374	PrepDate: 6/7/2011	Analyst: JSD
1,4-Dioxane	ND 1.9	2.0	µg/L 1 6/8/2011 06:41 PM
Surr: 1,2-Dichlorobenzene-d4	65.2 0	46-97	%REC 1 6/8/2011 06:41 PM
Surr: 2,4,6-Tribromophenol	101 0	59-124	%REC 1 6/8/2011 06:41 PM
Surr: 2-Chlorophenol-d4	58.6 0	49-93	%REC 1 6/8/2011 06:41 PM
Surr: 2-Fluorobiphenyl	71.9 0	57-107	%REC 1 6/8/2011 06:41 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001C	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
1,4-DIOXANE BY GC/MS: ISOTOPE DILUTION TECHNIQUE						
	EPA 3510C		EPA 8270C(M)			
RunID: MS 13_110607A	QC Batch: 73374			PrepDate:	6/7/2011	Analyst: JSD
Surr: 2-Fluorophenol	38.3	0	27-60	%REC	1	6/8/2011 06:41 PM
Surr: 4-Terphenyl-d14	86.6	0	69-132	%REC	1	6/8/2011 06:41 PM
Surr: Nitrobenzene-d5	69.6	0	52-107	%REC	1	6/8/2011 06:41 PM
Surr: Phenol-d5	30.2	0	15-50	%REC	1	6/8/2011 06:41 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
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Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001D		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID

EPA 3510C

EPA 8015B(M)

RunID: GC16_110609C	QC Batch: 73438			PrepDate: 6/9/2011	Analyst: CBR
DRO	ND	0.050	0.050	mg/L	1 6/9/2011 01:18 PM
ORO	ND	0.050	0.050	mg/L	1 6/9/2011 01:18 PM
Surr: p-Terphenyl	61.9	0	36-126	%REC	1 6/9/2011 01:18 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified	DO	Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC
Lab Order: 118188
Project: MTA Westside Extention, 4953101561/6.2.3.3
Lab ID: 118188-001E

Client Sample ID: P-103 / UCLA LOT 36
Collection Date: 6/3/2011 10:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 624

RunID: MS2_110610A	QC Batch: Q11VW094	PrepDate:	Analyst: BD
1,1,1-Trichloroethane	ND 0.17	0.50	µg/L 1 6/10/2011 03:51 PM
1,1,2,2-Tetrachloroethane	ND 0.21	0.50	µg/L 1 6/10/2011 03:51 PM
1,1,2-Trichloroethane	ND 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
1,1-Dichloroethane	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
1,1-Dichloroethene	ND 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
1,2-Dichlorobenzene	ND 0.12	0.50	µg/L 1 6/10/2011 03:51 PM
1,2-Dichloroethane	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
1,2-Dichloropropane	ND 0.11	0.50	µg/L 1 6/10/2011 03:51 PM
1,3-Dichlorobenzene	ND 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
1,4-Dichlorobenzene	ND 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
2-Chloroethyl vinyl ether	ND 0.40	0.50	µg/L 1 6/10/2011 03:51 PM
Acrolein	ND 1.4	10	µg/L 1 6/10/2011 03:51 PM
Acrylonitrile	ND 1.2	10	µg/L 1 6/10/2011 03:51 PM
Benzene	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
Bromodichloromethane	ND 0.18	0.50	µg/L 1 6/10/2011 03:51 PM
Bromoform	ND 0.13	0.50	µg/L 1 6/10/2011 03:51 PM
Bromomethane	ND 0.50	0.50	µg/L 1 6/10/2011 03:51 PM
Carbon tetrachloride	ND 0.20	0.50	µg/L 1 6/10/2011 03:51 PM
Chlorobenzene	ND 0.13	0.50	µg/L 1 6/10/2011 03:51 PM
Chloroethane	ND 0.20	0.50	µg/L 1 6/10/2011 03:51 PM
Chloroform	1.9 0.13	0.50	µg/L 1 6/10/2011 03:51 PM
Chloromethane	ND 0.19	0.50	µg/L 1 6/10/2011 03:51 PM
cis-1,3-Dichloropropene	ND 0.13	0.50	µg/L 1 6/10/2011 03:51 PM
Dibromochloromethane	ND 0.17	0.50	µg/L 1 6/10/2011 03:51 PM
Ethylbenzene	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
Methylene chloride	ND 1.0	1.0	µg/L 1 6/10/2011 03:51 PM
o-Xylene	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
Tetrachloroethene	0.47 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
Toluene	ND 0.17	0.50	µg/L 1 6/10/2011 03:51 PM
trans-1,2-Dichloroethene	ND 0.14	0.50	µg/L 1 6/10/2011 03:51 PM
trans-1,3-Dichloropropene	ND 0.16	0.50	µg/L 1 6/10/2011 03:51 PM
Trichloroethene	ND 0.15	0.50	µg/L 1 6/10/2011 03:51 PM
Vinyl chloride	ND 0.16	0.50	µg/L 1 6/10/2011 03:51 PM
m,p-Xylene	ND 0.29	1.0	µg/L 1 6/10/2011 03:51 PM
Surr: 1,2-Dichloroethane-d4	93.4 0	70-130	%REC 1 6/10/2011 03:51 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit S Spike/Surrogate outside of limits due to matrix interference
Results are wet unless otherwise specified DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001E	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 624

RunID: MS2_110610A	QC Batch: Q11VW094	PrepDate:	Analyst: BD
Surr: 4-Bromofluorobenzene	105 0	70-130 %REC	1 6/10/2011 03:51 PM
Surr: Dibromofluoromethane	91.8 0	70-130 %REC	1 6/10/2011 03:51 PM
Surr: Toluene-d8	93.6 0	70-130 %REC	1 6/10/2011 03:51 PM

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS2_110610A	QC Batch: Q11VW094	PrepDate:	Analyst: BD
1,2-Dibromoethane	ND 0.12	0.50 µg/L	1 6/10/2011 03:51 PM
2-Butanone	ND 1.7	10 µg/L	1 6/10/2011 03:51 PM
Acetone	ND 2.7	10 µg/L	1 6/10/2011 03:51 PM
Di-isopropyl ether	ND 0.17	0.50 µg/L	1 6/10/2011 03:51 PM
Ethyl tert-butyl ether	ND 0.13	0.50 µg/L	1 6/10/2011 03:51 PM
MTBE	ND 0.12	0.50 µg/L	1 6/10/2011 03:51 PM
Tert-amyl methyl ether	ND 0.11	0.50 µg/L	1 6/10/2011 03:51 PM
Tert-Butanol	ND 2.4	10 µg/L	1 6/10/2011 03:51 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001F	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC19_110607A	QC Batch: M11VW112	PrepDate:	Analyst: DDL
GRO	ND 0.050	0.050	mg/L
Surr: Bromofluorobenzene (FID)	91.7 0	70-130	%REC
			1 6/7/2011 02:46 PM
			1 6/7/2011 02:46 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001G	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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ICP METALS

EPA 3010A

EPA 200.7

RunID: ICP8_110608D	QC Batch: 73389	PrepDate: 6/7/2011	Analyst: IL
Boron	0.39 0.020	0.10	mg/L
		1	6/8/2011 12:10 PM

ICPMS METALS

EPA 200.8

EPA 200.8

RunID: ICP7_110608B	QC Batch: 73358	PrepDate: 6/6/2011	Analyst: SRB
Antimony	0.19 0.084	0.50	J µg/L
Arsenic	1.8 0.067	1.0	µg/L
Beryllium	ND 0.38	2.5	µg/L
Cadmium	0.19 0.071	0.50	J µg/L
Chromium	1.8 0.088	0.50	µg/L
Copper	1.1 0.058	1.0	µg/L
Lead	ND 0.10	1.0	µg/L
Nickel	5.4 0.10	1.0	µg/L
Selenium	7.5 0.26	0.50	µg/L
Silver	0.076 0.027	0.50	J µg/L
Thallium	ND 0.091	0.50	µg/L
Zinc	7.3 2.5	10	J µg/L

MERCURY BY COLD VAPOR TECHNIQUE

EPA 245.1

RunID: AA1_110608B	QC Batch: 73388	PrepDate: 6/7/2011	Analyst: VV
Mercury	ND 0.081	0.20	µg/L
		1	6/8/2011 12:25 PM

HARDNESS AS CALCIUM CARBONATE

SM2340C

RunID: WETCHEM_110609B	QC Batch: R133784	PrepDate:	Analyst: PT
Hardness (As CaCO3)	580 3.3	8.0	mg/L
		4	6/9/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001H		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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CYANIDE, TOTAL

SM4500-CN E

RunID: WETCHEM3_110609A	QC Batch: 73478	PrepDate: 6/9/2011	Analyst: AAG
Cyanide	1.5 0.25	0.50	µg/L
			1 6/9/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-0011		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SETTLABLE MATTER

SM2540F

RunID: WETCHEM_110603A	QC Batch: 73356	PrepDate: 6/3/2011	Analyst: PT
Settleable Matter	ND 0.093	0.093	m/L 1
			6/3/2011

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified	DO	Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT: MACTEC	Client Sample ID: P-103 / UCLA LOT 36
Lab Order: 118188	Collection Date: 6/3/2011 10:00:00 AM
Project: MTA Westside Extention, 4953101561/6.2.3.3	Matrix: GROUNDWATER
Lab ID: 118188-001J	

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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OIL & GREASE

EPA 1664 _HEM

RunID: WETCHEM2_110608C	QC Batch: 73436	PrepDate: 6/8/2011	Analyst: AAG
Oil & Grease	ND 1.2	4.4 mg/L	1 6/8/2011

TOTAL PETROLEUM HYDROCARBONS

EPA 1664 _SGT/HEM

RunID: WETCHEM2_110608B	QC Batch: 73435	PrepDate: 6/8/2011	Analyst: AAG
Total Petroleum Hydrocarbons	ND 0.46	2.0 mg/L	1 6/8/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001K		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SULFIDE, TOTAL

SM4500-S= D

RunID: WETCHEM3_110607A	QC Batch: R133693	PrepDate:	Analyst: admin
Sulfide	0.0082 0.0035	0.010 J mg/L	1 6/7/2011

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified	DO	Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 14-Jun-11

CLIENT:	MACTEC	Client Sample ID:	P-103 / UCLA LOT 36
Lab Order:	118188	Collection Date:	6/3/2011 10:00:00 AM
Project:	MTA Westside Extention, 4953101561/6.2.3.3	Matrix:	GROUNDWATER
Lab ID:	118188-001L		

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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NON-HALOGENATED ORGANICS BY GC/FID

EPA 8015B

RunID: GC3_110607A	QC Batch: R133678	PrepDate:	Analyst: CBR
Ethanol	ND 0.25	1.0	mg/L 1 6/9/2011 09:09 AM
Methanol	ND 0.39	1.0	mg/L 1 6/9/2011 09:09 AM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



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CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.
 TestCode: 130.2_2340C_W

ANALYTICAL QC SUMMARY REPORT

Sample ID: MB-R133784	SampType: MBLK	TestCode: 130.2_2340C_	Units: mg/L	Prep Date:	RunNo: 133784
Client ID: PBW	Batch ID: R133784	TestNo: SM2340C		Analysis Date: 6/9/2011	SeqNo: 2184124
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Hardness (As CaCO3)	ND	2.0			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPD Limit	Qual

Sample ID: LCS-R133784	SampType: LCS	TestCode: 130.2_2340C_	Units: mg/L	Prep Date:	RunNo: 133784
Client ID: LCSW	Batch ID: R133784	TestNo: SM2340C		Analysis Date: 6/9/2011	SeqNo: 2184125
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Hardness (As CaCO3)	50.490	2.0	50.00	0	101
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPD Limit	Qual

Sample ID: 118188-001GMS	SampType: MS	TestCode: 130.2_2340C_	Units: mg/L	Prep Date:	RunNo: 133784
Client ID: P-103 / UCLA LOT 3	Batch ID: R133784	TestNo: SM2340C		Analysis Date: 6/9/2011	SeqNo: 2184127
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Hardness (As CaCO3)	1108.800	20	500.0	578.2	106
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPD Limit	Qual

Sample ID: 118188-001GMSD	SampType: MSD	TestCode: 130.2_2340C_	Units: mg/L	Prep Date:	RunNo: 133784
Client ID: P-103 / UCLA LOT 3	Batch ID: R133784	TestNo: SM2340C		Analysis Date: 6/9/2011	SeqNo: 2184128
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Hardness (As CaCO3)	1113.750	20	500.0	578.2	107
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPD Limit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values

CLIENT: MACTEC
 Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: 118188-001ADUP	SampType: DUP	TestCode: 150.1_4500H+	Units: pH Units	Prep Date:	RunNo: 133714						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133714	TestNo: SM4500-H+B		Analysis Date: 6/3/2011	SeqNo: 2182893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.000	0.10						6.970	0.429	10	H

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

- H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



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Figure C-3.27

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 160.1_2540C_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133689		
Client ID: P-103 / UCLA LOT 3	Batch ID: 73393	TestNo: SM2540C		Analysis Date: 6/6/2011	SeqNo: 2182545		
Analyte	Result	PQL	SPK value	SPK Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	980.000	10			970.0	1.03	10

Sample ID: LCS-73393	SampType: LCS	TestCode: 160.1_2540C_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133689						
Client ID: LCSW	Batch ID: 73393	TestNo: SM2540C		Analysis Date: 6/6/2011	SeqNo: 2182546						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	989.000	10	970.0	0	102	80	120				

Sample ID: MB-73393	SampType: MBLK	TestCode: 160.1_2540C_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133689						
Client ID: PBW	Batch ID: 73393	TestNo: SM2540C		Analysis Date: 6/6/2011	SeqNo: 2182547						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Qualifiers:

B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 160.2_2540D_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133660						
Client ID: P-103 / UCLA LOT 3	Batch ID: 73379	TestNo: SM2540D		Analysis Date: 6/6/2011	SeqNo: 2182127						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	ND	10						0	0	10	

Sample ID: LCS-73379	SampType: LCS	TestCode: 160.2_2540D_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133660						
Client ID: LCSW	Batch ID: 73379	TestNo: SM2540D		Analysis Date: 6/6/2011	SeqNo: 2182128						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	99.000	10	96.60	0	102	80	120				

Sample ID: MB-73379	SampType: MBLK	TestCode: 160.2_2540D_	Units: mg/L	Prep Date: 6/6/2011	RunNo: 133660						
Client ID: PBW	Batch ID: 73379	TestNo: SM2540D		Analysis Date: 6/6/2011	SeqNo: 2182129						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	ND	10									

Qualifiers:

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 160.5_2540F_W

Sample ID: MB-73356	SampType: MBLK	TestCode: 160.5_2540F_	Units: mL	Prep Date: 6/3/2011	RunNo: 133626						
Client ID: PBW	Batch ID: 73356	TestNo: SM2540F		Analysis Date: 6/3/2011	SeqNo: 2181625						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Settleable Matter	ND					0.10					

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



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ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 1664_HEM_W

Sample ID: MB-73436	SampType: MBLK	TestCode: 1664_HEM_W	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133759
Client ID: PBW	Batch ID: 73436	TestNo: EPA 1664_H		Analysis Date: 6/8/2011	SeqNo: 2183638
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Oil & Grease	ND	4.0			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: LCS-73436	SampType: LCS	TestCode: 1664_HEM_W	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133759
Client ID: LCSW	Batch ID: 73436	TestNo: EPA 1664_H		Analysis Date: 6/8/2011	SeqNo: 2183639
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Oil & Grease	38.600	4.0	40.00	0	96.5
				78	114

Sample ID: 118188-001J-MS	SampType: MS	TestCode: 1664_HEM_W	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133759
Client ID: P-103 / UCLA LOT 3	Batch ID: 73436	TestNo: EPA 1664_H		Analysis Date: 6/8/2011	SeqNo: 2183641
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Oil & Grease	39.889	4.4	44.44	0	89.8
				78	114

Sample ID: 118188-001J-MSD	SampType: MSD	TestCode: 1664_HEM_W	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133759
Client ID: P-103 / UCLA LOT 3	Batch ID: 73436	TestNo: EPA 1664_H		Analysis Date: 6/8/2011	SeqNo: 2183642
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Oil & Grease	41.667	4.4	44.44	0	93.8
				78	114

Qualifiers:

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- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values



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CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.
TestCode: 1664_SGT/HEM_W

ANALYTICAL QC SUMMARY REPORT

Sample ID: MB-73435	SampType: MBLK	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133756						
Client ID: PBW	Batch ID: 73435	TestNo: EPA 1664_SG		Analysis Date: 6/8/2011	SeqNo: 2183566						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	ND	2.0									

Sample ID: LCS-73435	SampType: LCS	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133756						
Client ID: LCSW	Batch ID: 73435	TestNo: EPA 1664_SG		Analysis Date: 6/8/2011	SeqNo: 2183567						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	18.900	2.0	20.00	0	94.5	78	114				

Sample ID: 118188-001JMS	SampType: MS	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133756						
Client ID: P-103 / UCLA LOT 3	Batch ID: 73435	TestNo: EPA 1664_SG		Analysis Date: 6/8/2011	SeqNo: 2183576						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	16.500	2.0	20.00	0	82.5	78	114				

Sample ID: 118188-001JMSD	SampType: MSD	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 6/8/2011	RunNo: 133756						
Client ID: P-103 / UCLA LOT 3	Batch ID: 73435	TestNo: EPA 1664_SG		Analysis Date: 6/8/2011	SeqNo: 2183577						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	16.800	2.0	20.00	0	84.0	78	114	16.50	1.80	20	

Qualifiers:

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 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 180.1_W

Sample ID: MB-R133657	SampType: MBLK	TestCode: 180.1_W	Units: NTU	Prep Date:	RunNo: 133657
Client ID: PBW	Batch ID: R133657	TestNo: EPA 180.1		Analysis Date: 6/3/2011	SeqNo: 2182092
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Turbidity	ND	0.10			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001ADUP	SampType: DUP	TestCode: 180.1_W	Units: NTU	Prep Date:	RunNo: 133657
Client ID: P-103 / UCLA LOT 3	Batch ID: R133657	TestNo: EPA 180.1		Analysis Date: 6/3/2011	SeqNo: 2182094
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Turbidity	5.080	0.10		5.040	0.791
					10
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Qualifiers:

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 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_W1

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-73389	SampType: MBLK	TestCode: 200.7_W1	Units: mg/L	Prep Date: 6/7/2011	RunNo: 133728
Client ID: PBW	Batch ID: 73389	TestNo: EPA 200.7	EPA 3010A	Analysis Date: 6/8/2011	SeqNo: 2183096
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Boron	0.024	0.10			
			LowLimit	HighLimit	RPD Ref Val
					%RPD
					RPDLimit
					Qual
					J

Sample ID: LCS-73389	SampType: LCS	TestCode: 200.7_W1	Units: mg/L	Prep Date: 6/7/2011	RunNo: 133728
Client ID: LCSW	Batch ID: 73389	TestNo: EPA 200.7	EPA 3010A	Analysis Date: 6/8/2011	SeqNo: 2183097
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Boron	10.480	0.10	10.00	0.02390	105
			LowLimit	HighLimit	RPD Ref Val
					115

Sample ID: 118188-001G-MS	SampType: MS	TestCode: 200.7_W1	Units: mg/L	Prep Date: 6/7/2011	RunNo: 133728
Client ID: P-103 / UCLA LOT 3	Batch ID: 73389	TestNo: EPA 200.7	EPA 3010A	Analysis Date: 6/8/2011	SeqNo: 2183101
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Boron	5.457	0.10	5.000	0.3947	101
			LowLimit	HighLimit	RPD Ref Val
					78
					121

Sample ID: 118188-001G-MSD	SampType: MSD	TestCode: 200.7_W1	Units: mg/L	Prep Date: 6/7/2011	RunNo: 133728
Client ID: P-103 / UCLA LOT 3	Batch ID: 73389	TestNo: EPA 200.7	EPA 3010A	Analysis Date: 6/8/2011	SeqNo: 2183102
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Boron	5.441	0.10	5.000	0.3947	101
			LowLimit	HighLimit	RPD Ref Val
					78
					121
					5.457
					0.307
					20

Qualifiers:

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- DO Surrogate Diluted Out
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- R RPD outside accepted recovery limits

Calculations are based on raw values



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ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 200.8_W

Sample ID: MB-73358	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: PBW	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183808

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	1.0									
Cadmium	ND	0.50									
Chromium	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID: LCS-73358	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: LCSW	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.646	0.50	10.00	0	96.5	85	115				
Arsenic	9.941	1.0	10.00	0	99.4	85	115				
Cadmium	9.896	0.50	10.00	0	99.0	85	115				
Chromium	9.755	0.50	10.00	0	97.6	85	115				
Copper	9.965	1.0	10.00	0	99.7	85	115				
Lead	9.813	1.0	10.00	0	98.1	85	115				
Nickel	9.650	1.0	10.00	0	96.5	85	115				
Selenium	10.325	0.50	10.00	0	103	85	115				
Silver	9.426	0.50	10.00	0	94.3	85	115				
Thallium	9.879	0.50	10.00	0	98.8	85	115				
Zinc	101.155	10	100.0	0	101	85	115				

Qualifiers:

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 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
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 - R RPD outside accepted recovery limits
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CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 200.8 W

ANALYTICAL QC SUMMARY REPORT

Sample ID: 118188-001G-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: P-103 / UCLA LOT 3	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183811

