## WELL COMPLETION DIAGRAM **PROJECT:** IM-3 Hydrogeologic Investigation, PG&E Topock WELL NO: MW-41S **PROJECT NO:** 326128.01.07.AR **LOCATION:** Bat Cave Wash, Parcel No. 650-151-06 DRILLING CONTRACTOR: WDC Exploration & Wells, Montclair, CA **DRILLING START DATE:** 11/01/2004 **DRILLING METHOD:** Rotosonic **DRILLING END DATE: 11/01/2004** LOGGER: T. McDonald **WELL COMPLETION DATE:** 11/08/2004 TOP OF WELL CASING (NGVD 29): 480.07 NORTHING COORDINATE (CCS DAND 27, ZONE 5): 2103518.07 **GROUND SURFACE ELEVATION (NGVD 29): 477.41 EASTING COORDINATE (CCS NAD 27 ZONE 5):** 7614588.78 MONUMENT MOUNTED LOCKING WELL **WELL CONSTRUCTION & SCREEN DETAILS WELL MATERIAL:** Sch 40 PVC **CASING DIAMETER: 2-in GROUT TYPE:** Cement bentonite grout SEAL TYPE: Bentonite Pellets 1. ALL DEPTHS ARE REPORTED AS FEET BELOW GROUND SURFACE. SCREEN LENGTH: 20-ft SLOT TYPE: Sch 40 PVC, 0.02" slot PACK TYPE: #3 Monterey Sand **GROUT** 30.0 TOP DEPTH OF SEAL SEAL TOP DEPTH OF FILTER PACK 37.0 TOP DEPTH OF SCREEN 40.0 CENTRALIZER DEPTH(S) FILTER PACK BOTTOM DEPTH OF SCREEN 60.0 BOTTOM OF WELL CASING 60.0 -61.0 BOTTOM DEPTH OF FILTER PACK 60.0 BOTTOM DEPTH OF BOREHOLE WELL DIAGRAM IS NOT TO SCALE CH2MHILL

SHEET 1 of 1	10					PROJECT NUMBER: 326128.01.07.AR			BORING NUMBER:		
						SOIL BORING L			MW-41		
PROJECT NAM				20057		HOLE DEPTH (ft):	DRILLING CON				
IM-3 Hydrog SURFACE ELEN 476.9 ft.	/ATIO		IORTH	•	NAD 27 Z 5):	320.0 <b>EASTING (CCS NAD 27 Z 5):</b> 7,614,578.85		loration & Wells,	DATE COMPLETED: 11/05/2004		
DRILLING MET	THOD:			,		WATER LEVEL (ft):	DRILLING EQU	IPMENT: Gefco SS			
LOCATION: Bai		Wash, Pa	rcel No	. 650-151-	06		LOGGED BY:	T. McDonal			
		SAMPLE				SOIL DESCRIPTION			COMMENTS		
DELLH BGS (teet) NUMBE/ (ft) (ft) (ft)			USCS CODE	PERCENT COL	SOIL NAME, USCS SYMBOL, COI MPOSITION, GRADING, GRAIN SH SITY/CONSISTENCY, STRUCTURE,	APE, MINERALOGY,	DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, 5, SAMPLING AND TESTING NOTES.			
5 	II	2	R	SW	WELL GRAD	DED SAND WITH GRAVEL (SWes up to 0.75", 40% f-m sand, 10	') - 45% rnd to ang	during o	ft not collected in core barrel conductor casing set. tion is from homogenized		
20	\ /			•				Box 1 -	20 to 23 ft		
		CC1	11					Box 2: :	23 to 27 ft		
  - 30				GW-GM	gravel avg 2.	DED GRAVEL WITH SILT AND 5" up to 3", 20% c sand, 10% sil	t/clay, 5% f-m sand,		27 to 31 ft		
  				SC	highly weath SILTY SANI sand, 25-30%	avel ang to subang, metamorphic, ered, moist, abrupt lower bounda D WITH GRAVEL (SC) - olive br % silt, 20% m sand, 10% f gravel nd gravel ang to subang, metamo	ry. n (2.5Y 4/3), 30% c (0.2" to 0.75"), 10% f	Appears	31 to 34 ft s to be fining upward from to 31 bgs 34 to 38 ft		



SHEET 2 of 1	10					PROJECT NUMBER: 326128.01.07.	AR	BORING NUMBER: MW-41			
						SOIL BORING LO	)G				
PROJECT NAM IM-3 Hydrod		Investi	antion [	OC&E Tono	. ale	HOLE DEPTH (ft):	DRILLING CONTRAC				
SURFACE ELEV 476.9 ft.	/ATIO		NORTH		NAD 27 Z 5):	320.0 <b>EASTING (CCS NAD 27 Z 5):</b> 7,614,578.85	DATE STARTED: 10/22/2004	on & Wells, Montclair, CA  DATE COMPLETED:  11/05/2004			
DRILLING MET						WATER LEVEL (ft):	NT:				
LOCATION: Bat		Wash, Pa	arcel No	. 650-151-	06		LOGGED BY:	Gefco SS-15K-HL  T. McDonald			
	s	AMPLE				SOIL DESCRIPTION		COMMENTS			
TYPE (teet) INTERVAL (Leet) Leet (Leet) Le		RECOVERY (ft)	USCS CODE	PERCENT COI	SOIL NAME, USCS SYMBOL, COLO MPOSITION, GRADING, GRAIN SHAI SITY/CONSISTENCY, STRUCTURE, M	DRILLING OBSERVATIONS AND OPERATIONS DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.					
