

Appendices

Appendix A: Grain Size Analysis Results

Appendix B: Field Notes, Field Logs, Drillers Daily Logs, and Well Surveying Results

Appendix C: Laboratory Data Sheets, Chain of Custodies, and Laboratory Methods and Limits (Zone 7 Laboratory)

Appendix A

Grain Size Analysis Results



CONSOLIDATED ENGINEERING
LABORATORIES

12/2/2010

Zone 7 Water Agency (E)

RE: Zone 7 Water PPWTP Improvements
8750 Patterson Pass Rd
Livermore, CA 94550

CEL#: 1001460PWB
LAB # S101124-01

LABORATORY REPORT

Consolidated Engineering Laboratories has performed testing of materials for the above project as noted below. Testing was performed in accordance with the indicated test method. Results are as follows:

Material: N/A
Location: Sample #195, #120, #240, #360
Source: Unknown
Sample Date: 11/24/10
Sampled By: Others

Please refer to the attached data sheets for results.

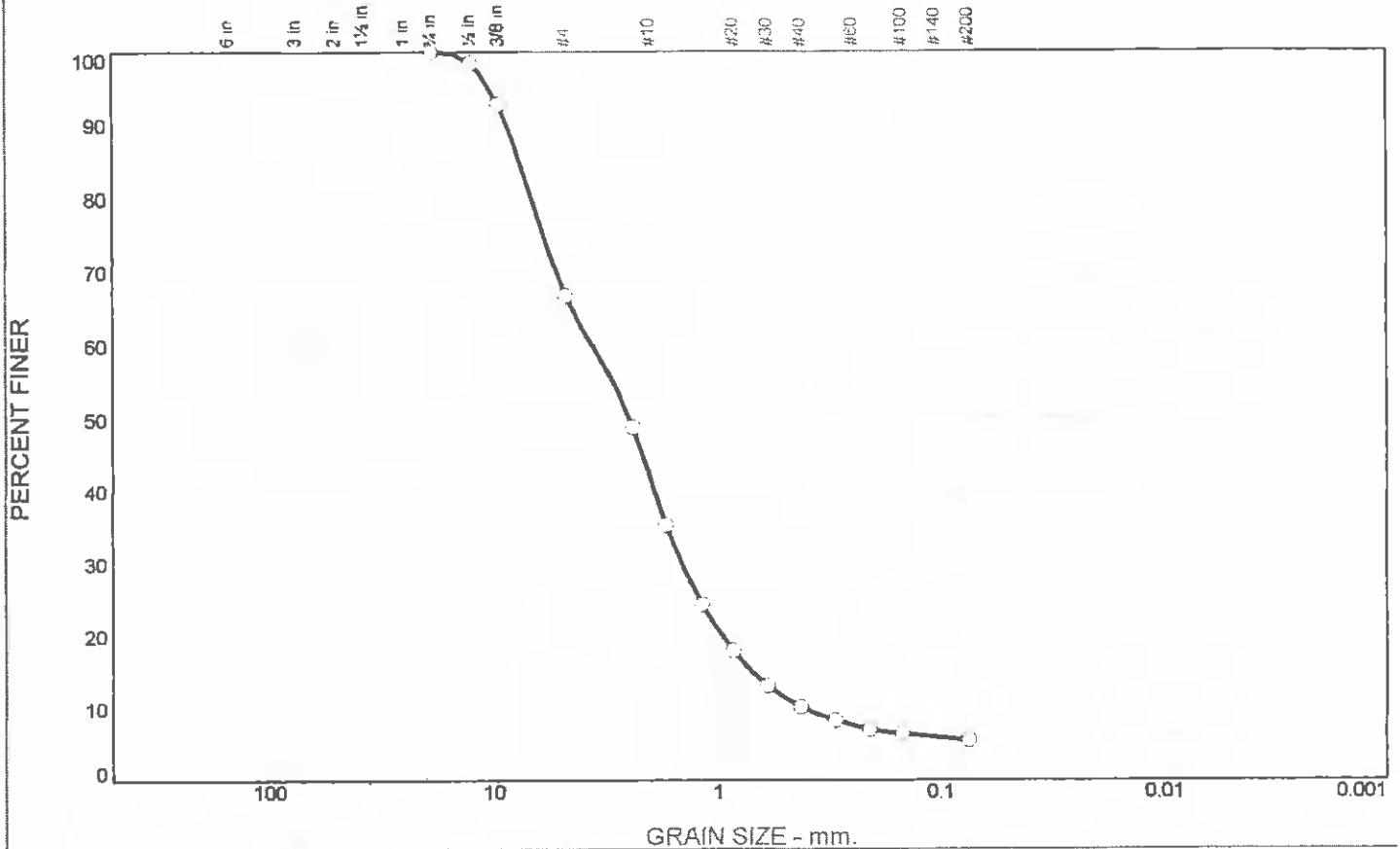
REVIEWING ENGINEER: Rick Navarro

CC:
Zone 7 Water Agency (E)

Enclosure (4)

All reports are submitted as the confidential property of clients. Publication of statements, conclusions, or extracts is reserved pending our written approval.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	33	25	32	5	5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	98		
3/8"	93		
#4	67		
#8	49		
#12	35		
#16	24		
#20	18		
#30	13		
#40	10		
#50	8		
#70	7		
#100	6		
#200	5.5		

Material Description

Brown sandy Gravel
Sampled 10-19-10 by Client

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 7.6148 D₆₀= 3.6239 D₅₀= 2.4367
D₃₀= 1.4626 D₁₅= 0.7039 D₁₀= 0.4181
C_u= 8.67 C_c= 1.41

Classification

USCS= AASHTO=

Remarks

Percent Retained---Sieves-1/2"=2%--3/8"=7%--#4=33%--#8 = 51%--#12=65%--#16=76%--#20=82%--#30=87%--#40= 90%--#50=92%--#70=93%--#100=94%--#200=94.5%

(no specification provided)

Sample Number: S101124-01
Location: Sample #195---10-19-10

Date: 12-01-10

Consolidated Engineering Laboratories

Client:
Project: ZONE 7 LAB. ANALYSIS

Oakland, California

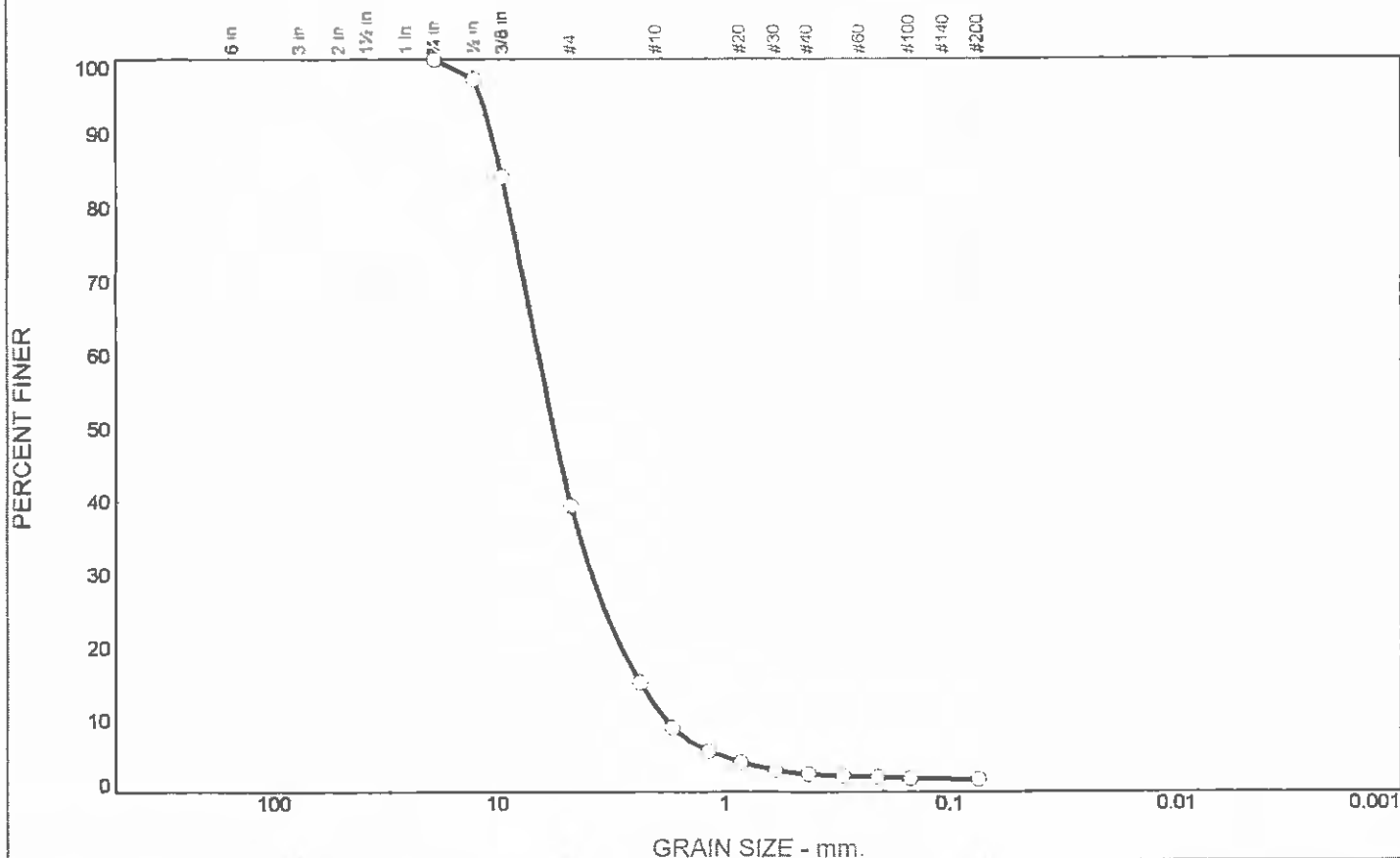
Project No: 1001460PWB

Figure S101124-01

Tested By: L.Hill

Checked By: R.Navarro

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	61	27	10	0	2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	97		
3/8"	84		
#4	39		
#8	15		
#12	9		
#16	6		
#20	4		
#30	3		
#40	2		
#50	2		
#70	2		
#100	2		
#200	1.7		

Material Description

Brown Sandy Gravel
Sampled on 10-19-10 by Client

PL=	Atterberg Limits	PI=
	LL=	

	Coefficients	
D ₈₅ = 9.6684	D ₆₀ = 6.5974	D ₅₀ = 5.6746
D ₃₀ = 3.8849	D ₁₅ = 2.3491	D ₁₀ = 1.8336
C _u = 3.60	C _c = 1.25	

USCS= GP **Classification**
AASHTO=

Remarks

Percent Retained--Sieves--1/2"=3%--3/8"=16%--#4=61%--#8=85%--#12=91%--#16=94%--#20=96%--#30=97%--#40=98%--#50=98%--#70=98%--#100=98%--#200=98.3%

* (no specification provided)

Sample Number: S101124-01
Location: Sample #120--10-19-10

Date: 12-01-10

Consolidated Engineering Laboratories

Client:
Project: ZONE 7 LAB. ANALYSIS

Oakland, California

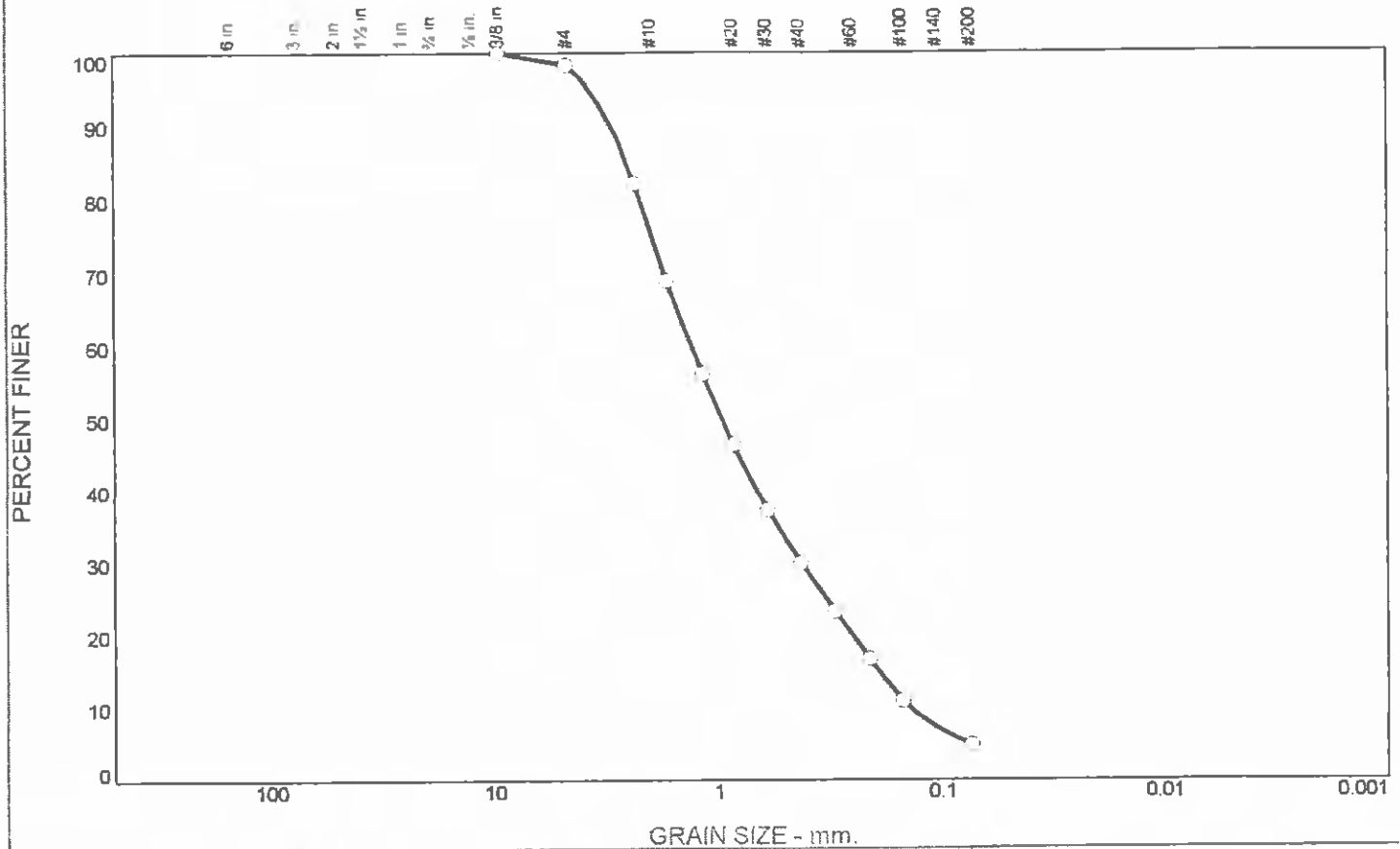
Project No: 1001460PWB

Figure S101124-01

Tested By: L.Hill

Checked By: R.Navarro

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	22	46	25	5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	98		
#8	82		
#12	69		
#16	56		
#20	46		
#30	37		
#40	30		
#50	23		
#70	17		
#100	11		
#200	4.8		

(no specification provided)

Material Description

Brown Sandy Gravel
Sampled on 10-20-10 by Client

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 2.5566 D₆₀= 1.3239 D₅₀= 0.9605
D₃₀= 0.4239 D₁₅= 0.1913 D₁₀= 0.1400
C_u= 9.45 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Percent Retained--Sieves--#4=2%--#8=18%--#12=31%--#16=44%--#20=54%--#30=63%--#40=70%--#50=77%--#70=83%--#100=89%--#200=95.8%

Sample Number: S101124-01
Location: Sample #240---10-20-10

Date: 12-01-10

Consolidated Engineering Laboratories

Client:
Project: ZONE 7 LAB. ANALYSIS

Oakland, California

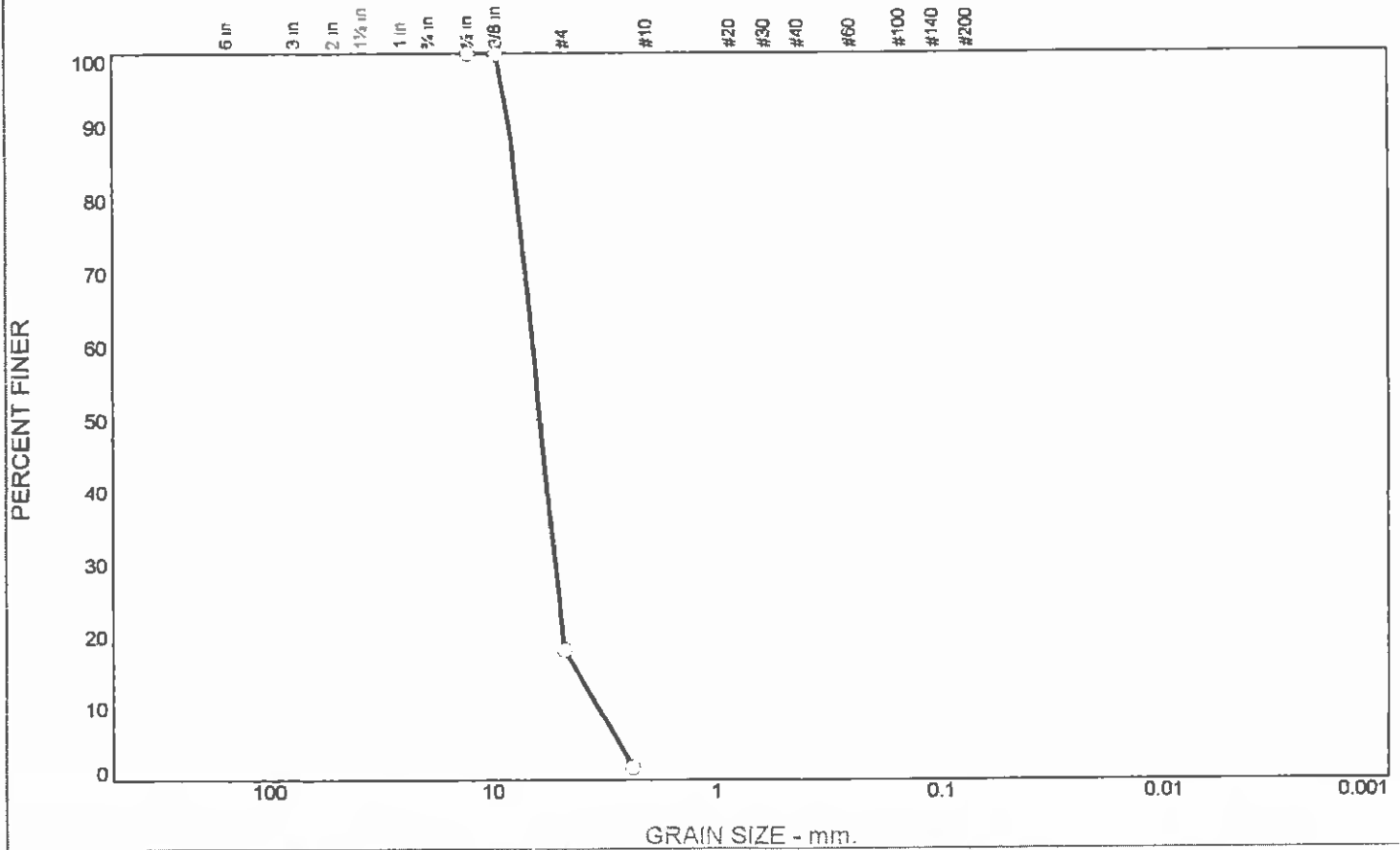
Project No: 1001460PWB

Figure S101124-01

Tested By: L.Hill

Checked By: R.Navarro

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	82				18	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100		
3/8"	100		
#4	18		
#8	2		

Material Description

Brown Sandy Gravel
Sampled on 10-21-10 by Client

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₈₅= 7.9471 D₆₀= 6.5622 D₅₀= 6.1182
 D₃₀= 5.2817 D₁₅= 4.1695 D₁₀= 3.3643
 C_u= 1.95 C_c= 1.26

Classification
 USCS= AASHTO=

Remarks
 Percent Retained--Sieves--#4=82%--#8=98%

* (no specification provided)

Sample Number: S101124-01
 Location: Sample #360---10-21-10

Date: 12-01-10

Consolidated Engineering Laboratories Oakland, California	Client: Project: ZONE 7 LAB. ANALYSIS Project No: 1001460PWB
Figure S101124-01	

Tested By: L.Hill

Checked By: R.Navarro

Appendix B

**Field Notes, Field Logs,
Drillers Daily Logs, and Well Surveying Results**



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
FAX: (925) 454-5727

Well ID 351E 13PS-8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 15:40	14											CL brown gravelly clay clumps of grayish green clay with angular coarse sand to fine gravel
	15	X					CL					
10/19/10 08:10 start drilling	16											ML brown silt some fine sand trace coarse sand
	17											
	18											
	19											
Sample 08:20	20	X					ML	90	10			
Sample 08:30	21											ML brown silt some fine to coarse sand more clay in clumps grayish brown
	22											
	23											
	24											
	25	X					ML	90	10			
Sample 08:35	26											ML brown silt with clay some fine to coarse sand trace fine gravel
	27											
	28											
	29											
Sample 08:35	30	X					ML	85	10	5		
Sample 08:40	31											ML brown clayey silt fine to coarse sand gravel to 1 1/2" increasing clay content
	32											
	33											
	34											
	35	X					ML	80	15	5		
Sample 09:10	36											GC brown clayey gravel fine to medium gravel in clay matrix up to 1 1/2" rounded gravel some clump of brown to reddish brown clay
	37											
	38											
	39											
	40	X					GC					
	41											
	42											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE:(925) 454-5000
FAX:(925) 454-5727