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.746	0.50	10.00	0.1888	95.6	70	130				
Arsenic	11.793	1.0	10.00	1.786	100	70	130				
Cadmium	9.333	0.50	10.00	0.1925	91.4	70	130				
Chromium	10.281	0.50	10.00	1.846	84.4	70	130				
Copper	9.394	1.0	10.00	1.130	82.6	70	130				
Lead	9.265	1.0	10.00	0	92.6	70	130				
Nickel	13.620	1.0	10.00	5.359	82.6	70	130				
Selenium	17.969	0.50	10.00	7.509	105	70	130				
Silver	7.904	0.50	10.00	0.07625	78.3	70	130				
Thallium	9.409	0.50	10.00	0	94.1	70	130				
Zinc	104.645	10	100.0	7.315	97.3	70	130				

Sample ID: 118188-001G-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: P-103 / UCLA LOT 3	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183812

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.878	0.50	10.00	0.1888	96.9	70	130	9.746	1.34	20	
Arsenic	11.955	1.0	10.00	1.786	102	70	130	11.79	1.37	20	
Cadmium	9.160	0.50	10.00	0.1925	89.7	70	130	9.332	1.87	20	
Chromium	10.419	0.50	10.00	1.846	85.7	70	130	10.28	1.33	20	
Copper	9.083	1.0	10.00	1.130	79.5	70	130	9.394	3.37	20	
Lead	8.941	1.0	10.00	0	89.4	70	130	9.265	3.56	20	
Nickel	13.815	1.0	10.00	5.359	84.6	70	130	13.62	1.42	20	
Selenium	17.086	0.50	10.00	7.509	95.8	70	130	17.97	5.03	20	
Silver	8.455	0.50	10.00	0.07625	83.8	70	130	7.904	6.74	20	
Thallium	9.041	0.50	10.00	0	90.4	70	130	9.409	3.98	20	
Zinc	97.769	10	100.0	7.315	90.5	70	130	104.6	6.79	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 200.8_W

ANALYTICAL QC SUMMARY REPORT

Sample ID: MB-73358	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: PBW	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183813
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Beryllium	ND	0.50			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: LCS-73358	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: LCSW	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183814
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Beryllium	9.558	0.50	10.00	0	95.6
					85
					115
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: 118188-001G-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: P-103 / UCLA LOT 3	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183816
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Beryllium	8.125	2.5	10.00	0	81.2
					70
					130
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: 118188-001G-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/6/2011	RunNo: 133765
Client ID: P-103 / UCLA LOT 3	Batch ID: 73358	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 6/8/2011	SeqNo: 2183817
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Beryllium	8.344	2.5	10.00	0	83.4
					70
					130
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPDLimit	Qual

Qualifiers:

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- E Value above quantitation range
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_W

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-R133649	SampType: MBLK	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 133649
Client ID: PBW	Batch ID: R133649	TestNo: EPA 218.6		Analysis Date: 6/3/2011	SeqNo: 2182031
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chromium, Hexavalent	ND	0.20			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: LCS-R133649	SampType: LCS	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 133649
Client ID: LCSW	Batch ID: R133649	TestNo: EPA 218.6		Analysis Date: 6/3/2011	SeqNo: 2182032
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chromium, Hexavalent	5.027	0.20	5.000	0	101
				90	110
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 133649
Client ID: P-103 / UCLA LOT 3	Batch ID: R133649	TestNo: EPA 218.6		Analysis Date: 6/3/2011	SeqNo: 2182034
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chromium, Hexavalent	0.531	0.20			
				0.5655	6.31
				10	
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: 118188-001A-MS	SampType: MS	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 133649
Client ID: P-103 / UCLA LOT 3	Batch ID: R133649	TestNo: EPA 218.6		Analysis Date: 6/3/2011	SeqNo: 2182035
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chromium, Hexavalent	5.578	0.20	5.000	0.5655	100
				90	110
				RPD Ref Val	%RPD
				RPDLimit	Qual

Sample ID: 118188-001A-MSD	SampType: MSD	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 133649
Client ID: P-103 / UCLA LOT 3	Batch ID: R133649	TestNo: EPA 218.6		Analysis Date: 6/3/2011	SeqNo: 2182036
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chromium, Hexavalent	5.430	0.20	5.000	0.5655	97.3
				90	110
				5.578	2.67
				RPD Ref Val	%RPD
				RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values


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ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_W

CLIENT: MACTEC
Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-73388	SampType: MBLK	TestCode: 245.1_W	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133730
Client ID: PBW	Batch ID: 73388	TestNo: EPA 245.1		Analysis Date: 6/8/2011	SeqNo: 2183111
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	ND	0.20			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: LCS-73388	SampType: LCS	TestCode: 245.1_W	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133730
Client ID: LCSW	Batch ID: 73388	TestNo: EPA 245.1		Analysis Date: 6/8/2011	SeqNo: 2183112
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	10.200	0.20	10.00	0	102
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001G-MS	SampType: MS	TestCode: 245.1_W	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133730
Client ID: P-103 / UCLA LOT 3	Batch ID: 73388	TestNo: EPA 245.1		Analysis Date: 6/8/2011	SeqNo: 2183113
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	9.786	0.20	10.00	0	97.9
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001G-MSD	SampType: MSD	TestCode: 245.1_W	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133730
Client ID: P-103 / UCLA LOT 3	Batch ID: 73388	TestNo: EPA 245.1		Analysis Date: 6/8/2011	SeqNo: 2183114
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	9.852	0.20	10.00	0	98.5
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Qualifiers:

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 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
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ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: LCS-R133674	SampType: LCS	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: LCSW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182402
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chloride	0.935	0.50	1.000	0	93.5
				LowLimit	HighLimit
				90	110
				%RPD	RPDLimit
					Qual

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182404
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chloride	122.691	5.0		124.9	1.80
				LowLimit	HighLimit
					RPDLimit
					Qual

Sample ID: 118188-001A-MS	SampType: MS	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182405
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chloride	142.776	5.0	25.00	124.9	71.4
				LowLimit	HighLimit
				80	120
				%RPD	RPDLimit
					Qual

Sample ID: 118188-001A-MSD	SampType: MSD	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182406
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chloride	142.937	5.0	25.00	124.9	72.0
				LowLimit	HighLimit
				80	120
				%RPD	RPDLimit
					Qual

Sample ID: MB-R133674	SampType: MBLK	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: PBW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182407
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Chloride	ND	0.50			
				LowLimit	HighLimit
					RPDLimit
					Qual

Qualifiers:

B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference DO Surrogate Diluted Out

E Value above quantitation range
 ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

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ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_NO2

CLIENT: MACTEC
 Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: LCS-R133674	SampType: LCS	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: LCSW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182408
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Nitrogen, Nitrite	0.940	0.10	1.000	0	94.0
				LowLimit	HighLimit
				90	110
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182411
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Nitrogen, Nitrite	ND	1.0		0	0
				LowLimit	HighLimit
					20
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001A-MS	SampType: MS	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182412
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Nitrogen, Nitrite	26.988	1.0	25.00	0	108
				LowLimit	HighLimit
				80	120
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: 118188-001A-MSD	SampType: MSD	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182413
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Nitrogen, Nitrite	26.954	1.0	25.00	0	108
				LowLimit	HighLimit
				80	120
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Sample ID: MB-R133674	SampType: MBLK	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 133674
Client ID: PBW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182414
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Nitrogen, Nitrite	ND	0.10			
				LowLimit	HighLimit
				RPD Ref Val	%RPD
					RPDLimit
					Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_NO3

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: LCS-R133674	SampType: LCS	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: LCSW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182415						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	0.940	0.10	1.000	0	94.0	90	110				

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182418						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.076	1.0						5.222	2.84	20	

Sample ID: 118188-001A-MS	SampType: MS	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182419						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	28.903	1.0	25.00	5.222	94.7	80	120				

Sample ID: 118188-001A-MSD	SampType: MSD	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182420						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	28.716	1.0	25.00	5.222	94.0	80	120	28.90	0.649	20	

Sample ID: MB-R133674	SampType: MBLK	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: PBW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182421						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

Figure C-3.42

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: LCS-R133674	SampType: LCS	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: LCSW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182422						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1.923	1.0	2.000	0	96.2	90	110				

Sample ID: 118188-001A-DUP	SampType: DUP	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182424						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	225.817	10						226.5	0.323	20	

Sample ID: 118188-001A-MS	SampType: MS	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182425						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	289.669	10	50.00	226.5	126	80	120				S

Sample ID: 118188-001A-MSD	SampType: MSD	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182426						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	288.990	10	50.00	226.5	125	80	120	289.7	0.235	20	S

Sample ID: MB-R133674	SampType: MBLK	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 133674						
Client ID: PBW	Batch ID: R133674	TestNo: EPA 300.0		Analysis Date: 6/3/2011	SeqNo: 2182427						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.0									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



ANALYTICAL QC SUMMARY REPORT

TestCode: 314_W

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-R133810	SampType: MBLK	TestCode: 314_W	Units: µg/L	Prep Date:	RunNo: 133810
Client ID: PBW	Batch ID: R133810	TestNo: EPA 314.0		Analysis Date: 6/3/2011	SeqNo: 2184682
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Perchlorate	ND	2.0			

Sample ID: LCS-R133810	SampType: LCS	TestCode: 314_W	Units: µg/L	Prep Date:	RunNo: 133810
Client ID: LCSW	Batch ID: R133810	TestNo: EPA 314.0		Analysis Date: 6/3/2011	SeqNo: 2184683
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Perchlorate	24.283	2.0	25.00	0	97.1

Sample ID: 118166-010B-DUP	SampType: DUP	TestCode: 314_W	Units: µg/L	Prep Date:	RunNo: 133810
Client ID: ZZZZZZ	Batch ID: R133810	TestNo: EPA 314.0		Analysis Date: 6/3/2011	SeqNo: 2184686
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Perchlorate	59.174	2.0			58.98

Sample ID: 118166-010B-MS	SampType: MS	TestCode: 314_W	Units: µg/L	Prep Date:	RunNo: 133810
Client ID: ZZZZZZ	Batch ID: R133810	TestNo: EPA 314.0		Analysis Date: 6/3/2011	SeqNo: 2184687
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Perchlorate	69.152	2.0	10.00	58.98	102

Sample ID: 118166-010B-MS	SampType: MSD	TestCode: 314_W	Units: µg/L	Prep Date:	RunNo: 133810
Client ID: ZZZZZZ	Batch ID: R133810	TestNo: EPA 314.0		Analysis Date: 6/3/2011	SeqNo: 2184688
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Perchlorate	69.154	2.0	10.00	58.98	102

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits



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ANALYTICAL QC SUMMARY REPORT

TestCode: 335.2_LL_450CNE_W

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: 118167-001A-MS	SampType: MS	TestCode: 335.2_LL_450	Units: µg/L	Prep Date: 6/9/2011	RunNo: 133816						
Client ID: ZZZZZZ	Batch ID: 73478	TestNo: SM4500-CN E		Analysis Date: 6/9/2011	SeqNo: 2184892						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide	4.705	0.50	5.000	0	94.1	80	120				

Sample ID: 118167-001A-MSD	SampType: MSD	TestCode: 335.2_LL_450	Units: µg/L	Prep Date: 6/9/2011	RunNo: 133816						
Client ID: ZZZZZZ	Batch ID: 73478	TestNo: SM4500-CN E		Analysis Date: 6/9/2011	SeqNo: 2184893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide	4.340	0.50	5.000	0	86.8	80	120	4.705	8.07	20	

Sample ID: LCS-73478	SampType: LCS	TestCode: 335.2_LL_450	Units: µg/L	Prep Date: 6/9/2011	RunNo: 133816						
Client ID: LCSW	Batch ID: 73478	TestNo: SM4500-CN E		Analysis Date: 6/9/2011	SeqNo: 2184895						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide	4.413	0.50	5.000	0	88.3	80	120				

Sample ID: MB-73478	SampType: MBLK	TestCode: 335.2_LL_450	Units: µg/L	Prep Date: 6/9/2011	RunNo: 133816						
Client ID: PBW	Batch ID: 73478	TestNo: SM4500-CN E		Analysis Date: 6/9/2011	SeqNo: 2184896						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits



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CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.
TestCode: 376.2_4500S2_WT

ANALYTICAL QC SUMMARY REPORT

Sample ID: 118151-0011-MS	SampType: MS	TestCode: 376.2_4500S2	Units: mg/L	Prep Date:	RunNo: 133693						
Client ID: ZZZZZZ	Batch ID: R133693	TestNo: SM4500-S=D		Analysis Date: 6/7/2011	SeqNo: 2182592						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.038	0.010	0.1000	0.004900	33.3	70	120				S

Sample ID: 118151-0011-MSD	SampType: MSD	TestCode: 376.2_4500S2	Units: mg/L	Prep Date:	RunNo: 133693						
Client ID: ZZZZZZ	Batch ID: R133693	TestNo: SM4500-S=D		Analysis Date: 6/7/2011	SeqNo: 2182593						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.034	0.010	0.1000	0.004900	29.5	70	120	0.03820	10.5	20	S

Sample ID: LCS-R133693	SampType: LCS	TestCode: 376.2_4500S2	Units: mg/L	Prep Date:	RunNo: 133693						
Client ID: LCSW	Batch ID: R133693	TestNo: SM4500-S=D		Analysis Date: 6/7/2011	SeqNo: 2182597						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.102	0.010	0.1000	0	102	80	120				

Sample ID: MB-R133693	SampType: MBLK	TestCode: 376.2_4500S2	Units: mg/L	Prep Date:	RunNo: 133693						
Client ID: PBW	Batch ID: R133693	TestNo: SM4500-S=D		Analysis Date: 6/7/2011	SeqNo: 2182598						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.010									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



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ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
 Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 608_W_FULL

Sample ID: MB-73426	SampType: MBLK	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133745
Client ID: PBW	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2183452

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4'-DDD	ND	0.050									
4,4'-DDE	ND	0.050									
4,4'-DDT	ND	0.050									
Aldrin	ND	0.025									
alpha-BHC	ND	0.025									
beta-BHC	ND	0.025									
Chlordane	ND	0.25									
delta-BHC	ND	0.025									
Dieldrin	ND	0.050									
Endosulfan I	ND	0.025									
Endosulfan II	ND	0.050									
Endosulfan sulfate	ND	0.050									
Endrin	ND	0.050									
Endrin aldehyde	ND	0.050									
gamma-BHC	ND	0.025									
Heptachlor	ND	0.025									
Heptachlor epoxide	ND	0.025									
Toxaphene	ND	2.5									
Surr: Decachlorobiphenyl	0.403		0.5000		80.6	29	137				
Surr: Tetrachloro-m-xylene	0.447		0.5000		89.4	47	117				

Sample ID: LCS-73426	SampType: LCS	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133745
Client ID: LCSW	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2183453

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	0.458	0.025	0.5000	0	91.7	63	115				
Dieldrin	0.445	0.050	0.5000	0	89.1	62	111				
Endrin	0.532	0.050	0.5000	0	106	45	137				
gamma-BHC	0.476	0.025	0.5000	0	95.2	62	115				
Heptachlor	0.472	0.025	0.5000	0	94.3	60	113				

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values

Figure C-3.47

ANALYTICAL QC SUMMARY REPORT

TestCode: 608_W_FULL

CLIENT: MACTEC
Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: LCS-73426	SampType: LCS	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133745						
Client ID: LCSW	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2183453						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.413		0.5000		82.5	29	137				
Surr: Tetrachloro-m-xylene	0.452		0.5000		90.3	47	117				

Sample ID: MB-73426MS	SampType: MS	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133745						
Client ID: ZZZZZZ	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2183454						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4'-DDT	0.452	0.050	0.5000	0	90.3	53	113				
Aldrin	0.467	0.025	0.5000	0	93.3	63	115				
Dieldrin	0.454	0.050	0.5000	0	90.9	62	111				
Endrin	0.530	0.050	0.5000	0	106	45	137				
gamma-BHC	0.484	0.025	0.5000	0	96.8	62	115				
Heptachlor	0.481	0.025	0.5000	0	96.3	60	113				
Surr: Decachlorobiphenyl	0.407		0.5000		81.4	29	137				
Surr: Tetrachloro-m-xylene	0.451		0.5000		90.2	47	117				

Sample ID: MB-73426MSD	SampType: MSD	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133745						
Client ID: ZZZZZZ	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2183455						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4'-DDT	0.461	0.050	0.5000	0	92.3	53	113	0.4516	2.13	20	
Aldrin	0.477	0.025	0.5000	0	95.3	63	115	0.4667	2.12	20	
Dieldrin	0.465	0.050	0.5000	0	93.1	62	111	0.4544	2.37	20	
Endrin	0.544	0.050	0.5000	0	109	45	137	0.5299	2.55	20	
gamma-BHC	0.494	0.025	0.5000	0	98.8	62	115	0.4841	2.04	20	
Heptachlor	0.491	0.025	0.5000	0	98.2	60	113	0.4814	2.01	20	
Surr: Decachlorobiphenyl	0.421		0.5000		84.2	29	137		0	0	
Surr: Tetrachloro-m-xylene	0.459		0.5000		91.8	47	117		0	0	

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



Advanced Technology
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ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 608_W_FULL

Sample ID: MB-73426	SampType: MBLK	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133778
Client ID: PBW	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2184024

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.50									
Aroclor 1221	ND	1.0									
Aroclor 1232	ND	0.50									
Aroclor 1242	ND	0.50									
Aroclor 1248	ND	0.50									
Aroclor 1254	ND	0.50									
Aroclor 1260	ND	0.50									
Surr: Decachlorobiphenyl	0.357		0.5000		71.4	29	137				
Surr: Tetrachloro-m-xylene	0.390		0.5000		78.0	47	117				

Sample ID: LCSA-73426	SampType: LCS	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133778
Client ID: LCSW	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2184025

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4.488	0.50	5.000	0	89.8	53	115				
Aroclor 1260	5.170	0.50	5.000	0	103	52	125				
Surr: Decachlorobiphenyl	0.397		0.5000		79.5	29	137				
Surr: Tetrachloro-m-xylene	0.437		0.5000		87.3	47	117				

Sample ID: MB-73426MSA	SampType: MS	TestCode: 608_W_FULL	Units: µg/L	Prep Date: 6/8/2011	RunNo: 133778
Client ID: ZZZZZZ	Batch ID: 73426	TestNo: EPA 608	EPA 3510C	Analysis Date: 6/8/2011	SeqNo: 2184026

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4.103	0.50	5.000	0	82.1	53	115				
Aroclor 1260	4.699	0.50	5.000	0	94.0	52	125				
Surr: Decachlorobiphenyl	0.357		0.5000		71.3	29	137				
Surr: Tetrachloro-m-xylene	0.389		0.5000		77.7	47	117				

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

Figure C-3.49

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.
 TestCode: 608_W_FULL

ANALYTICAL QC SUMMARY REPORT

Sample ID:	MB-73426MSDA	SampType:	MSD	TestCode:	608_W_FULL	Units:	µg/L	Prep Date:	6/8/2011	RunNo:	133778	
Client ID:	ZZZZZZ	Batch ID:	73426	TestNo:	EPA 608	EPA	3510C	Analysis Date:	6/8/2011	SeqNo:	2184027	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016		4.177	0.50	5.000	0	83.5	53	115	4.103	1.79	20	
Aroclor 1260		4.670	0.50	5.000	0	93.4	52	125	4.699	0.620	20	
Surr: Decachlorobiphenyl		0.353		0.5000		70.6	29	137		0	0	
Surr: Tetrachloro-m-xylene		0.387		0.5000		77.3	47	117		0	0	

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values



Figure C-3.50

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 624LL_WP

Sample ID: Q110610MB3LCS1	SampType: LCS	TestCode: 624LL_WP	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: LCSW	Batch ID: Q11VW094	TestNo: EPA 624		Analysis Date: 6/10/2011	SeqNo: 2185550						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20.560	0.50	20.00	0	103	70	130				
Benzene	40.030	0.50	40.00	0	100	70	130				
Chlorobenzene	21.310	0.50	20.00	0	107	70	130				
Toluene	42.950	0.50	40.00	0	107	70	130				
Trichloroethene	20.740	0.50	20.00	0	104	70	130				
Surr: 1,2-Dichloroethane-d4	21.630		25.00		86.5	70	130				
Surr: 4-Bromofluorobenzene	27.490		25.00		110	70	130				
Surr: Dibromofluoromethane	22.640		25.00		90.6	70	130				
Surr: Toluene-d8	25.260		25.00		101	70	130				

Sample ID: Q110610MB3MS	SampType: MS	TestCode: 624LL_WP	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: ZZZZZ	Batch ID: Q11VW094	TestNo: EPA 624		Analysis Date: 6/10/2011	SeqNo: 2185551						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20.190	0.50	20.00	0	101	70	130				
Benzene	40.700	0.50	40.00	0	102	70	130				
Chlorobenzene	21.760	0.50	20.00	0	109	70	130				
Toluene	43.040	0.50	40.00	0	108	70	130				
Trichloroethene	20.590	0.50	20.00	0	103	70	130				
Surr: 1,2-Dichloroethane-d4	21.840		25.00		87.4	70	130				
Surr: 4-Bromofluorobenzene	27.760		25.00		111	70	130				
Surr: Dibromofluoromethane	23.000		25.00		92.0	70	130				
Surr: Toluene-d8	25.300		25.00		101	70	130				

Sample ID: Q110610MB3MSD	SampType: MSD	TestCode: 624LL_WP	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: ZZZZZ	Batch ID: Q11VW094	TestNo: EPA 624		Analysis Date: 6/10/2011	SeqNo: 2185552						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	17.970	0.50	20.00	0	89.8	70	130	20.19	11.6	20	
Benzene	38.170	0.50	40.00	0	95.4	70	130	40.70	6.42	20	