 		CC2	8.5	SW-SC	(2.5Y 4/3), 4 5-10% f grav abrupt lower	•	silt, 10% c sand, metamorphic, moist,				
				SW	m sand, 20% depth, 5% si to subang, m	DED SAND WITH GRAVEL (SW) of sand, 15% c sand, 10% f gravel lt, moderate caliche development, setamorphic, moist.  H SILT AND GRAVEL (SW-SM) - sand, 10-15% sil'	Box 6: 38 to 42 ft				
- - 				SW-SM	graded, sand	Box 7: 42 to 46 ft					
45		CC3	9.5		WELL CRAF	DED SAND WITH GRAVEL (SW)	dark gravich brn to brn	Appears to encounter water table at 45 to 46 ft bgs  Box 8: 46 to 50 ft			
 					(10YR 4/2-4/	(3), 60% m sand, 15% f sand, 15% subang, metamorphic, wet.		BOX 6: 46 to 50 it			
					- 5% gra	vel, 15% silt		Box 9: 50 to 54 ft			
 55 		CC4	10		- 30% f <u>c</u> 10% c sa	gravel, 25% vf sand, 15% silt, 15% and	f sand, 5% m sand,	Box 10: 54 to 58 ft			
					`	YR 4/3), 40% c sand , 15% f sand, 0% c gravel, 5% silt, ang to subang	•	Box 11: 58 to 62 ft			
  								Box 12: 62 to 66 ft  Collect grain size sample at 62 to 64 ft,  ID: MW-41D-63			
	$\left  \bigwedge \right $	CC5	10	10	10	10 SW	SW	- 5% silt,	10% f sand, 10% m sand, 60% c $_{\rm c}$	sand, 5-10% f gravel	Collect grain size sample at 65 to 66 ft, ID: MW-41D-66
 	$/\setminus$				- increasi bgs	ng silt content, 10% silt at 70 ft bg	Box 13: 66 to 70 ft  Collect groundwater grab sample, ID:  MW-41D-70				



SHEET 3 of	10					PROJECT NUMBER: 326128.01.07.A	JR	BORING NUMBER: MW-41		
						SOIL BORING LO			1100 11	
PROJECT NAM		<u> </u>		20057		HOLE DEPTH (ft):	DRILLING CONTRAC			
IM-3 Hydro SURFACE ELEN 476.9 ft.	/ATIO		IORTH		NAD 27 Z 5):	320.0 <b>EASTING (CCS NAD 27 Z 5):</b> 7,614,578.85	WDC Exploration  DATE STARTED:  10/22/2004	on & Wells,	Montclair, CA  DATE COMPLETED: 11/05/2004	
DRILLING ME	ГНОD:		2,1	05,550.00		WATER LEVEL (ft):	DRILLING EQUIPME		1	
Roto LOCATION: Ba		Wash Pa	rcel No	650-151-	06		LOGGED BY:	Gefco S	S-15K-HL	
LOCATION	T							T. McDona	ld	
	5	SAMPLE				SOIL DESCRIPTION			COMMENTS	
				USCS CODE	PERCENT COI DENS	SOIL NAME, USCS SYMBOL, COLO MPOSITION, GRADING, GRAIN SHAR ITY/CONSISTENCY, STRUCTURE, MO	DAILY ST	G OBSERVATIONS AND OPERATIONS, FART AND END TIMES , DRILL RATE, .S, SAMPLING AND TESTING NOTES.		