Well ID 351E13P5-8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 09:15	43											CL brown gravelly clay Some fine to med sand
	44											
	45	X					CL	60	10	30		
Sample 09:20	46											CL, grayish brown silty clay with fine to coarse sand and fine gravel. Clumps of bluish gray clay.
	47											
	48											
	49											
	50	X					CL	75	15	10		
Sample 09:30	51											GC, gravel in clay/silt matrix some sand gravel fine to 1" angular to subrounded
	52											
	53											
	54											
	55	X					GC	20	10	70		
Sample 09:55	56											GW, sand and gravel well graded some clay and silt
	57											
	58											
	59											
	60	X					GW	15	20	65		
Sample 10:00	61											GW, well graded gravel some sand coarser than above increase in silt/clay matrix some clumps of grayish brown clay
	62											
	63											
	64											
	65	X					GW	25	10	65		
Sample 10:05	66											GW, well graded gravel with sand some clay and silt gravel angular to subrounded
	67											
	68											
	69											
	70	X					GW	15	15	70		
	71											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3S11E13P5-9

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size PERCENTAGE			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	SILT/CLAY	SAND	GRAVEL	
Sample 10:10	72											SW, gravelly sand with silt clay trace grayish brown clay clings gravel sand subangular to subrounded.
	73											
	74											
	75	X					SW	15	55	30		
Sample 10:50	76											GW, well graded gravel with sand, silt and clay gravel angular to rounded up to 1/2"
	77											
	78											
	79											
80	X						GW	15	15	70		
Sample 10:55	81											GC, clayey gravel with some sand grayish brown clay subangular gravel up to 1 1/2"
	82											
	83											
	84											
	85	X					GC	40	10	50		
Sample 11:05	86											GC, clayey gravel with some sand. grayish brown clay matrix Gravel much coarser than above. Chert up to 2 1/2"
	87											
	88											
	89											
	90						GC	30	10	60		
Sample 11:07	91											SW, well graded gravelly sand with silt/clay fine sand to medium gravel mostly coarse sand and fine gravel
	92											
	93											
	94											
	95	X					SW	20	53	30		
Sample 13:05	96											GW, well graded gravel with sand. fine to med gravel with fine to coarse sand trace silt/clay
	97											
	98											
	99											
	100	X					GW	5	35	60		



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE:(925) 454-5000
FAX:(925) 454-5727

Well ID 3511F 13FS-8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 13:05	101											GW, well graded gravel with sand fine to coarse gravel with fine to coarse sand. Some silt/clay mostly coarse sand to fine gravel gravel up to 1"
	102											
	103											
	104											
	105	X					0:0:0 GW	15	35	50		
Sample 13:10	106											GW, well graded gravel some coarse sand trace fine gravel up to 1" sub rounded to rounded
	107											
	108											
	109											
	110	X					0:0:0 GW	5	20	75		
Sample 13:12	111											GW, as above slightly finer gravel slightly more angular
	112											
	113											
	114											
	115	X					0:0:0 GW	5	20	75		
Sample 13:45	116											GW, as above gravel up to 3/4" sample sent for sieve analysis
	117											
	118											
	119											
	120	X					0:0:0 GW	5	20	75		
Sample 13:50	121											GW, well graded gravel some sand trace fines gravel fine to very coarse gravel up to 2"
	122											
	123											
	124											
	125	X					0:0:0 GW	5	10	85		
Sample 13:56	126											SW, well graded gravelly sand trace fines fine sand to v. coarse gravel. mostly coarse sand to fine gravel
	127											
	128											
	129											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE:(925) 454-5000
FAX:(925) 454-5727

Well ID 3N-E 13PK

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
	130	X						SW	5	55	40	
Sample 14:00	131											GW, well graded gravel Some sand trace silt Coarse sand to v. coarse gravel.
	132											
	133											
	134											
	135	X						GW	5	15	80	
Sample 14:45	136											GW, well graded gravel with sand trace fines Finer gravel than above
	137											
	138											
	139											
	140	X						GW	5	25	70	
Sample 14:58	141											GW, well graded gravel with sand and silt as above with increase in fines (silt/clay)
	142											
	143											
	144											
	145	X						GW	15	20	65	
Sample 15:10	146											SW, well graded gravelly sand trace silt fine to coarse sand fine to med gravel trace very coarse gravel up to 1"
	147											
	148											
	149											
	150	X						SW	5	50	45	
Sample 15:15	151											GW, well graded sandy gravel trace silt fine to coarse sand fine to coarse gravel gravel up to 3/4" subangular to subrounded
	152											
	153											
	154											
	155	X						GW	5	30	65	
	156											GW, well graded gravel some sand trace silt coarser than above
	157											
	158											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 351/E 1388

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 15:35	159											gravel up to 2"
	160	X						GW	5	20	75	
Sample 15:40	161											GW, well graded gravel some sand traces silt above.
	162											
	163											
	164											
	165	X						GW	5	20	75	
Sample 16:10	166											GW, well graded gravel some sand coarser than above
	167											
	168											
	169											
Sample 16:15	170	X						GW		10	90	GW, well graded gravel some sand
	171											
	172											
Sample 16:15	173											GW, well graded gravel some sand
	174											
Sample 16:15	175	X						GW	5	20	75	GW, well graded gravel some sand
	176											
10/20/10 Re-Dive Drilling 07:30	177											GW, well graded sandy gravel fine sand to coarse gravel mostly coarse sand and fine gravel
	178											
Sample 07:45	179											GW, well graded gravel some sand
	180	X						GW		30	70	
Sample 08:00	181											GW, as above slightly finer gravel and trace silt
	182											
	183											
	184											
	185	X						GW	5	30	65	
	186											GW, sandy gravel coarser gravel than
	187											



ZONE 7 WATER AGENCY
 100 NORTH CANYONS PARKWAY
 LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3S11E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 8:25	188											above more fines gravel to 1"
	189											
	190	X					GW	10	30	60		
Sample 8:35	191											GC, clayey gravel some sand mostly fine gravel trace very coarse gravel sample submitted for sieve analysis
	192											
	193											
	194											
	195	Y					GC	30	20	50		
Sample 8:55	196											GW, gravel with sand some silt/clay
	197											
	198											
	199											
	200	Y					GW	10	30	60		
switch to med rotor	201											SP, grayish brown sand mostly medium grained
	202											
	203											
	204											
Sample 15:45	205	X					SP		100			
	206											SP, as above
207												
208												
209												
Sample 15:50	210	X					SP		100			
	211											SP, as above slightly coarser sand
212												
213												
Sample 15:52	214											
	215	X					SP		100			
	216											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

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Well ID 3S11E 1398

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 15:55	217											SP, as above
	218											
	219											
	220	X						SP	100			
Sample 16:00	221											SP, as above
	222											
	223											
	224											
	225	X						SP	100			
10/21/10 resume drilling 07:30	226											GP, sandy gravel sometimes mostly fine gravel 3/4"
	227											
	228											
	229											
Sample 07:37	230	X						GP	10	30	60	
	231											
Sample 08:00	232											GP, gravel some sand sometimes. a little coarser than above
	233											
	234											
	235	X						GP	10	20	70	
	236											
Sample 08:15	237											GP, sandy gravel some fines finer than above mostly coarse sand and fine gravel.
	238											
	239											
	240	X						GP	10	40	50	
	241											
Sample 09:20	242											SP, greyish brown sand some fines mostly medium and coarse sand.
	243											
	244											
	245	X						SP	10	90		
	246											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

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Well ID 3511E 13 PB

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 08135	246											GP, sandy gravel some fines
	247											
	248											
	249											
	250	X						GP	10	55	55	
Sample 08140	251											GP, sandy gravel some fines mostly coarse sand and fine gravel
	252											
	253											
	254											
	255	X						GP	10	40	50	
Sample	256											GP, sandy gravel slightly coarser than above
	257											
	258											
	259	X						GP	10	30	60	
Sample	261											GP sandy gravel
	262											
	263											
	264											
	265	X						GP	10	40	50	
Sample 09110	266											GM, silty, sandy gravel
	267											
	268											
	269											
	270	X						GM	25	30	45	
Sample	271											GM, silty, sandy gravel
	272											
	273											
	274											
	275	X						EM	50	35	55	



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
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Well ID 3511E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample	276											GP, sandy gravel some fine
	277											
	278											
	279											
	280	X						GP	10	30	60	
Sample 09.30	281											SM, silty sand w/gravel fine to coarse sand fine gravel
	282											
	283											
	284											
	285	X						SM	35	50	15	
Sample	286											SM, brown silty sand some gravel coarser than 2' cone
	287											
	288											
	289											
	290	X						SM	30	40	30	
Sample 10.05	291											SM, brown silty sand and gravel.
	292											
	293											
	294											
	295	X						SM	25	40	35	
Sample	296											SM, brown silty sand and gravel.
	297											
	298											
	299											
	300	X						SM	25	40	35	
Sample	301											SM, brown silty sand and gravel
	302											
	303											
	304											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
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Well ID 351E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
	305	X					SM	30	40	30		
	306										SM, silty sand with gravel	
	307											
	308											
	309											
Sample 14:00	310	X					SM	30	40	30		
	311										SM, silty sand and gravel	
	312											
	313											
Sample 14:05	314											
	315	X					SM	20	40	40		
	316										SM, silty sand and gravel	
	317											
	318											
Sample 14:10	319											
	320	X					SM	30	40	30		
	321										GM, silty gravel with sand	
	322											
	323											
Sample 14:15	324											
	325	X					GM	30	30	40		
	326										GP, gravel	
	327										clean mostly 1/4"-3/8"	
	328										trace fine gravel	
	329											
Sample 14:30	330	X					GP			100		
	331										SM, silty sandy gravel	
	332											
Sample 14:35	333											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE:(925) 454-5000
 FAX:(925) 454-5727

Well ID 3511E 13 P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
	334											
	335	X					GM	20	30	50		
	336											GP, gravel
	337											clean 1/4" - 3/8"
	338											
Sample 14:40	340	X					GP			100		
	341											GM, silty sandy gravel
	342											
	343											
Sample 14:45	344											
	345	X					GM	15	20	65		
	346											GP, gravel
	347											clean 1/4" - 3/8"
	348											
	349											
Sample 15:05	350	X					GP			100		
	351											GP, gravel
	352											clean 1/4" - 3/8"
	353											mostly subangular to
	354											subrounded
Sample 15:10	355	X					GP			100		Some angular cut pieces
	356											GP, gravel
Some rig cutting	357											as above
	358											
	359											
Sample 15:15	360	X					GP			100		Sample submitted for stone analysis
	361											GP, gravel trace silt
Sample 15:30	362											Some sand.
	363											1/4" - 3/8"



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 351.E.1398

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
	364											
	365	X					GP	5	10	85		
	366											GM, well graded gravel some fines and sand. Fine to coarse sand fine gravel to 3/4"
	367											
	368											
	369											
Sample 15:55	370	X					GW	10	10	80		
	371											GM, silty sandy gravel Fine to coarse sand gravel to 1/2"
	372											
	373											
	374											
Sample 16:00	375	X					GM	20	20	60		
01/21/10 10/21/10 Switch to 9 3/4" bit Resume drilling	376											GP, gravel trace fines some sand gravel mostly 1/4" - 3/8"
	377											
	378											
Sample 10:30	379											GM, silty sandy gravel Fine to coarse sand gravel to 1/2" Subangular gravel.
	380	X					GP	5	10	85		
	381											
	382											
	383											
Sample 10:35	384											GM, silty sandy gravel
	385	X					GM	20	20	60		
	386											
	387											GM, silty sandy gravel
	388											
	389											
Sample 10:50	390	X					GM	20	30	50		
	391											
	392											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3511E 13 P2

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 10:55	393											GP, sandy gravel some fines. Most gravel ~ 1/4" angular and subangular
	394											
	395	X					GP	10	20	70		
Sample 11:00	396											GP sandy gravel
	397											
	398											
	399											
	400	X					GP	10	20	70		
Sample 11:10	401											GP gravel most gravel ~ 1/4" - 3/8" subangular to angular
	402											
	403											
	404											
	405	X					GP	5	10	85		
Sample 11:15	406											GP, gravel as above
	407											
	408											
	409											
	410	X					GP	5	10	85		
Sample 11:25	411											GP, as above
	412											
	413											
	414											
	415	X					GP					
Sample 11:30	416											GP, gravel some sand.
	417											
	418											
	419											
	420	X					GP					
	421											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

Well ID 3511E 1308

PHONE: (925) 454-5000
 FAX: (925) 454-5727

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 11:35	422											GP, gravel as above
	423											
	424											
	425	X					GP					
Sample 13:30	426											GP, gravel as above slightly coarser subangular to angular
	427											
	428											
	429											
Sample 13:35	430	X					GP					GP, gravel with some sand and fines gravel pieces to 3/4" subangular to angular
	431											
	432											
	433											
Sample 13:40	434											GP, gravel with some sand and fines. as above
	435	X					GP	10	20	70		
	436											
	437											
Sample 13:45	438											GP, gravel as above
	439											
	440	X					GP	10	20	70		
	441											
Sample	442											GP, gravel as above
	443											
	444											
	445	X					GP	10	20	70		
Sample	446											GP, gravel as above
	447											
	448											
	449											
Sample	450	X					GP					



ZONE 7 WATER AGENCY
 100 NORTH CANYONS PARKWAY
 LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3S1E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample	451											GM, silty sandy gravel
	452											
	453											
	454											
	455	X					20 20 20 20 20	GM	20	20	60	
Driller said drilling harder maybe clay	456											brown GM, silty sandy gravel more silt and sand than above
	457											
	458											
	459											
	460	X					20 20 20 20 20	GM	30	30	40	
Sample 15:10	461											brown GM, silty sandy gravel as above
	462											
	463											
	464											
	465	X					20 20 20 20 20	GM	30	30	40	
Sample 15:15	466											SM, ^{or silty} silty sand some fine gravel
	467											
	468											
	469											
	470	X					4 4 4 4 4	SM	30	60	10	
Sample 15:30	471											GM, brown silty sandy gravel gravel ~ 1/4" mostly subangular to angular some rounded.
	472											
	473											
	474											
	475	X					3-20 3-20 3-20 3-20 3-20	GM	15	20	65	
Sample 15:40	476											SM, silty gravelly sand
	477											
	478											
	479											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3511E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
	480	X					SM	30	40	30		
Sample 10/110	481										SC, clayey silty sand	
	482										clumps of reddish brown clay	
	483											
	484											
	485	X					SC	40	50	10		
10/25/10 Resume drilling 08/30 Sample	486						GC	40	26	40	GC, brown clayey gravel	
	487											
	488											
	489											
	490	X					ML	40	26	40		
Sample	491										ML, brown gravelly clayey silt w/sand	
	492											
	493											
	494											
	495	X					ML	53	20	30		
Sample	496										SM, brown silty sand with some fine gravel	
	497											
	498											
	499											
	500	X					SM	30	55	15		
Sample	501										GC, brown clayey gravel some fine to coarse sand some clay clumps	
	502										gravel mostly ~1/4"	
	503											
	504											
	505	X					GC	15	25	60		
	506										GP, gravel some sand and fines.	
	507										gravel mostly ~1/4"	
	508											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 3S11E 13P8

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample	509											
	510	X						GP	10	15	75	
Sample 09:30	511											GP, as above
	512											
	513											
	514											
	515	X						GP	10	15	75	
Sample	516											GP, as above
	517											
	518											
	519											
	520	X						GP	10	15	75	
Sample	521											GM, brown silty sandy gravel
	522											
	523											
	524											
	525	X						GM	30	30	40	
Sample 10:20	526											GP, gravel some sand and fines.
	527											
	528											mostl ^y gravel 1/4"
	529											
	530	X						GP	10	15	75	
Sample 10:30	531											GP, gravel as above
	532											
	533											
	534											
	535	X						GP	10	15	75	
	536											GP, gravel trace sand and fines.
	537											



ZONE 7 WATER AGENCY
 100 NORTH CANYONS PARKWAY
 LIVERMORE, CA 94551

PHONE: (925) 454-5000
 FAX: (925) 454-5727

Well ID 351E1308

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	PERCENTAGE			
									SILT/CLAY	SAND	GRAVEL	
Sample 10:45	538											gravel mostly 1/4" some up to 1" subangular to angular
	539											
	540	X					GP	5	5	90		
Sample 11:00	541											GM, silty sandy gravel brown
	542											
	543											
	544											
	545	X					GM	20	25	55		
Sample	546											ML, brown sandy silt some fine gravel.
	547											
	548											
	549											
	550	X					ML	55	35	10		
Sample	551											ML, brown sandy silt some fine gravel.
	552											
	553											
	554											
	555	X					ML	55	35	10		
Sample	556											ML, brown sandy clayey silt some gravel some balls of clay
	557											
	558											
	559											
	560	X					ML	55	35	10		
Sample	561											CLML, brown sandy clay and silt some gravel
	562											
	563											
	564											
	565	X					CLML	55	35	10		
	566											



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94551

PHONE: (925) 454-5000
FAX: (925) 454-5727

Well ID 3511E 1398

DRILLING LOG

COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY/ DENSITY	LITHOLOGY		Grain-Size PERCENTAGE			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	SILT/CLAY	SAND	GRAVEL	
Sample 13:15	567											SM, brown silty sand trace fine gravel some small reddish brown clay balls.
	568											
	569											
	570	X						SM	40	55	5	
Sample 13:20	571											SM, brown silty sand as above w/o the clay
	572											
	573											
	574											
Sample 13:25	575	X						SM	40	55	5	SM, brown silty sand some gravel coarser than above
	576											
	577											
	578											
Sample 13:30	579											SM, brown silty sand some gravel as above
	580	X						SM	30	50	20	
	581											
	582											
Sample 14:10	583											SM, brown silty sand some gravel
	584											
	585	X						SM	30	50	20	
	586											
Sample 14:20	587											SM, brown silty sand more gravel than above
	588											
	589											
	590	X						SM	30	50	20	
Sample 14:20	591											SM, brown silty sand more gravel than above
	592											
	593											
	594											
Sample 14:20	595	X						SM	30	40	30	



ZONE 7 WATER AGENCY
 100 NORTH CANYONS PARKWAY
 LIVERMORE, CA 94551

PHONE:(925) 454-5000
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Well ID 3S11E 13 P8

DRILLING LOG

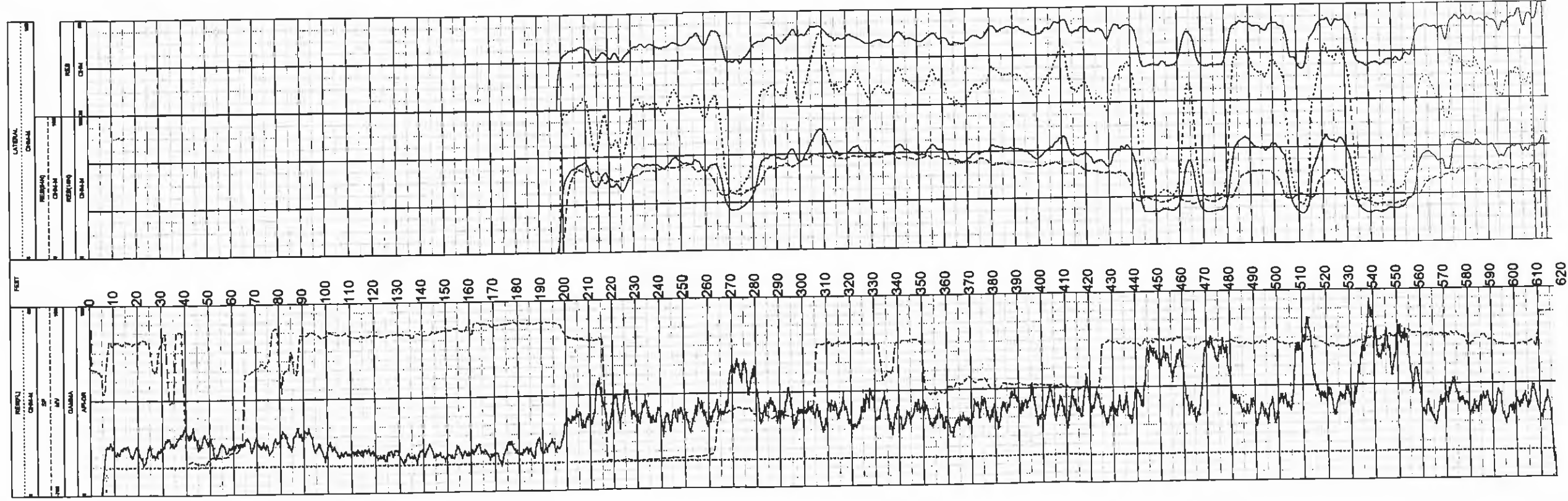
COMMENTS/ RIG ACTIVITIES	DEPTH	SAMPLE INTERVAL	RECOVERY	MOISTURE	BLOW COUNTS	CONSISTENCY DENSITY	LITHOLOGY		Grain-Size PERCENTAGE			DESCRIPTION AND REMARKS
							SYMBOL	USCS CODE	SILT/CLAY	SAND	GRAVEL	
Sample 14.25	596											SM, brown silty gravelly sand.
	597											
	598											
	599											
	600	X						SM	30	40	30	
Driller overdrilled to 618'	601											
	602											
	603											
	604											
	605											
	606											
	607											
	608											
	609											
	610											
	611											
	612											
	613											
614												
615												
616												
617												
618												
												Bottom of boring

DEWEY
DATA INC.
DOWN HOLE SURVEYS
3S/1E 13P9

COMPANY	ZONE 7 WATER AGENCY	OTHER SERVICES	
WELL	3816 13P9	LOGGING	
LOCATION/FIELD	1544 STANLEY PLUMMATION	INVOICE	
COUNTY	ALAMEDA	DATE	
LOCALITY	CA	TOWNSHIP	NA
SECTION	NA	RANGE	NA
DATE	LOGGING	PERMANENT DATUM	CL
LOGGERS	01/17/79	LOG MEASURED FROM	CL
LOG NUMBER	01400	DRL MEASURED FROM	CL
LOG TOP	0.00	LOGGING UNIT	00
CASING DIAMETER		FIELD OFFICE	DEWEY DATA
CASING TYPE		RECORDED BY	ART/METD
CASING THICKNESS		ROD/HOLE FLUID	CL/WEL
BIT SIZE	8 1/4	RM TEMPERATURE	74
MAGNETIC DECL.	0	MATRIX DELTA T	34
NEUTRON MATTOR	2.68		
	DIAMONITE		
		FILE PROCESSED	
		TYPE	SI/AA
		LOCATE	LOG/210
		THRESH. 5000	

CASCADE DRILLING
13-38 in. casing in 186.8 ft.