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 624LL_WP

ANALYTICAL QC SUMMARY REPORT

Sample ID: Q110610MB3MSD	SampType: MSD	TestCode: 624LL_WP	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: ZZZZZZ	Batch ID: Q11VW094	TestNo: EPA 624		Analysis Date: 6/10/2011	SeqNo: 2185552						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	20.200	0.50	20.00	0	101	70	130	21.76	7.44	20	
Toluene	40.580	0.50	40.00	0	101	70	130	43.04	5.88	20	
Trichloroethene	19.550	0.50	20.00	0	97.8	70	130	20.59	5.18	20	
Surr: 1,2-Dichloroethane-d4	20.030		25.00		80.1	70	130		0	20	
Surr: 4-Bromofluorobenzene	26.150		25.00		105	70	130		0	20	
Surr: Dibromofluoromethane	21.120		25.00		84.5	70	130		0	20	
Surr: Toluene-d8	24.110		25.00		96.4	70	130		0	20	

Sample ID: Q110609MB3	SampType: MBLK	TestCode: 624LL_WP	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: PBW	Batch ID: Q11VW094	TestNo: EPA 624		Analysis Date: 6/10/2011	SeqNo: 2185553						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2-Chloroethyl vinyl ether	ND	0.50									
Acrolein	ND	10									
Acrylonitrile	ND	10									
Benzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

ANALYTICAL QC SUMMARY REPORT

TestCode: 624LL_WP

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: Q110609MB3 SampType: MBLK TestCode: 624LL_WP Units: µg/L Prep Date: RunNo: 133844
 Client ID: PBW Batch ID: Q111VW094 TestNo: EPA 624 Analysis Date: 6/10/2011 SeqNo: 2185553

Analyte	Result	PQL	SPK value	SPK Ref Val	µg/L	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.50										
Chloroethane	ND	0.50										
Chloroform	ND	0.50										
Chloromethane	ND	0.50										
cis-1,3-Dichloropropene	ND	0.50										
Dibromochloromethane	ND	0.50										
Ethylbenzene	ND	0.50										
Methylene chloride	ND	1.0										
o-Xylene	ND	0.50										
Tetrachloroethene	ND	0.50										
Toluene	ND	0.50										
trans-1,2-Dichloroethene	ND	0.50										
trans-1,3-Dichloropropene	ND	0.50										
Trichloroethene	ND	0.50										
Vinyl chloride	ND	0.50										
m,p-Xylene	ND	1.0										
Surr: 1,2-Dichloroethane-d4	22.730		25.00			90.9	70		130			
Surr: 4-Bromofluorobenzene	27.250		25.00			109	70		130			
Surr: Dibromofluoromethane	23.140		25.00			92.6	70		130			
Surr: Toluene-d8	24.720		25.00			98.9	70		130			

Qualifiers:
 B Analyte detected in the associated Method Blank E Value above quantitation range
 J Analyte detected below quantitation limits ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference DO Surrogate Diluted Out

H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

Figure C-3.53

ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 625_W_LL

Sample ID: MB-73374	SampType: MBLK	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133959
Client ID: PBW	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/13/2011	SeqNo: 2187835

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	2.0									
1,2-Diphenylhydrazine	ND	2.0									
2,4,6-Trichlorophenol	ND	10									
2,4-Dichlorophenol	ND	5.0									
2,4-Dimethylphenol	ND	5.0									
2,4-Dinitrophenol	ND	20									
2,4-Dinitrotoluene	ND	5.0									
2,6-Dinitrotoluene	ND	5.0									
2-Chloronaphthalene	ND	10									
2-Chlorophenol	ND	5.0									
2-Nitrophenol	ND	10									
3,3'-Dichlorobenzidine	ND	5.0									
4,6-Dinitro-2-methylphenol	ND	20									
4-Bromophenyl-phenylether	ND	5.0									
4-Chloro-3-methylphenol	ND	5.0									
4-Chlorophenyl-phenylether	ND	5.0									
4-Nitrophenol	ND	5.0									
Acenaphthene	ND	2.0									
Acenaphthylene	ND	2.0									
Anthracene	ND	2.0									
Benzo(a)anthracene	ND	5.0									
Benzo(a)pyrene	ND	2.0									
Benzo(b)fluoranthene	ND	2.0									
Benzo(g,h,i)perylene	ND	2.0									
Benzo(k)fluoranthene	ND	2.0									
Bis(2-chloroethoxy)methane	ND	5.0									
Bis(2-chloroethyl)ether	ND	5.0									
Bis(2-ethylhexyl)phthalate	ND	5.0									
Butylbenzylphthalate	ND	10									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

Figure C-3.54

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.
TestCode: 625_W_LL

ANALYTICAL QC SUMMARY REPORT

Sample ID: MB-73374	SampType: MBLK	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133959						
Client ID: PBW	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/13/2011	SeqNo: 2187835						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	2.0									
Di-n-butylphthalate	ND	10									
Di-n-octylphthalate	ND	10									
Dibenz(a,h)anthracene	ND	2.0									
Diethylphthalate	ND	10									
Dimethylphthalate	ND	10									
Fluoranthene	ND	2.0									
Fluorene	ND	2.0									
Hexachlorobenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Hexachlorocyclopentadiene	ND	5.0									
Hexachloroethane	ND	5.0									
Indeno(1,2,3-cd)pyrene	ND	2.0									
Isophorone	ND	5.0									
N-Nitrosodi-n-propylamine	ND	5.0									
N-Nitrosodimethylamine	ND	10									
N-Nitrosodiphenylamine	ND	5.0									
Naphthalene	ND	2.0									
Nitrobenzene	ND	10									
Pentachlorophenol	ND	20									
Phenanthrene	ND	2.0									
Phenol	ND	10									
Pyrene	ND	2.0									
Surr: 1,2-Dichlorobenzene-d4	71.340		100.0		71.3	46			97		
Surr: 2,4,6-Tribromophenol	87.450		100.0		87.4	59			124		
Surr: 2-Chlorophenol-d4	68.350		100.0		68.4	49			93		
Surr: 2-Fluorobiphenyl	75.450		100.0		75.4	57			107		
Surr: 2-Fluorophenol	46.540		100.0		46.5	27			60		
Surr: 4-Terphenyl-d14	79.670		100.0		79.7	69			132		
Surr: Nitrobenzene-d5	73.540		100.0		73.5	52			107		

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

TestCode: 625_W_LL

Sample ID: MB-73374	Samp Type: MBLK	TestCode: 625_W_LL	Units: µg/L	RunNo: 133959
Client ID: PBW	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	SeqNo: 2187835
Analyte	Result	PQL	SPK value	SPK Ref Val
Surr: Phenol-d5	36.020	100.0	100.0	100.0
			%REC	LowLimit
			36.0	15
				HighLimit
				50
				RPDLimit
				Qual

Sample ID: LCS-73374	Samp Type: LCS	TestCode: 625_W_LL	Units: µg/L	RunNo: 133959
Client ID: LCSW	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	SeqNo: 2187836
Analyte	Result	PQL	SPK value	SPK Ref Val
1,2,4-Trichlorobenzene	81.140	2.0	100.0	0
2,4-Dinitrotoluene	115.750	5.0	100.0	0
2-Chlorophenol	68.120	5.0	100.0	0
4-Chloro-3-methylphenol	92.640	5.0	100.0	0
4-Nitrophenol	52.310	5.0	100.0	0
Acenaphthene	90.500	2.0	100.0	0
N-Nitrosodi-n-propylamine	96.050	5.0	100.0	0
Pentachlorophenol	91.340	20	100.0	0
Phenol	39.490	10	100.0	0
Pyrene	95.870	2.0	100.0	0
Surr: 1,2-Dichlorobenzene-d4	69.550		100.0	0
Surr: 2,4,6-Tribromophenol	103.710		100.0	0
Surr: 2-Chlorophenol-d4	67.950		100.0	0
Surr: 2-Fluorobiphenyl	81.890		100.0	0
Surr: 2-Fluorophenol	46.060		100.0	0
Surr: 4-Terphenyl-d14	86.560		100.0	0
Surr: Nitrobenzene-d5	74.740		100.0	0
Surr: Phenol-d5	37.560		100.0	0
			%REC	LowLimit
			81.1	60
			116	81
			68.1	46
			92.6	51
			52.3	20
			90.5	64
			96.0	65
			91.3	55
			39.5	18
			95.9	73
			69.6	46
			104	59
			68.0	49
			81.9	57
			46.1	27
			86.6	69
			74.7	52
			37.6	15
				HighLimit
				106
				RPDLimit
				Qual

Sample ID: MB-73374MS	Samp Type: MS	TestCode: 625_W_LL	Units: µg/L	RunNo: 133959
Client ID: ZZZZZ	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	SeqNo: 2187837
Analyte	Result	PQL	SPK value	SPK Ref Val
1,2,4-Trichlorobenzene	82.150	2.0	100.0	0
			%REC	LowLimit
			82.2	60
				HighLimit
				106
				RPDLimit
				Qual

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values


 3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

ANALYTICAL QC SUMMARY REPORT

TestCode: 625_W_LL

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-73374MS	SampType: MS	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133959						
Client ID: ZZZZZZ	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/13/2011	SeqNo: 2187837						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	114.600	5.0	100.0	0	115	81	123				
2-Chlorophenol	68.840	5.0	100.0	0	68.8	46	105				
4-Chloro-3-methylphenol	91.530	5.0	100.0	0	91.5	51	140				
4-Nitrophenol	50.450	5.0	100.0	0	50.4	20	74				
Acenaphthene	90.020	2.0	100.0	0	90.0	64	119				
N-Nitrosodi-n-propylamine	94.740	5.0	100.0	0	94.7	65	117				
Pentachlorophenol	91.460	20	100.0	0	91.5	55	142				
Phenol	38.750	10	100.0	0	38.8	18	52				
Pyrene	94.710	2.0	100.0	0	94.7	73	120				
Surr: 1,2-Dichlorobenzene-d4	69.850		100.0		69.8	46	97				
Surr: 2,4,6-Tribromophenol	101.390		100.0		101	59	124				
Surr: 2-Chlorophenol-d4	69.390		100.0		69.4	49	93				
Surr: 2-Fluorobiphenyl	81.490		100.0		81.5	57	107				
Surr: 2-Fluorophenol	45.840		100.0		45.8	27	60				
Surr: 4-Terphenyl-d14	85.590		100.0		85.6	69	132				
Surr: Nitrobenzene-d5	75.160		100.0		75.2	52	107				
Surr: Phenol-d5	36.960		100.0		37.0	15	50				

Sample ID: MB-73374MSD	SampType: MSD	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133959						
Client ID: ZZZZZZ	Batch ID: 73374	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/13/2011	SeqNo: 2187838						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	83.870	2.0	100.0	0	83.9	60	106	82.15	2.07	20	
2,4-Dinitrotoluene	116.340	5.0	100.0	0	116	81	123	114.6	1.51	20	
2-Chlorophenol	66.890	5.0	100.0	0	66.9	46	105	68.84	2.87	20	
4-Chloro-3-methylphenol	89.070	5.0	100.0	0	89.1	51	140	91.53	2.72	20	
4-Nitrophenol	45.710	5.0	100.0	0	45.7	20	74	50.45	9.86	20	
Acenaphthene	91.130	2.0	100.0	0	91.1	64	119	90.02	1.23	20	
N-Nitrosodi-n-propylamine	94.480	5.0	100.0	0	94.5	65	117	94.74	0.275	20	
Pentachlorophenol	88.910	20	100.0	0	88.9	55	142	91.46	2.83	20	

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values

Figure C-3.57

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.
ANALYTICAL QC SUMMARY REPORT
 TestCode: 625_W_LL

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	34.280	10	100.0	0	34.3	18	52	38.75	12.2	20	
Pyrene	95.340	2.0	100.0	0	95.3	73	120	94.71	0.663	20	
Surr: 1,2-Dichlorobenzene-d4	66.910		100.0		66.9	46	97		0	0	
Surr: 2,4,6-Tribromophenol	101.460		100.0		101	59	124		0	0	
Surr: 2-Chlorophenol-d4	66.590		100.0		66.6	49	93		0	0	
Surr: 2-Fluorobiphenyl	81.940		100.0		81.9	57	107		0	0	
Surr: 2-Fluorophenol	41.300		100.0		41.3	27	60		0	0	
Surr: 4-Terphenyl-d14	86.180		100.0		86.2	69	132		0	0	
Surr: Nitrobenzene-d5	75.060		100.0		75.1	52	107		0	0	
Surr: Phenol-d5	32.230		100.0		32.2	15	50		0	0	

Sample ID: MB-73374MSD
 Client ID: ZZZZZZ
 Prep Date: 6/7/2011
 Analysis Date: 6/13/2011
 RunNo: 133959
 SeqNo: 2187838

SampType: MSD
 Batch ID: 73374
 TestCode: 625_W_LL
 Units: µg/L
 TestNo: EPA 625
 EPA 3510C

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_ALC

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: MB-R133678	SampType: MBLK	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 133678						
Client ID: PBW	Batch ID: R133678	TestNo: EPA 8015B		Analysis Date: 6/9/2011	SeqNo: 2183718						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	ND	1.0									
Methanol	ND	1.0									

Sample ID: LCS-R133678	SampType: LCS	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 133678						
Client ID: LCSW	Batch ID: R133678	TestNo: EPA 8015B		Analysis Date: 6/9/2011	SeqNo: 2183719						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	571.556	1.0	500.0	0	114	70	130				
Methanol	559.183	1.0	500.0	0	112	70	130				

Sample ID: 118188-001LMS	SampType: MS	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 133678						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133678	TestNo: EPA 8015B		Analysis Date: 6/9/2011	SeqNo: 2183720						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	169.827	1.0	200.0	0	84.9	70	130				
Methanol	156.661	1.0	200.0	0	78.3	70	130				

Sample ID: 118188-001LMSD	SampType: MSD	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 133678						
Client ID: P-103 / UCLA LOT 3	Batch ID: R133678	TestNo: EPA 8015B		Analysis Date: 6/9/2011	SeqNo: 2183721						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethanol	209.295	1.0	200.0	0	105	70	130	169.8	20.8	30	
Methanol	208.693	1.0	200.0	0	104	70	130	156.7	28.5	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values

CLIENT: MACTEC
 Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: MB-73438	SampType: MBLK	TestCode: 8015_W_DM_	Units: mg/L	Prep Date: 6/9/2011	RunNo: 133802						
Client ID: PBW	Batch ID: 73438	TestNo: EPA 8015B(M	EPA 3510C	Analysis Date: 6/9/2011	SeqNo: 2184490						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.055		0.08000		68.6	36	126				

Sample ID: LCS-73438	SampType: LCS	TestCode: 8015_W_DM_	Units: mg/L	Prep Date: 6/9/2011	RunNo: 133802						
Client ID: LCSW	Batch ID: 73438	TestNo: EPA 8015B(M	EPA 3510C	Analysis Date: 6/9/2011	SeqNo: 2184491						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.666	0.050	1.000	0	66.6	52	128				
Surr: p-Terphenyl	0.064		0.08000		79.7	36	126				

Sample ID: MB-73438MS	SampType: MS	TestCode: 8015_W_DM_	Units: mg/L	Prep Date: 6/9/2011	RunNo: 133802						
Client ID: ZZZZZZ	Batch ID: 73438	TestNo: EPA 8015B(M	EPA 3510C	Analysis Date: 6/9/2011	SeqNo: 2184492						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.636	0.050	1.000	0	63.6	52	128				
Surr: p-Terphenyl	0.061		0.08000		75.9	36	126				

Sample ID: MB-73438MSD	SampType: MSD	TestCode: 8015_W_DM_	Units: mg/L	Prep Date: 6/9/2011	RunNo: 133802						
Client ID: ZZZZZZ	Batch ID: 73438	TestNo: EPA 8015B(M	EPA 3510C	Analysis Date: 6/9/2011	SeqNo: 2184493						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.617	0.050	1.000	0	61.7	52	128	0.6363	3.10	20	
Surr: p-Terphenyl	0.061		0.08000		75.9	36	126		0	0	

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out

- H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP_LL

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

Sample ID: M110607LCS2	SampType: LCS	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: LCSW	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182899						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.026	0.050	1.000	0	103	70	130				
Surr: Bromofluorobenzene (FID)	92.048		100.0		92.0	70	130				

Sample ID: M110607MB1MS	SampType: MS	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: ZZZZZZ	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182900						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.920	0.050	1.000	0	92.0	70	130				
Surr: Bromofluorobenzene (FID)	91.203		100.0		91.2	70	130				

Sample ID: M110607MB1MSD	SampType: MSD	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: ZZZZZZ	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182901						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.009	0.050	1.000	0	101	70	130	0.9200	9.23	20	
Surr: Bromofluorobenzene (FID)	93.974		100.0		94.0	70	130		0	0	

Sample ID: M110607MB1	SampType: MBLK	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: PBW	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182902						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	90.704		100.0		90.7	70	130				

Sample ID: 118199-045ADUP	SampType: DUP	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: ZZZZZZ	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182904						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values

Figure C-3.61

CLIENT: MACTEC
 Work Order: 118188
 Project: MTA Westside Extension, 4953101561/6.2.3.3.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP_LL

Sample ID: 118199-045ADUP	SampType: DUP	TestCode: 8015_W_GP	Units: mg/L	Prep Date:	RunNo: 133718						
Client ID: ZZZZZZ	Batch ID: M11VW112	TestNo: EPA 8015B(M)		Analysis Date: 6/7/2011	SeqNo: 2182904						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	90.857		100.0		90.9	70	130		0	0	0

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values

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CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.
TestCode: 8260_WP_LL

ANALYTICAL QC SUMMARY REPORT

Sample ID: Q110610MB3LCS1	SampType: LCS	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: LCSW	Batch ID: Q11VW094	TestNo: EPA 8260B		Analysis Date: 6/10/2011	SeqNo: 2185539						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20.560	0.50	20.00	0	103	70	130				
Benzene	40.030	0.50	40.00	0	100	70	130				
Chlorobenzene	21.310	0.50	20.00	0	107	70	130				
MTBE	18.510	0.50	20.00	0	92.6	70	130				
Toluene	42.950	0.50	40.00	0	107	70	130				
Trichloroethene	20.740	0.50	20.00	0	104	70	130				
Surr: 1,2-Dichloroethane-d4	21.630		25.00		86.5	70	130				
Surr: 4-Bromofluorobenzene	27.490		25.00		110	70	130				
Surr: Dibromofluoromethane	22.640		25.00		90.6	70	130				
Surr: Toluene-d8	25.260		25.00		101	70	130				

Sample ID: Q110610MB3MS	SampType: MS	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: ZZZZZZ	Batch ID: Q11VW094	TestNo: EPA 8260B		Analysis Date: 6/10/2011	SeqNo: 2185540						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	19.340	0.50	20.00	0	96.7	70	130				

Sample ID: Q110610MB3MSD	SampType: MSD	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: ZZZZZZ	Batch ID: Q11VW094	TestNo: EPA 8260B		Analysis Date: 6/10/2011	SeqNo: 2185541						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	18.110	0.50	20.00	0	90.6	70	130	19.34	6.57	20	

Sample ID: Q110609MB3	SampType: MBLK	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 133844						
Client ID: PBW	Batch ID: Q11VW094	TestNo: EPA 8260B		Analysis Date: 6/10/2011	SeqNo: 2185542						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.50									
2-Butanone	ND	10									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



CLIENT: MACTEC
 Work Order: 118188

Project: MTA Westside Extension, 4953101561/6.2.3.3.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: Q110609MB3 SampType: MBLK TestCode: 8260_WP_LL Units: µg/L Prep Date: RunNo: 133844
 Client ID: PBW Batch ID: Q11VW094 TestNo: EPA 8260B Analysis Date: 6/10/2011 SeqNo: 2185542

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	ND	10									
Di-isopropyl ether	ND	0.50									
Ethyl tert-butyl ether	ND	0.50									
MTBE	ND	0.50									
Tert-amyl methyl ether	ND	0.50									
Tert-Butanol	ND	10									

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- Calculations are based on raw values



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ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 495310156/6.2.3.3.