75		CC6	9.5		(10YR 4/2-4/	<b>DED SAND WITH GRAVEL (SW)</b> - (3), 60% m sand, 15% f sand, 15% subang, metamorphic, wet.		Box 15	: 70 to 74 ft : 74 to 78 ft : 78 to 82 ft	
80					- 10-15% - 5-10%			continu	rilling at 80 ft bgs on 10/22/04, ue drilling on 10/23/04	
		CC7	10	ML SW	50% silt, 20° and gravel an not sticky, m  WELL GRAE sand, 20% m gravel ang to silt < 2 cm th		d, 10% f gravel, sand listic, silty sticky to (< 2 cm). brn (7.5YR 4/4), 40% f f gravel, sand and listic layers of 15-20%	Box 18	: 82 to 86 ft : 86 to 90 ft	
95 		CC8	10	SM	20% silt, 15° sand, sand a metamorphic	SILT AND GRAVEL (SW-SM) -	10% m sand, 10% c , v few subrnd, brn (7.5YR 4/3), 30% m	Collect MW-41	: 90 to 94 ft grain size sample at 93 ft, ID: D-93 : 94 to 98 ft	
. 100				SW-SM		sand, 20% c sand, 20% f-m gravel, o subang, metamorphic, moist to we		Drilled	: 98 to 102 ft 100 to 110 ft but dropped core retrieval and recovered on next	
- - -		CC9	5		- 15% sil	t, 5% f-m gravel		Box 22	: 102 to 106 ft	
105	// \l									

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SHEET 4 of	10					PROJECT NUMBER:	40	BORING NUMBER:		
						326128.01.07			MW-41	
PROJECT NAM	F:					SOIL BORING LO	DRILLING CONTRAC	CTOR:		
IM-3 Hydrog	jeologi		· ·			320.0	WDC Explorati			
SURFACE ELEN 476.9 ft.		N:		I <b>NG (CCS</b> 03,536.66	NAD 27 Z 5):	<b>EASTING (CCS NAD 27 Z 5):</b> 7,614,578.85	<b>DATE STARTED:</b> 10/22/2004		DATE COMPLETED: 11/05/2004	
DRILLING MET		'				WATER LEVEL (ft):	DRILLING EQUIPME		S-15K-HL	
LOCATION: Ba		Wash, P	arcel No	. 650-151-	-06		LOGGED BY:	T. McDona		
SAMPLE						SOIL DESCRIPTION		T. PICDONA	COMMENTS	
DEPTH BGS (feet)	INTERVAL	TYPE/ NUMBER	RECOVERY (ft)	USCS CODE		SOIL NAME, USCS SYMBOL, COL	or,		G OBSERVATIONS AND OPERATIONS	
	INTE	ĘŽ	RECC		DENS	MPOSITION, GRADING, GRAIN SHA SITY/CONSISTENCY, STRUCTURE, I	MOISTURE.	DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.		
_			_	SW		DED SAND WITH GRAVEL (SW) 6 c sand, 20% f sand, 15% f-m gi				
  				SW	gravel ang to development dark gray (5) WELL GRAI	o subang, metamorphic, moist. Mc, s, silty cemented throughout. Disti Y4/1), 90% silt, 10% vf sand. DED SAND (SW) - brn (10YR 4/3 ilt, 15% c sand, 10% f gravel, ang	oderate caliche nct 1/8" silt layers are ), 30% f sand, 30% m	Box 23	: 106 to 110 ft	
 		CC10	14		7.5YR 4/3 at 10% f sand,	DED SAND WITH GRAVEL (SW) bottom), 30% m sand, 30% c sar 5% silt, sand ang to subang and fo subrnd, metamorphic, wet.	nd, 25% f-c gravel,	Box 24	l: 110 to 114 ft	
115				SW	- 20% sil	t			i: 114 to 118 ft i: 118 to 122 ft	
120 					30% f-m and metamorphic	<b>GRAVEL (MH)</b> - dark brn (2.5Y <sup>2</sup> ) to subang gravel up to 2.75", 5%, med-high elasticity, sticky, plastipt lower boundary.	clay, 5% c sand,	Boy 27	': 122 to 126 ft	
 125		CC11	10	МН	1	dded sand with gravels, brn (7.5YF avel, 20% m sand, 20% f gravel,		Collect	grain size sample at 122 to 124 MW-14D-123	
  	$\left  \frac{1}{2} \right $							Box 28	s: 126 to 130 ft	
130	/					<b>D (SW)</b> - dark greenish gray (Y2 <sup>2</sup> 20% silt, 10% m-c sand, 10% and				
 				SW	metamorphic (7.5YR 4/4) of surface at bo	c, moist. Moderate caliche develop over 10% of surface, mottling incr	oment. Mottled brn	Box 29	l: 130 to 134 ft	
 135	$ \ \  $	6613						Box 30	1: 134 to 138 ft	
		CC12	WELL GRADED SAND WITH GRAVEL (SW) - 40% m sand, 25% f-c gravel (1/5" to 1"), 20% c sand, 10% f sand, 5% silt, ang to subang, metamorphic, wet.						grain size sample at 136.5 to ft, ID: MW-14D-137	
	/ \								: 138 to 142 ft	
_	/ \				- 10% sil	t, slit horizontal fabric in gravels		Collect	groundwater sample at 139 ft	



SHEET 5 of 10		PROJECT NUMBER: 326128.01.07.AF		BORING NUMBER: MW-41		
		SOIL BORING LO			_	
PROJECT NAME: IM-3 Hydrogeologic Inves	tigation, PG&E Topock	HOLE DEPTH (ft): 320.0	DRILLING CONTRACT WDC Exploration	TOR: n & Wells, Montclair, CA		