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



Pool Cell 925-451-9908

Todd Mechem
Joe Stalock

Greg Schroth
Jeff Nicwander

10-18-10

14:30 onsite

only have lake water no potable water.

will get water from the hydrant

16:30: shut down rig for the day

Pay items: 1 mob 18 feet 14" hole

10-19-10

07:15 onsite drillers setting up

08:10 start drilling

10:30 JJ at site for inspection

11:15 JS leaves site

11:45 break for lunch/refueling

12:45 resume drilling

16:30 finish drilling for the day at 175'
drillers cleaning up.

leave site

Pay items: 160 feet 14" hole

10-20-10

07:15 onsite drillers setting up

07:30 start drilling

09:00 reach 200' w/drive casing
drillers switching to mud.

15:30 back onsite

Portajohn delivered

15:40 start drilling with mud

16:20 shut down drilling for day

Pay items: 40' 14" hole, 30' 12" hole

Pete Cottes - CEMEX Geologist

916-941-2908 (office)

916-200-4922 (cell)

10-21-10

07:30 on-site drillers recirculating mud
start drilling.

08:30 Go to CEMEX trailer to
meet Chris of DWR.

12:15 off-site w/Chris and Cheryl
drillers getting lunch and
fuel.

drillers will be working
on thickening up the mud
and recirculating and
cleaning out the hole
after lunch.

14:00 back on-site drillers still
cleaning out hole,
resume drilling.

16:00 Drillers reached 375' (total
depth for 12" hole.

16:30 Pulled out 100' of drill pipe
will recirculate in the morning
then trip out and go back
down with 8" bit

16:40 leave site drillers cleaning up

Pay items: 150' 12" hole

L265

10/18 31
10/19 25
10/20 40
10/21 35
10/22 22

10-22-10

0800 Onsite Drillers finished cleaning out hole from last night. tripping out of hole.

09100 Finished tripping out of the hole. will go back down with a 9 3/4" bit. They want to use that instead of an 8" since this bit will work with the collar on the rig.

09145 David, Diana and Jeff onsite for LCP interviews.

10:20 Jeff and Diana offsite. David interviewing Greg.

10:25 Last section of pipe down. Resume drilling.

12:00 Break for lunch

13:15 Resume drilling. Raining

14:00 Pete Cotter onsite to look at drilling and exchange info.

14:30 Tom Rooze onsite

15:00 Tom Rooze offsite

15:15 Pete Cotter offsite

16:30 Drillers finish drilling for the day. they will pull back the drill string and clean up. Leave site. (4:55)

Log Hens: 110' Drill 8" borehole

40' clay layer at 120' below
lake D

Rob Alderheiser
Shepard

and Pete Cotler bag and GUMP

10-25-10

0800 CEMEX plant very muddy go
back to office for 4x4 truck.

0830 Spoke to Driller they are at
485' will start drilling.

0930 Back at site driller at 515'
Additional helper onsite.

1130 water truck filling up Driller
recirculating.

1425 Driller reached TD of 600'
will drill deeper to allow for
sloughing.

Pay items: Drill 115' 8" borehole

Driller cleaned out hole

log set up for 10 AM

11030 offsite

7:30 - 11:30 ~~estimated~~ 6
2 hr OT

RR 5' Screen casing (10') 8'

↑ centralizer ↑

|||||

|||||

|||||

10-Dec-10

0915 Arrive onsite. Drillers recirculate mud will pull pipe when the logger gets here.

1015 Logger onsite (Amy from Dewey Data) Drillers pulling out.

1030 MK, CD, TR arrive onsite.

1015 Amy set up on hole runs log. Revised screened intervals.

1330 Dewey Data, MK, CD, TR offsite

1345 Drillers dropping 2 1/2" pipe will start well construction after.

1500 Drillers start installing deep well casing & screen.

1620 casing for the deep well installed. Drillers setting up for tomorrow will start trenching sand in AM.

7:30 - 11:30

2 LOT

L262

10/25 17 miles

10/26 32 miles

Log Items: 1 log
500' casing
20' screen
2 centralizers

7:30-18:00

Inclusion

2.5

10-27-10

0815 Arrive site

JJ on site with drillers.

CS (drillers helper) not on site
was informed he left w/o
notice

Drillers are running sand.

0830 Todd upset said he got a
call that CS had said Todd
spent the day yesterday
yelling at him.

0845 Called Craig to let him know
that Todd was patient and
professional with CS.

1015 Todd unable to tag the bottom
of the sand. The filter pack
is coming out on the shaker.
Working on thinning the
mud, so the sand will settle.
They had thought they got
a good tag at 570 and had
pulled the tremie to 570'
I asked them to put the tremie
back down if they can't
get a good tag so the tremie
is below the screen.

1055 Drillers got tremie back down on

1110 Leave site

1315 back at site Drillers still working on sand. Pumped more sand. Thinned out mud letting the sand settle with the pump off.

Sand has settled on the bottom well bottom is at 405' on solid sand fill.

1600 Sand to 574.5'. Drillers pulling back one section of tremie and setting up for the bentonite seal. Peter Cotter called he will be onsite Friday to drop off the Dering logs from CEMEX.

1630 Pumped 1 bag sand & 2 bags bentonite

1645 Pumped 1 bag sand & 2 bags bentonite seal to 550'

Pulling another ² sections of tremie
1710 off site

1765 27 miles

Send JJ email

- Filter pack at 574.5'
- When installing seal using #2/16 Sand (100 lbs)
2 bags bentonite / 1 bag sand
- Pete Cottes on site Friday to drop off logs. We need to give him the elev.
10/28/10 L265 15

10/29/10

L265 14 ml.

14:00 Arrive at site.

Drillers getting ready to pull
drill casing.

Jacks are in place

Seal up to 200' bottom of drill

casing at 200' will pull

10' of drill casing and see
if the hole stays open.

15:20 Pulled casing up 4' hole stayed
open.

15:30 Removed 10' casing hole stayed
open. Maybe 2' of slough

16:00 Tremie reinstalled (9 sections)

16:20 Pumped 1 st #2/16 Sand and
2 st #8 bentonite with
1/4 st sand chaser.

16:40 Pulling tremie seal tagged at
194'. will leave casing in
over the weekend

500
131

TREMMIE
508"

WELL
TREMMIE SAND
FT

10/28/10	07:25	4 - 21 FT TREMMIE PIPE IN GROUND			536 FT
	08:45	4 BAGS BENTON - 2 BAGS SAND (CONCRETE) LL #2/16 50# 100#			536 FT
	08:00	2 BAGS	1 BAG SAND		524 FT
	08:10	1 TREMMIE PIPE			
	08:20	2 BAGS	1 SAND	484 FT	509 FT
	08:35	2 BAGS	1 SAND		495 FT
	08:50	REMOVED 42 FT TREMMIE		442 FT	
	09:05	2 BAGS	1 BAGS		488 FT
	09:10	2 BAGS	1 BAGS		476 FT
	09:10	NEW CROW MOUNTING	INSTALL W/ PATENT & SAND		DATE
	09:25	2 BAGS	1 BAGS		464 FT
	09:30	2 BAGS	1 BAGS		455 FT
	09:35	REMOVED 42 FT TREMMIE PIPE		400 FT	
	09:50	2 BAGS	1 BAGS		447 FT
	09:55	RAM ASSOC. ON-SITE FOR INTERVIEWS			
	10:05	2 BAGS	1 BAGS		434 FT
	10:15	2 BAGS	1 BAGS		418 FT
	10:35	REMOVED 42 FT TREMMIE PIPE		357 FT	407 FT
	10:40	POOR SUPPLY → DELIVERED SAND/LEMMIES			400 FT
	10:55	2 BAGS	1 BAGS		385 FT
	11:10	2 BAGS	1 BAGS		377 FT
	12:10	INSTALL #3 WELL CASING W/ SCREEN & CENTRALIZERS			
	12:30	LOST TAPE & WEIGHT @ 150'	ADJUSTED TAPE STRIPS @ 100 FT		375 FT
	12:55	3 SKS #3 SAND			360 FT
	13:10	DISCUSS PROJECT STATUS W/ COLLEEN ON SITE			358 FT
	13:40	18 SKS #3 SAND			
	13:50	REMOVED 21 FT TREMMIE		336 FT	

LET SAND MATERIAL
GET THE BAGS
CORRECT TAG

START FILTER PAPER

LAPAS LUSTRE
50#

* ADJUSTED F.I.L. COUPLING

SEE SHEET #2

DATE	TIME	ACTIVITY	TRMINE	LEVEL TAG
10/28/10	13:50	FILTER PACK	#3 SAND	358 FT
	14:20			351 FT
	14:25	ADVISED BY TODD - HELPER DAVE SIGNED CERTIFICATE		
	14:35	SIGNED ESCAPE DAILY REPORT	#3 SAND	348 FT
	14:55	REMOVED TRMINE 42 FT	294 FT	345 FT
	15:40	COMPLETED FILTER PACK EXTRACT BENTONITE SEAL	CETCO #8 (50#) 2 BAGS	#2-16 SAND (100#) 1 BAG
	15:40	PUMP EXTRACTOR PROBLEMS, DISASSEMBLED & CLEANED		338 FT
	15:47	2 BAGS	1 BAG	332 FT
	16:10	2 BAGS	1 BAG	323 FT
	16:30	2 BAGS	1 BAG	312 FT
	16:37	REMOVED TRMINE 42 FT	252 FT	
	16:45	PUMP EXTRACTOR PROBLEMS, DISASSEMBLED & CLEANED		
	17:05	2 BAGS	1 BAG	297 FT
	17:20	2 BAGS	1 BAG	288 FT
	17:34	2 BAGS	1 BAG	277 FT
		REMOVED TRMINE (21 FT) PACK UP TONIGHT AND DROP TOMORROW		
	17:40	SITE PREP FOR PDIN ATTACHED OVERNIGHT	JEFF OFF-SITE	274 FT
10/29/10	7:20	2 BAGS	1 BAG	267 FT
	7:40	1 BAGS	1 BAG	258 FT
	8:00	INSTALLATION OF 255 #2 WELL CASING, w/ 20 FT SCREEN + CERTELLITE AND 5 FT DROP PIPE w/ COP		259 FT (2) FINIC
	8:40		7 SACKS #3	253
	8:55		5 SACKS #3	248 FT
	9:10		3 SACKS #3	246 FT
	9:25		5 SACKS #3	240 FT

CEMEX MONITORING WELL CONSTRUCTION
PROJECT 208-11

Tremmie
231 FT

10/29/10

TIME

LEVEL TOGATE

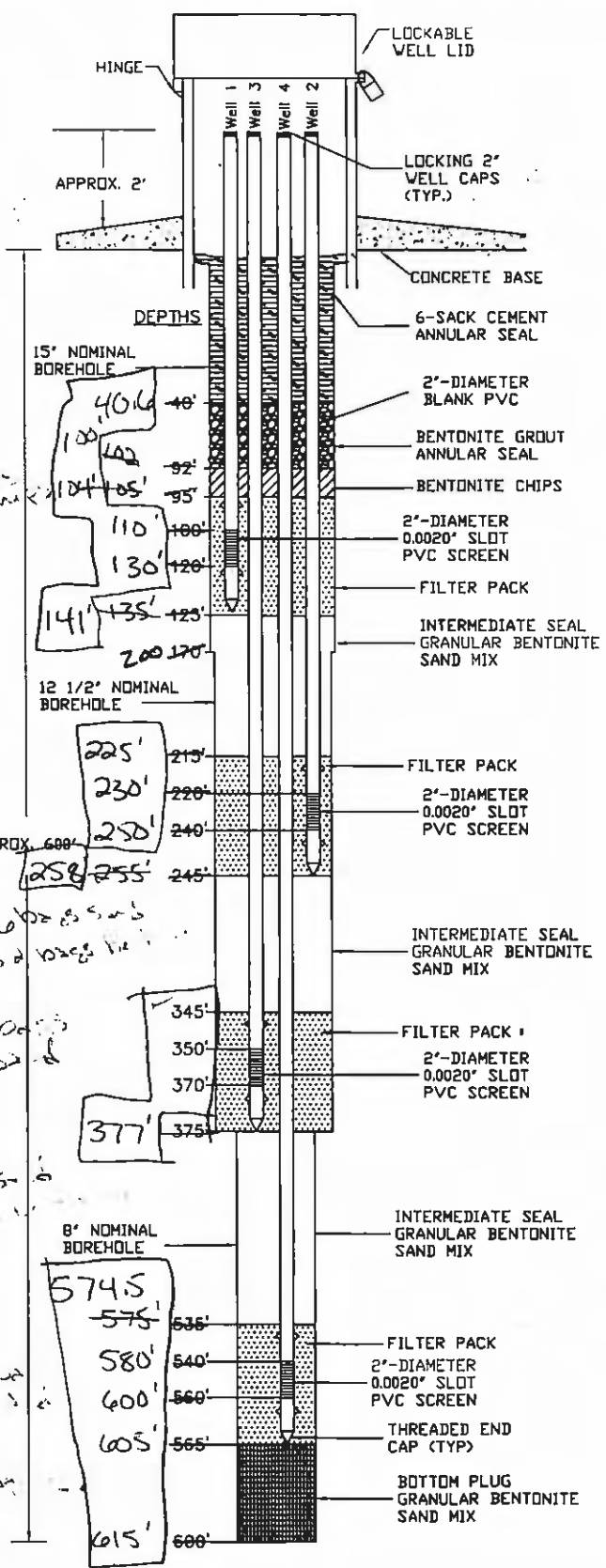
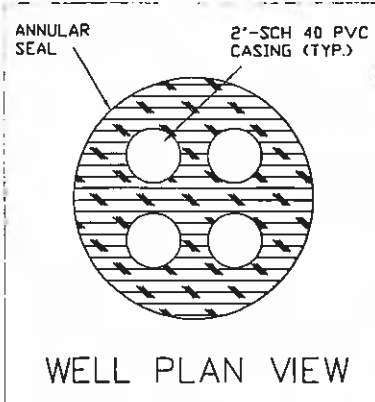
TIME	DESCRIPTION	Tremmie	LEVEL TOGATE
09:25	REMOVE 21 FT TREMMIE	210 FT	240 FT
09:50	PETE FROM CEMEX DROPPED OFF DRILLING INFO.		233 FT
10:15	5 SKS #3 SAND		226 FT
10:25	1 SK #3 SAND		225 FT
10:45	2 SK #8 CRUMBLES 1 SK #2/16		217 FT
10:47	REMOVED 21 FT TREMMIE	189	209 FT
11:25	1 SK 1 SK		202 FT
15:20	Pulled up 4' casing and still open		200 FT
15:30	Removed 10' casing Bottom of casing 184'		184'
16:00	tremie pipe reinstalled		
16:20	2 SK #8 1 SK #2/16		
16:30	1/4 SK #2/16		194'
17:00	pulled tremie secured site		
11:07:30	Pulled 20' casing and still open Bottom of casing 194'		194'
11:11	reinstalled tremie 168'		
08:25	Adding sand to 1/4 SK #2/16		
09:45	2 SK #8 1 SK #2/16		
09:05	2 SK #8 1 SK #2/16		
09:30	1 SK #8 1/2 SK #2/16		187'
10:00	Pulled tremie		
10:15	Pulled 30' casing bottom of casing 177'		177'
10:45	Dropped tremie pipe		
13:40	set casing with seal		
14:10			151'
14:45	Pull tremie pipe 11:11 (bottom 2 sections of pipe)		147'
15:20	Bottom cap 5' casing, centralizer 2-10' screen centralizer, 11-10' casing, 8.5' casing		142'
15:55	Start adding #3 sand then pack down casing and tremie		141'
16:07	12 bags #3 sand		
16:25	39 bags #3 (total) sand + 13' into hole casing		138'

END FILTER PACK
LET BENTONITE SEAL

7

TIME	DESCRIPTION	TRENMIE	COSING	TARGET LEVEL
11/1/10 11:45	PLACED CHIPS & BAGS (4 FT OF SEAL)			104 FT
11/2/10 07:35		94 FT	95'	100 FT
07:35	REMOVE 21 FT TRENMIE	73 FT		
08:30	1 BAG VOLCLAY			
08:40	1/2 BAG VOLCLAY PROBLEMS W/ AIR DIAPHRAGM PUMP			
08:50	REMOVE 21 FT TRENMIE	52 FT	95 FT	
08:55	1 1/2 VOLCLAY			
09:00	1 1/2 V			
09:02	1 1/2 VOLCLAY			
09:05	REMOVE 21 FT TRENMIE	31 FT		
09:10	" 10 FT	0 FT		
09:15	REMOVED 10 FT WELL COSING		85 FT	
09:24	" (5+5) 10 FT " "		75 FT	
09:30	REMOVED (5+5) 10 FT WELL COSING		65 FT	
09:45	" 10 FT " "		55 FT	
10:00	REMOVED (5+5) 10 FT " "		45 FT	
10:05	" 10 FT " "		35 FT	
10/10 - 13:45	SITE CLEAN-UP; DECON.			
10:45	OFF SITE			
12:55	INSTALL 10 FT TRENMIE			
13:00	INSIDE 21 FT " "	31 FT		
13:25	COUNTING TAG WELL A - 55 FE ADD 1 50# BAG BENTONITE CHIPS TO TRY & FIND ELEVATION OF BENTONITE GROUP			
14:30	RECEIVED AUTHORIZATION TO CHIP WELL, CHECKED POWER 31 FT TRENMIE	35 FT	94 FT	
14:40	### CTRCO MED CHIPS		89 FT	
14:50	### " " "		82 FT	
14:55	### " " "		80 FT	
15:00	### " " "		76 FT	
15:10	### " " "		69 FT	
15:45	NO OBSERVED BENTONITE ABOVE CASING, USING SAMPLE CUP			
15:50	1/2 BAGS VOLCLAY Pump w/ 35 FT TRENMIE			
	### CTRCO MED CHIP			51 FT

#	CEMEX	MONITORING	WELL CONSTRUCTION		PAGE 5 OF 5
11/2/10				35 ^{FT}	35 ^{FT}
15:55		CETCO CHIPS (50#)			48 FT
16:00		" "			45 FT
16:05		CETCO CHIPS			40.6 FT
END OF BENTONITE GROUT			NOTE: ONE BAG LEFT OF PALLET		40.6 FT ↑
START OF CEMENT GROUT			35 FT	35 FT	
16:10		4 BAGS CEMENT (94#) + 30 GALLONS WATER + 5# SUPER-GEL X			
16:15		4 BAGS CEMENT (94#) + 30 GALS + 5# SUPER-GEL X			
16:20		4 BAGS CEMENT (94#) + 30 GALS WATER + 5# SUPER-GEL X			
16:20		REMOVED 31 FT TREMMIE			
16:40		REMOVED (5 FT + 4 FT) 9 FT CASING		26 FT	
16:45		REMOVED 10 FT CASING		16 FT	
16:58		INSTALLED 21 FT TREMMIE	21 FT		
17:00		4 BAGS CEMENT (94#) + 30 GALS WATER + 5# SUPER-GEL X			
17:05		4 BAGS " " " " " "			
NOTE: OBSERVED DISPLACEMENT OF CHIPS DURING FINAL TO SURFACE. MAY BE CHIPS STUCK TO CASING DURING FILLING INTERIOR					
17:25		REMOVED 10 FT CASING		6 FT?	
17:25		OBSERVED CEMENT GROUT TO WITHIN ONE FOOT OF SURFACE ELEVATION			
17:30		CLEAN UP + DECON			



Handwritten notes on the left side of the profile:

- 40' 40'
- 100' 42'
- 124' 45'
- 110' 100'
- 130' 120'
- 141' 135' 125'
- 200' 170'
- 225' 215'
- 230' 220'
- 250' 240'
- APPROX. 600'
- 258' 255' 245'
- 345' 345'
- 350' 350'
- 370' 370'
- 377' 375'
- 8' NOMINAL BOREHOLE
- 574.5' 575'
- 580' 540'
- 600' 560'
- 605' 565'
- 615' 600'

Handwritten notes on the right side of the profile:

- 5' 5.5'
- 5.5'
- 0.581
- 0.581
- 0.581
- 48' 0.5 Sand
- 51.9

NOTE: DEPTHS ARE APPROXIMATE AND WILL BE DETERMINED IN THE FIELD.