TestCode: 8270_Dioxane_W

Sample ID: MB-73374	SampType: MBLK	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133685						
Client ID: PBW	Batch ID: 73374	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 6/7/2011	SeqNo: 2184179						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,4-Dioxane											
Surr: 1,2-Dichlorobenzene-d4	ND	2.0									
Surr: 2,4,6-Tribromophenol	74.960		100.0		75.0	46	97				
Surr: 2-Chlorophenol-d4	92.110		100.0		92.1	59	124				
Surr: 2-Fluorobiphenyl	67.880		100.0		67.9	49	93				
Surr: 2-Fluorophenol	78.240		100.0		78.2	57	107				
Surr: 4-Terphenyl-d14	44.530		100.0		44.5	27	60				
Surr: Nitrobenzene-d5	88.690		100.0		88.7	69	132				
Surr: Phenol-d5	78.550		100.0		78.6	52	107				
	34.060		100.0		34.1	15	50				

Sample ID: LCS-73374	SampType: LCS	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133685						
Client ID: LCSW	Batch ID: 73374	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 6/7/2011	SeqNo: 2184180						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,4-Dioxane											
Surr: 1,2-Dichlorobenzene-d4	105.020	2.0	100.0	0	105	70	130				
Surr: 2,4,6-Tribromophenol	71.830		100.0		71.8	46	97				
Surr: 2-Chlorophenol-d4	112.700		100.0		113	59	124				
Surr: 2-Fluorobiphenyl	67.490		100.0		67.5	49	93				
Surr: 2-Fluorophenol	84.890		100.0		84.9	57	107				
Surr: 4-Terphenyl-d14	44.410		100.0		44.4	27	60				
Surr: Nitrobenzene-d5	97.030		100.0		97.0	69	132				
Surr: Phenol-d5	80.090		100.0		80.1	52	107				
	35.310		100.0		35.3	15	50				

Sample ID: MB-73374MS	SampType: MS	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 6/7/2011	RunNo: 133685						
Client ID: ZZZZZZ	Batch ID: 73374	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 6/7/2011	SeqNo: 2184181						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,4-Dioxane											
Surr: 1,2-Dichlorobenzene-d4	106.730	2.0	100.0	0	107	70	130				
	73.270		100.0		73.3	46	97				

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values

Figure C-3.65

CLIENT: MACTEC
Work Order: 118188
Project: MTA Westside Extension, 4953101561/6.2.3.3.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Dioxane_W

Sample ID: MB-73374MS	TestCode: 8270_Dioxan	Units: µg/L
Client ID: ZZZZZZ	Batch ID: 73374	SampType: MS
	TestNo: EPA 8270C(M EPA 3510C	Prep Date: 6/7/2011
		Analysis Date: 6/7/2011
	RunNo: 133685	SeqNo: 2184181

Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	111.290		100.0		111	59	124				
Surr: 2-Chlorophenol-d4	67.720		100.0		67.7	49	93				
Surr: 2-Fluorobiphenyl	84.310		100.0		84.3	57	107				
Surr: 2-Fluorophenol	44.170		100.0		44.2	27	60				
Surr: 4-Terphenyl-d14	95.650		100.0		95.6	69	132				
Surr: Nitrobenzene-d5	88.240		100.0		88.2	52	107				
Surr: Phenol-d5	34.190		100.0		34.2	15	50				

Sample ID: MB-73374MSD	TestCode: 8270_Dioxan	Units: µg/L
Client ID: ZZZZZZ	Batch ID: 73374	SampType: MSD
	TestNo: EPA 8270C(M EPA 3510C	Prep Date: 6/7/2011
		Analysis Date: 6/7/2011
	RunNo: 133685	SeqNo: 2184182

Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	106.190	2.0	100.0	0	106	70	130	106.7	0.507	20	
Surr: 1,2-Dichlorobenzene-d4	70.630		100.0		70.6	46	97		0	0	
Surr: 2,4,6-Tribromophenol	112.030		100.0		112	59	124		0	0	
Surr: 2-Chlorophenol-d4	67.020		100.0		67.0	49	93		0	0	
Surr: 2-Fluorobiphenyl	85.100		100.0		85.1	57	107		0	0	
Surr: 2-Fluorophenol	40.450		100.0		40.5	27	60		0	0	
Surr: 4-Terphenyl-d14	94.900		100.0		94.9	69	132		0	0	
Surr: Nitrobenzene-d5	89.580		100.0		89.6	52	107		0	0	
Surr: Phenol-d5	30.560		100.0		30.6	15	50		0	0	

Qualifiers:

- B Analyte detected in the associated Method Blank
 - J Analyte detected below quantitation limits
 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



CHAIN OF CUSTODY RECORD

3275 Walnut Ave., Signal Hill, CA 90755
 Tel: (562) 989-4045 • Fax: (562) 989-4040

Client: MACTEC Engineering & Consulting Inc.
 Attention: Anthony Marino

Project Name: MTA Westside Extension
 Project #: 4953101561/6.2.3.3

Relinquished by: (Signature and Printed Name)
 Relinquished by: (Signature and Printed Name)

Project Mgr./Submitter: ANTHONY MARINO
 Date: 6/3/11
 Signature: *Anthony Marino*

Sample/Records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after substantial or final report.
 Storage Fees (applies when storage is requested):
 Sample: \$2.00 / sample /mo (after 45 days)
 Records: \$1 /ATL workorder /mo (after 1 year)

P.O. # _____ Quote # _____
 Logged By: _____ Date: _____
 NOTE: Please include your Quote No. to ensure proper pricing of your project.

Method of Transport
 Client
 FedEx
 GSO
 Other: _____

Sample Condition Upon Receipt
 1. CHILLED Y N
 2. HEADSPACE (VOA) Y N
 3. CONTAINER INTACT Y N
 4. SEALED Y N
 5. # OF SPLS MATCH COC Y N
 6. PRESERVED Y N

Address: 2171 Campus Drive, Suite 100
 City: Irvine State: CA Zip Code: 92612
 Tel: 949-224-0050 Fax: 949-224-0073

Date: 6/3/11 Time: 1158
 Received by: (Signature and Printed Name) *Anthony Marino*
 Date: 6/3/11 Time: 1158

Date: _____ Time: _____
 Received by: (Signature and Printed Name)

Send Report To:
 Altn: Anthony Marino
 Co: MACTEC Engineering & Consulting Inc.
 Addr: 2171 Campus Drive, Suite 100
 City: Irvine State: CA Zip: 92612

Bill To:
 Altn: Tyler Thurman
 Co: MACTEC Engineering & Consulting Inc.
 Addr: 5628 E. Slauson Ave.
 City: Los Angeles State: CA Zip: 90040

Special Instructions/Comments:
 MDLP/PL Formal NPDES Supplemental Requirements
 report to: Liran@mactec.com & Amarinio@mactec.com

T M E	LAB USE ONLY: Batch #: Lab No.	Sample ID / Location	Date	Time	Circle or Add Analyses/ Requested	SPECIFY APPROPRIATE MATRIX	Containers(s)	Logcode	OTHER	REMARKS
	118188	P-103 / UCIA LOT 36	6/3/11	1000	<p>pH <input checked="" type="checkbox"/></p> <p>TSS <input checked="" type="checkbox"/></p> <p>Oil & Grease <input checked="" type="checkbox"/></p> <p>Turbidity <input checked="" type="checkbox"/></p> <p>Hexavalent Chromium <input checked="" type="checkbox"/></p> <p>TDS <input checked="" type="checkbox"/></p> <p>Cl, SO4, NO3, NO2 <input checked="" type="checkbox"/></p> <p>Sulfide <input checked="" type="checkbox"/></p> <p>Settleable Solids <input checked="" type="checkbox"/></p> <p>TRPH <input checked="" type="checkbox"/></p> <p>SEDIMENT <input checked="" type="checkbox"/></p> <p>SOLID <input checked="" type="checkbox"/></p> <p>SOIL <input checked="" type="checkbox"/></p> <p>DRINKING WATER <input checked="" type="checkbox"/></p> <p>GROUND WATER <input checked="" type="checkbox"/></p> <p>WASTEWATER <input checked="" type="checkbox"/></p> <p>STORMWATER <input checked="" type="checkbox"/></p> <p>AQUEOUS <input checked="" type="checkbox"/></p>					

Container Types: T=Tube V=VOA L=Liter P=Plastic J=Jar B=Tedlar G=Glass M=Metal

TAT: A = Overnight 524 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine 7 Workdays

Preservatives:
 H=HCl N=HNO₃ S=H₂SO₄ O=C=4°C
 Z=Zn(Ac)₂ O=NaOH T=Na₂S₂O₃

Figure C-3.67



3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

Client: MACTEC Engineering & Consulting Inc.

Attention: Anthony Marino

Project Name: MTA Westside Extension

Relinquished by: (Signature and Printed Name)

Relinquished by: (Signature and Printed Name)

Relinquished by: (Signature and Printed Name)

CHAIN OF CUSTODY RECORD

P.O. #: _____ Quote #: _____

Logged By: AM Date: 6/3/11

NOTE: Please include your Quote No. to ensure proper pricing of your project.

Method of Transport
 Client
 ATL
 FedEx
 GSO
 Other

Sample Condition Upon Receipt
 1 CHILLED Y N
 2 HEADSPACE (VOA) Y N
 3 CONTAINER INTACT Y N
 4 SEALED Y N
 5 # OF SPLS MATCH COC Y N
 6 PRESERVED Y N

Address: 2171 Campus Drive, Suite 100 City: Irvine State: CA Zip Code: 92612 Tel: 949-224-0050 Fax: 949-224-0073

Project #: 4953101561/6.2.3.3. Sampler: ANTHONY MARINO Date: 6/3/11 Time: 11:58

Received by: (Signature and Printed Name) ANTHONY MARINO Date: 6/3/11 Time: 11:58

Received by: (Signature and Printed Name) TYLER THURMAN Date: 6/3/11 Time: 11:58

Send Report To: Attn: Anthony Marino
 Co: MACTEC Engineering & Consulting Inc.
 Addr: 2171 Campus Drive, Suite 100 City: Irvine State: CA Zip: 92612
 Bill To: Attn: Tyler Thurman
 Co: MACTEC Engineering & Consulting Inc.
 Addr: 5628 E. Slauson Ave. City: Los Angeles State: CA Zip: 90040

Sample/records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
 Storage Fees (applies when storage is requested):
 Sample: \$2,000 / sample /mo (after 45 days)
 Records: \$1 /ATL workorder /mo (after 1 year)

LAB USE ONLY: Batch #	Lab No.	Sample ID / Location	Date	Time	SPECIFY APPROPRIATE MATRIX										TAT #	Type	REMARKS						
					VOC's + Oxy+TPH	SVOC + 1,4-Dioxane	Pesticides	PCBs	Metals + Boron	Ethanol/Methanol	Hardness	TPH-DRO/ORO	Cyanide	Perchlorate				SEDIMENT	SOLID	SOIL	DRINKING WATER	GROUND WATER	WASTEWATER
		P-103/UCLA LOT 36	6/3/11	1000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

Figure C-3.68

June 27, 2011



Anthony Marino
MACTEC
2171 Campus Drive, Suite 100
Irvine, CA 92612
TEL: (949) 224-0050
FAX:

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 118501

RE: MTA Westside EXT., 4953101561/6.2.3

Attention: Anthony Marino

Enclosed are the results for sample(s) received on June 17, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



CLIENT: MACTEC
Project: MTA Westside EXT., 4953101561/6.2.3
Lab Order: 118501

CASE NARRATIVE

The sample for BOD analysis was subcontracted to American Scientific Laboratories with ELAP Cert.# 2200.

Sample Receiving/General Comments

Collection date was taken from the sample container.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 27-Jun-11

CLIENT: MACTEC
 Lab Order: 118501
 Project: MTA Westside EXT., 4953101561/6.2.3
 Lab ID: 118501-001A

Client Sample ID: P-103 / UCLA LOT 36
 Collection Date: 6/17/2011 10:45:00 AM
 Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3510C

EPA 8270C

RunID:	MS6_110623A	QC Batch:	73836	PrepDate:	6/23/2011	Analyst:	JSD
Dibenz(a,h)anthracene	ND	0.062	0.20	µg/L	1	6/24/2011 11:43 AM	
Indeno(1,2,3-cd)pyrene	ND	0.057	0.20	µg/L	1	6/24/2011 11:43 AM	
Surr: 1,2-Dichlorobenzene-d4	89.9	0	58-99	%REC	1	6/24/2011 11:43 AM	
Surr: 2-Fluorobiphenyl	97.3	0	60-104	%REC	1	6/24/2011 11:43 AM	
Surr: 4-Terphenyl-d14	111	0	65-127	%REC	1	6/24/2011 11:43 AM	
Surr: Nitrobenzene-d5	84.5	0	50-136	%REC	1	6/24/2011 11:43 AM	

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified	DO	Surrogate Diluted Out



**Advanced Technology
Laboratories**

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 27-Jun-11

CLIENT: MACTEC
Lab Order: 118501
Project: MTA Westside EXT., 4953101561/6.2.3
Lab ID: 118501-001B

Client Sample ID: P-103 / UCLA LOT 36
Collection Date: 6/17/2011 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 625

RunID:	MS 13_110622A	QC Batch:	73755	PrepDate:	6/21/2011	Analyst:	JSD
1,2,4-Trichlorobenzene	ND	0.23	1.0	µg/L	1	6/22/2011 05:18 PM	
1,2-Diphenylhydrazine	ND	0.21	1.0	µg/L	1	6/22/2011 05:18 PM	
2,4,6-Trichlorophenol	ND	1.1	5.0	µg/L	1	6/22/2011 05:18 PM	
2,4-Dichlorophenol	ND	1.2	2.5	µg/L	1	6/22/2011 05:18 PM	
2,4-Dimethylphenol	ND	0.97	2.5	µg/L	1	6/22/2011 05:18 PM	
2,4-Dinitrophenol	ND	0.67	10	µg/L	1	6/22/2011 05:18 PM	
2,4-Dinitrotoluene	ND	0.18	2.5	µg/L	1	6/22/2011 05:18 PM	
2,6-Dinitrotoluene	ND	0.16	2.5	µg/L	1	6/22/2011 05:18 PM	
2-Chloronaphthalene	ND	0.22	5.0	µg/L	1	6/22/2011 05:18 PM	
2-Chlorophenol	ND	1.0	2.5	µg/L	1	6/22/2011 05:18 PM	
2-Nitrophenol	ND	1.3	5.0	µg/L	1	6/22/2011 05:18 PM	
3,3'-Dichlorobenzidine	ND	0.72	2.5	µg/L	1	6/22/2011 05:18 PM	
4,6-Dinitro-2-methylphenol	ND	0.53	10	µg/L	1	6/22/2011 05:18 PM	
4-Bromophenyl-phenylether	ND	0.23	2.5	µg/L	1	6/22/2011 05:18 PM	
4-Chloro-3-methylphenol	ND	1.0	2.5	µg/L	1	6/22/2011 05:18 PM	
4-Chlorophenyl-phenylether	ND	0.22	2.5	µg/L	1	6/22/2011 05:18 PM	
4-Nitrophenol	ND	0.43	2.5	µg/L	1	6/22/2011 05:18 PM	
Acenaphthene	ND	0.24	1.0	µg/L	1	6/22/2011 05:18 PM	
Acenaphthylene	ND	0.24	1.0	µg/L	1	6/22/2011 05:18 PM	
Anthracene	ND	0.16	1.0	µg/L	1	6/22/2011 05:18 PM	
Benzidine (M)	ND	0.58	2.5	µg/L	1	6/22/2011 05:18 PM	
Benzo(a)anthracene	ND	0.16	1.0	µg/L	1	6/22/2011 05:18 PM	
Benzo(a)pyrene	ND	0.13	1.0	µg/L	1	6/22/2011 05:18 PM	
Benzo(b)fluoranthene	ND	0.14	1.0	µg/L	1	6/22/2011 05:18 PM	
Benzo(g,h,i)perylene	ND	0.14	1.0	µg/L	1	6/22/2011 05:18 PM	
Benzo(k)fluoranthene	ND	0.18	1.0	µg/L	1	6/22/2011 05:18 PM	
Bis(2-chloroethoxy)methane	ND	0.24	2.5	µg/L	1	6/22/2011 05:18 PM	
Bis(2-chloroethyl)ether	ND	0.24	2.5	µg/L	1	6/22/2011 05:18 PM	
Bis(2-ethylhexyl)phthalate	ND	0.21	2.5	µg/L	1	6/22/2011 05:18 PM	
Butylbenzylphthalate	ND	0.23	5.0	µg/L	1	6/22/2011 05:18 PM	
Chrysene	ND	0.16	1.0	µg/L	1	6/22/2011 05:18 PM	
Di-n-butylphthalate	ND	0.20	5.0	µg/L	1	6/22/2011 05:18 PM	
Di-n-octylphthalate	ND	0.21	5.0	µg/L	1	6/22/2011 05:18 PM	
Diethylphthalate	ND	0.19	5.0	µg/L	1	6/22/2011 05:18 PM	
Dimethylphthalate	ND	0.19	5.0	µg/L	1	6/22/2011 05:18 PM	

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

E Value above quantitation range
J Analyte detected below quantitation limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out



**Advanced Technology
Laboratories**

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 27-Jun-11

CLIENT: MACTEC
Lab Order: 118501
Project: MTA Westside EXT., 4953101561/6.2.3
Lab ID: 118501-001B

Client Sample ID: P-103 / UCLA LOT 36
Collection Date: 6/17/2011 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
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SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 625

RunID: MS 13_110622A	QC Batch: 73755	PrepDate: 6/21/2011	Analyst: JSD			
Fluoranthene	ND	0.15	1.0	µg/L	1	6/22/2011 05:18 PM
Fluorene	ND	0.20	1.0	µg/L	1	6/22/2011 05:18 PM
Hexachlorobenzene	ND	0.25	2.5	µg/L	1	6/22/2011 05:18 PM
Hexachlorobutadiene	ND	0.27	2.5	µg/L	1	6/22/2011 05:18 PM
Hexachlorocyclopentadiene	ND	0.18	2.5	µg/L	1	6/22/2011 05:18 PM
Hexachloroethane	ND	0.18	2.5	µg/L	1	6/22/2011 05:18 PM
Isophorone	ND	0.23	2.5	µg/L	1	6/22/2011 05:18 PM
N-Nitrosodi-n-propylamine	ND	0.41	2.5	µg/L	1	6/22/2011 05:18 PM
N-Nitrosodimethylamine	ND	0.28	5.0	µg/L	1	6/22/2011 05:18 PM
N-Nitrosodiphenylamine	ND	0.18	2.5	µg/L	1	6/22/2011 05:18 PM
Naphthalene	ND	0.23	1.0	µg/L	1	6/22/2011 05:18 PM
Nitrobenzene	ND	0.25	5.0	µg/L	1	6/22/2011 05:18 PM
Pentachlorophenol	ND	0.79	10	µg/L	1	6/22/2011 05:18 PM
Phenanthrene	ND	0.19	1.0	µg/L	1	6/22/2011 05:18 PM
Phenol	ND	0.63	5.0	µg/L	1	6/22/2011 05:18 PM
Pyrene	ND	0.14	1.0	µg/L	1	6/22/2011 05:18 PM
Surr: 1,2-Dichlorobenzene-d4	63.6	0	46-97	%REC	1	6/22/2011 05:18 PM
Surr: 2,4,6-Tribromophenol	89.7	0	59-124	%REC	1	6/22/2011 05:18 PM
Surr: 2-Chlorophenol-d4	56.4	0	49-93	%REC	1	6/22/2011 05:18 PM
Surr: 2-Fluorobiphenyl	77.2	0	57-107	%REC	1	6/22/2011 05:18 PM
Surr: 2-Fluorophenol	33.8	0	27-60	%REC	1	6/22/2011 05:18 PM
Surr: 4-Terphenyl-d14	104	0	69-132	%REC	1	6/22/2011 05:18 PM
Surr: Nitrobenzene-d5	65.1	0	52-107	%REC	1	6/22/2011 05:18 PM
Surr: Phenol-d5	25.5	0	15-50	%REC	1	6/22/2011 05:18 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO Surrogate Diluted Out



**Advanced Technology
Laboratories**

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 27-Jun-11

CLIENT: MACTEC
 Work Order: 118501
 Project: MTA Westside EXT., 4953101561/6.2.3

ANALYTICAL QC SUMMARY REPORT

TestCode: 625_W_LL

Sample ID: LCS-73755 Prep Date: 6/21/2011 RunNo: 134310
 Client ID: LCSW Batch ID: 73755 TestCode: 625_W_LL Units: µg/L EPA 3510C SeqNo: 2195323
 Analysis Date: 6/22/2011

Analyte	Result	PQL	SPK value	SPK RefVal	Units: µg/L	EPA 3510C	%REC	LowLimit	HighLimit	RPD RefVal	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	71.030	2.0	100.0	0			71.0	60	106				
2,4-Dinitrotoluene	94.180	5.0	100.0	0			94.2	81	123				
2-Chlorophenol	61.390	5.0	100.0	0			61.4	46	105				
4-Chloro-3-methylphenol	85.200	5.0	100.0	0			85.2	51	140				
4-Nitrophenol	40.970	5.0	100.0	0			41.0	20	74				
Acenaphthene	68.980	2.0	100.0	0			69.0	64	119				
N-Nitrosodi-n-propylamine	77.520	5.0	100.0	0			77.5	65	117				
Pentachlorophenol	72.650	20	100.0	0			72.6	55	142				
Phenol	29.570	10	100.0	0			29.6	18	52				
Pyrene	94.160	2.0	100.0	0			94.2	73	120				
Surr: 1,2-Dichlorobenzene-d4	56.270		100.0				56.3	46	97				
Surr: 2,4,6-Tribromophenol	68.460		100.0				68.5	59	124				
Surr: 2-Chlorophenol-d4	52.240		100.0				52.2	49	93				
Surr: 2-Fluorobiphenyl	68.110		100.0				68.1	57	107				
Surr: 2-Fluorophenol	32.410		100.0				32.4	27	60				
Surr: 4-Terphenyl-d14	81.620		100.0				81.6	69	132				
Surr: Nitrobenzene-d5	61.920		100.0				61.9	52	107				
Surr: Phenol-d5	24.840		100.0				24.8	15	50				

Sample ID: MB-73755MSD Prep Date: 6/21/2011 RunNo: 134310
 Client ID: ZZZZZZ Batch ID: 73755 TestCode: 625_W_LL Units: µg/L EPA 3510C SeqNo: 2195324
 Analysis Date: 6/22/2011

Analyte	Result	PQL	SPK value	SPK RefVal	Units: µg/L	EPA 3510C	%REC	LowLimit	HighLimit	RPD RefVal	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	73.710	2.0	100.0	0			73.7	60	106	79.08	7.03	20	
2,4-Dinitrotoluene	110.480	5.0	100.0	0			110	81	123	107.3	2.90	20	
2-Chlorophenol	61.870	5.0	100.0	0			61.9	46	105	70.10	12.5	20	
4-Chloro-3-methylphenol	98.570	5.0	100.0	0			98.6	51	140	96.63	1.99	20	
4-Nitrophenol	48.200	5.0	100.0	0			48.2	20	74	45.46	5.85	20	