SURFACE ELEVATION: 476.9 ft. MSL	NORTHING (CCS NAD 27 Z 5): 2,103,536.66	<b>EASTING (CCS NAD 27 Z 5):</b> 7,614,578.85	<b>DATE STARTED:</b> 10/22/2004	<b>DATE COMPLETED:</b> 11/05/2004		
DRILLING METHOD: Rotosonic		WATER LEVEL (ft):	DRILLING EQUIPMENT:  Gefco SS-15K-HL			
LOCATION: Bat Cave Wash,	Parcel No. 650-151-06		LOGGED BY:	. McDonald		
		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		

SAMPLE   SOIL DESCRIPTION   COMMENTS	LOCATION: Bat	DCATION: Bat Cave Wash, Parcel No. 650-151-06						LOGGED BY: T. McDonald			
### WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 10% sit, 20% sit, 10% sit, 10% sit, 20%		,	SAMPLE			SOIL DESCRIPTION		COMMENTS			
### WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 10% sit, 20% sit, 10% sit, 10% sit, 20%		INTERVAL	TYPE/ NUMBER	RECOVERY (ft)		SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, DENSITY/CONSISTENCY, STRUCTURE, MOI	SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.				
Metamorphic, wet.   - dark graysh bm (10/YR 4/2), 40% f sand, 20% f-c gravel 1/5" up to 3", 10% m sand, 5-10% silt, moist. Mottling in blocks of bm (7.5/YR 4/3)	-					WELL GRADED SAND WITH GRAVEL (SW) - 4	0% m sand, 25% f-c	bgs, ID: MW-41D-139			
145   - dark gray/sh brn (10/R 4/2), 40% f sand, 20% f-c gravel 1/5" up to 3", 10% m sand, 5-10% silt, moist. Mottling in blocks of brn (7.5/R 4/3)  - 35% m sand, 25% c sand, 25% f sand, 15% gravel, 5-10% silt, moist motted brown and increased cementation with depth    150							silt, ang to subang,	Appears to be reworked due to drilling			
silt, well graded, caliche development throughout and increased cementation with depth    150	  145					- dark grayish brn (10YR 4/2), 40% f sand, 20 up to 3", 10% m sand, 5-10% silt, moist. Moi	•	Box 32: 142 to 146 ft			
CC13   15   SW   Box 34: 150 to 154 ft	  					silt, well graded, caliche development through	=	Box 33: 146 to 150 ft			
SW  SW  Box 35: 154 to 158 ft  Reworking at 140 to 176 indicated by lack of fabric, no silt layers around gravels, color, and blocks of mottled brown	150							Roy 34: 150 to 154 ft			
Box 35: 154 to 158 ft  Reworking at 140 to 176 indicated by lack of fabric, no silt layers around gravels, color, and blocks of mottled brown  - brn (10YR 4/3 to 7.5YR 4/3), 5% silt, 10% f sand, 40% m sand, 35% c sand, 10% f gravel, well graded, sand and gravel ang to subang - metamorphic. Gravels less than 2 cm  - 165  - CC14 10  - WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg., up to 2"), ang to subang with v few subang gravel, moist to wet.  - Collect grain size sample at 172.5 to		.	CC13	15				BOX 54. 150 to 154 it			
160					SW						
160	_	]									
160											
Reworking at 140 to 176 indicated by lack of fabric, no silt layers around gravels, color, and blocks of mottled brown  - bm (10YR 4/3 to 7.5YR 4/3), 5% silt, 10% f sand, 40% m sand, 35% c sand, 10% f gravel, well graded, sand and gravel ang to subang - metamorphic. Gravels less than 2 cm  - CC14 10  - WELL GRADED SAND WITH SILT (SW-SM) - bm (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2° avg, up to 2°), ang to subang with v few subang gravel, moist to wet.  - Collect grain size sample at 172.5 to	 166							Box 35: 154 to 158 ft			
sand, 35% c sand, 10% f gravel, well graded, sand and gravel ang to subang - metamorphic. Gravels less than 2 cm  CC14 10  WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg, up to 2"), ang to subang with v few subang gravel, moist to wet.  Collect grain size sample at 172.5 to	 							lack of fabric, no silt layers around gravels, color, and blocks of mottled			
WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg, up to 2"), ang to subang with v few subang gravel, moist to wet.  Collect grain size sample at 172.5 to	  					sand, 35% c sand, 10% f gravel, well graded,	sand and gravel				