6	
5	
4	
3	
2	
1	
REVISIONS	



ZONE 7
ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

Proposed New Well Profile

DRAWN: CDIZON
DESIGNED: CDIZON
CHECKED:
APPROVED:
DATE: 10/04/2010
SCALE: NOT TO SCALE
FILE NAME:



INSPECTOR'S DAILY DIARY

FC 203 (06-15-09)
Side 1

Project: CAMEX MONITORING WELL

Contract No.: 708-11

Date: 11-16-10

S	M	T	W	Th	F	S
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Contractor: CASCADE DRILLING

Project No.: 57105 N 276

Weather: CLAR

Page No.: _____ of _____

Approximate Temperature: _____ High _____ Low

Report No.: _____

Description of Work Performed:

PREPAREDATION FOR DELIVERING WATER FOR DR SURGE

Continued on Back

Labor and Equipment Description	Contract Item No. & Hours Worked							Idle	Remarks
LARRY ROBINSON	14:30	-	16:00						
EQUIPMENT									
① PUMP SERVICE RIG									
① 1025 GALLON WATER TRAILER									
① EXHAUST (NOT USED)									
① AIR COMPRESSOR									

Visitors: _____

Photos: No. Description

Inspector



INSPECTOR'S DAILY DIARY

FC 203 (06-15-09)
Side 1

Project: CENTER MONITORING WELL

Contract No.: 208-11

Date: 11-17-10

S	M	T	W	Th	F	S
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Contractor: CASCADE DRILLING

Project No.: 57165 N 276

Weather: CLAR

Page No.: _____ of _____

Approximate Temperature: _____ High _____ Low

Report No.: _____

Description of Work Performed:

11:00 - AIR SURGE TO 340 FT #2 WELL ADDED - 1 GALLON 125g.
11:30 - REMOVE 40 FT STEEL TRENCH → AIR SURGE
13:40 - SAMPLED #3 WELL (COLOR OF COCOLOTTA MILK)
14:30 - CALLED LARRY'S CELL AND ADVISED SURGE BLOCK TO IMPROVE DEVELOPMENT

Continued on Back

Labor and Equipment Description	Contract Item No. & Hours Worked							Remarks
							Idle	
LARRY FORINCO	07:00	—	17:00					(925) 766-7765 CELL
TOBY SALEZDIZ	07:00	—	17:00					
EQUIPMENT								
① PUMP SERVICE RIG								
① FLOT BAG (C4500)								
① 1025 GALLON WATER TRAILER								
① FORKLIFT (NOT USED)								
① AIR COMPRESSOR								

Visitors: _____

Photos: No. Description

Inspector



INSPECTOR'S DAILY DIARY

FC 203 (06-15-09)
Side 1

Project: CEMEX MONITORING WELL

Contract No.: 208-11

Date: 11/18/10

S	M	T	W	Th	F	S
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Contractor: COCAPE DRILLING

Project No.: 57105 N 276

Weather: CLOUDY

Page No.: _____ of _____

Approximate Temperature: 63 High 44 Low

Report No.: _____

Description of Work Performed:

AIR PURGE WELL #4

Continued on Back

Labor and Equipment Description	Contract Item No. & Hours Worked							Idle	Remarks
<u>LUCKY ROBINSON</u>	<u>8:00</u>	<u>-</u>	<u>17:00</u>						
<u>EQUIPMENT</u>									
<u>① PUMP SERVICE RIG</u>									
<u>① AIR COMPRESSOR</u>									
<u>① FUEL TANK (NOT USED)</u>									
<u>① 1025 GALLON TANK</u>									

Visitors: _____
Photos: No. Description

Inspector



INSPECTOR'S DAILY DIARY

FC 203 (06-15-09)
Side 1

Project: CENTER MONITORING WELL

Contract No.: 708-11

Date: 11-19-10

S	M	T	W	Th	F	S
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Contractor: CASCADE DRILLING

Project No.: 57105 N 276

Weather: _____

Page No.: _____ of _____

Approximate Temperature: _____ High _____ Low

Report No.: _____

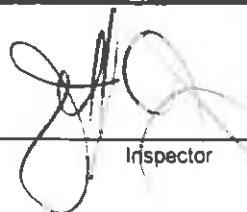
Description of Work Performed:
AIR SURGE #3, BOLLARDS, STOVE PIPE
PROJECT COMPLETE

NOTE: NO REACTION ON #3 WHEN #4 SURGED
(925) 360 - 8590

1225 #1 7596 #2=101.5 #3= #4=115.2
0700 WELL LEVELS #1=75.96 #2=100.7 #3=98. #4=121.0 Continued on Back

Labor and Equipment Description	Contract Item No. & Hours Worked							Idle	Remarks
LARRY ROBINSON	0700			16:4					
AMANDO L. ABEYO	0700			16:00					
INSPECTOR			955	105					
EQUIPMENT:									
① - PUMP SERVICE TRUCK									
① - FLOT BEO									
① - 1025 GALLON TANK									
① FORKLIFT (NOT USED)									
① AIR COMPRESSOR									

Visitors: _____
Photos: No. Description


Inspector

ZONE 7 WATER AGENCY
FIELD NOTE SHEET

DATE: 12/11/2010

BY: CW ~~TR~~

SUBJECT: Pumping Test 14J3 for DWR LGA Grant 2010 Project

NOTES: _____

12.33 - started pump for drawdown test.
pump started at 775 gpm.
0.5 ft/sec drawdown

3 min 575 gpm

4 min 550 gpm 80' drawdown

10 min 520 gpm pump intake = 253' DTW 94.20

363' depth of transducer

258.75 starting level transducer

197 - transducer depth (approx. based on cable length)

DTW - 106.40

18.20 changed valve (closed temporarily)

when the valve is closed (to make) the

well start to stabilize. They think

they are close to the ideal pumping

rate. only have around 65' drawdown

26.28 pumping ~ 510-520 gpm

45 checked drawdown on the active OSMEX well

~ 210'

Active well

TR Notes

Pumping Test

12/11/2010

COLLIN 916 270-9645

JIMMY 916 424-9931

TR arrived at site ~ 11:00 Drillers had already put the 1 1/4" ID pipe for transducer. Drillers were moving discharge line since it had created a large gully on lake-side slope when they took the extension off yesterday. They then put transducers in 14J3 and 14J1 (from Installation North-West) PT 2 X. I had downloaded software last night to view data. AquaStar
Smart Sensor
(Aqua4Plus).

~12:00 Drillers said they could determine optimum pumping rate for pump test with pump in do a full stop drawdown test. So we had plan to try for 1 hour Test chance about 5 to 9^{PM} optimum rate. While wells recovered
~2:00 Colleen + I went to all wells to check the loggers. All pumps ok except 14J1 off by 1'. Colleen reset and restarted log. Returned back to 14J3 at about 3:00 some discussion as to whether start had out flow go to constant when drawdown low. Bit Matt goal he wanted constant ~~to pump~~.

4:06 Pump Test started 4:06 PM (according to Rugged Reader) 510 gpm

258.746 Static in Pumping well

4:12 sample taken @ 4:12 PM

pH 7.14

Temp 18.4

EC 697 μ S

TDS 348

Used Aqua4Plus to identify diurnal levels in 14J3 - probe measures height above probe

4:12 CW Checked water levels in 14J1 to get curve, but level dropping slowly so don't autogate drawdown in 13^{PM} normal well until later. entered data into Aquatest software on laptop

~4:30 CW left and will return ~ 12:30

~5:00 Jimmy left ~ 1 1/2 hrs to get battery charger and to get saw fuel

~7:00 Collin left to Jimmy to take dist turn.

~7:20 TR went to ISP wells to see any drawdown. None observed in any wells

~9:30 Jim noticed that generator going through gas pretty fast. Left to get ~~more~~ gas and some gas filters.

12/11/2010 cont. and

10:18

Jimmy returned bought 5g water jugs at Walmart and filled w/ diesel at gas station. Said gas ^{top} gauge tank doesn't have gauge so he wanted to be conservative and make sure that there was plenty of fuel

10:30

TR went to check water in 13P wells. Observed min. (< 0.5') in the deepest of the three wells. Extracted data from loggers

12/12/2010

to RR. returned ~ 11:10 CW arrived ~ 12:30 TR left ~ 1:15 am

02:48

1451 DTW SOL 106.96

03:01

13P5 DTW logger 78.97

3:06

13P8⁶ DTW logger 96.750

3:08

13P7⁸ DTW logger 106.925

3:10

13P6⁷ DTW logger 93.138

(822) 05:50

1451 DTW SOL 106.26

well pumping ~ 500 gpm

(822) 06:04

13P5 DTW logger 78.96

(840) 06:06

13P6⁷ DTW logger 93.170

(842) 06:08

13P7⁸ DTW logger 106.795

(844) 06:10

13P8⁶ DTW logger 97.20

(972) 8:18

1451 DTW SOL 106.38

(984) 7:21

13P5⁵ DTW logger 78.95

(991) 9:28

13P6⁷ DTW logger 93.201

(994) 9:31

13P7⁸ DTW logger 106.634

(995) 9:32

13P8⁶ DTW logger 97.631

#: 9:45

TR returned to site. called MK w/ CW to decide next step. we decided to just end test at 24 hrs → Drillers said they could not increase pump rate (maxed out at about 490 gpm). CW left around 10:30 ish.

results of well measurements

pending

11:00 RR met to check water levels and loggers in all the wells. At shadow cliffs 15J3 ~~at 11~~

11:30 SHADOW CLIFFS - 15J3 DTW = 63.15 meter = 590 ft. 50

11:57 Didn't have the 20T key so skipped to next well.

12:06 At 14B1: 105.46' logger = 105.48' - about 2' drawdown since test started - but could be because of volcanic pumping.

11:00
1:20 Jimmy called and asked if the test was OK
Water levels at 19D wells

19D7	82.95	Logger = 82.90	(83 before test)
19D8	83.62	Logger = 83.64	(83.66 before test)
19D10	121.80	Logger = 121.82	(123.41 before test)

1:45 checked 14J1 - water level rose?

1:48 - checked drawdown (258 - 191 = 67') - pumping rate @ 490 gpm Jimmy at site.

2:00 14B1 Data - DTW peaked at 106.505 on 12/12/2010 @ 12:02 pm started pumping? @ 6:47 am - stopped pumping?

1:58 double checked 14J3 - water level still rising? not sure why. Pumping from 14B1 off?

3:21 14D1 62.69 SOL5 Logger = 62.68 (previous 62.71)

14D2 86.82 SOL5 Logger = 86.72 (previous 86.90)

4:00 to 13V wells - no drawdown in any other wells

4:05 to 14J1 - water level still rising

Took samples - Field parameters pH = 7.11 T = 16.9 EC = 668 TDS = 334

4:14 Test off @ 24 hours 8 minutes 15 seconds

5:00 downloaded data for well pump in CEMEX pump house since drillers didn't want to leave probe in the hole when pump turned on tomorrow. Drillers to leave shortly and will return tomorrow

Left site @ 5:03
121 mile MO truck

12/13/2010

10:07

TR of 19D wells - extracted all data

19D7 = 82.85

19D8 = 83.60

19D10 = 121.53

Graphs for 19D7 and 19D8 were similar and data varied little, so pulled logger for 19D8 since it was deeper and we are concerned with responses in shallower zones.

Check measurements on 12/13/2010 using Westex sounder

LABELED 13P5 = ACTUAL 13P5

13P6 = 13P7

13P7 = 13P8

13P8 = 13P6

4:00

Installed loggers

in 14J1 + 14J3

	DTW	sounder	stick proximity
14J3	103.66'	SOL5	14J3
14J3	103.58	SOL5	
14J1	130.36	SOL5	

14J1 pumpout → set logger ~ 46' below top of water

Well Number	RP	Current DTW	Length of Cable Needed	Z7 cable	Rental Cable	Weekly Cost	Logger	Weekly Cost	
3S/1E 13P 5	335	79.07	Z7 100	Z7 100	R20262 (trill)	30 psig			
3S/1E 13P 6	335	95.2	Z7 120	Z7 (trill)		Z7 (mini)			
3S/1E 13P 7	335	111.9	Z7 140	Z7 (trill)		Z7 (mini)			
3S/1E 13P 8	335	100.21	Z7 120	Z7 (trill)		Z7 (mini)			
3S/1E 14B 1	384.2	120.93	Z7 150	100	50 \$	30 psig	90.00	120.00	
3S/1E 14D 2	371.83	97	R21475 (50)	120	R17903 (trill)	Z7 (level TR)		120.00	
3S/1E 14J 3	360	NA	R19916 (50)	R20113 (trill)	200 + 50	100 psig	210.00	150.00	
3S/1E 14D 1	347	TD NA	75-120	75 + 50		30 psig		120.00	
3S/1E 19D 7	415.07	81.8	100	Z7 100 + R20267 (trill)		30 psig		120.00	
3S/1E 19D 8	415.04	82.6	100	Z7 100 + Z7 (trill)		30 psig		120.00	
3S/1E 19D 10	415.04	123.68	140	Z7 100 + R21783 (trill)	50 \$	30 psig	90.00	120.00	
								390.00	
									870.00
									Total \$ 1,260.00

Logger install

19D7	83.00	1113	12/9/10	→	82.98	1140	12/9/10	12/11/2010 14D1 2:12 (SOLS)	62.71 logger = 63.71 1' off: Colleen reset logger to match solinst reading + restart a new test
19D8	83.69	1114	12/9/10	→	83.66	1202	12/9/10	12/11/2010 14D2	86.92; logger = 86.90
19D10	123.32	1115	12/9/10	→	123.41	1213	12/9/10	12/11/2010 14B1	103.35; logger = 103.38
			13 P5	→	78.96	1408	12/9/10	12/11/2010 19D7	82.96; logger = 82.93
			13 P6	→	93.09	1432	12/9/10	19D8	83.63; logger = 83.66
			13 P7	→	109.08	1415	12/9/10	19D10	122.35; logger = 122.37
			13 P 8	→	99.42	1443	12/9/10		
			14 B1	→	108.73	1601	12/9/10		
3S/1E 14D1	62.77	1030	12/10/10	→	63.76	1034	12/10/10		
3S/1E 14D2	81.09	1100	12/10/10	→	86.11	1105	12/10/10		
3S/1E 14J3				→	99.00		12/10/10		
1553	62.53	1348	pure off			5981.5	Flow		

19D7 to 19D10 - 101.00 (2007 SOLS) 19D9 (Current SOLS)

PRE PUMPING TEST

CRPTD Form 10/25/2004

CONSTANT-RATE PUMP TEST DATA (not required for wells producing < 50 gpm)

Pumped Well No. 14J3 Observation Well No. 13P5-8 wells
 Pumped Well Name _____ Distance between Obs. & Pumped Well _____ ft.
 Target Q _____ gpm Reference pt. for depth to water _____ ft. msl
 Static Water Level @ start of test _____ ft. msl
 Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: 12/11/10 Time of day: 12:30 Pre Pumping Test

Flow Meter Reading Start: _____ gallons FOR 1 HR

Suggested elapsed time t (min)	Actual elapsed time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (gpm)	EC (μmhos)	Cl ⁻ (mg/l)	Temp. °F or °C	Data in this table is for: <input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well Remarks
-45								Start test
-30								
-15								
12:33 0	0		0.00			1		Start pump/Cl ⁻ taken
13P6 13P8 1	10:30	95.71	0	Variable				• composite logger 95.72
13P8 2	15:10	107.51						• logger 107.509
13P7 13P6 2.5	19:33	93.24						• Pocket CTR checked
13P5 13P7 3	25:21	78.91						• logger 78.91
13P6 13P7 4	38:30	93.22						• logger 93.19
13P6 13P8 5	41:40	95.65						
13P8 13P7 6	43:40	107.51						
13P7 13P6 7	47:10	93.22						
13P5 13P5 8	48:30	78.92						
13P6 13P8 10	51:20	95.64						
13P8 13P7 15	52:30	107.49						
13P7 13P6 20	54:00	93.22						
13P5 13P5 25	55:20	78.92						
13P6 13P8 30	57:00	95.65						
13P8 13P7 40	58:30	107.49						
13P7 13P6 50	1:00	93.22						
60								

CORRECTED

13P6
13P8
13P7
13P5
13P7
13P6
13P8
13P7
13P5
13P6
13P8
13P7
13P5
13P6
13P8
13P7
13P5
13P6
13P8
13P7

STEP-DRAWDOWN PUMP TEST DATA

(not required for wells producing < 100,000 gpd or 70 gpm)

Pumped Well No. 3S/IE 1453 Observation Well No. 3S/IE 1451
 Pumped Well Name _____ Distance between Obs. & Pumped Well _____ ft.
 Target Q _____ gpm Reference pt. for depth to water _____ ft. msl
 Static Water Level @ start of test _____ ft. msl
 Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: 12-11-10 Time of day: 16:04

Flow Meter Reading Start: _____ gallons

Suggested Elapsed time t (min)	Actual Elapsed Time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (at least 3 steps) (gpm)	EC (μmhos)	Cl ⁻ (mg/l)	Temp. °F or °C	Data in this table is for:	Remarks
								<input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well	
-45				0				<input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well	Start test/ Step 1
-30				0					
-15				0					
0				1					Start pump
1	4	101.4							
1.5	6	101.65							
2	8	101.82							
2.5	10	101.93							
3	12	102.04							
4	15	102.21							
5	20	102.34							
6	30	102.75							
7	45	103.11							
8	1:00	103.50							
10	1:30	103.70							
15	1:22	104.0							
20	1:51	104.25							
25	1:82	104.56							
30 ²	2:18	104.66							Chloride sample taken
	2:33	104.95							Step 2 begin?
	3:40	105.18							Avg. Rate ~ 490 ~ 67' DD
	4:00	105.49							

258
-191.6

67

12/11/2010
16:06
16:10
16:12
16:14
16:16

Suggested Elapsed time t (min)	Actual Elapsed Time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (at least 3 steps) (gpm)	EC (µmhos)	Cl ⁻ (mg/l)	Temp. ____ ° F or ____ ° C	Data in this table is for: <input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well Remarks
02:49	642	106.96					.	
15:50	824	106.26					.	
19:18	972	106.38					.	
21:30 ^m	1290	105.67					.	14B1 not pumping?
21:49 ^m	1309	105.60					.	
2444 ^m		105.35					.	
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TIME

ELAPSED
TIME

CONSTANT-RATE PUMP TEST DATA

(not required for wells producing < 50 gpm)

Pumped Well No. 3S11E 1433 Observation Well No. 3S11E 13 P5Pumped Well Name Inactive CFMEX Distance between Obs. & Pumped Well _____ ft.

Target Q _____ gpm Reference pt. for depth to water _____ ft. msl

Static Water Level @ start of test _____ ft. msl

Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: _____ Time of day: _____

Flow Meter Reading Start: _____ gallons

Suggested elapsed time t (min)	Actual elapsed time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (gpm)	EC (μmhos)	Cl ⁻ (mg/l)	Temp. $\text{---}^{\circ}\text{F}$ or $\text{---}^{\circ}\text{C}$	Data in this table is for:	Remarks
								<input type="checkbox"/> Pumped Well <input checked="" type="checkbox"/> Observation Well	
									Start test
	0	78.92	0.00			1			Start pump/Cl ⁻ taken
	200	78.91							From logger
	407	78.96							SOL 5; logger = 78.93
	655	78.97							From logger
	838	78.96							.
	984	78.95							.
1946 m		78.99							SOL 5 logger = 78.96
27459 m		78.93							From logger
									.
									.
									.
									.
									.
									.
									.
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									.
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									.