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Figure C-3.74

ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
 Work Order: 118501

Project: MTA Westside EXT., 4953101561/6.2.3

TestCode: 625_W_LL

Sample ID: MB-73755MSD	SampType: MSD	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/21/2011	RunNo: 134310						
Client ID: ZZZZZZ	Batch ID: 73755	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/22/2011	SeqNo: 2195324						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	81.000	2.0	100.0	0	81.0	64	119	76.77	5.36	20	
N-Nitrosodi-n-propylamine	83.700	5.0	100.0	0	83.7	65	117	89.10	6.25	20	
Pentachlorophenol	81.380	20	100.0	0	81.4	55	142	83.24	2.26	20	
Phenol	30.680	10	100.0	0	30.7	18	52	33.02	7.35	20	
Pyrene	113.090	2.0	100.0	0	113	73	120	108.4	4.28	20	
Surr: 1,2-Dichlorobenzene-d4	53.640		100.0		53.6	46	97		0	0	
Surr: 2,4,6-Tribromophenol	79.580		100.0		79.6	59	124		0	0	
Surr: 2-Chlorophenol-d4	52.800		100.0		52.8	49	93		0	0	
Surr: 2-Fluorobiphenyl	76.330		100.0		76.3	57	107		0	0	
Surr: 2-Fluorophenol	32.340		100.0		32.3	27	60		0	0	
Surr: 4-Terphenyl-d14	100.920		100.0		101	69	132		0	0	
Surr: Nitrobenzene-d5	64.690		100.0		64.7	52	107		0	0	
Surr: Phenol-d5	25.670		100.0		25.7	15	50		0	0	

Sample ID: MB-73755	SampType: MBLK	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/21/2011	RunNo: 134310						
Client ID: PBW	Batch ID: 73755	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/22/2011	SeqNo: 2195325						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	2.0									
1,2-Diphenylhydrazine	ND	2.0									
2,4,6-Trichlorophenol	ND	10									
2,4-Dichlorophenol	ND	5.0									
2,4-Dimethylphenol	ND	5.0									
2,4-Dinitrophenol	ND	20									
2,4-Dinitrotoluene	ND	5.0									
2,6-Dinitrotoluene	ND	5.0									
2-Chloronaphthalene	ND	10									
2-Chlorophenol	ND	5.0									
2-Nitrophenol	ND	10									
3,3'-Dichlorobenzidine	ND	5.0									

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



Figure C-3.75

ANALYTICAL QC SUMMARY REPORT

CLIENT: MACTEC
Work Order: 118501

Project: MTA Westside EXT., 4953101561/6.2.3

TestCode: 625_W_LL

Sample ID: MB-73755	SampType: MBLK	TestCode: 625_W_LL	Units: µg/L
Client ID: PBW	Batch ID: 73755	TestNo: EPA 625	EPA 3510C
Prep Date: 6/21/2011		RunNo: 134310	
Analysis Date: 6/22/2011		SeqNo: 2195325	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,6-Dinitro-2-methylphenol	ND	20									
4-Bromophenyl-phenylether	ND	5.0									
4-Chloro-3-methylphenol	ND	5.0									
4-Chlorophenyl-phenylether	ND	5.0									
4-Nitrophenol	ND	5.0									
Acenaphthene	ND	2.0									
Acenaphthylene	ND	2.0									
Anthracene	ND	2.0									
Benzo(d)anthracene	ND	5.0									
Benzo(a)anthracene	ND	2.0									
Benzo(b)fluoranthene	ND	2.0									
Benzo(g,h,i)perylene	ND	2.0									
Benzo(k)fluoranthene	ND	2.0									
Bis(2-chloroethoxy)methane	ND	5.0									
Bis(2-chloroethyl)ether	ND	5.0									
Bis(2-ethylhexyl)phthalate	ND	5.0									
Butylbenzylphthalate	ND	10									
Chrysene	ND	2.0									
Di-n-butylphthalate	ND	10									
Di-n-octylphthalate	ND	10									
Diethylphthalate	ND	10									
Dimethylphthalate	ND	10									
Fluoranthene	ND	2.0									
Fluorene	ND	2.0									
Hexachlorobenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Hexachlorocyclopentadiene	ND	5.0									
Hexachloroethane	ND	5.0									
Isophorone	ND	5.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- S Spike/Surrogate outside of limits due to matrix interference
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Calculations are based on raw values

Figure C-3.76

CLIENT: MACTEC
Work Order: 118501
Project: MTA Westside EXT., 4953101561/6.2.3

TestCode: 625_W_LL

Sample ID: MB-73755	SampType: MBLK	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/21/2011	RunNo: 134310						
Client ID: PBW	Batch ID: 73755	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/22/2011	SeqNo: 2195325						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

N-Nitrosodi-n-propylamine	ND	5.0									
N-Nitrosodimethylamine	ND	10									
N-Nitrosodiphenylamine	ND	5.0									
Naphthalene	ND	2.0									
Nitrobenzene	ND	10									
Pentachlorophenol	ND	20									
Phenanthrene	ND	2.0									
Phenol	ND	10									
Pyrene	ND	2.0									
Surr: 1,2-Dichlorobenzene-d4	64.260		100.0		64.3	46	97				
Surr: 2,4,6-Tribromophenol	62.750		100.0		62.8	59	124				
Surr: 2-Chlorophenol-d4	58.590		100.0		58.6	49	93				
Surr: 2-Fluorobiphenyl	70.500		100.0		70.5	57	107				
Surr: 2-Fluorophenol	35.730		100.0		35.7	27	60				
Surr: 4-Terphenyl-d14	100.350		100.0		100	69	132				
Surr: Nitrobenzene-d5	68.860		100.0		68.9	52	107				
Surr: Phenol-d5	25.990		100.0		26.0	15	50				

Sample ID: MB-73755MS	SampType: MS	TestCode: 625_W_LL	Units: µg/L	Prep Date: 6/21/2011	RunNo: 134310						
Client ID: ZZZZZZ	Batch ID: 73755	TestNo: EPA 625	EPA 3510C	Analysis Date: 6/22/2011	SeqNo: 2195326						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,4-Trichlorobenzene	79.080	2.0	100.0	0	79.1	60	106				
2,4-Dinitrotoluene	107.320	5.0	100.0	0	107	81	123				
2-Chlorophenol	70.100	5.0	100.0	0	70.1	46	105				
4-Chloro-3-methylphenol	96.630	5.0	100.0	0	96.6	51	140				
4-Nitrophenol	45.460	5.0	100.0	0	45.5	20	74				
Acenaphthene	76.770	2.0	100.0	0	76.8	64	119				
N-Nitrosodi-n-propylamine	89.100	5.0	100.0	0	89.1	65	117				
Pentachlorophenol	83.240	20	100.0	0	83.2	55	142				

Qualifiers:
B Analyte detected in the associated Method Blank
J Analyte detected below quantitation limits
S Spike/Surrogate outside of limits due to matrix interference
E Value above quantitation range
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
Calculations are based on raw values

Figure C-3.77

CLIENT: MACTEC
Work Order: 118501
Project: MTA Westside EXT., 4953101561/6.2.3
TestCode: 625_W_LL

ANALYTICAL QC SUMMARY REPORT

Sample ID:	MB-73755MS	SampType:	MS	TestCode:	625_W_LL	Units:	µg/L	Prep Date:	6/21/2011	RunNo:	134310
Client ID:	ZZZZZZ	Batch ID:	73755	TestNo:	EPA 625	EPA	3510C	Analysis Date:	6/22/2011	SeqNo:	2195326
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	33.020	10	100.0	0	33.0	18	52				
Pyrene	108.350	2.0	100.0	0	108	73	120				
Surr: 1,2-Dichlorobenzene-d4	64.170		100.0		64.2	46	97				
Surr: 2,4,6-Tribromophenol	80.760		100.0		80.8	59	124				
Surr: 2-Chlorophenol-d4	60.460		100.0		60.5	49	93				
Surr: 2-Fluorobiphenyl	76.210		100.0		76.2	57	107				
Surr: 2-Fluorophenol	36.500		100.0		36.5	27	60				
Surr: 4-Terphenyl-d14	96.920		100.0		96.9	69	132				
Surr: Nitrobenzene-d5	70.420		100.0		70.4	52	107				
Surr: Phenol-d5	27.910		100.0		27.9	15	50				

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



CLIENT: MACTEC
Work Order: 118501
Project: MTA Westside EXT., 4953101561/6.2.3

TestCode: 8270_W_SIM

ANALYTICAL QC SUMMARY REPORT

Sample ID: LCS-73836	SampType: LCS	TestCode: 8270_W_SIM	Units: µg/L	Prep Date: 6/23/2011	RunNo: 134373						
Client ID: LCSW	Batch ID: 73836	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 6/23/2011	SeqNo: 2196804						
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Acenaphthene	0.904	0.20	1.000	0	90.4	64	98				
Phenanthrene	0.934	0.20	1.000	0	93.4	69	104				
Pyrene	1.064	0.20	1.000	0	106	65	108				
Surr: 1,2-Dichlorobenzene-d4	0.797		1.000		79.7	58	99				
Surr: 2-Fluorobiphenyl	0.824		1.000		82.4	60	104				
Surr: 4-Terphenyl-d14	0.942		1.000		94.2	65	127				
Surr: Nitrobenzene-d5	0.806		1.000		80.6	50	136				

Sample ID: MB-73836MS	SampType: MS	TestCode: 8270_W_SIM	Units: µg/L	Prep Date: 6/23/2011	RunNo: 134373						
Client ID: ZZZZZZ	Batch ID: 73836	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 6/23/2011	SeqNo: 2196805						
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 1,2-Dichlorobenzene-d4	0.823		1.000		82.3	58	99				
Surr: 2-Fluorobiphenyl	0.855		1.000		85.5	60	104				
Surr: 4-Terphenyl-d14	0.950		1.000		95.0	65	127				
Surr: Nitrobenzene-d5	0.810		1.000		81.0	50	136				

Sample ID: MB-73836	SampType: MBLK	TestCode: 8270_W_SIM	Units: µg/L	Prep Date: 6/23/2011	RunNo: 134373						
Client ID: PBW	Batch ID: 73836	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 6/24/2011	SeqNo: 2196807						
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dibenz(a,h)anthracene	ND	0.20									
Indeno(1,2,3-cd)pyrene	ND	0.20									
Surr: 1,2-Dichlorobenzene-d4	0.807		1.000		80.7	58	99				
Surr: 2-Fluorobiphenyl	0.856		1.000		85.6	60	104				
Surr: 4-Terphenyl-d14	1.093		1.000		109	65	127				
Surr: Nitrobenzene-d5	0.774		1.000		77.4	50	136				

Qualifiers:
 B Analyte detected in the associated Method Blank
 J Analyte detected below quantitation limits
 S Spike/Surrogate outside of limits due to matrix interference
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values



3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIM

CLIENT: MACTEC
Work Order: 118501

Project: MTA Westside EXT., 4953101561/6.2.3

Sample ID: MB-73836MSD	SampType: MSD	TestCode: 8270_W_SIM	Units: µg/L	Prep Date: 6/23/2011	RunNo: 134373						
Client ID: ZZZZZZ	Batch ID: 73836	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 6/24/2011	SeqNo: 2196809						
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichlorobenzene-d4	0.823		1.000		82.3	58	99		0	0	0
Surr: 2-Fluorobiphenyl	0.888		1.000		88.8	60	104		0	0	0
Surr: 4-Terphenyl-d14	0.937		1.000		93.7	65	127		0	0	0
Surr: Nitrobenzene-d5	0.681		1.000		68.1	50	136		0	0	0

Qualifiers:

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 - S Spike/Surrogate outside of limits due to matrix interference
 - E Value above quantitation range
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
 - H Holding times for preparation or analysis exceeded
 - R RPD outside accepted recovery limits
- Calculations are based on raw values



**Advanced Technology
Laboratories**
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

Ordered By

Advanced Technology
Blair Ave
P.O. Box 96750

06/15/2011
06/24/2011

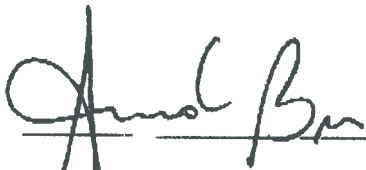
Telephone (562) 989-4045
Attn Rachelle Arada

50277	06/17/2011	ATL
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Project ID: 118501

Project Name:

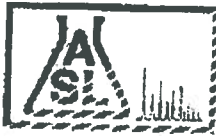
Enclosed are the results of analyses on 1 sample analyzed as specified on attached chain of custody.



Arnolk MOLKY Brar
Laboratory Manager

Robert G. Araghi
Laboratory Director

[Redacted area]



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. Sun Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By



Telephone: (562)989-4045

Attn: Rachelle Arada

Page: 2

Project ID: 118501

50277	06/17/2011	ATL
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Method: SM5210B, Biochemical Oxygen Demand (BOD)

QC Batch No: 082211-1

Client Sample I.D.	118501-001C				
Date Sampled	06/17/2011				
Date Prepared	06/17/2011				
Preparation Method					
Date Analyzed	06/22/2011				
Matrix	Groundwater				
Units	mg/L				
Dilution Factor	1				
BOD @ 20C					
	5.00	ND			

QUALITY CONTROL REPORT

QC Batch No: 082211-1

	LCS % REC	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit				
BOD @ 20C	100	98	2.0	90-120	20				



Advanced Technology Laboratories
 3275 Walnut Avenue, Signal Hill, CA 90755-5225
 www.atlglobal.com

TEL: (562) 989-4045 FAX: (562) 989-4040

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

American Scientific Laboratory
 2520 N. San Fernando Rd.
 Los Angeles, CA 90065

TEL: (323) 254-7700
 FAX: (323) 223-9500
 Acct #:

Field Sampler: ANTHONY MARINO

17-Jun-11

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
118501-001C / P-103 / UCLA LOT 36	Groundwater	6/17/2011 10:45:00 AM	320ZP	SM5210B 1

General Comments: Please email sample receipt acknowledgement to the PM. **(RA)**


Please use PO#: SC06506

Please fax results by: NORMAL TAT

PLEASE SEND REPORT TO RACHELLE ARADA

Relinquished by:	Date/Time	Received by:	Date/Time
	6/17/11		6-17-11 3:15
Relinquished by:		Received by:	

CHAIN OF CUSTODY RECORD

 <p>ADVANCED TECHNOLOGY LABORATORIES 3275 Walnut Ave., Signal Hill, CA 90755 Tel: (562) 989-4045 • Fax: (562) 989-4040</p>	<p>P.O.#: _____ Quote #: _____ Logged By: <u>[Signature]</u> Date: <u>6/17/11</u> NOTE: Please include your Quote No. to ensure proper pricing of your project.</p>	<p>FOR LABORATORY USE ONLY:</p> <p>Method of Transport <input checked="" type="checkbox"/> Client <input type="checkbox"/> ATL <input type="checkbox"/> FedEx <input type="checkbox"/> OnTrac <input type="checkbox"/> GSO <input type="checkbox"/> Other: _____</p> <p>Sample Condition Upon Receipt <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> 4. SEALED Y <input type="checkbox"/> N <input checked="" type="checkbox"/> <input type="checkbox"/> 1. CHILLED Y <input type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC Y <input type="checkbox"/> N <input type="checkbox"/> <input type="checkbox"/> 2. HEADSPACE (VOA) Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED Y <input type="checkbox"/> N <input type="checkbox"/> <input type="checkbox"/> 3. CONTAINER INTACT Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED Y <input type="checkbox"/> N <input type="checkbox"/></p>	<p>Client: AMEC (MACTEC) Attn: ANTHONY MARINO Project Name: MTA WESTSIDE EXT. Relinquished by: <u>[Signature]</u> (Signature and Printed Name) Relinquished by: <u>[Signature]</u> (Signature and Printed Name) Relinquished by: <u>[Signature]</u> (Signature and Printed Name)</p>
<p>Address: 2171 CAMPUS DRIVE IRVINE CA City: IRVINE State: CA Zip Code: 92612 Project #: 4953101561/62.3 Sampler: ANTHONY MARINO Received by: <u>[Signature]</u> (Signature and Printed Name) Date: <u>6/17/11</u> Time: <u>124</u> Received by: <u>[Signature]</u> (Signature and Printed Name) Date: <u>6/17/11</u> Time: <u>1324</u> Received by: <u>[Signature]</u> (Signature and Printed Name) Date: _____ Time: _____</p>	<p>Bill To: Attn: Tyler Thurman Co: AMEC (MACTEC) Address: 5628 E. SLAVSON AV City: LA State: CA Zip: 90040</p>	<p>Special Instructions/Comments: MDL/PQL Format NPDES Supplemental Requirements Engil report to: Ltran@mactec.com and Aamarino@mactec.com</p>	<p>Circle or Add Analysis(es) Requested: <input checked="" type="checkbox"/> BOD 520° C <input checked="" type="checkbox"/> TITLE 22 / CAM 17 (6010 / 7000) <input type="checkbox"/> 8015B (DFO) <input type="checkbox"/> 8015B (GHO) / 8021 (GTEX) <input type="checkbox"/> 8010B (Total Metal) <input type="checkbox"/> 8270C (BNA) <input type="checkbox"/> 8260B (Volatiles) <input type="checkbox"/> 8082 (PCB) <input type="checkbox"/> 8081A (Pesticides)</p>
<p>Send Report To: Attn: ANTHONY MARINO Co: AMEC (MACTEC) Address: 2171 Campus Dr City: IRVINE State: CA Zip: 92612</p>	<p>LAB USE ONLY: Batch #: _____ Lab No.: _____ <u>11801 - 211</u></p>	<p>Sample Description <u>P-103/UCLA LOT 36</u></p>	<p>Specify Appropriate Matrix: <input checked="" type="checkbox"/> DRINKING WATER <input type="checkbox"/> GROUND WATER <input type="checkbox"/> WASTEWATER <input type="checkbox"/> STORMWATER <input type="checkbox"/> AQUEOUS <input type="checkbox"/> SOIL <input type="checkbox"/> SEDIMENT</p>
<p>I hereby authorize ATL to perform the work indicated below: Project Mgr /Submitter: ANTHONY MARINO Signature _____ Date _____</p>	<p>Sample/Records - Archival & Disposal Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report. Storage Fees (applies when storage is requested): • Sample : \$2.00 / sample / mo (after 45 days) • Records : \$1.00 / ATL workorder / mo (after 1 year)</p>	<p>TAT: <input type="checkbox"/> A= Overnight ≤ 24 hrs <input type="checkbox"/> B= Emergency Next workday <input type="checkbox"/> C= Critical 2 Workdays <input checked="" type="checkbox"/> D= Urgent 3 Workdays <input checked="" type="checkbox"/> E= Routine 7 Workdays Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Bedlar G=Glass P=Plastic M=Metal</p>	<p>QA/QC <input type="checkbox"/> RTNE <input type="checkbox"/> CT <input type="checkbox"/> Legal <input type="checkbox"/> SWRCB <input type="checkbox"/> Logcode <input type="checkbox"/> OTHER REMARKS</p>

DISTRIBUTION: White with report, Yellow to folder, Pink to submitter.
 Rev. 2010-0325

Figure C-3.84

**FIGURES C-4.1 THROUGH C-4.2
NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT**

WELL PERMIT APPLICATION - NON PRODUCTION WELLS

DRINKING WATER PROGRAM - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 TELE (626) 430-5420 FAX (626) 813-3016

DATE _____

NEW WELL CONSTRUCTION
 RECONSTRUCTION OR RENOVATION
 DECOMMISSIONING
 OTHER: _____
 MONITORING
 CATHODIC
 INJECTION
 EXTRACTION
 HEAT EXCHANGE
 HYDROPUNCH
 C.P.T. (For Ground Water Sampling)
 OTHER: _____

WELL LOCATION

Site Address: WILSHIRE BLVD & VETERAN AVE City: LOS ANGELES Zip Code: 90024
 Nearest Intersection: WILSHIRE BLVD & VETERAN AVE Thomas Guide Map Book Page/Grid: 632-A3 Number of Wells in Each Parcel: 1

WELL STRUCTURE

Total Depth of Well: 100 Depth of Well Casing: 100 Sanitary / Annular Sealing Material: BENTONITE / BENTONITE SLURRY
 Depth of Sanitary / Annular Seal: _____ Conductor Casing Seal: _____

OWNER INFORMATION

Owner's Name: LA COUNTY METRO (MTA) Telephone Number: 213-922-2000
 Address: 1 GATEWAY PLAZA City: LOS ANGELES Zip Code: 90012-2952

DRILLER INFORMATION

Driller's Name: BOART LONGYEAR Telephone Number: 562-468-4337 C-57 License Number: 694686
 Address: 10652 MIDWAY AVENUE City: CERRITOS Zip Code: 90703

WELL DECOMMISSIONING INFORMATION

Well Depth: _____ Method of Well Assessment: _____ Depth and Number of Perforations: _____
 log/records _____
 Type and Amount of Sealant: _____ Type of Perforator: _____ Size of Perforations: _____ Method of Upper Seal Pressure Application: _____

CONSULTANT INFORMATION

Company: MACTEC ENGINEERING & CONSULTING, INC.
 Address: 5628 E. SLAUSON AVE City: LOS ANGELES State: CA Zip Code: 90040
 Project Manager: ANTHONY MARINO Telephone Number: 949-224-0050 x32 Fax Number: 949-224-0073

ATTENTION: WORK PLAN MODIFICATIONS MAY BE REQUIRED IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED AT THE SITE INSPECTION ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS DEPARTMENT.