WELL GRADED SAND WITH SILT (SW-SM) - brn (7.5YR 4/2 to 4/3), 35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg, up to 2"), ang to subang with v few subang gravel, moist to wet.  Collect grain size sample at 172.5 to	165	\	CC14	10							
35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg, up to 2"), ang to subang with v few subang gravel, moist to wet.  Collect grain size sample at 172.5 to		1 /	0011								
35% m sand, 30% f sand, 15% c sand, 10-15% silt, 5-10% f-c gravel (0.2" avg, up to 2"), ang to subang with v few subang gravel, moist to wet.  Collect grain size sample at 172.5 to	- 										
Collect grain size sample at 172.5 to	170	/ \			-	35% m sand, 30% f sand, 15% c sand, 10-15% si (0.2" avg, up to 2"), ang to subang with v few sub	lt, 5-10% f-c gravel				
[	- <del>-</del>	$]/ \setminus$			CW CM						
175 / \	 175	]/ \			SVV-SIVI			1/3.3 II, ID. PIW-4ID-1/3			



SHEET 6 of 3	10						PROJECT NUMBER:		BORIN	G NUMBER:
						_	326128.01.07.A			MW-41
PROJECT NAM	E:						OIL BORING LO LE DEPTH (ft):	DRILLING CONTRAC	TOR:	
IM-3 Hydrog					ck NAD 27 Z 5):	FΛ	320.0 STING (CCS NAD 27 Z 5):	WDC Exploration  DATE STARTED:	on & Wells,	Montclair, CA <b>DATE COMPLETED:</b>
476.9 ft.	MSL			03,536.66	NAD 27 2 3).		7,614,578.85	10/22/2004		11/05/2004
DRILLING MET Rotos						WA	TER LEVEL (ft):	DRILLING EQUIPME		S-15K-HL
LOCATION: Bat	t Cave	Wash, Pa	rcel No	. 650-151-	06			LOGGED BY:	T. McDonal	d
	9	SAMPLE					SOIL DESCRIPTION			COMMENTS
DEPTH BGS (feet)	INTERVAL	TYPE/ NUMBER	RECOVERY  (#)  CODE  COD  COD				IL NAME, USCS SYMBOL, COLO ITION, GRADING, GRAIN SHAF CONSISTENCY, STRUCTURE, M	PE, MINERALOGY,	DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.
  		CC15	10		35% m sand, (0.2" avg, up to wet. $5\%$ re	, 30% to 2' ed mo	SAND WITH SILT (SW-SM) of f sand, 15% c sand, 10-15% "), ang to subang with v few subtling (2.5YR 4/6), < 5% silt, and, 5% gravel	silt, 5-10% f-c gravel ubang gravel, moist		
				SW		sand	SAND WITH GRAVEL (SW) , 20% f sand, 5% silt, 5% grat phic, wet.			
				SP			D SAND (SP) - grayish brn (1			
185					WELL GRAD	ED S	, < 5% silt, ang to subang, me SAND WITH GRAVEL (SW)	- brn (10YR 5/3), 50% m		
				SW	sand, 20% f s subang, meta		, 20% c sand, 5% silt, 5% graphic, wet.	evel avg 0.5", ang to		
- 190 		CC16	18		greenish gray m sand, 25% ang to suban	y (GL o c sa g wit	TH GRAVEL (SM) - brn (7.5Y EY1 4/10Y) and 10% red (10R nd, 20% silt, 15% f sand, 15% h v few subrnd, metamorphic. t fabric with aligned gravels.	4/6) mottling, 25% 6 gravel 0.5" - 2.5",		
 195				SM						
					WELL GRAD	DED S	SAND WITH SILT AND GRA	<b>VEL (SW-SM)</b> - brn		
  					30% m sand, 10% silt, san	, 25% d and	10% dark greenish gray (GLEY 6 c sand, 20% f sand, 15% gra d gravel ang to subang, metam upt lower boundary.	evel from 0.5" - 2.5",		
<b>205</b>				SW-SM						
210										
										CH2MHILL

SHEET 7 of 10						PROJECT NUMBER: 326128.01.07.AR			BORING NUMBER: MW-41		
						S	OIL BORING L				
PROJECT NAM		. T		C0 F T	-1.		LE DEPTH (ft):		DRILLING CONTRAC		
IM-3 Hydrog SURFACE ELEV				•	NAD 27 Z 5):	EAS	320.0 STING (CCS NAD 27 Z 5)		WDC Exploration  DATE STARTED:	on & Wells,	Montclair, CA  DATE COMPLETED:
476.9 ft. DRILLING MET				03,536.66	,		7,614,578.85 TER LEVEL (ft):		10/22/2004  DRILLING EQUIPME	NT.	11/05/2004
Rotos	onic					VVA					S-15K-HL
LOCATION: Bat	Cave \	Wash, Pa	arcel No	. 650-151-0	06				LOGGED BY:	T. McDonal	d
	S	AMPLE					SOIL DESCRIPTION				COMMENTS
DEPTH BGS (feet)	TYPE/ TYPE/ NUMBEI (#) (#) CODE					SOI MPOS ITY/0	IL NAME, USCS SYMBOL, CO ITION, GRADING, GRAIN SH CONSISTENCY, STRUCTURE,	LOR, HAPE, MOI	MINERALOGY, STURE.	DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.