From Prev. Reading

CONSTANT-RATE PUMP TEST DATA
(not required for wells producing < 50 gpm)

13P6

Pumped Well No. _____ Observation Well No. ~~13P8~~
 Pumped Well Name _____ Distance between Obs. & Pumped Well _____ ft.
 Target Q _____ gpm Reference pt. for depth to water _____ ft. msl
 Static Water Level @ start of test _____ ft. msl
 Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: _____ Time of day: _____

Flow Meter Reading Start: _____ gallons

Suggested elapsed time t (min)	Actual elapsed time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (gpm)	EC (µmhos)	Cl ⁻ (mg/l)	Temp. °F or °C	Data in this table is for: <input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well	Remarks
									Start test
	0	95.65	0.00			1			Start pump/Cl ⁻ taken
	200	95.63							From logger
	390	96.05							Sol 5; logger = 96.056
	660	96.75							From logger
	844	97.20							
	995	97.631							
18h 34m	1134	97.77							Sol 5 logger = 97.77
23h 47m		97.957							From logger

From prev test

extracted data to RR

extracted to RR

CONSTANT-RATE PUMP TEST DATA
(not required for wells producing < 50 gpm)

1387

Pumped Well No. _____ Observation Well No. 1386
 Pumped Well Name _____ Distance between Obs. & Pumped Well _____ ft.
 Target Q _____ gpm Reference pt. for depth to water _____ ft. msl
 Static Water Level @ start of test _____ ft. msl
 Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: _____ Time of day: _____

Flow Meter Reading Start: _____ gallons

Suggested elapsed time t (min)	Actual elapsed time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (gpm)	EC (μmhos)	Cl ⁻ (mg/l)	Temp. °F or °C	Data in this table is for: <input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well Remarks
-45								Start test
-30								
-15								
0	0	93.22	0.00			1		Start pump/Cl ⁻ taken
1	200	93.12						From logger
1.5	401	93.14						S&S; logger = 93.102
2	604	93.138						From logger
2.5	840	93.170						
3	991	93.201						
19h 2m 4		93.26						S&S logger = 93.223
23h 58m 5		93.27						from logger
6								
7								
8								
10								
15								
20								
25								
30								
40								
50								
60								

From logger

CONSTANT-RATE PUMP TEST DATA
(not required for wells producing < 50 gpm)

13P8

Pumped Well No. _____ Observation Well No. 13P7
 Pumped Well Name _____ Distance between Obs. & Pumped Well _____ ft.
 Target Q _____ gpm Reference pt. for depth to water _____ ft. msl
 Static Water Level @ start of test _____ ft. msl
 Water level measurements by: electrical sounder pressure transducer airline

START TEST Date: _____ Time of day: _____

Flow Meter Reading Start: _____ gallons

Suggested elapsed time t (min)	Actual elapsed time t (min)	Depth to water (nearest 0.1 ft)	Drawdown S (unadjusted to nearest 0.1 ft)	Pumping rate Q (gpm)	EC (µmhos)	Cl ⁻ (mg/l)	Temp. °F or °C	Data in this table is for: <input type="checkbox"/> Pumped Well <input type="checkbox"/> Observation Well Remarks
								Start test
	0	107.41	0.00			1		Start pump/Cl ⁻ taken
	200	107.23						From logger
	396	107.11						S&S; logger 107.089
	632	106.925						From logger
	842	106.795						
	994	106.634						
18658m		106.59						S&S logger = 106.567
23656m		106.391						From logger

From prev test



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Ormec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

Client Zone 7 Water Agency PROJECT NO 208-11 DATE 10/12/16 DAY Monday

JOB LOCATION 0 Road [unclear] [unclear] Livermore, CA DIG ALERT # _____ CD-LP# 510186

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK <small>Please explain reasons for Down Time and Standby Time and Shop Time</small>	HOURS		Total Hrs	Charge Hrs
			Start	Stop		
		AM Shop Time	5:00	6:00	1.0	1.0
		Travel to Site	6:00	9:30	3.5	3.5
		Safety rules for site	9:30	10:00	1.5	1.5
		mob to site & set up rig	10:00	12:00	2.0	2.0
		Safety orientation	12:00	1:00	1.0	1.0
		Lunch	1:00	1:30	.5	
		finish set up of rig get water	1:30	3:00	1.5	1.5
P.8	18'	Drill P.8 from 0' to 18'	3:00	4:15	1.25	1.25
		Clean + secure site	4:15	4:30	.25	.25
		Travel to Shop				
		PM Shop Time				
TOTAL CHARGEABLE RIG HOURS						

RIG ENGINE HOURS: START _____ STOP _____ TOTAL 11.5 11.0

EQUIPMENT				CASING				MATERIALS			
DRILL RIG #		COMPRESSOR/JACKHAMMER		TYPE	SLOT	2	4	ITEM	QTY	ITEM	QTY
158								SAND		WELL COVER 8"	
575		SNOW FENCE RENTAL		20'	SCREEN			READYMIX		WELL COVER 12"	
408		CONTINUOUS SAMPLER		10'	SCREEN			QUICKSET		MONUMENT CASING	
		CONTINUOUS SAMPLER FOOTAGE		5'	SCREEN			PORTLAND		BOLLARDS	
		# OF CORE CUTS		20'	BLANK			ASPHALT		SOIL DRUMS	
		# OF BULLDOG CUTS		10'	BLANK			BENTONITE GROUT		DEVELOPMENT DRUMS	
		# OF SERVICE RUNS		5'	BLANK			BENTONITE CHIPS		DECON DRUMS	
		# OF SAW CUTS		5'	PP SCREEN			BENTONITE POWDER		HOLE COVER PLATES	
		PORTABLE RESTROOM		10'	PP SCREEN			BENTONITE PELLETS		PLASTIC SHEETING	
					SUP CAP			BENTONITE GRANULAR		TRAFFIC CONTROL	
					THREADED CAPS			SAMPLER TUBES		CORE BOXES	
					LOCKING CAPS			SHELBY TUBES		PLYWOOD	
					DRIVE SHOE			PROBE POINTS		SOIL SAMPLES	
					CENTRALIZERS			GW PROBE POINTS		WATER SAMPLES	
					LOCKS			MACRO LINERS		HYDRO PUNCH SAMPLES	
								SAMPLER SHOE		Auger PLUGS	
					UTILITIES FOUND OR HIT					DRILL OUT BITS	

REMARKS Cj Chaltee 5

Cj worked from 9:00 - 2:00

Client Signature [Signature] Operator Signature [Signature]



CASCADe DRILLING, L.P.
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3632 Omeac Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

CLIENT <i>Zone 7 water agency</i>		PROJECT NO <i>208-11</i>	DATE <i>10/19/10</i>	DAY <i>Tuesday</i>		
JOB LOCATION <i>Livermore, CA</i>		DIG ALERT #	CD-LP# <i>510186</i>			
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK <small>Please explain reasons for Down Time and Standby Time and Shop Time</small>	HOURS		Total Hrs	Charge Hrs
			Start	Stop		
		AM Shop Time				
		Travel to Site				
		<i>warm up Equipment Change hammer donuts make Connection</i>	<i>6:30</i>	<i>8:00</i>	<i>1.5</i>	<i>1.5</i>
<i>P-8</i>	<i>80'</i>	<i>Drill P-8 from 18' to 98'</i>	<i>8:00</i>	<i>12:00</i>	<i>4.0</i>	<i>4.0</i>
		<i>Lunch</i>	<i>12:00</i>	<i>12:30</i>	<i>1.5</i>	
		<i>fuel rig + compressor</i>	<i>12:30</i>	<i>12:45</i>	<i>.25</i>	<i>.25</i>
<i>P-8</i>	<i>80'</i>	<i>Drill P-8 from 98' to 178'</i>	<i>12:45</i>	<i>4:30</i>	<i>3.75</i>	<i>3.75</i>
		<i>fix Blow Clamp + leak get water</i>	<i>4:30</i>	<i>5:00</i>	<i>1.5</i>	<i>1.5</i>
		<i>get fuel + paperwork</i>	<i>5:00</i>	<i>5:30</i>	<i>1.5</i>	<i>1.5</i>
		Travel to Shop				
		PM Shop Time				

TOTAL CHARGEABLE RIG HOURS		TOTAL	<i>11.0</i>	<i>10.5</i>
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RIG ENGINE HOURS:		START	STOP	TOTAL	<i>11.0</i>	<i>10.5</i>				
EQUIPMENT			CASING			MATERIALS				
DRILL RIG #		COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	ITEM	QTY	ITEM	QTY
	<i>158</i>						SAND		WELL COVER 8"	
SUPPORT TRUCK #	<i>575</i>	SNOW FENCE RENTAL	20' SCREEN				READYMIX		WELL COVER 12"	
SUPPORT TRUCK #	<i>408</i>	CONTINUOUS SAMPLER	10' SCREEN				QUICKSET		MONUMENT CASING	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5' SCREEN				PORTLAND		BOLLARDS	
BOBCAT		# OF CORE CUTS	20' BLANK				ASPHALT		SOIL DRUMS	
AUTO HAMMER		# OF BULLDOG CUTS	10' BLANK				BENTONITE GROUT		DEVELOPMENT DRUMS	
GROUT MIXER		# OF SERVICE RUNS	5' BLANK				BENTONITE CHIPS		DECON DRUMS	
GROUT PUMP		# OF SAW CUTS	5' PP SCREEN				BENTONITE POWDER		HOLE COVER PLATES	
PERISTALTIC PUMP		PORTABLE RESTROOM	10' PP SCREEN				BENTONITE PELLETS		PLASTIC SHEETING	
FORKLIFT/HOPPER	<i>1</i>		SLIP CAP				BENTONITE GRANULAR		TRAFFIC CONTROL	
LABOR			THREADED CAPS			SAMPLER TUBES				
CREW WITH PER DIEM	<i>3</i>	CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS				SHELBY TUBES		PLYWOOD	
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS		SOIL SAMPLES	
<i>T. Mecham</i>				<i>10.5</i>	CENTRALIZERS		GW PROBE POINTS		WATER SAMPLES	
<i>J. Staloch</i>				<i>10.0</i>	LOCKS		MACRO LINERS		HYDRO PUNCH SAMPLES	
<i>G. Schroth</i>				<i>10.0</i>			SAMPLER SHOE		AUGER PLUGS	
UTILITIES FOUND OR HIT							DRILL OUT BITS			

REMARKS

Client Signature *[Signature]* Operator Signature *[Signature]*



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
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3632 Omec Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT Zone 7		PROJECT NO 208-11	DATE 10/20/10	DAY Wednesday				
JOB LOCATION Livermore, CA.		DIG ALERT #	CD-LP# 510186					
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK			HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time			Start	Stop		
		AM Shop Time						
		Travel to Site						
		fuel up + warm up Equipment			6:30	7:00	.5	.5
P-8	22'	Drill P-8 from 178' to 200'			7:00	9:30	2.5	2.5
		Set up snaker to drill mud			9:30	12:30	3.0	3.0
		Lunch			12:30	1:00	.5	
		Trip out tools + Trip in mix mud flood hole mix mud			1:00	3:15	2.25	2.25
P-8	25'	Drill P-8 from 200' to 225'			3:15	4:30	1.25	1.25
		Clean + secure site get water			4:30	5:15	.75	.75
		get fuel + paperwork			5:15	5:45	.5	.5
		Travel to Shop						
		PM Shop Time						
TOTAL CHARGEABLE RIG HOURS								
RIG ENGINE HOURS:		START	STOP			TOTAL	11.25	10.75
EQUIPMENT		CASING			MATERIALS			
DRILL RIG #	158	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"
SUPPORT TRUCK #	575	SNOW FENCE RENTAL	20'	SCREEN			READYMIX	WELL COVER 12"
SUPPORT TRUCK #	408	CONTINUOUS SAMPLER	10'	SCREEN			QUICKSET	MONUMENT CASING
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN			PORTLAND	BOLLARDS
BOBCAT		# OF CORE CUTS	20'	BLANK			ASPHALT	SOIL DRUMS
AUTO HAMMER		# OF BULLDOG CUTS	10'	BLANK			BENTONITE GROUT 981	DEVELOPMENT DRUMS
GROUT MIXER		# OF SERVICE RUNS	5'	BLANK			BENTONITE CHIPS	DECON DRUMS
GROUT PUMP		# OF SAW CUTS	5'	PP SCREEN			BENTONITE POWDER	HOLE COVER PLATES
PERISTALTIC PUMP		PORTABLE RESTROOM	10'	PP SCREEN			BENTONITE PELLETS	PLASTIC SHEETING
FORKLIFT/HOPPER	1		SUP CAP				BENTONITE GRANULAR	TRAFFIC CONTROL
LABOR			THREADED CAPS				SAMPLER TUBES	CORE BOXES
CREW WITH PER DIEM	3	CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS				SHELBY TUBES	PLYWOOD
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	SOIL SAMPLES
T. Mecham				10.75	CENTRALIZERS		GW PROBE POINTS	WATER SAMPLES
J. Staloch				10.25	LOCKS		MACRO LINERS	HYDROPUNCH SAMPLES
G. Schroth				6.5			SAMPLER SHOE	AUGER PLUGS
REMARKS		UTILITIES FOUND OR HIT					DRILL OUT BITS	

Client Signature

[Handwritten Signature]

Operator Signature

[Handwritten Signature]



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CASCADe DRILLING DAILY WORK REPORT

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3632 Omece Circle - Rancho Cordova, CA 95742 #C57-938110

WELL #		PROJECT NO		DATE		DAY					
Bore #		208-11		10/21/10		Thursday					
JOB LOCATION				DIG ALERT #		CD-LP#					
Livermore, CA						510186					
Well #	Depth	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time				HOURS		Total	Charge		
Bore #	Drilled					Start	Stop	Hrs	Hrs		
		AM Shop Time									
		Travel to Site									
		Warm + fuel up rig				6:30	7:00	1.5	1.5		
P-8	80'	Drill P-8 from 225' to 305'				7:00	12:00	5.0	5.0		
		Lunch				12:00	12:30	1.5			
P-8	70'	Drill P-8 from 305' to 375'				12:30	4:30	4.0	4.0		
		re-fill shaker w/water secure site + get water				4:30	5:15	1.75	1.75		
		get fuel + paperwork				5:15	5:45	1.5	1.5		
		Travel to Shop									
		PM Shop Time									
Ft.		TOTAL CHARGEABLE RIG HOURS									
RIG ENGINE HOURS:		START	STOP		TOTAL		11.25	10.75			
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	158	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"			
SUPPORT TRUCK #	575	SNOW FENCE RENTAL	20' SCREEN				READYMIX	WELL COVER 12"			
SUPPORT TRUCK #	408	CONTINUOUS SAMPLER	10' SCREEN				QUICKSET	MONUMENT CASING			
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5' SCREEN				PORTLAND	BOLLARDS			
BOBCAT		# OF CORE CUTS	20' BLANK				ASPHALT	SOIL DRUMS			
AUTO HAMMER		# OF BULLDOG CUTS	10' BLANK				BENTONITE CHIPS gel 10	DEVELOPMENT DRUMS			
GROUT MIXER		# OF SERVICE RUNS	5' BLANK				BENTONITE CHIPS	DECON DRUMS			
GROUT PUMP		# OF SAW CUTS	5' PP SCREEN				BENTONITE POWDER	HOLE COVER PLATES			
PERISTALTIC PUMP		PORTABLE RESTROOM	10' PP SCREEN				BENTONITE PELLETS	PLASTIC SHEETING			
FORKLIFT/HOPPER	1		SLIP CAP				BENTONITE GRANULAR	TRAFFIC CONTROL			
LABOR				THREADED CAPS			SAMPLER TUBES	CORE BOXES			
CREW WITH PER DIEM	3	CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS				SHELBY TUBES	PLYWOOD			
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	SOIL SAMPLES			
T. Mechem				10.75	CENTRALIZERS		GW PROBE POINTS	WATER SAMPLES			
J. Staloch				10.25	LOCKS		MACRO LINERS	HYDRO PUNCH SAMPLES			
G. Schroth			7.75	10.25	SAMPLER SHOE			AUGER PLUGS			
				UTILITIES FOUND OR HIT				DRILL OUT BITS			
REMARKS											

Client Signature

[Handwritten Signature]

Operator Signature

[Handwritten Signature]



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LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

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3632 Omec Circle - Rancho Cordova, CA 95742 #C57-938110

WELL #		DEPTH		PROJECT NO		DATE		DAY			
				208-11		10/22/10		Friday			
JOB LOCATION				DIG ALERT #		CD-LP#					
Livermore, CA.						5101816					
Well #	Depth Bore #	DESCRIPTION OF WORK						HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time						Start	Stop		
		AM Shop Time									
		Travel to Site									
		Warm + fuel up Equipment						6:30	7:00	.5	.5
		Clean out 12 1/2" hole + Tripout tools + Trip in tools						7:00	10:00	4.0	4.0
P-8	50'	Drill P-8 from 375' to 425'						11:00	12:00	1.0	1.0
		Lunch						12:00	12:30	.5	
P-8	60'	Drill P-8 from 425' to 485'						12:30	4:30	4.0	4.0
		Trip out 160' of Rod Clean + secure site						4:30	5:00	.5	.5
		get fuel + paper work						5:00	5:30	.5	.5
		Travel to Shop									
		PM Shop Time									

. Ft. 110'		TOTAL CHARGEABLE RIG HOURS				TOTAL		11.0	10.5
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RIG ENGINE HOURS:		START	STOP	TOTAL		11.0	10.5	
EQUIPMENT			CASING			MATERIALS		
DRILL RIG #	COMPRESSOR/JACKHAMMER	TYPE	SLOT	ITEM	QTY	ITEM	QTY	
158		20'	2	SAND		WELL COVER 8"		
575	SNOW FENCE RENTAL	10'		READYMIX		WELL COVER 12"		
408	CONTINUOUS SAMPLER	5'		QUICKSET		MONUMENT CASING		
	CONTINUOUS SAMPLER FOOTAGE	20'		PORTLAND		BOLLARDS		
	# OF CORE CUTS	5'		ASPHALT		SOIL DRUMS		
	# OF BULLDOG CUTS	10'		BENTONITE GROUT	6	DEVELOPMENT DRUMS		
	# OF SERVICE RUNS	5'		BENTONITE CHIPS		DECON DRUMS		
	# OF SAW CUTS	5'		BENTONITE POWDER		HOLE COVER PLATES		
	PORTABLE RESTROOM	10'		BENTONITE PELLETS		PLASTIC SHEETING		
				BENTONITE GRANULAR		TRAFFIC CONTROL		
				THREADED CAPS		SAMPLER TUBES		
				LOCKING CAPS		SHELBY TUBES		
				DRIVE SHOE		PROBE POINTS		
				CENTRALIZERS		GW PROBE POINTS		
				LOCKS		MACRO LINERS		
				SAMPLER SHOE		AUGER PLUGS		
				UTILITIES FOUND OR HIT			DRILL OUT BITS	

REMARKS							

ire Operator Signature

1-503-775-4099



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

WELL #		DEPTH		PROJECT NO		DATE		DAY			
				208-11		10/25/10		Monday			
JOB LOCATION				DIG ALERT #		CD-LP#					
Livermore, CA						S10186					
Well #	Depth	DESCRIPTION OF WORK				HOURS		Total	Charge		
Bore #	Drilled	Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop	Hrs	Hrs		
		AM Shop Time									
		Travel to Site									
		fuel + warm up Equipment mix mud				6:30	7:15	.75	1.75		
P-8	60'	Drill P-8 from 405' to 545'				7:15	11:30	4.15	7.15		
		Lunch				11:30	12:00	.5			
P-8	70'	Drill P-8 from 545' to 615'				12:00	2:30	2.5	2.5		
		flush hole clean				2:30	5:00	2.5	2.5		
		Trip out 240' of rods clean + secure site				5:00	5:30	.5	.5		
		get fuel + paper work				5:30	6:00	.5	.5		
		Travel to Shop									
		PM Shop Time									
. Ft. 130'		TOTAL CHARGEABLE RIG HOURS									
RIG ENGINE HOURS:		START	STOP				TOTAL	11.5	11.0		
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	158	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"			
SUPPORT TRUCK #	375	SNOW FENCE RENTAL	20'	SCREEN			READYMIX	WELL COVER 12"			
SUPPORT TRUCK #	408	CONTINUOUS SAMPLER	10'	SCREEN			QUICKSET	MONUMENT CASING			
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN			PORTLAND	BOLLARDS			
BOBCAT		# OF CORE CUTS	20'	BLANK			ASPHALT	SOIL DRUMS			
AUTO HAMMER		# OF BULLDOG CUTS	10'	BLANK			BENTONITE CHIPS	DEVELOPMENT DRUMS	6		
GROUT MIXER		# OF SERVICE RUNS	5'	BLANK			BENTONITE POWDER	DECON DRUMS			
GROUT PUMP		# OF SAW CUTS	5'	PP SCREEN			BENTONITE PELLETS	HOLE COVER PLATES			
PERISTALTIC PUMP		PORTABLE RESTROOM	10'	PP SCREEN			BENTONITE GRANULAR	PLASTIC SHEETING			
FORKLIFT/HOPPER	1			SLIP CAP				TRAFFIC CONTROL			
LABOR				THREADED CAPS			SAMPLER TUBES	CORE BOXES			
CREW WITH PER DIEM	3	CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS				SHELBY TUBES	PLYWOOD			
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	SOIL SAMPLES			
T. Meham				11.0	CENTRALIZERS		GW PROBE POINTS	WATER SAMPLES			
J. Staloch				10.5	LOCKS		MACRO LINERS	HYDRO PUNCH SAMPLES			
C.J.				8.5			SAMPLER SHOE	AUGER PLUGS			
				UTILITIES FOUND OR HIT				DRILL OUT BITS			
REMARKS											

Client Signature

Operator Signature



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

Client Zone 7 water Agency		PROJECT NO	208-11		DATE	10/26/10		DAY	Tuesday			
JOB LOCATION				Livermore, CA		DIG ALERT #		CD-LP# 510186				
Well #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time					HOURS		Total	Charge		
Bore #							Start	Stop	Hrs	Hrs		
		AM Shop Time										
		Travel to Site										
		warm + fuel up Rig					6:30	7:00	.5	.5		
		flush hole + Trip out rods					7:00	11:30	4.5	4.5		
		Lunch + E-log					11:30	1:00	1.5	1.0		
P-8		Trip in Tremic pipe + Install well @ 605'					1:00	4:30	3.5	3.5		
		Set up seal pump clean + secure site					4:30	5:30	1.0	1.0		
		get fuel + paperwork					5:30	6:00	.5	.5		
		Travel to Shop										
		PM Shop Time										
At Ft.		TOTAL CHARGEABLE RIG HOURS										
RIG ENGINE HOURS:		START			STOP			TOTAL	11.5	11.0		
EQUIPMENT				CASING				MATERIALS				
DRILL RIG #	158	COMPRESSOR/JACKHAMMER	TYPE		DR	GLOT	020	2	4	SAND	WELL COVER 8"	
SUPPORT TRUCK #	575	SNOW FENCE RENTAL	20' SCREEN							READYMIX	WELL COVER 12"	
SUPPORT TRUCK #	408	CONTINUOUS SAMPLER	10' SCREEN		2					QUICKSET	MONUMENT CASING	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5' SCREEN							PORTLAND	BOLLARDS	
BOBCAT		# OF CORE CUTS	20' BLANK							ASPHALT	SOIL DRUMS	
AUTO HAMMER		# OF BULLDOG CUTS	10' BLANK		58					BENTONITE GROUT	DEVELOPMENT DRUMS	
GROUT MIXER		# OF SERVICE RUNS	5' BLANK		2					BENTONITE CHIPS	DECON DRUMS	
GROUT PUMP		# OF SAW CUTS	5' PP SCREEN							BENTONITE POWDER	HOLE COVER PLATES	
PERISTALTIC PUMP		PORTABLE RESTROOM	10' PP SCREEN							BENTONITE PELLETS	PLASTIC SHEETING	
FORKLIFT/HOPPER	1		SLIP CAP							BENTONITE GRANULAR	TRAFFIC CONTROL	
LABOR				THREADED CAPS				1			SAMPLER TUBES	CORE BOXES
CREW WITH PER DIEM	3	CHARGEABLE EXTRA LABOR HRS		LOCKING CAPS							SHELBY TUBES	PLYWOOD
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE						PROBE POINTS	SOIL SAMPLES
Timecham				11.0	CENTRALIZERS	2					GW PROBE POINTS	WATER SAMPLES
J. Staloch				10.5	LOCKS						MACRO LINERS	HYDRO PUNCH SAMPLES
CJ CHAFFEE				10.5							SAMPLER SHOE	Auger PLUGS
					UTILITIES FOUND OR HIT							
REMARKS												