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances of Los Angeles and the State of California pertaining to well construction, reconstruction, and decommissioning data deemed necessary by the Division Of Los Angeles County.

Signature of Applicant: [Signature] Printed Name: ANTHONY MARINO

THIS PERMIT IS NOT COMPLETE UNTIL ALL OF THE FOLLOWING REQUIREMENTS ARE MET AND APPROVED BY THE DEPUTY HEALTH OFFICER. WELL CONSTRUCTION OR DECOMMISSIONING CANNOT BE PERMITTED WITHOUT A WORK PLAN APPROVAL FROM THIS DEPARTMENT.

***** (DEPARTMENT USE ONLY) ***** 6330 *****

WORK PLAN APPROVAL This Approval is Valid for 90 Days	REHS <u>Juan Rodriguez</u> DATE <u>5/27/11</u>
Conditions: <u>Permit #891476 issued to install a monitoring well. Notify this office at 626-430-5386 or juanrodriguez2@ph.lacounty.gov</u>	<u>held prior to the work being done.</u>
FINAL INSPECTION The placement of the annular seal must be witnessed by a Deputy Health Officer for the permit to be valid. Contact this Department to arrange for an appointment	REHS _____ DATE _____

NOTICE
 This well permit approval is limited to compliance with the California Well Standards and the Los Angeles County Code and does not grant any rights to construct, reconstruct, or decommission any well. The applicant is responsible for securing all other necessary permits.

Figure C-4.1

WELL PERMIT APPLICATION - NON PRODUCTION WELLS

DRINKING WATER PROGRAM - ENVIRONMENTAL HEALTH DIVISION

5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 TELE (626) 430-3420 FAX (626) 813-3016

DATE 06/01/2011

NEW WELL CONSTRUCTION RECONSTRUCTION OR RENOVATION DECOMMISSIONING OTHER: _____

MONITORING CATHODIC INJECTION EXTRACTION HEAT EXCHANGE

HYDROPLUNCH C.P.T. (For Ground Water Sampling) OTHER: _____

WELL LOCATION

Site Address: WILSHIRE BLVD & VETERANS AVE (LOT 36) City: LOS ANGELES Zip Code: 90024

Nearest Intersection: WILSHIRE BLVD & VETERANS Thomas Guide Map Book Page/Grid: Number of Wells in Each Parcel: 1

WELL STRUCTURE

Total Depth of Well: 100 Depth of Well Casing: 100 Sanitary / Annular Sealing Material: BENTONITE / BENTONITE SLURRY

Depth of Sanitary / Annular Seal: Conductor Casing Seal:

OWNER INFORMATION

Owner's Name: LA COUNTY METRO (MTA) Telephone Number: 213-762-2000

Address: GATEWAY PLAZA City: LOS ANGELES Zip Code: 90002-2952

DRILLER INFORMATION

Driller's Name: C & L DRILLING Telephone Number: 562-691-3533 C-57 License Number: 568520

Address: 100 E LAMBERT RD City: LA HABRA Zip Code: 90631

WELL DECOMMISSIONING INFORMATION

Well Depth: Method of Well Assessment: Depth and Number of Perforations: Method of Upper Seal Pressure Application:

log/records Type of Perforator: Size of Perforations:

CONSULTANT INFORMATION

Company: MACTEC ENGINEERING & CONSULTING INC.

Address: 5628 E. Slauson Ave City: LOS ANGELES State: CA Zip Code: 90040

Project Manager: ANTHONY MARINO Telephone Number: Fax Number: 949-224-0073

ATTENTION: WORK PLAN MODIFICATIONS MAY BE REQUIRED IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED AT THE SITE INSPECTION ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS DEPARTMENT

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances of the City of Los Angeles and the State of California pertaining to well construction, reconstruction, and decommissioning data deemed necessary by the Division Of Los Angeles County

Signature of Applicant: *Anthony Marino* Printed Name: ANTHONY MARINO

THIS PERMIT IS NOT COMPLETE UNTIL ALL OF THE FOLLOWING REQUIREMENTS ARE MET: THE APPLICANT MUST OBTAIN A WORK PLAN APPROVAL FROM THIS DEPARTMENT.



***** (DEPARTMENT USE ONLY) *****

WORK PLAN APPROVAL	REHS	DATE
Conditions: Permit #891534 issued to install 3 monitoring wells. Observed work plan submitted. Notify this office at 626-430-5386 or	Juan Rodriguez	6-10-11
FINAL INSPECTION	REHS	DATE

NOTICE
This well permit approval is limited to compliance with the California Well Standards and the Los Angeles County Code and does not grant any rights to construct, reconstruct, or decommission any well. The applicant is responsible for securing all other necessary permits.

Figure C-4.2

**FIGURES C-5.1 THROUGH C-5.18
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
PERMIT**



California Regional Water Quality Control Board Los Angeles Region



Matthew Rodriguez
Secretary for
Environmental Protection

320 West Fourth Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • FAX (213) 576-6640
<http://www.waterboards.ca.gov/losangeles>

Edmund G. Brown Jr.
Governor

August 22, 2011

Mr. David Mieger, Project Director
Los Angeles County Metropolitan Transit Authority
1 Gateway Plaza
Los Angeles, CA 90012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7000 0600 0029 1196 8236

Dear Mr. Mieger:

**REVISED COVERAGE UNDER GENERAL NATIONAL POLLUTANT DISCHARGE
ELIMINATION SYSTEM AND WASTE DISCHARGE REQUIREMENTS—LOS ANGELES
COUNTY METROPOLITAN TRANSIT AUTHORITY, LOS ANGELES, CALIFORNIA (NPDES
NO. CAG994004, CI-9741)**

We received your request to revise the permit to correct the contact information in the general National Pollutant Discharge Elimination System (NPDES) permit issued to you on August 4, 2011. We have revised the permit as requested to reflect the correct contact information.

Based on the information provided, the proposed discharge of groundwater from the construction project at the above-referenced facility meets the conditions to be regulated under Order No. R4-2008-0032, *General National Pollutant Discharge Elimination System and Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties*, adopted by this Board on June 5, 2008.

Enclosed are your Waste Discharge Requirements, which also serve as your NPDES permit, consisting of Order No. R4-2008-0032 and Monitoring and Reporting Program No. CI-9741. The discharge limitations in Part V.1. Table 1 and Table 6 of Order No. R4-2008-0032 for the specific constituents listed on the Table with the enclosed Fact Sheet are applicable to your discharge. The groundwater discharge flows into Ballona Creek. Therefore, discharge limitation in Attachment B of Order No. R4-2008-0032 is not applicable to your discharge. However, Ballona Creek heavy metal Total Daily Maximum Load (TMDL) effluent limitations are applicable to your discharge. Prior to starting discharge, a representative sample of the effluent shall be obtained and analyzed to determine compliance with the discharge limitations.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of coverage under this permit. All monitoring reports should be sent to the Regional Board, ATTN: Information Technology Unit. When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to "Compliance File No. CI-9741 and NPDES No. CAG994004", which will assure that the reports are directed to the appropriate file and staff. Also, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

Mr. David Mieger, Project Director
Los Angeles County Metropolitan Transit Authority

- 2 -


August 22, 2011

To avoid paying future annual fees, please submit written request for termination of your enrollment under the general permit in a separate letter, when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay full annual fee if your request for termination is made after the beginning of new fiscal year beginning July 1.

We are sending a copy of Order No. R4-2008-0032 only to the applicant. For those on the mailing list, please refer to the Board Order sent to you previously or download a copy of the Order from our website at http://www.waterboards.ca.gov/losangeles/board_decisions.

If you have any questions, please contact Namiraj Jain at (213) 620-6003.

Sincerely,


Samuel Unger
Executive Officer

Enclosures:

Order No. R4-2008-0032, General NPDES Permit No. CAG994004
Fact Sheet
Monitoring and Reporting Program No. CI-9741

cc: Environmental Protection Agency, Region 9, Permit Section (WTR-5)
State Water Resources Control Board, NPDES_Wastewater@waterboards.ca.gov
U.S. Army Corps of Engineers
NOAA, National Marine Fisheries Service
Department of Interior, U.S. Fish and Wildlife Service
California Department of Fish and Game, Marine Resources, Region 5
Los Angeles County Department of Public Works, Flood Control and Drainage
Los Angeles County Department of Environmental Program
Jae Kim, Tetrattech

/nj

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

REVISED FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR

LOS ANGELES COUNTY METROPOLITAN TRANSIT AUTHORITY
(ORDER NO. R4-2008-0032)
NPDES NO. CAG994004, SERIES NO.096
CI-9741

FACILITY ADDRESS

11020 Kinross Avenue
Los Angeles, CA 90024

FACILITY MAILING ADDRESS

1 Gateway Plaza
Los Angeles, CA 90012

PROJECT DESCRIPTION:

Los Angeles County Metropolitan Transit Authority (Discharger) proposes to discharge groundwater from its construction project located at 11020 Kinross Avenue, in the City of Los Angeles. Discharger plans to expand its metro westside subway system. Groundwater will be encountered during the construction excavation. The extracted groundwater will be treated by passing through a duplex bag filtration unit prior to discharge to storm drain. Treatment may be necessary to reduce selenium concentration in the groundwater below effluent limitation. The site location map is shown in Figure 1.

VOLUME AND DESCRIPTION OF DISCHARGE:

Up to 1 million gallons per day (mgd) of groundwater will be discharged from the project to the nearby storm drain system at Discharge Point M-001 (Latitude: 34°03'29" Longitude: 118°26'51"). The discharge flows into the Ballona Creek, waters of United States.

APPLICABLE EFFLUENT LIMITATIONS

Based on the information provided in the NPDES Application Supplemental Requirements, the following constituents listed in the Table below have been determined to show reasonable potential to exist in the discharge. The discharge flows to Westwood Channel thence to Ballona Creek which is designated as MUN (Potential) beneficial use. Therefore effluent limitations listed in Other Waters column in the Order apply to your discharge. The discharge limitations in Attachment B of Order No. R4-2008-0032 are not applicable to your discharge. However, Ballona Creek mandatory heavy metals Total Maximum Daily Limitations (TMDL) are applicable to your discharge.

This Table lists the specific constituents and effluent limitations applicable to the discharge.

Constituents	Units	Discharge Limitations	
		Daily Maximum	Monthly Average
Total Suspended Solids	mg/L	150	50
Turbidity	NTU	150	50
BOD ₅ 20°C	mg/L	30	20
Settleable Solids	ml/L	0.3	0.1
Residual Chlorine	mg/L	0.1	---
Methylene Blue Active Substances (MBAS)	mg/L	0.5	---
Ballona Creek Heavy Metals TMDL			
Copper	µg/L	24	12.5
Lead	µg/L	13	6.5
Selenium	µg/L	5	2.5
Zinc	µg/L	304	152

FREQUENCY OF DISCHARGE:

The discharge of groundwater will be intermittent and last for duration of the construction project.

REUSE OF WATER:

In the vicinity of the project site, there are no landscaped areas that require irrigation using the groundwater discharge. Since there are no other feasible reuse options, the groundwater will be discharged to the storm drain in compliance with the requirements of the attached Order.

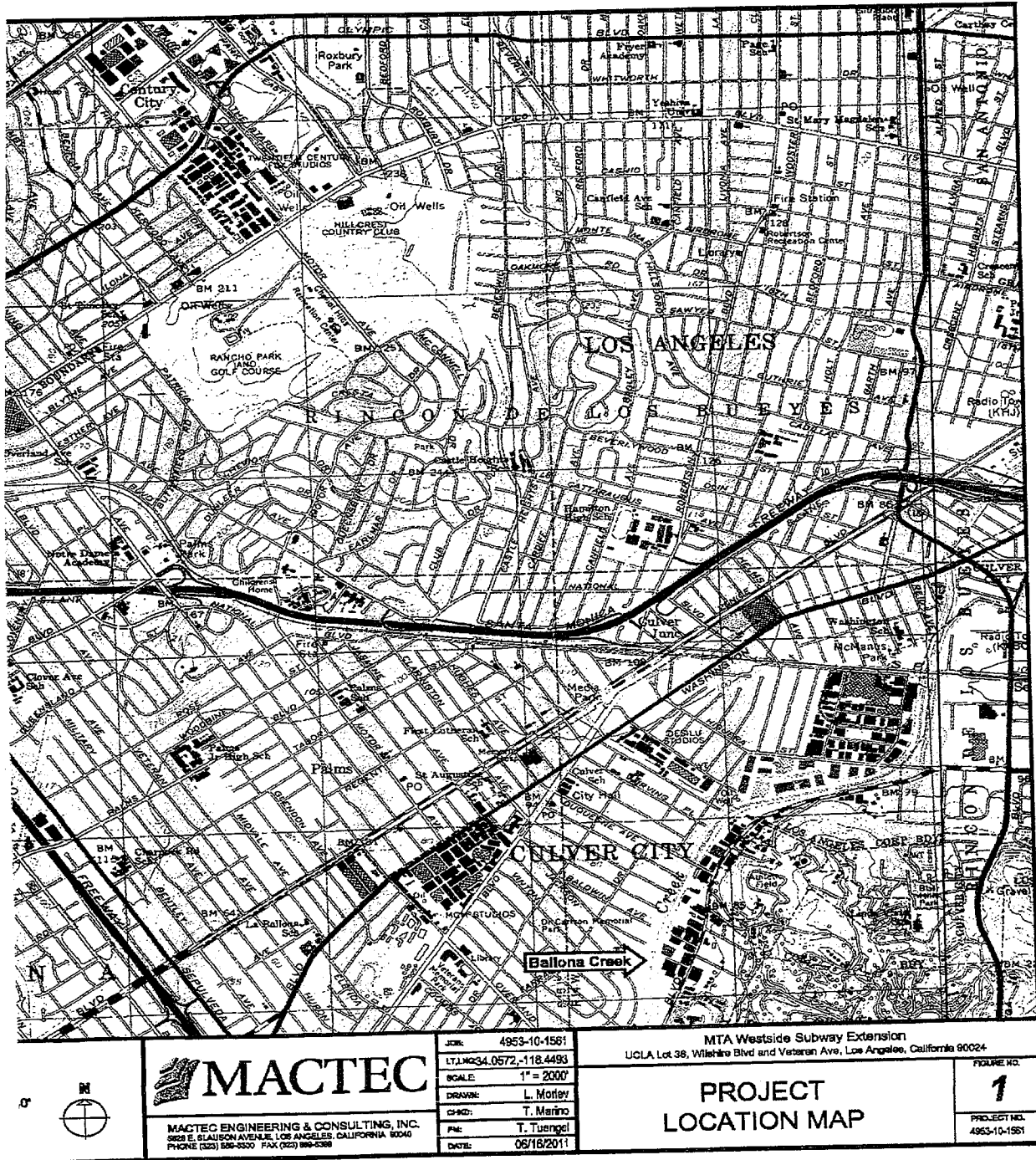


Figure 1. Site Location Map

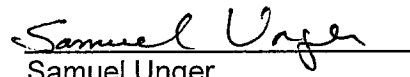
STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

REVISED MONITORING AND REPORTING PROGRAM NO. CI-9741
FOR
DISCHARGES OF GROUDWATER FROM CONSTRUCTION AND PROJECT
DEWATERING TO SURFACE WATERS
IN
COASTAL WATERSHEDS OF LOS ANGELES AND VENTURA COUNTIES

(GENERAL NPDES PERMIT NO. CAG994004, SERIES NO.096)

This Order was adopted by the Regional Water Board on:	June 5, 2008
This Order shall become effective on:	August 22, 2011
This Order shall expire on:	June 5, 2013
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified this discharge as a minor discharge.	

Ordered By:


Samuel Unger
Executive Officer

Date: August 18, 2011

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Attachment E – Monitoring and Reporting Program (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A. An effluent sampling station shall be established for Discharge Point M-001 and shall be located where representative samples of that effluent can be obtained. Provisions shall be made to enable visual inspections before discharge. In the event of presence of oil sheen, debris, and/or other objectionable materials or odors, discharge shall not commence until compliance with the requirements is demonstrated. All visual observations shall be included in the monitoring report.
- B. This Regional Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.
- C. Effluent samples shall be taken downstream of any addition to treatment works and prior to mixing with the receiving waters.
- D. This Regional Water Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.
- E. Pollutants shall be analyzed using the analytical methods described in 40 CFR §§136.3, 136.4, and 136.5 (revised May 14, 1999); or, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.
- F. Laboratories analyzing effluent samples and receiving water samples shall be certified by the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer and must include QA/QC data in their reports. A copy of the laboratory certification shall be provided each time a new certification and/or renewal of the certification is obtained from ELAP.
- G. For any analyses performed for which no procedure is specified in the USEPA guidelines or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.
- H. Each monitoring report must affirm in writing that "all analyses were conducted at a laboratory certified for such analyses by the Department of Public Health or approved by the Executive Officer and in accordance with current USEPA guideline procedures or as specified in this Monitoring and Reporting Program".

- I. The monitoring reports shall specify the analytical method used, the MDL, and the ML for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported by one of the following methods, as appropriate:
 1. An actual numerical value for sample results greater than or equal to the ML; or
 2. "DNQ" if results are greater than or equal to the laboratory's MDL but less than the ML; or,
 3. "ND" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used.

Analytical data reported as "less than" for the purpose of reporting compliance with permit limitations shall be the same or lower than the permit limit(s) established for the given parameter.

Current MLs (Attachment G) are those published by the State Water Resources Control Board in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, March 2, 2000.

- J. Where possible, the MLs employed for effluent analyses shall be lower than the permit limitations established for a given parameter. If the ML value is not below the effluent limitation, then the lowest ML value and its associated analytical method shall be selected for compliance purposes. At least once a year, the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory QA/QC procedures.

The Regional Water Board, in consultation with the State Water Board Quality Assurance Program, shall establish a ML that is not contained in Attachment G to be included in the Discharger's permit in any of the following situations:

1. When the pollutant under consideration is not included in Attachment G;
2. When the Discharger and Regional Water Board agree to include in the permit a test method that is more sensitive than that specified in 40 CFR Part 136 (revised May 14, 1999);
3. When the Discharger agrees to use an ML that is lower than that listed in Attachment G;
4. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Attachment G, and proposes an appropriate ML for their matrix; or,
5. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved method 1613 for dioxins and furans, method 1624 for volatile organic substances, and method 1625 for semi-volatile organic substances. In

such cases, the Discharger, the Regional Water Board, and the State Water Board shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes.

- K. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR §136.3. All QA/QC items must be run on the same dates the samples were actually analyzed, and the results shall be reported in the Regional Water Board format, when it becomes available, and submitted with the laboratory reports. Proper chain of custody procedures must be followed, and a copy of the chain of custody shall be submitted with the report.
- L. All analyses shall be accompanied by the chain of custody, including but not limited to data and time of sampling, sample identification, and name of person who performed sampling, date of analysis, name of person who performed analysis, QA/QC data, method detection limits, analytical methods, copy of laboratory certification, and a perjury statement executed by the person responsible for the laboratory.
- M. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and to insure accuracy of measurements, or shall insure that both equipment activities will be conducted.
- N. The analytical laboratory shall have an acceptable written quality assurance (QA) plan for laboratory analyses. The annual monitoring report shall also summarize the QA activities for the previous year. Duplicate chemical analyses must be conducted on a minimum of ten percent (10%) of the samples, or at least one sample per sampling period, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples.
- O. When requested by the Regional Water Board or USEPA, the Discharger will participate in the NPDES discharge monitoring report QA performance study. The Discharger must have a success rate equal to or greater than 80%.
- P. For parameters that both monthly average and daily maximum limitations are specified and the monitoring frequency is less than four times a month, the following shall apply. If an analytical result is greater than the monthly average limitation, the Discharger shall collect four additional samples at approximately equal intervals during the month, until compliance with the monthly average limitation has been demonstrated. All five analytical results shall be reported in the monitoring report for that month, or 45 days after results for the additional samples were received, whichever is later. In the event of noncompliance with a monthly average effluent limitation, the sampling frequency for that constituent shall be increased to weekly and shall continue at this level until compliance with the monthly average effluent limitation has been demonstrated. The Discharger shall provide for the approval of the Executive Officer a program to ensure future compliance with the monthly average limitation.
- Q. In the event wastes are transported to a different disposal site during the report period, the following shall be reported in the monitoring report:

1. Types of wastes and quantity of each type;
2. Name and address for each hauler of wastes (or method of transport if other than by hauling); and
3. Location of the final point(s) of disposal for each type of waste.

If no wastes are transported off-site during the reporting period, a statement to that effect shall be submitted.

- R. Each monitoring report shall state whether or not there was any change in the discharge as described in the Order during the reporting period.
- S. All monitoring reports shall include the discharge limitations in the Order, tabulated analytical data, the chain of custody form, and the laboratory report (including but not limited to date and time of sampling, date of analyses, method of analysis and detection limits).
- T. Sample collection requirements (as appropriate)
1. Daily samples shall be collected each day.
 2. Weekly samples shall be collected on a representative day of each week.
 3. Monthly samples shall be collected on a representative day of each month.
 4. Quarterly samples shall be collected in February, May, August, and November.
 5. Semi-annual samples shall be collected in May and November.
 6. Annual samples shall be collected in November.
- U. Before commencing a new discharge, a representative sample of the effluent shall be collected and analyzed for toxicity and for all the constituents listed in Fact Sheet, and the test results must meet all applicable limitations of Order No. R4-2008-0032.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1. Monitoring Location

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Discharge Point 1	M-001	Wastewater effluent before contact with the receiving water and/or dilution by any other water or waste.
Discharge Point 2	M-002	If more than one discharge point is authorized under the General Permit, compliance monitoring locations shall be named M-002, M-003, etc. and shall be located so as to allow collection of wastewater effluent before contact with receiving water and/or dilution by any other water or waste.