		CC17	18	GW-GM	(7.5YR 4/2),	50%	GRAVEL WITH SILT AND gravel up to 2" , 20% m sa nd and gravel ang to suban	nd, 2	0% c sand, 5%	1	s to be coarsening upward ce 210 to 213 ft bgs
				SW-SM	(7.5YR 4/3) v 30% m sand,	vith 1 , 25%	SAND WITH SILT AND GI .0% dark greenish gray (GL b c sand, 20% f sand, 15% ubang, metamorphic with It	EY1 4 grave	l/10Y) mottling, el from 0.5" to 2",		
				SW	4/3), 40% m sand and grastrong caliches gravels and c	sand vel ar e devenues		5% s , wet, orizon	ilt, 5% gravel, moderate to tally aligned	Core fr	om 220 to 233 appears to be
				SP			<b>D SAND (SP)</b> - dark grayis , subang, metamorphic, wel		(2.5Y 4/2), 50% m		I out from drilling process
					sand, 15% f subang, meta - 10% silt	sand, amorp	<b>SAND (SW)</b> - brn (7.5YR 5, 10% gravel, 5% silt, sand ohic, wet, silt cementation.	and g	ravel ang to		
- - 						•	5YR 4/3), 45% m sand, 5-1 .5 to 8 cm, moderate calich				
		CC18	17								
235											
  <b>240</b>						sand	and, 20% c sand, 5% silt, 5 , 30% c sand, 5-10% silt, 1 s cm	_			
							, 30% c sand, 10-15% silt, caliche, wet	15%	f sand, 10-15%		
245	<i>y</i> V									•	CH2MHILL

SHEET 8 of 10						PROJECT NUMBER: 326128.01.07.AR			BORIN	BORING NUMBER: MW-41		
						SOIL BORING				11111-41		
PROJECT NAM IM-3 Hydrog	E:	- Invecti	gation [	DC&F Tono	ck	HOLE DEPTH (ft):		RILLING CONTRA		Mantalain CA		
SURFACE ELEV	/ATIOI		NORTH	ING (CCS	NAD 27 Z 5):	320.0 EASTING (CCS NAD 27 Z 5		WDC Explorat  OATE STARTED:	ion & weils,	DATE COMPLETED:		
476.9 ft. DRILLING ME	ГНОD:		2,1	03,536.66		7,614,578.85 <b>WATER LEVEL (ft):</b>		0/22/2004 PRILLING EQUIPM		11/05/2004		
Rotos		Wash. P	arcel No	. 650-151-	06		L	OGGED BY:		S-15K-HL		
									T. McDona			
	<u> </u>	SAMPLE		USCS		SOIL DESCRIPTION				COMMENTS		
DEPTH BGS (feet)	(teet) A NITTER NO DEN CODE DEN CODE					SOIL NAME, USCS SYMBOL, C MPOSITION, GRADING, GRAIN S ITY/CONSISTENCY, STRUCTUR	SHAPE, M	IINERALOGY, TURE.	DAILY ST	G OBSERVATIONS AND OPERATIONS, FART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.		