Client Signature

Operator Signature



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
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3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

ENT <u>Zone 7 Water Agency</u>		PROJECT NO <u>208-11</u>	DATE <u>10/27/10</u>	DAY <u>wednesday</u>			
JOB LOCATION <u>Livermore, CA</u>		DIG ALERT #	CD-LP# <u>516186</u>				
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK <small>Please explain reasons for Down Time and Standby Time and Shop Time</small>	HOURS		Total Hrs	Charge Hrs	
			Start	Stop			
		AM Shop Time					
		Travel to Site					
		<u>fuel + warmup Rig thin back mud</u>	<u>6:30</u>	<u>8:00</u>	<u>1.5</u>	<u>1.5</u>	
<u>P-8</u>		<u>pump down filter pack from 615' to 605' thin mud</u>	<u>8:00</u>	<u>12:30</u>	<u>4.5</u>	<u>4.5</u>	
		<u>Lunch</u>	<u>12:30</u>	<u>1:00</u>	<u>.5</u>		
		<u>pump filter pack from 605' to 575'</u>	<u>1:00</u>	<u>3:00</u>	<u>2.0</u>	<u>2.0</u>	
		<u>pump 20' of seal from 575' to 555'</u>	<u>3:00</u>	<u>5:00</u>	<u>2.0</u>	<u>2.0</u>	
		<u>flush hole clean + secure site</u>	<u>5:00</u>	<u>5:30</u>	<u>.5</u>	<u>.5</u>	
		<u>get fuel + paperwork</u>	<u>5:30</u>	<u>6:00</u>	<u>.5</u>	<u>.5</u>	
		Travel to Shop					
		PM Shop Time					
		TOTAL CHARGEABLE RIG HOURS					
RIG ENGINE HOURS:		START	STOP	TOTAL <u>11.5</u> <u>11.0</u>			
EQUIPMENT		CASING		MATERIALS			
DRILL RIG #		TYPE	SLOT	ITEM	QTY	ITEM	QTY
<u>158</u>	COMPRESSOR/JACKHAMMER		<u>2</u> <u>4</u>	SAND <u>3</u>	<u>41</u>	WELL COVER 8"	
<u>575</u>	SNOW FENCE RENTAL	20' SCREEN		BEADYMAX <u>5 in 2 1/2</u>	<u>2</u>	WELL COVER 12"	
<u>408</u>	CONTINUOUS SAMPLER	10' SCREEN		QUICKSET		MONUMENT CASING	
	CONTINUOUS SAMPLER FOOTAGE	5' SCREEN		PORTLAND		BOLLARDS	
	# OF CORE CUTS	20' BLANK		ASPHALT		SOIL DRUMS	
	# OF BULLDOG CUTS	10' BLANK		BENTONITE GROUT		DEVELOPMENT DRUMS	
	# OF SERVICE RUNS	5' BLANK		BENTONITE CHIPS		DECON DRUMS	
	# OF SAW CUTS	5' PP SCREEN		BENTONITE POWDER		HOLE COVER PLATES	
	PORTABLE RESTROOM <u>1</u>	10' PP SCREEN		BENTONITE PELLETS		PLASTIC SHEETING	
		SLIP CAP		BENTONITE GRANULAR <u>4</u>		TRAFFIC CONTROL	
		THREADED CAPS		SAMPLER TUBES		CORE BOXES	
		LOCKING CAPS		SHELBY TUBES		PLYWOOD	
CREW WITH PER DIEM <u>32</u>	CHARGEABLE EXTRA LABOR HRS	DRIVE SHOE		PROBE POINTS		SOIL SAMPLES	
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	CENTRALIZERS	GW PROBE POINTS	WATER SAMPLES
<u>T. mecham</u>				<u>11.0</u>	LOCKS	MACRO LINERS	HYDRO PUNCH SAMPLES
<u>J. staloch</u>				<u>10.5</u>		SAMPLER SHOE	AUGER PLUGS
UTILITIES FOUND OR HIT						DRILL OUT BITS	
REMARKS							

Client Signature _____

Operator Signature _____



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

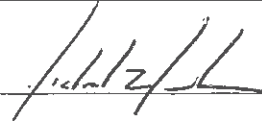
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3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

WENT Zone 7 Water Agency		PROJECT NO	208-11	DATE	10/28/10	DAY	Thursday		
JOB LOCATION		Livermore, CA.		DIG ALERT #	CD-LP# 510186				
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK				HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop		
		AM Shop Time							
		Travel to Site							
P-8		Warm + fuel up Equipment				6:30	7:00	.5	.15
		pump seal from 555' to 377'				7:00	11:30	4.5	4.5
		Lunch				11:30	12:00	.5	
		Install well @ 375' and filter pack from 377' to 345'				12:00	2:45	2.75	2.75
		Dump seal from 345' to 277'				2:45	5:45	3.0	3.0
		flush hole clean + secure site cover mat's				5:45	6:30	.75	.75
		get fuel + paperwork				6:30	7:00	.5	.15
		Travel to Shop							
		PM Shop Time							
. Ft.		TOTAL CHARGEABLE RIG HOURS							

RIG ENGINE HOURS:	START	STOP	TOTAL
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EQUIPMENT		CASING			MATERIALS			
DRILL RIG #	COMPRESSOR/JACKHAMMER	TYPE	SIZE	QTY	ITEM	QTY	ITEM	QTY
158		4 1/2"	020	2	SAND	3	WELL COVER 8"	
575	SNOW FENCE RENTAL	20"	SCREEN		RECYCLED SAND	2/16	WELL COVER 12"	
408	CONTINUOUS SAMPLER	10"	SCREEN	2	QUICKSET		MONUMENT CASING	
	CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN		PORTLAND		BOLLARDS	
	# OF CORE CUTS	20"	BLANK		ASPHALT		SOIL DRUMS	
	# OF BULLDOG CUTS	10"	BLANK	35	BENTONITE GROUT		DEVELOPMENT DRUMS	
	# OF SERVICE RUNS	5'	BLANK	1	BENTONITE CHIPS		DECON DRUMS	
	# OF SAW CUTS	5'	PP SCREEN		BENTONITE POWDER		HOLE COVER PLATES	
	PORTABLE RESTROOM	10"	PP SCREEN		BENTONITE PELLETS		PLASTIC SHEETING	
1			SLIP CAP		BENTONITE GRANULAR	40	TRAFFIC CONTROL	
			THREADED CAPS	1	SAMPLER TUBES		CORE BOXES	
			LOCKING CAPS		SHELBY TUBES		PLYWOOD	
			DRIVE SHOE		PROBE POINTS		SOIL SAMPLES	
			CENTRALIZERS	2	GW PROBE POINTS		WATER SAMPLES	
			LOCKS		MACRO LINERS		HYDRO PUNCH SAMPLES	
					SAMPLER SHOE		AUGER PLUGS	
UTILITIES FOUND OR HIT					DRILL OUT BITS			

REMARKS

Client Signature  Operator Signature 



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

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13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
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3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

AGENT <u>Zone 7 water agency</u>		PROJECT NO <u>208-11</u>		DATE <u>10/29/10</u>		DAY <u>Friday</u>							
JOB LOCATION <u>Livermore, CA</u>				DIG ALERT #		CD-LP# <u>510186</u>							
Well #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time				HOURS		Total	Charge				
Bore #						Start	Stop	Hrs	Hrs				
		AM Shop Time											
		Travel to Site											
		load trash fuel + warm up rig				6:30	7:15	.75	.75				
		pump seal from 277' to 258'				7:15	8:00	.75	.75				
		Install well @ 255' + filter pack from 258' to 225'				8:00	9:00	1.0	1.0				
		pump seal from 225' to 202'				9:00	11:30	2.5	2.5				
		Lunch + go to home depot for 10' tremic pipe				11:30	12:15	.85	.75				
		Break down rig + mud pan + set up jacks				12:15	3:30	2.25	3.25				
		Jack casing back from 198' to 184'				3:30	4:00	.5	.5				
		trip in tremic pack + pump seal from 202' to 195'				4:00	5:00	1.0	1.0				
		Clean + secure site Cover all mat's load David w/Trash				5:00	5:30	.5	.5				
		Travel to airport				5:30	6:30	1.0	1.0				
		Travel to Shop											
		PM Shop Time											
Ft.		TOTAL CHARGEABLE RIG HOURS											
RIG ENGINE HOURS:		START	STOP		TOTAL		<u>12.0</u>	<u>11.5</u>					
EQUIPMENT				CASING				MATERIALS					
DRILL RIG #	<u>158</u>	COMPRESSOR/JACKHAMMER	TYPE	<u>10</u>	SLOT	<u>020</u>	2	4	SAND	<u>3</u>	<u>32</u>	WELL COVER 8"	
SUPPORT TRUCK #	<u>575</u>	SNOW FENCE RENTAL	20' SCREEN						READYMIX	<u>2/16</u>		WELL COVER 12"	
SUPPORT TRUCK #	<u>408</u>	CONTINUOUS SAMPLER	10' SCREEN	<u>2</u>					QUICKSET			MONUMENT CASING	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	5' SCREEN						PORTLAND			BOLLARDS	
BOBCAT		# OF CORE CUTS	20' BLANK						ASPHALT			SOIL DRUMS	
AUTO HAMMER		# OF BULLDOG CUTS	10' BLANK	<u>23</u>					BENTONITE GROUT			DEVELOPMENT DRUMS	
GROUT MIXER		# OF SERVICE RUNS	5' BLANK	<u>1</u>					BENTONITE CHIPS			DECON DRUMS	
GROUT PUMP		# OF SAW CUTS	5' PP SCREEN						BENTONITE POWDER			HOLE COVER PLATES	
PERISTALTIC PUMP		PORTABLE RESTROOM	10' PP SCREEN						BENTONITE PELLETS			PLASTIC SHEETING	
FORKLIFT/HOPPER	<u>1</u>		SLIP CAP						BENTONITE GRANULAR			TRAFFIC CONTROL	
LABOR				THREADED CAPS	<u>1</u>				SAMPLER TUBES			CORE BOXES	
CREW WITH PER DIEM	<u>2</u>	CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS						SHELBY TUBES			PLYWOOD	
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE				PROBE POINTS			SOIL SAMPLES	
<u>T. Mechem</u>				<u>11.5</u>	CENTRALIZERS	<u>2</u>			GW PROBE POINTS			WATER SAMPLES	
<u>J. Stalock</u>				<u>11.5</u>	LOCKS				MACRO LINERS			HYDRO PUNCH SAMPLES	
<u>D. Barrons</u>				<u>10.5</u>					SAMPLER SHOE			AUGER PLUGS	
				UTILITIES FOUND OR HIT				DRILL OUT BITS					
REMARKS													

Client Signature

Operator Signature



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
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3632 Omeq Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

ENT Zone 7 water Agency		PROJECT NO 208-11	DATE 11/1/10	DAY Monday		
JOB LOCATION Livermore, CA.		DIG ALERT #	CD-LP# 510184			
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time	HOURS		Total Hrs	Charge Hrs
			Start	Stop		
		AM Shop Time				
		Travel to Site				
P-8		Warm + fix up rig	6:30	7:00	.5	.5
		Jack casing back from 184' to 166'	7:00	7:30	.5	.5
		Trip in tremic pump seal from 195' to 170'	7:30	10:00	2.5	2.5
		Jack casing back from 166' to 136'	10:00	10:45	.75	.75
		Trip in tremic pipe	10:45	11:00	.25	.25
		Lunch	11:00	11:30	.5	
		pump seal from 177' to 141' plugged tremic pipe trip out	11:30	2:45	3.25	3.25
		Install well @ 135' + filter pack from 141' to 104' + chips	2:45	6:30	3.75	3.75
		paperwork	6:30	7:00	.5	.5
		Travel to Shop				
		PM Shop Time				
TOTAL CHARGEABLE RIG HOURS						

RIG ENGINE HOURS:	START	STOP	TOTAL	12.5	12.0
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EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	COMPRESSOR/JACKHAMMER	TYPE	NO	ITEM	QTY	ITEM	QTY				
158		10 SLOT	2	SAND	60	WELL COVER 8'					
575	SNOW FENCE RENTAL	20		READYMIX Sand 2/16	10	WELL COVER 12'					
408	CONTINUOUS SAMPLER	10'	2	QUICKSET		MONUMENT CASING					
	CONTINUOUS SAMPLER FOOTAGE	5'		PORTLAND		BOLLARDS					
	# OF CORE CUTS	20'		ASPHALT		SOIL DRUMS					
	# OF BULLDOG CUTS	10'	11	BENTONITE GROUT	4	DEVELOPMENT DRUMS					
	# OF SERVICE RUNS	5'	2	BENTONITE CHIPS		DECON DRUMS					
	# OF SAW CUTS	5'		BENTONITE POWDER		HOLE COVER PLATES					
	PORTABLE RESTROOM	10'		BENTONITE PELLETS		PLASTIC SHEETING					
1		SLIP CAP	1	BENTONITE GRANULAR	20	TRAFFIC CONTROL					
		THREADED CAPS	1	SAMPLER TUBES		CORE BOXES					
		LOCKING CAPS		SHELBY TUBES		PLYWOOD					
		DRIVE SHOE		PROBE POINTS		SOIL SAMPLES					
		CENTRALIZERS	2	GW PROBE POINTS		WATER SAMPLES					
		LOCKS		MACRO LINERS		HYDRO PUNCH SAMPLES					
				SAMPLER SHOE		AUGER PLUGS					
UTILITIES FOUND OR HIT											

REMARKS	
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Client Signature  Operator Signature 



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

CASCADE DRILLING DAILY WORK REPORT


PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Ormec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

WELL #		Zone 7 water agency		PROJECT NO	208-11	DATE	11/2/10	DAY	Tuesday	
JOB LOCATION		Livermore, CA.			DIG ALERT #		CD-LP# 510186			
Well #	Depth Bored	DESCRIPTION OF WORK					HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time					Start	Stop		
		AM Shop Time								
		Travel to Site								
		Warm up rig					6:30	7:00	15	15
		pump Volclay grout from 100' to 60' pull casing					7:00	10:00	3.0	3.0
		decon + load trucks					10:00	11:30	1.5	1.5
		Lunch					11:30	12:00	1.5	
		decon tooling mud shaker pump ship hole pump portland					12:00	12:30		
		pull casing					12:30	5:30	5.5	5.5
		decon tooling + clean up					5:30	7:00	1.5	1.5
		paperwork + fuel					7:00	7:30	15	15
		Travel to Shop								
		PM Shop Time								
TOTAL CHARGEABLE RIG HOURS									13.0	12.5

RIG ENGINE HOURS:	START	STOP	TOTAL	13.0	12.5
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EQUIPMENT		CASING		MATERIALS			
DRILL RIG #		TYPE	SLOT	ITEM	QTY	ITEM	QTY
158	COMPRESSOR/JACKHAMMER	20'	2	SAND		WELL COVER 8"	
575	SNOW FENCE RENTAL	10'		READYMIX		WELL COVER 12"	
408	CONTINUOUS SAMPLER	5'		QUICKSET		MONUMENT CASING	
	CONTINUOUS SAMPLER FOOTAGE	5'		PORTLAND	20	BOLLARDS	
	# OF CORE CUTS	20'		ASPHALT		SOIL DRUMS	
	# OF BULLDOG CUTS	10'		BENTONITE GROUT	20	DEVELOPMENT DRUMS	
	# OF SERVICE RUNS	5'		BENTONITE CHIPS	41	DECON DRUMS	
	# OF SAW CUTS	5'		BENTONITE POWDER		HOLE COVER PLATES	
	PORTABLE RESTROOM	10'		BENTONITE PELLETS		PLASTIC SHEETING	
	SLIP CAP			BENTONITE GRANULAR gel	1	TRAFFIC CONTROL	
	THREADED CAPS			SAMPLER TUBES		CORE BOXES	
	LOCKING CAPS			SHELBY TUBES		PLYWOOD	
	DRIVE SHOE			PROBE POINTS		SOIL SAMPLES	
	CENTRALIZERS			GW PROBE POINTS		WATER SAMPLES	
	LOCKS			MACRO LINERS		HYDRO PUNCH SAMPLES	
	SAMPLER SHOE					AUGER PLUGS	
UTILITIES FOUND OR HIT				DRILL OUT BITS			

REMARKS

Client Signature  Operator Signature 



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

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3632 Ormec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

CLIENT <u>Zone 7 Water Agency</u>		PROJECT NO <u>208-11</u>		DATE <u>11-9-10</u>		DAY <u>Tuesday</u>					
JOB LOCATION <u>Chain of Lakes Livermore Ca</u>		DIG ALERT #		CD-LP# <u>S10186.01</u>							
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK				HOURS		Total Hrs	Charge Hrs		
		Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop				
		AM Shop Time									
		Travel to Site				5:00	8:00		3		
		Sign in & mob to wells				8:00	9:00		1		
		Tag wells, MW1 DTW 75.46 TD 1339 MW2 PTW 100.35 TD 288				9:00	10:00		1		
		MW3 DTW 105.75 TD 362. MW4 DTW 183.42 TD 243 Bdr Development									
		Safety meeting with client				10:00	10:30		.5		
		Get Air Compressor & Larry Surged & bailed wells				10:30	12:00		1.5		
		Launch & meet with prevailing wage inspector				2:00	2:30	(5)			
		Start running pipe down MW4 to 350', to muddy				12:30	4:00		3.5		
		pull pipe, Air lift, Acid pipe, Air lift, Acid									
		pipe, not working									
		pull pipe, clean up				4:00	4:30		.5		
		Mob from well, Sign out, leave site				4:30	5:00		.5		
		Travel to Shop				5:00	7:30		2.5		
		PM Shop Time				4:00					
						7:30	8:00		.5		
Jt. Ft.		TOTAL CHARGEABLE RIG HOURS						14.0			
RIG ENGINE HOURS:		START	STOP				TOTAL				
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	<u>P1</u>	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"			
SUPPORT TRUCK #	<u>409</u>	SNOW FENCE RENTAL	20' SCREEN				READYMIX	WELL COVER 12"			
SUPPORT TRUCK #		CONTINUOUS SAMPLER	10' SCREEN				QUICKSET	MONUMENT CASING			
TRAILER #	<u>234</u>	CONTINUOUS SAMPLER FOOTAGE	5' SCREEN				PORTLAND	BOLLARDS			
BOBCAT		# OF CORE CUTS	20' BLANK				ASPHALT	SOIL DRUMS			
AUTO HAMMER		# OF BULLDOG CUTS	10' BLANK				BENTONITE GROUT	DEVELOPMENT DRUMS			
GROUT MIXER		# OF SERVICE RUNS	5' BLANK				BENTONITE CHIPS	DECON DRUMS			
GROUT PUMP		# OF SAW CUTS	5' PP SCREEN				BENTONITE POWDER	HOLE COVER PLATES			
PERISTALTIC PUMP		PORTABLE RESTROOM	10' PP SCREEN				BENTONITE PELLETS	PLASTIC SHEETING			
FORKLIFT/HOPPER			SUP CAP				BENTONITE GRANULAR	TRAFFIC CONTROL			
LABOR				THREADED CAPS			SAMPLER TUBES	CORE BOXES			
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS	LOCKING CAPS				SHELBY TUBES	PLYWOOD			
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	SOIL SAMPLES			
<u>D. Davidson</u>				<u>14.5</u>	CENTRALIZERS		GW PROBE POINTS	WATER SAMPLES			
<u>L. Robinson</u>				<u>14.0</u>	LOCKS		MACRO LINERS	HYDRO PUNCH SAMPLES			
					SAMPLER SHOE			AUGER PLUGS			
				UTILITIES FOUND OR HIT				DRILL OUT BITS			
REMARKS											