III. EFFLUENT MONITORING REQUIREMENTS

A. The Discharger shall monitor the effluent at Discharge Point M-001 in Table 2 as follows.

Table 2. Monitoring Constituents

Constituent	Unit	Type of Sample	Minimum Frequency of Analysis
Total Waste Flow	gal/day	totalizer	Continuously ¹
pH	pH unit	grab	monthly
Temperature	°F	grab	monthly
Total Suspended Solids	mg/L	grab	monthly
Turbidity	NTU	grab	monthly
BOD ₅ 20°C	mg/L	grab	monthly
Settleable Solids	ml/L	grab	monthly
Residual Chlorine	mg/L	grab	monthly
Methylene Blue Active Substances (MBAS)	mg/L	grab	monthly
Copper	µg/L	grab	quarterly
Lead	µg/L	grab	quarterly
Selenium	µg/L	grab	monthly
Zinc	µg/L	grab	quarterly

¹ Record the monthly total flow and report the calculated daily average flow and monthly flow in the quarterly and annual reports, as appropriate.

Constituent	Unit	Type of Sample	Minimum Frequency of Analysis
Acute Toxicity	% survival	grab	annually

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Definition of Toxicity

Acute Toxicity

The MRP requires an annual test for acute toxicity which measures primarily lethal effects that occur over a 96-hour period. Acute toxicity shall be measured in percent survival measured in undiluted (100%) effluent.

B. Acute Toxicity Effluent Monitoring Program

1. The Discharger shall conduct acute toxicity tests on effluent grab samples by methods specified in 40 CFR Part 136 which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, October 2002, USEPA, Office of Water, Washington D.C. (EPA/821-R-02-012) or a more recent edition to ensure compliance in 100 % effluent.
2. The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish effluent. The method for topsmelt is found in USEPA's *Short-term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, First Edition, August 1995 (EPA/600/R-95/136), or a more recent edition.
3. In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 48 hours of the chronic toxicity test as the results of the acute toxicity test.
4. Accelerated Toxicity Monitoring: If the results of the toxicity test yields a survival of less than 90%, then the frequency of analyses shall increase to monthly until at least three test results have been obtained and full compliance with effluent limitations has been demonstrated, after which the frequency of analyses shall revert to annually. Results of toxicity tests shall be included in the first monitoring report following sampling.
5. Effluent samples shall be collected after all treatment processes and before discharge to the receiving water.

C. Reporting

1. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by this permit. Test results shall be reported as % survival for acute toxicity test results with the self monitoring reports (SMR) for the month in which the test is conducted.
2. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, then those results also shall be submitted with the SMR for the period in which the investigation occurred.
 - a. The full report shall be submitted on or before the end of the month in which the SMR is submitted.
 - b. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the acute toxicity average limit.
3. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the SMR. Routine reporting shall include, at a minimum, as applicable, for each test:
 - a. Sample date(s);
 - b. Test initiation date;
 - c. Test species;
 - d. End point values for each dilution (e.g., number of young, growth rate, percent survival);
 - e. Any applicable charts; and,
 - f. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).
4. The Discharger shall provide a compliance summary, which includes a summary table of toxicity data from all samples collected during that year.

The Discharger shall notify by telephone or electronically, this Regional Water Board of any toxicity exceedance of the limit or trigger within 24 hours of receipt of the results followed by a written report within 14 calendar days of receipt of the results. The verbal or electronic notification shall include the exceedance and the plan the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

V. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable.

VI. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

Not Applicable.

VIII. OTHER MONITORING REQUIREMENTS

Not Applicable.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. If there is no discharge during any reporting period, the report shall so state.
3. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with waste discharge requirements, as well as all excursions of effluent limitations.
4. The Discharger shall inform the Regional Water Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table 3. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	August 22, 2011	All	Submit with quarterly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with quarterly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month	Submit with quarterly SMR
Quarterly	Closest of January 1, April 1, July 1, or October 1	January 1 through March 31. April 1 through June 30. July 1 through September 30. October 1 through December 31	45 days from the end of the monitoring period
Annually	January 1	January 1 through December 31	45 days from the end of the monitoring period

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. The Discharger shall submit SMRs in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

C. Notification

1. The Discharger shall notify the Executive Officer in writing prior to discharge of any chemical that may be toxic to aquatic life. Such notification shall include:
 - a. Name and general composition of the chemical,
 - b. Frequency of use,

- c. Quantities to be used,
- d. Proposed discharge concentrations, and,
- e. EPA registration number, if applicable.

No discharge of such chemical shall be made prior to obtaining the Executive Officer's approval.

- 2. The Discharger shall notify the Regional Board via telephone and/or fax within 24 hours of noticing an exceedance above the effluent limits in Order No. R4-2008-0032. The Discharger shall provide to the Regional Board within 14 days of observing the exceedance a detailed statement of the actions undertaken or proposed that will bring the discharge into full compliance with the requirements and submit a timetable for correction.

D. Monitoring Frequencies Adjustment

Monitoring frequencies may be adjusted by the Executive Officer to a less frequent basis if the Discharger requests same and the request is backed by statistical trends of monitoring data submitted.

E. Discharge Monitoring Reports (DMRS)

- 1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit SMRs in accordance with the requirements described below.
- 2. SMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original SMR to the address listed below:

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
Attention: Information and Technology Unit.



**APPENDIX D
ENVIRONMENTAL SITE ASSESSMENT**

**FIGURES D-1.1A THROUGH D-1.31B
LOGS OF BORINGS (PE PHASE)**

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB
 C:\PROJECT\DIRECTORIES\49532\010701561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-101

DATE DRILLED: 6/21/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 200.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				Asphalt Concrete over Base Course
				CL/SW <u>FILL</u> [af] CLAY / SAND - brown
				CL/SW <u>NATIVE</u> CLAY / SAND - brown
	5			
	10			
	15			
	20		5.0	SW WELL GRADED SAND - wet, light pink brown, fine to coarse grained
	25			
	30		0.0	(Sample not recovered)
	35			
	40			

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

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BORING E-101 (Continued)

DATE DRILLED: 6/21/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 200.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			0.0	○
				▽
	45		2.1	ML
	50		2.9	ML
	55		2.9	ML
	60			
	65			
	70			
	75			
	80			

(Sample not recovered)

CLAYEY SILT - green gray

Gray Silt

Gray Silt, green Clay

END OF BORING AT 55 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 43 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB C:\PROJECT\DIRECTORIES\4951-10-1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-102

DATE DRILLED: 7/26/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 200 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				ML
5				
10				
15				
20				○
25				
30			2.4	ML
35				
40				

Asphalt Concrete over Base Course

SANDY SILT - greenish gray, fine to medium sand, light odor

(Sample not recovered)

CLAYEY SILT - stiff, moist, very dark greenish gray, fine sand





(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-102 (Continued)

DATE DRILLED: 7/26/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 200 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.
			2.3	 ML
	45		1.5	 ML
	50		1.2	 CL-ML
	55		0.7	 CL-ML
	60			
	65			
	70			
	75			
	80			

CLAYEY SILT - stiff, moist, very dark greenish gray, fine sand



CLAYEY SILT - wet, very dark greenish gray, fine to coarse sand

SILTY CLAY - stiff, moist, very dark greenish gray, fine to medium sand

SILTY CLAY - wet, very dark greenish gray, fine sand

END OF BORING AT 55 FEET

NOTES:

Hand augered upper 8 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 45 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\LIBRARY MACTEC JUNE2011\GLB
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BORING E-103

DATE DRILLED: 6/22/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 199 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
5				SP
10				
15				
20			0.0	CL
25				
30			1.4	CL
35				
40				

Asphalt Concrete
 SAND - dark yellowish brown

SANDY CLAY - dark yellowish brown





SANDY CLAY - greenish black

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

BORING E-103 (Continued)

DATE DRILLED: 6/22/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 199 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			2.9	 CL
45			2.9	 CL
50			2.9/ 3.6	 CL- ML
55			2.6/ 4.3	 SP
60				
65				
70				
75				
80				

SANDY CLAY - moist, greenish black

▽
SANDY CLAY - moist, greenish black

SANDY SILTY CLAY - wet, greenish black

SANDY CLAY - wet, greenish black

END OF BORING AT 55 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 45 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\LIBRARY MACTEC JUNE2011.GLB
 C:\PROJECT\DIRECTORIES\49552\010\1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11
 THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

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 C:\PROJECT\DIRECTORIES\4951-10\101561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS GPJ 10/21/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-104

DATE DRILLED: 6/23/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 192.7 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	Description
				ML	4-inch thick Asphalt Concrete over 6-inch thick Base Course
	5				CLAYEY SILT - moist, dark brown
					Becomes yellowish brown, more silt
	10				
	15				
	20		0.7	CL-ML	SILTY CLAY - very stiff, moist, olive brown (2.5Y,4/3), no odor
	25				
	30		1.4	ML	SANDY SILT - stiff, damp to wet, dark greenish gray, very fine sand, no odor
	35				
	40				▽

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
 Prepared By: LH/YN
 Checked By: DC

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BORING E-104 (Continued)

DATE DRILLED: 6/23/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 192.7 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	SP	Description
			1.4		SP	POORLY GRADED SAND - medium dense, wet, dark greenish gray (GLE Y1, 4/1), fine, some medium, no odor
	45		0.0		ML	CLAYEY SILT - very stiff, damp, dark greenish gray (GLE Y1, 4/1), no odor
	50		0.7		ML	SILT - very stiff, wet, dark greenish gray (GLE Y1, 4/1), no odor
	55		0.0		SM	SILTY SAND - medium dense, wet, dark greenish gray (GLE Y1, 4/1), fine
	60		0.7			SILTY SAND - medium dense, wet, dark greenish gray (GLE Y1, 4/1), fine
END OF BORING AT 60 FEET						
NOTES:						
Hand augered upper 6 feet to avoid damage to utilities.						
Ground-water sample collected at the shallowest depth of 43 feet below the ground surface.						
Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.						
	65					
	70					
	75					
	80					

Field Tech: PK
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB
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BORING E-105

DATE DRILLED: 6/24/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 211 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30		0.0	ML
	35			
	40			

6-inch thick Asphalt Concrete over 6-inch thick Portland Cement concrete

CLAYEY SILT - moist, olive/tan, some fine sand, no hydrocarbon odor/discoloration

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: MF
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\LIBRARY MACTEC JUNE2011\GLB C:\PROJECT_DIRECTORY\49532\10101561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

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BORING E-105 (Continued)

DATE DRILLED: 6/24/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 211 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			0.0	SM
45				
			0.0	ML
50				
55				
			0.0	ML
60				
			0.0	SP
65				
			0.0	SP
70				
75				
80				

SILTY SAND - moist, greenish gray, trace clay, trace gravel, no hydrocarbon odors

SILT - moist, greenish gray, trace clay, fine sand, no hydrocarbon odor

Becomes moist, greenish gray, trace clay, some gravel, slight "rotten egg" odor possible

∇ POORLY GRADED SAND - wet, greenish gray, fine to medium sand, no hydrocarbon odor

POORLY GRADED SAND - wet, dark gray, fine to medium grained sand, no hydrocarbon odor, dense
 END OF BORING AT 70 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 65 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: MF
 Prepared By: LH/YN
 Checked By: DC



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BORING E-106

DATE DRILLED: 7/18/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 195.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			ML
	10			
	15			
	20			
	25			
	30	6.7		ML
	35			
	40			

Asphalt, very large at first 9 inches, broke off, wet tar between layers, tar is slowing down the coring

SANDY SILT - medium stiff, moist, dark olive brown, fine to coarse grained sand

Becomes medium stiff, moist, very dark grayish brown, fine to coarse grained sand

Becomes medium stiff, moist, black, fine to medium grained sand

SANDY SILT - moist, olive gray, fine sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

BORING E-106 (Continued)

DATE DRILLED: 7/18/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 195.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.	
			6.2	ML	SANDY SILT - moist, dark bluish gray, fine sand
45					
			2.2	ML	SANDY SILT - moist, dark bluish gray, fine grained sand
50					
			2.1	SP	∇ SAND - dark bluish gray, wet
55					
			4.0	SP	SAND - wet, dark bluish gray
60					
			1.8	ML	SANDY SILT - loose, greenish gray, fine to medium grained sand
65					
70					END OF BORING AT 70 FEET
75					NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 55 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
80					

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

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 C:\PROJECT\DIRECTORIES\49532010\101561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11
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BORING E-107

DATE DRILLED: 7/19/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				Asphalt
				CLAYEY SILT - stiff, moist, black, fine to medium grained sand
	5			SILTY CLAY - stiff, moist, dark olive brown, fine to medium grained sand
				SANDY SILT - medium stiff, greenish gray, fine to medium grained sand
	10			Becomes sandy, very stiff, dry, light yellowish brown, fine to coarse grained sand, with rock
	15			
	20			
	25			
	30		1.6	SANDY SILT - greenish gray, fine to medium grained
	35			
	40			

(CONTINUED ON FOLLOWING FIGURE)






Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\W\LIBRARY MACTEC\JUNE2011\GLB
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BORING E-107 (Continued)

DATE DRILLED: 7/19/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.		DESCRIPTION	
			1.4		SM		SILTY SAND - dense, moist, dark greenish gray, fine to medium grained sand
	45						
			3.6		SM		SILTY SAND - dense, moist, very dark greenish gray, fine grained
	50						
			4.0		SM		SILTY SAND - dense, wet, very dark greenish gray, fine grained
	55						
			3.7		SP	▽	POORLY GRADED SAND - dark gray, wet, fine grained sand
	60						
			4.0		SP		POORLY GRADED SAND - dark gray, wet, fine grained sand
	65					END OF BORING AT 65 FEET	
	70					NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 60 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.	
	75						
	80						

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

BORING E-108

DATE DRILLED: 7/22/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 199.6 feet*

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 C:\PROJECT_DIRECTORY\49552\010701561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11
 THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS
 AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
5				
10			1.9	ML
15			2.0	ML
20			1.5	ML
25			1.4	ML
30			1.6	ML
35			1.5	ML
40				

SANDY SILT - with gravel, dark yellowish brown, fine to medium grained sand

SANDY SILT - moist, olive brown, fine to medium grained sand

CLAYEY SILT - stiff, olive, fine to medium grained sand, small rocks, stiff

CLAYEY SILT - stiff, olive, fine to medium grained sand, small rocks, stiff

CLAYEY SILT - moist, olive, fine to medium grained sand

CLAYEY SILT - stiff, moist, olive fine to medium sand, trace gravel

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\W\LIBRARY MACTEC JUNE2011\GLB
 C:\PROJECT\DIRECTORIES\49552010\01561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

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BORING E-108 (Continued)

DATE DRILLED: 7/22/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 199.6 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.		Description
			1.3		ML	CLAYEY SILT - stiff, moist, dark olive brown, fine to medium sand
	45		1.0		ML	CLAYEY SILT - stiff, olive, fine to medium grained sand, small rocks, moist
	50		1.4		ML	∇ Becomes very stiff, dark greenish gray
	55					(Sample not recovered)
	60					(Sample not recovered)
	65					(Sample not recovered)
	70				SP	SAND - wet, loose, greenish gray, fine to medium grained sand END OF BORING AT 70 FEET
	75					NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 50 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
	80					

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB
 C:\PROJECT\DIRECTORIES\4951-10-1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS GPJ 10/21/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-109

DATE DRILLED: 8/24/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 197.8 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	Description
				█	8-inch thick Asphalt Concrete
				▨	SILTY CLAY - moist, very dark brown (grayish brown)
	5				Becomes brown (10YR, 5/3)
	10			○	(Sample not recovered)
	15		0.1	█	POORLY GRADED SAND to CLAYEY SAND - moist, light olive brown (2.5Y 5/3), fine grained
	20		0.0	▨	SILTY CLAY - dark greenish gray (GLEY1 4/5 GY), moist to very moist, small caliche nodules in sample bag (approximately 1 cm in diameter), Terra core samples taken at this depth
	25		0.0	▨	SILTY CLAY - moist, light olive brown (2.5Y 5/3), small caliche nodules
	30		0.0	▨	▽ SILTY CLAY - moist, light olive brown, (2.5Y 5/3), small caliche nodules (up to 1 cm in diameter)
	35		0.0	▨	SILTY CLAY - light olive brown (2.5Y 5/3), very moist, small caliche nodules in sample (up to 1 cm in diameter)
	40			⚡	

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: RM
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131-GEOTECH\GINT\LIBRARY-MACTEC-JUNE2011\GLB
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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-109 (Continued)

DATE DRILLED: 8/24/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 197.8 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
45			0.0	SM	CLAYEY SILTY SAND - very dark greenish gray, (GLEY1 3/10GY), very moist, sand is fine grained, terra core sample taken at this depth
50					
55				ML	
60					
65				SP	POORLY GRADED SAND - dark greenish gray (GLEY1 4/10GY), saturated sand zone, very wet, fine grained
70					
75			0.0	SP	POORLY GRADED SAND - wet, very dark greenish gray (GLEY1 3/5 GY), fine grained, last 2 inches of sample is more cemented sand (not saturated), smelled of rotten eggs at this depth, not registering on meter for H ₂ S, Terra Core sample taken at this depth END OF BORING AT 75 FEET
80					

NOTES:

Hand augered upper 5 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 30 feet

Field Tech: RM
 Prepared By: LH/YN
 Checked By: DC

(CONTINUED ON FOLLOWING FIGURE)

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINTW\LIBRARY MACTEC JUNE2011\GLB
 C:\PROJECT_DIRECTORY\49552010\01561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS GPJ 10/21/11

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BORING E-109 (Continued)

DATE DRILLED: 8/24/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 197.8 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
85				
90				
95				
100				
105				
110				
115				
120				

below the ground surface.
 Borehole grouted with cement-bentonite slurry and
 patched with quick setting concrete.

Field Tech: RM
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\W\LIBRARY MACTEC JUNE2011\GLB C:\PROJECT\DIRECTORIES\4951-10-1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS.GPJ 10/21/11

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BORING E-110

DATE DRILLED: 7/26/2011 and 7/27/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.7 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
	5				
	10		1.0	ML	SANDY SILT - medium stiff, brown, fine to medium grained sand
	15		0.7	ML	CLAYEY SILT - firm, greenish gray, light bluish gray, fine grained sand
	20		0.8	ML	CLAYEY SILT - firm, olive brown, fine to medium grained sand
	25		0.8	ML	CLAYEY SILT - light gray, fine to medium grained sand
	30		0.3	ML	CLAYEY SILT - wet, greenish gray to brown, fine to medium grained sand
	35		4.4	ML	Becomes greenish gray, brown, fine to coarse grained sand
	40				

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131_GEO\TECH\INTL\LIBRARY_MACTEC_JUNE2011\GLB
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BORING E-110 (Continued)

DATE DRILLED: 7/26/2011 and 7/27/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.7 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.		
			3.7		ML	SANDY SILT - dark greenish gray, fine grained sand
	45		NA			▽ (Sample not recovered)
	50		2.1		SM	SILTY SAND - dark greenish gray, fine grained sand, firm, dry to moist
	55		2.5		SM	SILTY SAND - dark greenish gray, fine grained sand, moist
	60		1.4		SM	SILTY SAND - loose, wet, fine to medium grained, odor
	65		1.6		SM	SILTY SAND - dark greenish gray, fine grained sand, firm, wet
	70		1.4		SM	SILTY SAND - dark greenish gray, fine grained sand, firm, wet
	75		1.6		SM	SILTY SAND - dark greenish gray, fine grained sand, firm, wet
						END OF BORING AT 75 FEET
						NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 45 feet below the ground surface. Borehole grouted with cement-bentonite slurry and
	80					

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-110 (Continued)

DATE DRILLED: 7/26/2011 and 7/27/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.7 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
85				
90				
95				
100				
105				
110				
115				
120				

patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\W\LIBRARY MACTEC JUNE2011\GLB C:\PROJECT\DIRECTORIES\49532\010\1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS GPJ 10/21/11

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BORING E-111

DATE DRILLED: 7/28/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 195 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.		
	5					
	10		2.7	ML		SANDY SILT - dark greenish gray, fine to medium grained sand
	15		2.1	ML		SANDY SILT - dark greenish gray, fine to medium grained sand
	20		1.5	ML		CLAYEY SILT - brown, moist, fine grained sand
	25		1.5	ML		SANDY SILT - brown, moist, fine to medium grained sand, some rock
	30		1.1	ML		Becomes grayish green, moist, fine to medium grained sand
	35		1.0	ML		SANDY SILT - firm, moist, grayish green, fine to medium grained sand
	40					

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

BORING E-111 (Continued)

DATE DRILLED: 7/28/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 195 feet*

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\W\LIBRARY\MACTEC\JUNE2011\GLB
 C:\PROJECT\DIRECTORIES\49512010\01561\METRO_WESTSIDE_EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT_ENVIRO LOGS GPJ 10/21/11
 THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS
 AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
				○	(Sample not recovered)
	45		0.6	ML	SANDY SILT - firm, moist, grayish green, fine to medium grained sand
	50		0.5	ML	SANDY SILT - firm, moist, grayish green, fine to medium grained sand
	55		0.3	ML	SANDY SILT - firm, moist, grayish green, fine to medium grained sand
	60		0.5	ML	SANDY SILT - moist, grayish green, fine to medium grained sand
	65		0.0	SP	SAND - moist, grayish green, fine to medium grained
	70		0.0	SP	SAND - moist, grayish green, fine to medium grained
	75		0.4	SP	SAND - moist, grayish green, fine to medium grained
					END OF BORING AT 75 FEET
					NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 40 feet below the ground surface. Borehole grouted with cement-bentonite slurry and
	80				