		CC19	10	sw	sand, 15% f subang, meta  - reddish (GLEY1 4 sand, 5% - 40% f s very few	bed SAND (SW) - brn (7.5YR sand, 10% gravel, 5% silt, sand amorphic, wet, silt cementation.  brn (5YR 4/4), 5% red (10R 4/75G) mottled, 60-70% m sand, gravel, some caliche, silty contand, 40% m sand, 10% c sand c gravel of 4 to 5 cm, silty indulations.	d and graves.  8), 5% graves.  10-15% solidated graves.	grayish green o silt, 15% f l o, 5% f gravel,				
		CC20	9		dark gree sand, 20% thin layer - reddish 10% f gra	YR 5/3) matrix, 60% yellowish is thish gray GLEY2 3/5BG mottlin is m sand, 15-20% silt, 5% c sits of 25-30% silt, abrupt lower the brn (5YR 4/4), 40% f sand, 35 avel up to 2 cm, 5% silt, gravel bround, metamorphic, wet, slit	f sand, 20% vf c gravel, few / d, 10% m sand, subang, c sand					
		6634			•	YR 4/4 to 4/6), 5-10% silt/clay		•				
 		CC21	9		weak clay - strong c	% m sand, 15% gravel, increase films around gravels caliche m gravels from 267 to 268 ft bo		ation, v few				
					-	R 4/4), 50% c sand, 25% f grav % m sand, 5% clay/silt	vel up to	0.5", 10% f				
- 275 		CC22	5		sand, 20°	oots of dk greenish gray (GLEY2 % m sand, 20% c sand, 10% si ilty indurated, moderate caliche	lt, 10% i	f gravel, well				
  280					30% f sand,	<b>D WITH GRAVEL (SM)</b> - dark 25% silt, 20% c sand, 15% gra metamorphic, wet, silty indurat	vel, 10%	6 m sand,				
280						,,	,		•	CH2MHILL		

PROJECT NAME  SPRING LOG  SPRING LOG  SPRING LOG  SPRING LOG  SPRING CONTRACTOR:  SPRI	SHEET 9 of 10						PROJECT NUMBER: 326128.01.07.AR			BORIN	BORING NUMBER: MW-41		
PROJECT NAME:   MOLE DEPTH (ft)   ORTHUNG (COS NAME)   ORTHUNG (COS NAME							· ·				1-100-4-1		
SURPLICE RELEVATION:   NORTHING (CCS NAD 27 2 5):   ASTING (CCS NAD 27 2 5):   Z_103,536 6   DRILLING (CCS NAD 27 2 5):   DRILLING (CCS NAD 27 2 5)			r Investi	ination [	PG&F Tonc	nck	HOLE DEPTH (ft):		DRILLING CONTRA		Montolair CA		
DEPLIES METHODORY ROSSONIC ROCATION: Bot Caree Water, Parcel No. 650-151-05  SAMPLE  SOIL DESCRIPTION  COMMENTS  COMMENTS  SOIL DESCRIPTION  COMMENTS  COMMENTS  COMMENTS  SOIL DESCRIPTION  COMMENTS	SURFACE ELEV	/ATIO		NORTH	ING (CCS	NAD 27 Z 5):	<b>EASTING (CCS NAD 27</b>	7 Z 5):	DATE STARTED:	ion & weils,	DATE COMPLETED:		
DESCRIPTION   SAMPLE   SOLD ESCRIPTION   COMMENTS	DRILLING MET	THOD:			03,330.00								
SAMPLE   SOIL DESCRIPTION   COMMENTS			Wash, P	arcel No		06	<del></del>		LOGGED BY:				
DEPTH BGS (Next)  DEPH BGS (Next)  DEPHL BGS (Next)  DEPHL BGS (Next)  DEPHL BGS (Ne					<u> </u>		COLL DESCRIPT	TON		I. McDona			
SILTY SAND WITH GRAVEL (SM) - dark reddish brn (2.578.3/3), 30% m sand, subang, little metamorphic, wet, silty indurated, weathered.	DEDTH DCC	<u> </u>			USCS		SOIL DESCRIPT	TON			COMMENTS		
SILTY SAND WITH GRAVEL (SM) - dark reddish brn (2.578.3/3), 30% m sand, subang, little metamorphic, wet, silty indurated, weathered.		INTERVA	TYPE/ NUMBER	RECOVER (ft)	CODE	PERCENT CON DENS	MPOSITION, GRADING, GRA	AIN SHAPE	DAILY ST	TART AND END TIMES , DRILL RATE,			
WELL GRADED SAND (SW) - grayish bm (10YR 5/2), 40% m sand. Zisk c sand, 15% first sand, 10% first p.10% gravet lost, 5% sand and gravel ang to subang, some metamorphic, wet, silty indurated, trace caliche.  SW  SILTY SAND (SM) - grayish bm (10YR 5/2), 30% m sand, 25% fines, 25% gravel, 20% c sand, 10% f sand, ang to subang, some metamorphic, wet, moderately indurated.  SM  SAND (SW) - dark red (2.5YR 3/6) with bm (7.5YR4/3 clay layer, 30% m sand, 25% gravel up to 1.5°, 20% c sand, 15% fines, 10% f sand, weathered bedrock, moderately indurated, wet  CONGLOMERATE (BR) - dark reddish bm (2.5YR 3/3), 30% m sand, 30% c sand, 20% sand, 10% fines, 10% gravel up to 1.5°, ang to subang, dvy, strongly indurated,  CONGLOMERATE (BR) - reddish bm (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  CONGLOMERATE (BR) - reddish bm (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  CONGLOMERATE (BR) - reddish bm (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.	  		CC23		-	30% f sand,	25% silt, 20% c sand, 15%	6 gravel, 10	0% m sand,				