Client Signature _____

Operator Signature



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

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13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Ormec Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT ZONE 7		PROJECT NO		DATE 11-15-10	DAY MON				
JOB LOCATION CHAIN OF LAKES Livermore			DIG ALERT #		CDI JOB# 510186.01				
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK <small>Please explain reasons for Down Time and Standby Time</small>			HOURS		Total Hrs	Charge Hrs	
					Start	Stop			
				AM Shop Time					
		From SAC to Livermore (Fuel)		Travel to Site	530	730		2	
		onsite, sign in mob to well			830	830		1.5	
		Set up MW #1, START down hole w/1" pipe			830	930		1	
		START Air Development @ 120' (Muddy)			930	1230		3	
		hunch - well clearing 600 gal			1230	100	.5		
		rolled pipe FROM MW-1, set down MW-2			100	400		3	
		TO 245' START Air Development, well clear							
		450 gal			400				
		Remove 1" pipe set down clear up			400	530		1.5	
Footage		TOTAL CHARGEABLE RIG HOURS			Travel to Shop				
					PM Shop Time				
RIG ENGINE HOURS:		START	STOP		TOTAL			11.5	
EQUIPMENT				CASING		MATERIALS			
DRILL RIG #				TYPE	SLOT	ITEM	QTY	ITEM	QTY
Pollstar	1 Day	SNOW FENCE RENTAL			2 4	SAND		WELL COVER 8"	
SUPPORT TRUCK #		CONTINUOUS SAMPLER		20' SCREEN		READYMIX		WELL COVER 12"	
SUPPORT TRUCK #		CONTINUOUS SAMPLER FOOTAGE		10' SCREEN		QUICKSET		MONUMENT CASING	
BOBCAT		# OF CORE CUTS		5' SCREEN		PORTLAND		BOLLARDS	
AUTO HAMMER		# OF BULLDOG CUTS		20' BLANK		BENTONITE GROUT		SOIL DRUMS	
GROUT MIXER		# OF SERVICE RUNS		10' BLANK		BENTONITE CHIPS		DEVELOPMENT DRUMS	
GROUT PUMP				5' PP SCREEN		BENTONITE POWDER		DECON DRUMS	
PERISTALTIC PUMP				10' PP SCREEN		BENTONITE PELLETS		HOLE COVER PLATES	
Air comp	1 Day			SLIP CAP		SAMPLER TUBES		PLASTIC SHEETING	
				THREADED CAPS		SHELBY TUBES		TRAFFIC CONTROL	
				LOCKING CAPS		GW PROBE POINTS		CORE BOXES	
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS		DRIVE SHOE		PROBE POINTS		PLYWOOD	
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	CENTRALIZERS	MACRO LINERS		SOIL SAMPLES	
Larry Robinson	<i>[Signature]</i>			11.5	LOCKS	SAMPLER SHOE		WATER SAMPLES	
								HYDRO PUNCH SAMPLES	
UTILITIES FOUND OR HIT									
REMARKS									

Client Signature

[Signature]

Operator Signature

[Signature]



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

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555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omeq Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

CLIENT ZONE 7		PROJECT NO	DATE 11-16-10	DAY TUE				
JOB LOCATION CHAND OF LAKEs			DIG ALERT #	CD-LP# 310186.01				
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK			HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time			Start	Stop		
		AM Shop Time						
		Travel to Site			1:30	2:30		1
		onsite check in, prep for well flush			2:30	5:00		2.5
		MOB EQUIP. TO SITE						
		Travel to Shop						
		PM Shop Time						
TOTAL CHARGEABLE RIG HOURS								3.5

RIG ENGINE HOURS:	START	STOP	TOTAL						
EQUIPMENT		CASING		MATERIALS					
DRILL RIG #	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	ITEM	QTY	ITEM	QTY
SUPPORT TRUCK #	SNOW FENCE RENTAL	20' SCREEN				SAND		WELL COVER 8"	
SUPPORT TRUCK #	CONTINUOUS SAMPLER	10' SCREEN				READYMIX		WELL COVER 12"	
TRAILER #	CONTINUOUS SAMPLER FOOTAGE	5' SCREEN				QUICKSET		MONUMENT CASING	
BOBCAT	# OF CORE CUTS	20' BLANK				PORTLAND		BOLLARDS	
AUTO HAMMER	# OF BULLDOG CUTS	10' BLANK				ASPHALT		SOIL DRUMS	
GROUT MIXER	# OF SERVICE RUNS	5' BLANK				BENTONITE GROUT		DEVELOPMENT DRUMS	
GROUT PUMP	# OF SAW CUTS	5' PP SCREEN				BENTONITE CHIPS		DECON DRUMS	
PERISTALTIC PUMP	PORTABLE RESTROOM	10' PP SCREEN				BENTONITE POWDER		HOLE COVER PLATES	
FORKLIFT/HOPPER		SLIP CAP				BENTONITE PELLETS		PLASTIC SHEETING	
		THREADED CAPS				BENTONITE GRANULAR		TRAFFIC CONTROL	
		LOCKING CAPS				SAMPLER TUBES		CORE BOXES	
CREW WITH PER DIEM	CHARGEABLE EXTRA LABOR HRS	DRIVE SHOE				SHELBY TUBES		PLYWOOD	
NAME	SIGNATURE	CENTRALIZERS				PROBE POINTS		SOIL SAMPLES	
L Robinson	<i>[Signature]</i>	LOCKS				GW PROBE POINTS		WATER SAMPLES	
		UTILITIES FOUND OR HIT				MACRO LINERS		HYDRO PUNCH SAMPLES	
						SAMPLER SHOE		ALGER PLUGS	
								DRILL OUT BITS	

REMARKS

Client Signature

[Signature]

Operator Signature

[Signature]



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

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3632 Omec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

WELL #		DEPTH		PROJECT NO		DATE		DAY	
		ZONE 7				11-17-10		WED	
JOB LOCATION				DIG ALERT #		CD-LP#			
CHAIN of Lakes Livermore				S1019L		150586.01			
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK				HOURS		Total Hrs	Charge Hrs
		Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop		
		AM Shop Time							
		Travel to Site				6:30	7:00		.5
		Hotel to Site				7:00	8:00		1
		Check in, load water truck Mob to well				8:00	9:00		1
		SETUP ON #3 START DOWN Hole w/ape				9:00	11:00		2
		START AIR LIFTING Blowing OUT Heavy Mud				11:00	12:00		1
		CROSS OVER TO FLUSH well w/WATER				12	12:30	.5	
		Lunch let well Recharge				12:30	1:00		.5
		AIR lift VARY Dirty APINGS				1:00	4:00		3
		CROSS FROM AIR LIFTING TO FLUSHING (BACKFILL)				4:00	5:00		1
		AIR lift Remaining LHE to clear - No luck				5:00	5:30		.5
		TRIP pipe OUT 370' OFF site							
		Travel to Shop				5:30	6:00		.5
		PM Shop Time							
TOTAL CHARGEABLE RIG HOURS									

RIG ENGINE HOURS:	START	STOP	TOTAL	11
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EQUIPMENT				CASING				MATERIALS							
DRILL RIG #	SUPPORT TRUCK #	SUPPORT TRUCK #	TRAILER #	BOBCAT	AUTO HAMMER	GROUT MIXER	GROUT PUMP	PERISTALTIC PUMP	FORKLIFT/HOPPER	TYPE	SLOT	ITEM	QTY	ITEM	QTY
POKSTAR											2	SAND		WELL COVER 8"	
										4		READYMX		WELL COVER 12"	
												QUICKSET		MONUMENT CASING	
												PORTLAND		BOLLARDS	
												ASPHALT		SOIL DRUMS	
												BENTONITE GROUT		DEVELOPMENT DRUMS	
												BENTONITE CHIPS		DECON DRUMS	
												BENTONITE POWDER		HOLE COVER PLATES	
												BENTONITE PELLETS		PLASTIC SHEETING	
												BENTONITE GRANULAR		TRAFFIC CONTROL	
												SAMPLER TUBES		CORE BOXES	
												LOCKING CAPS		PLYWOOD	
												DRIVE SHOE		SOIL SAMPLES	
												CENTRALIZERS		WATER SAMPLES	
												LOCKS		HYDRO PUNCH SAMPLES	
												SAMPLER SHOE		AUGER PLUGS	
										UTILITIES FOUND OR HIT				DRILL OUT BITS	

REMARKS

Client Signature:  11/17/10
Operator Signature: 



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3632 Ormec Circle - Rancho Cordova, CA 95742 - 916-638-1169 #C57-938110

CLIENT ZONE 7		PROJECT NO		DATE 11-18-10	DAY THUR						
JOB LOCATION CHAIN OF LAKES		LIVERMORE		DIG ALERT #	CD-LP# 56186-01						
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK			HOURS		Total Hrs	Charge Hrs			
		Please explain reasons for Down Time and Standby Time and Shop Time			Start	Stop					
		AM Shop Time									
		Travel to Site 1 HOTEL TO Fuel TO sit			7:00	8:00					
		checkin, mob to well set up			8:00	8:30					
		START TRIPPING pipe Down #4 TO 400'			8:30	10:30					
		START AIR lift Remove 200 gnl Dirty center			10:30	12:00					
		RAISE AIR well Producing 5 gpm & THINNING OUT			12:00	12:30					
		Removed 300 more gnl, lowered pipe to 560'			12:30	1:30					
		well Producing 10 per min 600 more clean			1:30	2:30					
		well clearing up fast 600 gnl			2:30	3:30					
		Surge well every 10 min. well clearing up			3:30	4:00					
		TRIP OUT pipe clock out			4:00	5:00					
		Travel to Shop TRAVEL TO HOTEL			5:00	5:30					
		PM Shop Time									
Total Ft.		TOTAL CHARGEABLE RIG HOURS									
RIG ENGINE HOURS:		START	STOP			TOTAL	10.5				
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #				TYPE	SLOT			ITEM	QTY	ITEM	QTY
P15TR	1	COMPRESSOR/JACKHAMMER	1			2	4	SAND		WELL COVER 8"	
SUPPORT TRUCK #		SNOW FENCE RENTAL		20' SCREEN				READYMIX		WELL COVER 12"	
SUPPORT TRUCK #		CONTINUOUS SAMPLER		10' SCREEN				QUICKSET		MONUMENT CASING	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE		5' SCREEN				PORTLAND		BOLLARDS	
BOBCAT		# OF CORE CUTS		20' BLANK				ASPHALT		SOIL DRUMS	
AUTO HAMMER		# OF BULLDOG CUTS		10' BLANK				BENTONITE GROUT		DEVELOPMENT DRUMS	
GROUT MIXER		# OF SERVICE RUNS		5' BLANK				BENTONITE CHIPS		DECON DRUMS	
GROUT PUMP		# OF SAW CUTS		5' PP SCREEN				BENTONITE POWDER		HOLE COVER PLATES	
PERISTALTIC PUMP		PORTABLE RESTROOM		10' PP SCREEN				BENTONITE PELLETS		PLASTIC SHEETING	
FORKLIFT/HOPPER		WATER TANK	1	SLIP CAP				BENTONITE GRANULAR		TRAFFIC CONTROL	
LABOR				THREADED CAPS				SAMPLER TUBES		CORE BOXES	
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS		LOCKING CAPS				SHELBY TUBES		PLYWOOD	
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE			PROBE POINTS		SOIL SAMPLES	
L. Robinson	<i>[Signature]</i>			10.5	CENTRALIZERS			GW PROBE POINTS		WATER SAMPLES	
					LOCKS			MACRO LINERS		HYDRO PUNCH SAMPLES	
					UTILITIES FOUND OR HIT			SAMPLER SHOE		AUGER PLUGS	
REMARKS											

Client Signature _____

Operator Signature _____



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WELL ZONE 7		PROJECT NO		DATE 11-19-10		DAY FRI									
JOB LOCATION CHAIN of lakes		Line more		DIG ALERT #		CD-LP# 510186-01									
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK				HOURS		Total Hrs	Charge Hrs						
		Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop								
		AM Shop Time													
		Travel to Site Hotel TO site				6:30	7:00								
		check in mob to well set up on #3				7:00	7:30								
		TRIP pipe TO 300'				7:30	8:30								
		START AIR lifting # 3 again well still silty				8:30	1:30								
		TRIP OUT pipe				1:30	2:00								
		SET monument, Build PAD, set bollards				2:00	4:00								
		Clean up site				4:00	4:30								
		TAKE AIR comp back to Rental				4:30	5:00								
		Travel to Shop				5:00	7:00								
		PM Shop Time													
TOTAL CHARGEABLE RIG HOURS															
RIG ENGINE HOURS:		START	STOP		TOTAL										
EQUIPMENT				CASING				MATERIALS							
DRILL RIG #	SUPPORT TRUCK #	SUPPORT TRUCK #	TRAILER #	BOBCAT	AUTO HAMMER	GROUT MIXER	GROUT PUMP	PERISTALTIC PUMP	FORKLIFT/HOPPER	TYPE	SLOT	ITEM	QTY	ITEM	QTY
Fullstar											2	SAND	2-12	WELL COVER 8"	
											4	READYMIX	22	WELL COVER 12"	
												QUICKSET		MONUMENT CASING	14"
												PORTLAND		BOLLARDS	4
												ASPHALT		SOIL DRUMS	
												BENTONITE GROUT		DEVELOPMENT DRUMS	
												BENTONITE CHIPS		DECON DRUMS	
												BENTONITE POWDER		HOLE COVER PLATES	
												BENTONITE PELLETS		PLASTIC SHEETING	
												BENTONITE GRANULAR		TRAFFIC CONTROL	
LABOR				THREADED CAPS				SAMPLER TUBES				CORE BOXES			
CREW WITH PER DIEM				LOCKING CAPS				SHELBY TUBES				PLYWOOD			
CHARGEABLE EXTRA LABOR HRS				DRIVE SHOE				PROBE POINTS				SOIL SAMPLES			
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	CENTRALIZERS	GW PROBE POINTS				WATER SAMPLES					
L. Robinson	[Signature]			13	LOCKS	MACRO LINERS				HYDROPUNCH SAMPLES					
A. AEROYD					UTILITIES FOUND OR HIT				DRILL OUT BITS						
REMARKS 1 4x4x6" FORM															
Amador 5:00-6:30															

Client Signature _____

Operator Signature _____

LETTER OF TRANSMITTAL



KIER & WRIGHT
Civil Engineers & Surveyors, Inc.
1233 Quarry Lane Suite 145
Pleasanton, California 94566
Phone (925)249-6555 • Fax (925)249-6563

Date: 1/6/11 **Job No:** A10568-5
Attention: Cheryl Dizon

RE: LGA GRANT HYDROSTRATIGRAPHIC INVESTIGATION AT THE CHAIN OF LAKES

Title order No.: n/a

ACFC & WCD ZONE 7
100 North Canyons Parkway
Livermore, California 94551

We are sending you:

- Grading Plan
- Improvement Plan
- Tentative Map
- Tract Map
- A.L.T.A. Survey
- Parcel Map
- Plat & Description
- Topographic Survey
- Progress Prints
- Specifications
- Check Prints
- SPREADSHEETS, FIELD NOTES

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1	04/07/11	MW 3S/1E 13P5, P6, P7, P8 – CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.
1	04/07/11	MW 3S/1E 14J1 – CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.
1	04/07/11	MW 3S/1E 14J3 – CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.
1	12/29/10	Print of field notes, BM.

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Michael J. Foley, P.L.S

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**TABLE OF ELEVATIONS & COORDINATES
ON ZONE 7 MONITORING WELL**

LGA GRANT HYDROSTRATIGRAPHIC INVESTIGATION
AT THE CHAIN OF LAKES
CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.

WELL ID #	NAD 83 (1991.35) NORTHING (FT.) / LATITUDE (N) (D.M.S.)	NAD 83 (1991.35) EASTING (FT.) / LONGITUDE (W) (D.M.S.)	NGVD29 ELEVATION (FT.)	DESCRIPTION
	2,069,137.00	6,177,585.83	376.97	LID FOR 12"Ø STEEL CASING
	37°40'11.89"	-121°49'37.44"		
3S/1E 14J3			376.94	TOP OF 12"Ø STEEL CASING
			376.94	CONCRETE PAD 1' NORTH OF WELL
			376.4	GROUND AT WELL

HORIZONTAL CONTROL IS BASED ON NATIONAL GEODETIC SURVEY GPS STATION "HPGN CA 04 07"
FOUND 3" ALUMINUM DISK IN CONCRETE, STAMPED "CALIF. DEPT. OF TRANSPORTATION 1990 -
HPGN-CALIF. STA 04-07" [EPOCH DATE 1991.35] (PID HS5408)
NORTHINGS AND EASTINGS ARE BASED ON SPC CA 3(1992) IN FEET.

BENCH MARK: STANDARD ALAMEDA COUNTY SURVEYOR DISC STAMPED "STAN-1 1979"
TOP OF CONCRETE CURB 64FEET+/- RIGHT OF MONUMENT LINE STATION 136+72+/- ON SOUTH SIDE
OF STANLEY BOULEVARD, WEST OF EL CHARRO ROAD.

ELEVATION = 379.763 FT., ALAMEDA COUNTY PUBLIC WORKS 1974 ADJ. NGVD29

Survey performed by or under the direction of Michael James Foley, L.S. 5777

NGS DATA SHEETS

DESIGNATION: N 929

PID: HS 3522

ELEVATION = 384.2 FT. , NAVD88 (VERTCON +/-2CM)

ELEVATION = 381.52 FT., NGVD29

FORMULA: height (NAVD 88) = height (NGVD 29) + datum shift (correction) value

datum shift (correction) value = 2.7 FEET

datum shift (correction) value IS BASED ON VERTCON PROGRAM AND ACCURATE TO ABOUT +/-2CM

****NOTE: ROUNDED TO THE NEAREST TENTH OF A FOOT AFTER APPLYING CORRECTION**

Kier & Wright Engineers Surveyors, Inc.
2850 Collier Canyon Road, Livermore, CA 94551
Phone (925) 245-8788,
Fax (925) 245-8796

1/7/2011
11:11 AM

**TABLE OF ELEVATIONS & COORDINATES
ON ZONE 7 MONITORING WELL**
LGA GRANT HYDROSTRATIGRAPHIC INVESTIGATION
AT THE CHAIN OF LAKES
CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.

WELL ID #	NAD 83 (1991.35) NORTHING (FT.) / LATITUDE (N) (D.M.S.)	NAD 83 (1991.35) EASTING (FT.) / LONGITUDE (W) (D.M.S.)	NGVD29 ELEVATION (FT.)	DESCRIPTION
3S/1E 14J1	2,069,424.78	6,177,640.40	384.71	N. EDGE OF 1-1/2"Ø HOLE IN CONC.
	37°40'14.75"	-121°49'36.82"		SLAB INSIDE CEMEX PUMP HOUSE BLDG. 2
			384.71	CONC. SLAB 1' NORTH OF WELL

HORIZONTAL CONTROL IS BASED ON NATIONAL GEODETIC SURVEY GPS STATION "HPGN CA 04 07"
FOUND 3" ALUMINUM DISK IN CONCRETE, STAMPED "CALIF. DEPT. OF TRANSPORTATION 1990 -
HPGN-CALIF. STA 04-07" [EPOCH DATE 1991.35] (PID HS5408)
NORTHINGS AND EASTINGS ARE BASED ON SPC CA 3(1992) IN FEET.

BENCH MARK: STANDARD ALAMEDA COUNTY SURVEYOR DISC STAMPED "STAN-1 1979"
TOP OF CONCRETE CURB 64FEET+/- RIGHT OF MONUMENT LINE STATION 136+72+/- ON SOUTH SIDE
OF STANLEY BOULEVARD, WEST OF EL CHARRO ROAD.

ELEVATION = 379.763 FT., ALAMEDA COUNTY PUBLIC WORKS 1974 ADJ. NGVD29

Survey performed by or under the direction of Michael James Foley, L.S. 5777

WGS DATA SHEETS

DESIGNATION: N 929

PID: HS 3522

ELEVATION = 384.2 FT. , NAVD88 (VERTCON +/-2CM)

ELEVATION = 381.52 FT., NGVD29

FORMULA: height (NAVD 88) = height (NGVD 29) + datum shift (correction) value

datum shift (correction) value = 2.7 FEET

datum shift (correction) value IS BASED ON VERTCON PROGRAM AND ACCURATE TO ABOUT +/-2CM

*NOTE: ROUNDED TO THE NEAREST TENTH OF A FOOT AFTER APPLYING CORRECTION

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1/7/2011
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**TABLE OF ELEVATIONS & COORDINATES
ON ZONE 7 MONITORING WELL**

LGA GRANT HYDROSTRATIGRAPHIC INVESTIGATION
AT THE CHAIN OF LAKES
CEMEX SITE, 1544 STANLEY BLVD., PLEASANTON, CA.