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-111 (Continued)

DATE DRILLED: 7/28/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 195 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
120				
115				
110				
105				
100				
95				
90				
85				

patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-112 Alt

DATE DRILLED: 7/21/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30			
	35			
	40			

(CONTINUED ON FOLLOWING FIGURE)







Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-112 Alt (Continued)

DATE DRILLED: 7/21/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	Description
			5.1		ML CLAYEY SILT - medium dense, moist, greenish gray, fine to medium grained sand
	45				
	50		83.5		Tar SAND TAR SAND - fine to medium grained sand
	55				
	60		99.3		Tar SAND TAR SAND - fine to coarse grained sand, some rock, H ₂ S odor
	65				
	70		89.7		Tar SAND TAR SAND - fine to coarse grained sand, H ₂ S 20 ppm
	75		103		Tar SAND TAR SAND - fine to medium grained sand, H ₂ S 2 ppm
	80		125		Tar SAND TAR SAND - fine to coarse grained sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-112 Alt (Continued)

DATE DRILLED: 7/21/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 196.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.
120				
115				
110				
105				
100				
95				
90				
85				

-SAND END OF BORING AT 80 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample not collected.
 Borehole grouted with cement-bentonite slurry and
 patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\LIBRARY MACTEC JUNE2011.GLB
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BORING E-113

DATE DRILLED: 8/3/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 184.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				ML
5				
10				
15				
20				
25				
30				
35				
40				

6-inch thick Asphalt Concrete over 6-inch thick Portland Cement Concrete
 CLAYEY SILT - firm, very dark grayish green to grayish green, fine to medium grained sand with patches of brown

(CONTINUED ON FOLLOWING FIGURE)






Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-113 (Continued)

DATE DRILLED: 8/3/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 184.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	Description	
			6.0		Tar SAND	TAR SAND - black, sticky, saturated with tar, fine to medium grained sand
45						
	50				Tar SAND	TAR SAND - black, sticky, saturated with tar, fine to medium grained sand
55						
	60		20.8		Tar SAND	TAR SAND - black, sticky, saturated with tar, fine to medium grained sand
65						
	70		27.1		Tar SAND	PETROLIFEROUS SILT - very dark brown, slightly moist, tar present
75			26.6		CL-ML	SILTY PETROLIFEROUS CLAY - very dark brown, moist, tar present
80						

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-113 (Continued)

DATE DRILLED: 8/3/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 184.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			23.3	
	85		27.1	
	90			
	95			
	100			
	105			
	110			
	115			
	120			

very little present of tar

CL-ML

CLAYEY PETROLIFEROUS SILT, very dark brown, slightly moist

CL-ML

(Sample not recovered)

END OF BORING AT 90 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water not encountered.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB
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BORING E-114

DATE DRILLED: 7/7/2011
 EQUIPMENT USED: Fugro CPT Direct Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 166 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.	
					ML SILT - moist, dark yellowish brown, trace medium sand, abundant rootlets, no odor
	5				ML CLAYEY SILT - stiff, moist, black, no odor
	10				
	15				
	20				
	25				
	30	124		Tar SAND	ASPHALTIC TAR SAND - very fine to fine, black, moist, stiff
	35	156		Tar SAND	ASPHALTIC TAR SAND - very fine to fine, black, moist, stiff
	40				

(CONTINUED ON FOLLOWING FIGURE)





Field Tech: DDS/PK
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-114 (Continued)

DATE DRILLED: 7/7/2011
 EQUIPMENT USED: Fugro CPT Direct Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 166 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			78.7	 Tar SAND
	45			
	50			 Tar SAND
	55			 Tar SAND
	60		51.2	
	65			
	70			
	75			
	80			

ASPHALTIC TAR SAND - very fine to fine, black, moist, stiff

ASPHALTIC TAR SAND - very fine to fine, black, moist, stiff

(Sample not recovered)

(Sample not recovered)

END OF BORING AT 60 FEET

NOTES:

Hand augered upper 8½ feet to avoid damage to utilities.
 Ground-water not encountered.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS/PK
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-115

DATE DRILLED: 7/8/2011
 EQUIPMENT USED: CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 165.6 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.
5				
10			5.4	SM
15			5.5	CL-ML
20			4.8	SM
25				
30			5.9	CL
35				
40				

SILTY SAND - loose, light brown, fine to medium grained sand

SILTY CLAY - very stiff, moist, light olive brown

SILTY SAND - medium dense, moist, dark olive brown, fine to medium grained sand, some small tar pods




SANDY CLAY - very stiff, moist, dark olive brown, fine to medium grained sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

BORING E-115 (Continued)

DATE DRILLED: 7/8/2011
 EQUIPMENT USED: CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 165.6 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			314	 CL
45				
50			66.1	 Tar SAND
55				
60			56.2	 Tar SAND
65				
70				
75				
80				

SANDY CLAY - very stiff, moist, dark olive gray, fine to medium grained sand

TAR SAND - black with dark olive gray, medium dense, fine to medium grained sand

TAR SAND - black
 END OF BORING AT 60 FEET

NOTES:
 Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water encountered, but unsuccessful sample collecting.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

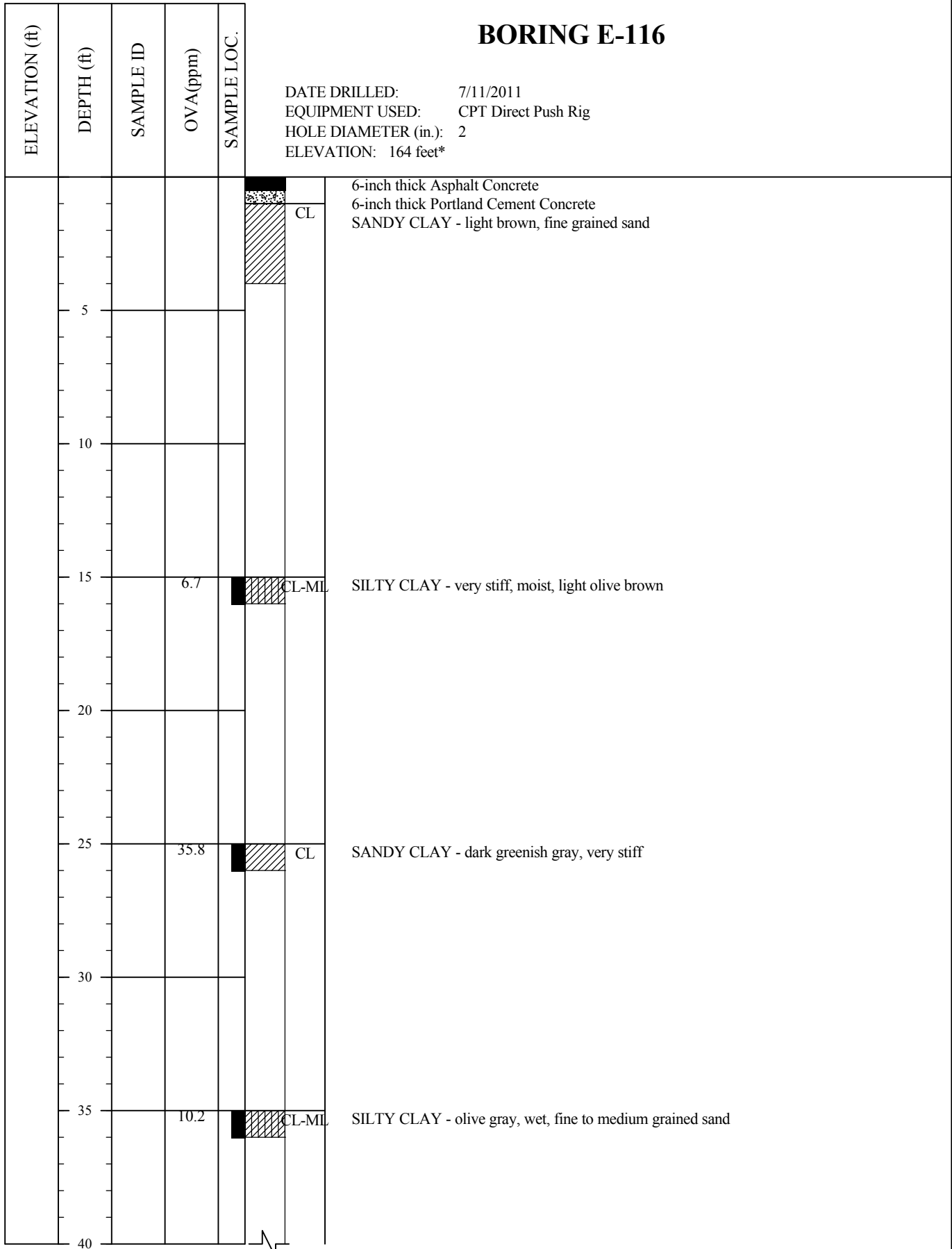
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BORING E-116

DATE DRILLED: 7/11/2011
 EQUIPMENT USED: CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 164 feet*



(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-116 (Continued)

DATE DRILLED: 7/11/2011
 EQUIPMENT USED: CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 164 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
45			58.2	CL-ML
50				
55			58.2	
60				
65			50.8	
70				
75				
80				

SILTY CLAY - very stiff, moist, black, fine to medium grained sand

TAR SAND

TAR SAND

END OF BORING AT 65 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample not collected.
 Borehole grouted with cement-bentonite slurry and
 patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-117

DATE DRILLED: 7/13/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 160 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				ML
5				
10				
15				
20			7.0	ML
25				
30			16.2	Tar SAND
35				
40				

6-inch thick Asphalt Concrete over 6-inch thick Portland Cement Concrete

SANDY SILT - medium stiff, moist, brown to olive brown, fine to medium grained sand

CLAYEY SILT - stiff, moist, olive

TAR SAND - slight oily odor

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-117 (Continued)

DATE DRILLED: 7/13/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 160 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			36.5	○
			36.5	■
45				CL
50			47.8	■ Tar SAND
55			51.5	■ Tar SAND
60				
65				
70				
75				
80				

(Sample not recovered)

SANDY CLAY - very stiff, greenish gray, fine grained sand, light odor

TAR SAND

END OF BORING AT 55 FEET

NOTES:

Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water not encountered.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-118

DATE DRILLED: 7/15/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 154.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				9-inch thick Asphalt Concrete over 9-inch thick Portland Cement Concrete
	5			ML SANDY SILT - medium stiff, moist, greenish black, fine to medium grained sand
				ML CLAYEY SILT - very stiff, dark yellowish brown, fine to medium grained sand
	10			CL SANDY CLAY - loose, yellowish brown, fine grained sand
	15			
	20			
	25			
	30			
	35		4.5	ML SANDY SILT - very dark greenish gray, medium stiff, fine to medium grained sand
	40			

(CONTINUED ON FOLLOWING FIGURE)







Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-118 (Continued)

DATE DRILLED: 7/15/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 154.5 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.		
			3.6		ML	SANDY SILT - very dark greenish gray, medium stiff, fine to medium grained sand
	45		2.0		ML	SANDY SILT - very dark greenish gray, medium stiff, fine grained sand
	50		1.4		ML	SANDY SILT - very dark greenish gray, medium stiff, fine grained sand
	55		25.7		ML	SANDY SILT - greenish black, medium grained, trace tar sand
	60		42.5		ML	SANDY SILT - dark olive gray, trace to tar sand, medium grained sand with some small rocks
	65		34.5		Tar SAND	TAR SAND - medium grained sand with small rocks
END OF BORING AT 65 FEET						
NOTES:						
Hand augered upper 10 feet to avoid damage to utilities.						
Ground-water not encountered.						
Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.						
	70					
	75					
	80					

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-119

DATE DRILLED: 7/14/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 151.8 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
5				CL
10				
15				
20				
25				
30			5.3	CL
35				
40				

SANDY CLAY - dark brown, very firm







SANDY CLAY - very stiff, grayish green

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

BORING E-119 (Continued)

DATE DRILLED: 7/14/2011
 EQUIPMENT USED: Fugro CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 151.8 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.
			2.8	
	45		2.8	
	50		2.0	
	55		2.5	
	60		2.2	
	65		3.6	
	70			
	75			
	80			

SC CLAYEY SAND - very dark greenish gray, fine grained sand

CL SANDY CLAY - very dark greenish gray, fine grained sand, dry

CL CLAY - very dark greenish gray, moist, firm

CL CLAY - very dark greenish gray, moist

CL CLAY - hard, very dark greenish gray, moist, firm

CL SANDY CLAY - very dark greenish gray, moist, fine to medium grained sand, with rock

END OF BORING AT 65 FEET

NOTES:
 Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water not encountered.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-120

DATE DRILLED: 7/20/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 140 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				4-inch thick Asphalt Concrete over 16-inch thick Portland Cement Concrete
				CLAYEY SILT - black, moist, no odor
	5			SILT - trace clay, some fine grained sand, dark yellowish brown (10Y,4/6), moist, no odor
	10			
	15			
	20			
	25			
	30		0.4	SILT - some very fine grained sand, trace clay, dark greenish gray, moist, medium dense, no odor
	35			
	40			

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

BORING E-120 (Continued)

DATE DRILLED: 7/20/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 140 feet*

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ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	DESCRIPTION	
			2.1		SW	WELL-GRADED SAND - some fine grained gravel (up to 1/2 inch), greenish gray, wet, medium dense, no odor
45						
			2.2		ML	SILT - some clay and very fine to fine grained sand, dark greenish gray, moist, very stiff, no odor
50						
			2.3		ML	SILT - some fine grained sand, dark greenish gray, moist, stiff, no odor
55						
			1.9		SP	POORLY GRADED SAND - some silt, trace gravel (up to 3/4 inch), very dark greenish gray, wet, medium dense, no odor
60				▽		
			2.4		ML	SILT - trace clay, dark greenish gray, wet, stiff, no odor
65						
			2.4		ML	SILT - trace clay, dark greenish gray, wet, stiff, no odor
70						END OF BORING AT 70 FEET
						NOTES: Hand augered upper 7 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 63 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
75						
80						

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC



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BORING E-121

DATE DRILLED: 7/21/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 137 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	Description
					6-inch thick Asphalt Concrete over 14-inch thick Portland Cement Concrete
	5			ML	CLAYEY SILT - black, moist Becomes yellowish brown, trace fine grained sand
	10		2.6	SC/ SM	CLAYEY to SILTY SAND - fine grained sand, dark yellowish brown, very moist, medium dense, no odor, with clay
	15		1.9	CL- ML	SILTY CLAY - dark yellowish brown, moist, stiff, no odor
	20		2.4	ML	CLAYEY SILT - dark yellowish brown, moist, stiff, no odor
	25		2.8	SM	SILTY SAND - fine grained sand, dark yellowish brown, moist to wet, medium dense, no odor
	30			○	(Sample not recovered)
	35			SP	POORLY GRADED SAND - fine grained sand, yellowish brown, wet, not enough sample for PID reading
	40				

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-121 (Continued)

DATE DRILLED: 7/21/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 137 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
				○
	45		1.2	CL-ML
	50		0.8	CL-ML
	55			ML
	60		0.2	SW
	65		0.7	CL
	70			
	75			
	80			

(Sample not recovered)

SILTY CLAY - trace fine grained sand, moist to wet, stiff, no odor

SILTY CLAY - dark greenish gray, moist, very stiff, no odor

SILT - some fine to medium grained sand, trace fine gravel, dark greenish gray, wet, no odor, only 3/4 of tube, not enough for PID reading

WELL GRADED SAND - fine to medium grained sand, trace fine gravel, dark greenish gray, wet, medium dense, no odor

▽

CLAY - dark greenish gray, moist, no odor

END OF BORING AT 65 FEET

NOTES:

Hand augered upper 6 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 63 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-122

DATE DRILLED: 7/22/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 138.3 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
					6-inch thick Asphalt Concrete over 14-inch thick Portland Cement Concrete
	5			ML	CLAYEY SILT - black, moist
	10		1.3	CL-ML	SILTY CLAY - dark olive brown, moist, stiff, no odor
	15		0.3	ML SP	CLAYEY SILT - dark olive gray, moist, stiff POORLY GRADED SAND - fine to medium grained sand, dark olive gray, moist, medium dense, most likely sand lense in clayey silt
	20		0.0	ML	CLAYEY SILT to SILTY CLAY - dark olive gray, moist, stiff, no odor
	25		2.0	CL-ML	SILTY CLAY - olive brown, moist, stiff
	30		1.8	ML	SANDY SILT - fine grained sand, olive brown, moist, stiff, no odor, with clay
	35		2.1	ML CL	SANDY SILT - fine grained sand, black, moist, stiff, no odor, with clay CLAY - very dark greenish gray, moist, stiff, no odor
	40				↙

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

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BORING E-122 (Continued)

DATE DRILLED: 7/22/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 138.3 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.	
			2.6		SP POORLY GRADED SAND - trace silt, fine grained sand, very dark greenish gray, wet, medium dense, no odor
	45				▽ (Sample not recovered)
	50		0.0		ML SILT - some very fine grained sand, dark greenish gray, wet, stiff, no odor
	55		0.0		CL CLAY - dark greenish gray, moist, stiff, no odor
	60		0.0		ML SILT - some very fine grained sand, trace clay, dark greenish gray, wet, stiff, no odor
	65		0.0		CL CLAY - dark greenish gray, moist, stiff, no odor
	70		0.0		SP POORLY GRADED SAND - very fine grained sand, very dark greenish gray, wet, medium dense, some silt END OF BORING AT 70 FEET
	75				NOTES: Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 43 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
	80				

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 S:\70131 GEOTECH\GINT\WLIBRARY MACTEC JUNE2011\GLB
 C:\PROJECT\DIRECTORIES\49532010\101561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-123

DATE DRILLED: 8/4/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 140.9 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30		3.0	CL
	35			
	40			

6-inch thick Asphalt Concrete over 8-inch thick Portland Cement Concrete

▽ CLAY - grayish brown, moist, fine grained sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131 GEOTECH\GINT\W\LIBRARY MACTEC JUNE2011\GLB C:\PROJECT_DIRECTORY\4951-10-1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT ENVIRO LOGS GPJ 10/21/11

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BORING E-123 (Continued)

DATE DRILLED: 8/4/2011
 EQUIPMENT USED: Kehoe CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 140.9 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.	DESCRIPTION
			2.1		CL CLAY - firm, moist, dark grayish brown
45					
			2.1		CL CLAY - very dark greenish gray, stiff
50					
			2.0		CL SANDY CLAY - stiff, greenish gray, fine to medium grained sand
55					
			0.0		CL CLAY - very stiff, very dark greenish gray, with patches of light greenish gray sandy silt, fine to medium grained sand
60					
			0.0		CL SANDY CLAY - very dark greenish gray, with patches (pockets) of light greenish gray, fine to coarse grained sand
65					
			0.0		CL SANDY CLAY - very dark greenish gray, with patches (pockets) of light greenish gray, fine grained sand
70					END OF BORING AT 70 FEET
75					
80					

NOTES:
 Hand augered upper 10 feet to avoid damage to utilities.
 Ground-water sample collected at the shallowest depth of 30 feet below the ground surface.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: DDS
 Prepared By: LH/APR/YN
 Checked By: DC



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 C:\PROJECT\DIRECTORIES\4951\10\1561\METRO WESTSIDE EXTENSION\6.2.4 PHASE II\ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE EXT ENVIRO LOGS GPJ 10/21/11

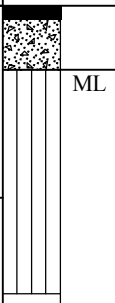
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BORING E-124

DATE DRILLED: 7/19/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 143.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30			
	35			
	40			

4-inch thick Asphalt Concrete over 16-inch Portland Cement Concrete



CLAYEY SILT - black, moist, stiff, no odor

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

BORING E-124 (Continued)

DATE DRILLED: 7/19/2011
 EQUIPMENT USED: Gregg CPT Direct Push Rig
 HOLE DIAMETER (in.): 2
 ELEVATION: 143.4 feet*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
45				
50			0.0	ML
55			0.0	ML
60			2.6	CL-ML
65			2.8	ML/SM
70			2.3	SP
75			1.2	ML
80				

CLAYEY SILT - dark olive gray, moist, very stiff, no odor

CLAYEY SILT - dark olive gray, moist, very stiff, no odor

SILTY CLAY - dark yellowish brown, moist, very stiff, no odor

SANDY SILT/ SILTY SAND - fine grained sand, greenish gray, wet, medium dense, no odor, 1 inch gravel fragment, interbedded clayey silt lense

POORLY GRADED SAND - fine to medium grained sand, some silt, wet, dark greenish gray, medium dense, no odor

SILT - some fine grained sand, dark greenish gray, moist to wet, no odor

END OF BORING AT 75 FEET

NOTES:

Hand augered upper 7½ feet to avoid damage to utilities.
 Ground-water sample not collected.
 Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: PK
 Prepared By: LH/APR/YN
 Checked By: DC

ENVIRONMENTAL LOG 2 - S:\70131_GEOLOGICAL\LIBRARY_MACTEC_JUNE2011\GLB_C:\PROJECT_DIRECTORY\49532\010701561_METRO_WESTSIDE_EXTENSION\6.2.4_PHASE II ENVIRONMENTAL\3.0 FIELD DOCUMENTS\GINTED LOGS\METRO WESTSIDE-EXT_ENVIRO LOGS GPJ_10/21/11

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