### SAND (SW) - dark red (2.5YR 3/6) with brn (7.5YR4/3 day layer, 30% m sand, 25% gravel up to 1.5", 20% c sand, 15% fines, 10% f sand, 20% gravel up to 1.5", and to subaria, dry, silv indurated.  **CONGLOMERATE (BR) - reddish brn (2.5YR 4/4), 30% m sand, 30% c sand, 20% f sand, 10% fines, 10% gravel, gravel subrnd, dry.  **CONGLOMERATE (BR) - reddish brn (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subariag gravel up to 1", 10% m sand, wet.  **CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subariag gravel up to 1", 10% m sand, wet.  **CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subariag gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silky indurated, weathered.	 	/+\			SW	25% c sand, gravel ang to	15% f sand, 10% fines, 10	)% gravel t	to 0.5", sand and				
300  SW 30% m sand, 25% gravel up to 1.5", 20% c sand, 15% fines, 10% f sand, weathered bedrock, moderately indurated, wet.  BR CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% c sand, 20% f sand, 10% fines, 10% gravel up to 1.5", ang to subang, dry, strongly indurated.  CONGLOMERATE (BR) - reddish brn (2.5YR 4/4), 30% m sand, 30% c sand, 20% f sand, 10% fines, 10% gravel, gravel subrnd, dry.  BR CONGLOMERATE (BR) - reddish brn (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subang gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silty indurated, weathered.			CC24	15	SM	fines, 25% gi	ravel, 20% c sand, 10% f s	1 5					
BR 30% c sand, 20% f sand, 10% fines, 10% gravel up to 1.5", ang to subang, dry, strongly indurated.  CONGLOMERATE (BR) - reddish brn (2.5YR 4/4), 30% m sand, 30% c sand, 20% f sand, 10% fines, 10% gravel, gravel subrnd, dry.  BR  CONGLOMERATE (BR) - reddish brn (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  BR  CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subang gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silty indurated, weathered.	  300				SW	30% m sand,	, 25% gravel up to 1.5", 20	0% c sand,	15% fines, 10% f				
30% c sand, 20% f sand, 10% fines, 10% gravel, gravel subrnd, dry.  BR  CONGLOMERATE (BR) - reddish brn (2.5YR 4/3), 30% f sand, 20% fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  BR  CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subang gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silty indurated, weathered.					BR	30% c sand, subang, dry,	20% f sand, 10% fines, 10 strongly indurated.	)% gravel ı	up to 1.5", ang to				
fines, 20% c sand, 20% subang gravel up to 1", 10% m sand, wet.  BR  CC25 15  BR  CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subang gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silty indurated, weathered.	 - 305				BR								
CONGLOMERATE (BR) - dark reddish brn (2.5YR 3/3), 30% m sand, 30% subang gravel to 1.5", 20% f sand, 10% fines, 10% c sand, dry, silty indurated, weathered.	  		CC25	15	BR								
315						30% subang	gravel to 1.5", 20% f sand						
	315												

SHEET 10 of 10						PROJECT NUMBER: 326128.01.07.AR			BORIN	G NUMBER: MW-41	
						S	OIL BOR				
PROJECT NAMI IM-3 Hydrog		- Invection	nation [	PG&F Tono	ck		LE DEPTH (ft):		DRILLING CONTRA		Montalair CA
SURFACE ELEV 476.9 ft.	ATIO		NORTH		NAD 27 Z 5):	EAS	320.0 STING (CCS NAI 7,614,578.	27 Z 5):	WDC Explorate DATE STARTED: 10/22/2004	ion & weils,	DATE COMPLETED: 11/05/2004
DRILLING MET	HOD:			,		WA	TER LEVEL (ft):		DRILLING EQUIPM		
Rotos  LOCATION: Bat		Wash, Pa	arcel No	. 650-151-	 06				LOGGED BY:		S-15K-HL
		-								T. McDonal	
		SAMPLE		USCS			SOIL DESCRIPTION				COMMENTS
(teet) TYPE CODE DEN CODE						SOIL NAME, USCS SYMBOL, COLOR, MPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, SITY/CONSISTENCY, STRUCTURE, MOISTURE.			DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.	
  		CC26	5	BR	30% subang silty indurated	grave d, we	el to 1.5", 20% f s		R 3/3), 30% m sand, s, 10% c sand, dry,	Screen Filter P	ompletion: TD = 311.5' bgs; Interval = 271 to 291 ft bgs; ack = 299 - 261 ft bgs; Stick-up = 2.6 ft; Sump = 291 to 311
							Boring Termin	ated at 320 ft			
brn = bro It = light dk = darl vf = very f = fine-g m = med c = coars vc = very ang = an subang = subrnd = rnd = rou br = bedi ss = sand						cinuoto cymn cymn cymn cymn cymn cymn cymn cymn	grained ed grained ained rse-grained angular ounded d formation e nglomerate				
					<u> </u>					•	CH2MHILL