WELL ID #	NAD 83 (1991.35) NORTHING (FT.) / LATITUDE (N) (D.M.S.)	NAD 83 (1991.35) EASTING (FT.) / LONGITUDE (W) (D.M.S.)	NGVD29 ELEVATION (FT.)	DESCRIPTION
	2,068,365.81	6,180,152.07	378.36	RIM FOR 15"Ø STEEL CASING
	37°40'04.62"	-121°49'05.39"		
3S/1E 13P5			378.08	TOP OF 2"Ø PVC INSIDE 15"Ø CASING
3S/1E 13P6 P7			378.06	TOP OF 2"Ø PVC INSIDE 15"Ø CASING
3S/1E 13P7 P8			378.06	TOP OF 2"Ø PVC INSIDE 15"Ø CASING
3S/1E 13P8 P6			378.06	TOP OF 2"Ø PVC INSIDE 15"Ø CASING
			376.55	CONCRETE PAD AT WELL
			376.0	GROUND AT WELL

HORIZONTAL CONTROL IS BASED ON NATIONAL GEODETIC SURVEY GPS STATION "HPGN CA 04 07"
FOUND 3" ALUMINUM DISK IN CONCRETE, STAMPED "CALIF. DEPT. OF TRANSPORTATION 1990 -
HPGN-CALIF. STA 04-07" [EPOCH DATE 1991.35] (PID HS5408)
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Survey performed by or under the direction of Michael James Foley, L.S. 5777

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1/7/2011
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Appendix C

Laboratory Data Sheets, Chain of Custodies, and Laboratory Methods and Limits (Zone 7 Laboratory)

ZONE 7 WATER QUALITY LABORATORY

L121110

ANALYTICAL SUMMARY

Page 1

		Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L
Sample Point:		3S/1E 14J3	3S/1E 14J3						
Lab Sample No:		101291	101292						
Date Collected:		12/11/10	12/12/10						
Time Collected:		16:12	16:13						
Collected By:		TR	TR						
Date/Time Received:		12/14 14:30	12/14 14:30						
Date Analysis Started:									
Date Analysis Completed:		01/13/11	01/13/11						
PHYSICAL									
E.C. (Field)	µmhos/Cm	697	668						
pH (Field)	Units	7.1	7.1						
Temperature (Field)	° C	18.4	16.9						
Turbidity (Field)	NTU								
E.C. (Laboratory)	µmhos/Cm	712	683						
pH (Laboratory)	Units	7.9	7.8						
Turbidity (Laboratory)	NTU	0.06	0.05						
Color (Unfiltered)	Units								
Aggressiveness Index	<12 Ag/>12Non Ag	12.4	12.3						
TDS (ROE at 180°)	mg/L	394	384						
Threshold Odor	TON								
CHEMICAL									
UV 254	cm-1								
Total Org Carbon (TOC)	mg/L								
Dissolved Org Carbon (DOC)	mg/L								
Ammonia as N	mg/L								
Total Hard (CaCO ₃)	mg/L	264	269						
Ca Hard (CaCO ₃)	mg/L	160	166						
Mg Hard (CaCO ₃)	mg/L	104	103						
Alkalinity (CaCO ₃)	mg/L	180	206						
Boron (B)	mg/L	0.39	0.35						
Bromide (Br)	mg/L	0.30	0.24						
Chloride (Cl)	mg/L	94	70						
Chlorate (ClO ₃)	µg/L								
Fluoride (F)	mg/L	0.17	0.14						
Nitrate (NO ₃)	mg/L	4.16	8.50						
Nitrite (NO ₂)	mg/L								
Phosphate (PO ₄)	mg/L	< 0.31	< 0.31						
Silica (SiO ₂)	mg/L	17.8	20.3						
Sulfate (SO ₄)	mg/L	57	45						
Sodium (Na)	mg/L	49	42						
Potassium (K)	mg/L	2.0	1.8						
METALS									
Aluminum (Al)	µg/L	< 20	< 20						
Antimony (Sb)	µg/L	< 1.0	< 1.0						
Arsenic (As)	µg/L	< 1.0	< 1.0						
Barium (Ba)	µg/L	150	140						
Beryllium (Be)	µg/L	< 1.0	< 1.0						
Cadmium (Cd)	µg/L	< 0.5	< 0.5						
Chromium (Total Cr)	µg/L	< 2.0	< 2.0						
Cobalt (Co)	µg/L	< 2.0	< 2.0						
Copper (Cu)	µg/L	< 2.0	2.4						
Iron (Fe)	µg/L	< 50	< 50						
Lead (Pb)	µg/L	< 1.0	< 1.0						
Mercury (Hg)	µg/L								
Manganese (Mn)	µg/L	13	< 10						
Molybdenum (Mo)	µg/L	< 2.0	< 2.0						
Nickel (Ni)	ug/L	< 2.0	< 2.0						
Selenium (Se)	µg/L	< 1.0	1.1						
Strontium (Sr)	µg/L	810	790						
Silver (Ag)	µg/L	< 1.0	< 1.0						
Thallium (Tl)	µg/L	< 1.0	< 1.0						
Thorium (Th)	µg/L	< 1.0	< 1.0						
Vanadium (V)	µg/L	< 2.0	< 2.0						
Zinc (Zn)	µg/L	< 10	< 10						
Uranium (U)	µg/L	< 1.0	1.0						
Cations									
Ca:		64	3.194	66	3.313				
Mg:		25	2.079	25	2.059				
Na:		49	2.132	42	1.827				
K:		2.0	0.051	1.8	0.046				
Sum of Cations			7.455		7.245				
Anions									
HCO ₃ :		218	3.572	250	4.094				
CO ₃ :		1.6	0.054	1.5	0.049				
SO ₄ :		57	1.19	45	0.93735				
Cl:		94	2.652	70	1.975				
NO ₃ :		4.2	0.067	8.5	0.137				
Sum of Anions			7.532		7.193				
Meq % Diff.			0.51%		0.36%				
Calculated TDS		422		403					
ROE @ 180° TDS		394		384					
%Diff ROE & Calc		6.7%		4.8%					

ZONE 7 WATER QUALITY LABORATORY

L012111

ANALYTICAL SUMMARY

Page 1

		Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L
Sample Point:		3S/1E 13P5	3S/1E 13P7	3S/1E 13P8	3S/1E 13P6				
Lab Sample No:		110072	110073	110074	110075				
Date Collected:		01/21/11	01/21/11	01/21/11	01/21/11				
Time Collected:		09:58	10:22	11:08	11:42				
Collected By:		PC	PC	PC	PC				
Date/Time Received:		01/21 13:40	01/21 13:40	01/21 13:40	01/21 13:40				
Date Analysis Started:									
Date Analysis Completed:		01/31/11	01/31/11	01/31/11	01/31/11				
PHYSICAL									
E.C. (Field)	µmhos/Cm	696	690	688	1098				
pH (Field)	Units	8.5	8.6	8.0	8.9				
Temperature (Field)	° C	20.4	19.1	19.0	19.5				
Turbidity (Field)	NTU								
E.C. (Laboratory)	µmhos/Cm	646	613	625	847				
pH (Laboratory)	Units	7.6	7.6	7.4	7.5				
Turbidity (Laboratory)	NTU	0.32	0.39	0.08	5.4				
Color (Unfiltered)	Units								
Aggressiveness Index	<12 Ag/>12Non Ag	11.8	11.8	11.8	12.0				
TDS (ROE at 180°)	mg/L	396	399	411	526				
Threshold Odor	TON								
CHEMICAL									
UV 254	cm-1								
Total Org Carbon (TOC)	mg/L								
Dissolved Org Carbon (DOC)	mg/L								
Ammonia as N	mg/L								
Total Hard (CaCO ₃)	mg/L	236	120	183	229				
Ca Hard (CaCO ₃)	mg/L	125	79	115	140				
Mg Hard (CaCO ₃)	mg/L	111	41	68	89				
Alkalinity (CaCO ₃)	mg/L	142	208	197	222				
Boron (B)	mg/L	0.41	0.30	0.33	0.39				
Bromide (Br)	mg/L	0.28	0.09	0.20	0.30				
Chloride (Cl)	mg/L	91	26	56	90				
Chlorate (ClO ₃)	µg/L								
Fluoride (F)	mg/L	0.20	0.24	0.16	0.23				
Nitrate (NO ₃)	mg/L	0.71	0.66	0.80	3.72				
Nitrite (NO ₂)	mg/L								
Phosphate (PO ₄)	mg/L	0.12	0.06	0.06	0.06				
Silica (SiO ₂)	mg/L	15.3	19.9	22.9	19.3				
Sulfate (SO ₄)	mg/L	47	72	48	83				
Sodium (Na)	mg/L	48	103	73	90				
Potassium (K)	mg/L	1.7	2.3	2.2	2.8				
METALS									
Aluminum (Al)	µg/L	< 20	330	< 20	130				
Antimony (Sb)	µg/L	1.4	< 1.0	< 1.0	< 1.0				
Arsenic (As)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Barium (Ba)	µg/L	110	52	110	110				
Beryllium (Be)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Cadmium (Cd)	µg/L	< 0.5	< 0.5	< 0.5	< 0.5				
Chromium (Total Cr)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Cobalt (Co)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Copper (Cu)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Iron (Fe)	µg/L	< 50	380	< 50	170				
Lead (Pb)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Mercury (Hg)	µg/L								
Manganese (Mn)	µg/L	< 10	100	160	130				
Molybdenum (Mo)	µg/L	< 2.0	23	9.0	21				
Nickel (Ni)	ug/L	< 2.0	2.6	< 2.0	2.2				
Selenium (Se)	µg/L	1.1	1.1	1.1	< 1.0				
Strontium (Sr)	µg/L	730	360	540	600				
Silver (Ag)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Thallium (Tl)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Thorium (Th)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Vanadium (V)	µg/L	< 2.0	2.4	< 2.0	< 2.0				
Zinc (Zn)	µg/L	22	< 10	14	< 10				
Uranium (U)	µg/L	< 1.0	2.2	1.2	2.0				
Cations									
Ca:		50	2.495	32	1.577	46	2.295	56	2.794
Mg:		27	2.219	10	0.820	17	1.359	22	1.779
Na:		48	2.088	103	4.481	73	3.176	90	3.915
K:		1.7	0.043	2.3	0.059	2.2	0.056	2.8	0.072
Sum of Cations			6.845		6.936		6.886		8.560
Anions									
HCO ₃ :		173	2.828	253	4.143	240	3.930	270	4.426
CO ₃ :		0.6	0.022	0.9	0.032	0.6	0.019	0.8	0.027
SO ₄ :		47	0.98	72	1.49976	48	0.99984	83	1.72889
Cl:		91	2.567	26	0.733	56	1.580	90	2.539
NO ₃ :		0.7	0.011	0.7	0.011	0.8	0.013	3.7	0.060
Sum of Anions			6.407		6.419		6.541		8.780
Meq % Diff.			3.31%		3.88%		2.57%		1.27%
Calculated TDS		366		391		384		500	
ROE @ 180° TDS		396		399		411		526	
%Diff ROE & Calc		8.1%		2.1%		7.0%		5.2%	

ZONE 7 WATER QUALITY LABORATORY

L021411

ANALYTICAL SUMMARY

Page 1

		Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L	Meq/L
Sample Point:		3S/1E 13P5	3S/1E 13P7	3S/1E 13P8	3S/1E 13P6				
Lab Sample No:		110136	110137	110138	110139				
Date Collected:		02/14/11	02/14/11	02/14/11	02/14/11				
Time Collected:		09:10	10:08	11:00	11:58				
Collected By:		PG	PG	PG	PG				
Date/Time Received:		02/14 12:40	02/14 12:40	02/14 12:40	02/14 12:40				
Date Analysis Started:									
Date Analysis Completed:		03/03/11	03/03/11	03/03/11	03/03/11				
PHYSICAL									
E.C. (Field)	µmhos/Cm	680	561	677	762				
pH (Field)	Units	7.3	7.6	7.4	7.3				
Temperature (Field)	° C	18.0	19.1	19.6	18.8				
Turbidity (Field)	NTU								
E.C. (Laboratory)	µmhos/Cm	651	536	643	738				
pH (Laboratory)	Units	7.4	7.6	7.4	7.3				
Turbidity (Laboratory)	NTU	0.59	14	3.6	1.5				
Color (Unfiltered)	Units								
Aggressiveness Index	<12 Ag/>12Non Ag	11.6	11.9	11.8	11.9				
TDS (ROE at 180°)	mg/L	354	321	351	410				
Threshold Odor	TON								
CHEMICAL									
UV 254	cm-1								
Total Org Carbon (TOC)	mg/L								
Dissolved Org Carbon (DOC)	mg/L								
Ammonia as N	mg/L								
Total Hard (CaCO ₃)	mg/L	213	156	211	288				
Ca Hard (CaCO ₃)	mg/L	116	110	134	180				
Mg Hard (CaCO ₃)	mg/L	97	46	77	108				
Alkalinity (CaCO ₃)	mg/L	144	201	196	221				
Boron (B)	mg/L	0.35	0.19	0.27	0.30				
Bromide (Br)	mg/L	0.27	0.05	0.21	0.22				
Chloride (Cl)	mg/L	86	15	54	68				
Chlorate (ClO ₃)	µg/L								
Fluoride (F)	mg/L	0.20	0.17	0.12	0.17				
Nitrate (NO ₃)	mg/L	0.53	0.58	4.56	3.90				
Nitrite (NO ₂)	mg/L								
Phosphate (PO ₄)	mg/L	< 0.31	< 0.31	< 0.31	< 0.31				
Silica (SiO ₂)	mg/L	14.4	22.3	24.6	20.7				
Sulfate (SO ₄)	mg/L	46	44	42	46				
Sodium (Na)	mg/L	45	54	51	39				
Potassium (K)	mg/L	1.4	1.8	2.0	1.8				
METALS									
Aluminum (Al)	µg/L	24	640	110	89				
Antimony (Sb)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Arsenic (As)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Barium (Ba)	µg/L	100	63	100	130				
Beryllium (Be)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Cadmium (Cd)	µg/L	< 0.5	< 0.5	< 0.5	< 0.5				
Chromium (Total Cr)	µg/L	< 2.0	2.5	< 2.0	2.5				
Cobalt (Co)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Copper (Cu)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Iron (Fe)	µg/L	< 50	490	120	99				
Lead (Pb)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Mercury (Hg)	µg/L								
Manganese (Mn)	µg/L	< 10	57	69	32				
Molybdenum (Mo)	µg/L	< 2.0	6.7	2.9	4.9				
Nickel (Ni)	µg/L	< 2.0	2.6	< 2.0	< 2.0				
Selenium (Se)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Strontium (Sr)	µg/L	630	420	570	700				
Silver (Ag)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Thallium (Tl)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Thorium (Th)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0				
Vanadium (V)	µg/L	< 2.0	< 2.0	< 2.0	< 2.0				
Zinc (Zn)	µg/L	< 10	< 10	< 10	< 10				
Uranium (U)	µg/L	< 1.0	1.5	1.5	1.4				
Cations									
Ca:		46	2.315	44	2.196	54	2.675	72	3.593
Mg:		24	1.939	11	0.920	19	1.539	26	2.159
Na:		45	1.958	54	2.349	51	2.219	39	1.697
K:		1.4	0.036	1.8	0.046	2.0	0.051	1.8	0.046
Sum of Cations			6.248		5.510		6.483		7.494
Anions									
HCO ₃ :		175	2.872	244	4.004	239	3.910	269	4.411
CO ₃ :		0.4	0.014	0.9	0.030	0.6	0.019	0.5	0.017
SO ₄ :		46	0.96	44	0.91652	42	0.87486	46	0.95818
Cl:		86	2.426	15	0.423	54	1.523	68	1.918
NO ₃ :		0.5	0.009	0.6	0.009	4.6	0.074	3.9	0.063
Sum of Anions			6.279		5.383		6.400		7.367
Meq % Diff.			0.25%		1.17%		0.65%		0.86%
Calculated TDS		350		314		368		411	
ROE @ 180° TDS		354		321		351		410	
%Diff ROE & Calc		1.2%		2.3%		4.7%		0.1%	

ZONE 7
 WATER RESOURCES ENGINEERING
 GROUND WATER QUALITY MONITORING
 FIELD DATA SHEET

INSTRUMENT CALIBRATION

PH STD: _____
 SC STD: _____

NAME: Tom Rooze

WELL NUMBER	DATE	TIME	DTW	ELEV	TEMP	PH	SC (uMhos)	GPM	FIELD FILTERED (Y/N)	FILTER IN LAB (Y/N)	REMARKS
3S/1E 14J3	12/11/10	4:12	-		18.4	7.14	697		N	Y	Full Suite Analysis } RUSH
3S/1E 14J3	12/12/10	4:13	-		16.9	7.11	668		N	Y	"

DATA ENTRY: _____ DATE: _____ DELIVERY DATE: 12/14/10
 * EC READINGS ARE CORRECTED TO 25 DEGREES C COPY TO LAB , ORIGINAL IN GQ BINDER RECEIVED BY: _____
 GQ11- 10

ZONE 7
 WATER RESOURCES ENGINEERING
 GROUND WATER QUALITY MONITORING
 FIELD DATA SHEET

INSTRUMENT CALIBRATION

PH STD: 4.0/7.0/10.0 pH 4.0/7.1/10.00 pH
 SC STD: 3900 µS 3875 µS

NAME: Pete Cornish

WELL NUMBER	DATE	TIME	DTW	ELEV	TEMP	PH	SC (uMhos)	GPM	FIELD FILTERED (Y/N)	FILTER IN LAB (Y/N)	REMARKS
351E13P5	1/21/11	958	79.30		19.7 2	8.53	695.7	4	Y		Full suite analysis
351E13P7		1008	101.35		19.1	8.61	690.1	4			
351E13P8		1108	96.88		19.0	8.03	688.3	4			
351E13P6		1142	102.82		19.5	8.89	1098	4			

DATA ENTRY: _____ DATE: _____

* EC READINGS ARE CORRECTED TO 25 DEGREES C

COPY TO LAB , ORIGINAL IN GO BINDER.

DELIVERY DATE: 1/21/11

RECEIVED BY: _____

GQ11-

ZONE 7
WATER SOURCES ENGINEERING
GROUND WATER QUALITY MONITORING
FIELD DATA SHEET

Not putting WL into
Flux
-16

INSTRUMENT CALIBRATION

PH STD: 4.0/7.0/10.0 pH → 4.05/7.11/10.12
SC STD: 3900 us → 3933

NAME: P. Combs

WELL NUMBER	DATE	TIME	DTW	ELEV	TEMP	PH	SC (uMhos)	GPM	FIELD FILTERED (Y/N)	FILTER IN LAB (Y/N)	REMARKS
35/1E 13P6	2/14/11	910	79.03		18.0	7.34	679.8	+3	Y	N	Full Suite Analysis RUSH
35/1E 13P7	↓	1008	134.22		19.1	7.56	560.5	+3	↓	↓	
35/1E 13P8	↓	1100	127.91		19.6	7.36	676.9	+3	↓	↓	
35/1E 13P6	↓	1158	106.50		18.8	7.34	761.7	+3	↓	↓	

DATA ENTRY: _____ DATE: _____

DELIVERY DATE: 2/14/11

* EC READINGS ARE CORRECTED TO 25 DEGREES C

COPY TO LAB , ORIGINAL IN GQ BINDER

RECEIVED BY: _____

Zone 7 Water Quality Laboratory Laboratory Methods and Limits

Target Analytes	Method Used	Unit	Reporting Limit	Sample Conc.	Spike Conc.	MDL
Alkalinity (CaCO ₃)	SM2320B	mg/L	5.0			
Ammonia as N	SM4500NH ₃ -D	mg/L	0.05	0.05	LLS	0.0036
Bromide (Br)	EPA 300.0	mg/L	0.05	0.05	LLS	0.013
Ca Hard (CaCO ₃)	SM2340C	mg/L	5.0			
Chloride (Cl)	SM4500Cl-B	mg/L	1.0			
Chlorine (Cl ₂), Total	SM4500Cl-G	mg/L	0.05			
Chlorine (Cl ₂), Free	SM4500Cl-G	mg/L	0.05			
Chlorate (ClO ₃)	EPA 300.0	ug/L	20	20	LLS	11.16
Fluoride (F)	EPA 300.0	mg/L	0.05	0.05	LLS	0.026
Fluoride (F)	SM4500F-C	mg/L	0.1		LLS	
Nitrate as N	EPA 300.0	mg/L	0.10		LLS	0.019
Nitrite as N	EPA 300.0	mg/L	0.01	0.01	LLS	0.004
Phosphate	EPA 300.0	mg/L	0.05	0.05	LLS	0.025
Sulfate (SO ₄)	EPA 300.0	mg/L	0.5	1.0	LLS	0.17
Total Hard (CaCO ₃)	SM2340C	mg/L	5.0			
Total Dissolved Solid (TDS)	SM2540C	mg/L	10			
Turbidity	SM2130B	NTU	0.05			
Metals						
Aluminum (Al)	EPA200.8	ug/L	20	100	ICV/CCV	18
Antimony (Sb)	EPA200.8	ug/L	1.0	1.0	LLS	0.20
Arsenic (As)	EPA200.8	ug/L	1.0	1.0	LLS	0.56
Barium (Ba)	EPA200.8	ug/L	10	10	LLS-2	1.14
Beryllium (Be)	EPA200.8	ug/L	1.0	1.0	LLS	0.22
Boron(B)	EPA200.8	ug/L	100	50	LLS	14
Cadmium (Cd)	EPA200.8	ug/L	1.0	1.0	LLS	0.32
Chromium (Total Cr)	EPA200.8	ug/L	2.0	1.0	LLS	0.47
Copper (Cu)	EPA200.8	ug/L	2.0	1.0	LLS	0.51
Iron (Fe)	EPA200.8	ug/L	50	100	ICV/CCV	23
Lead (Pb)	EPA200.8	ug/L	1.0	1.0	LLS	0.91
Mercury (Hg)	FIMS	ug/L	0.2	0.20	LLS	0.05
Manganese (Mn)	EPA200.8	ug/L	10	10	LLS-2	3.06
Nickel (Ni)	EPA200.8	ug/L	2.0	1.0	LLS	0.74
Potassium (K)	SM3111B	mg/L	0.5	0.50	LLS	0.11
Selenium (Se)	EPA200.8	ug/L	1.0	1.0	LLS	0.79
Silicon (Si)	SM4500Si-D	mg/L	0.50	0.50	LLS	0.062
Silver (Ag)	EPA200.8	ug/L	1.0	1.0	LLS	0.10
Sodium (Na)	SM3111B	mg/L	1	1	LLS	0.27
Thallium (Tl)	EPA200.8	ug/L	1.0	1.0	LLS	0.33
Vanadium (V)	EPA200.8	ug/L	2.0	1.0	LLS	0.28
Zinc (Zn)	EPA200.8	ug/L	10	10	LLS-2	4.76
Uranium (U)	EPA200.8	ug/L	1	1	LLS	0.21

Method Detection Limits (MDL) are calculated from 1st 7 LLSs for the year.

LLS = Less than Lower [quality] Standard

ICV = Initial Calibration Verification

CCV = Continuing Calibration Verification