APPENDIX J

INSPECTOR'S FIELD LOGS

National Brand
43-571
Made In USA

MUSCOY OPERABLE UNIT WELL CONSTRUCTION
SAN BERNARDINO, CALIFORNIA

1580 WEST VIRGINIA STREET - E/o
Medical Center Drive, North side of Street.

E.P. No.: 1995-052 EPA WELL #112
C.O. No.: 8674

2-20-01 1:00 PM DRILLING STARTED @ 60' DEPTH

60'-70'	COARSE SAND, ROCK	1:35 TD 70'	
70.5'	~~GRAVEL (FINE)~~ ROCK	1:43	5@6
70-80'	COARSE SAND, ROCK	2:00	5@7 1:58
DRILLING OUT SIDE WALL BOULDER AT 70' DEPTH		2:00 - 2:45	
	82' DEPTH @	3:00	
82-87'	COARSE SAND - FEW SMALL ROCKS	3:24	
87'-95'	COARSE SAND - ROCKS - FEW ~~CLAY BALLS~~	3:50	
95-97	" " FEW CLAY BALLS		
97-107	FINE & MED SAND	4:30	$4:30
107-117	FINE & MED SAND	4:45	$4:45
117-127	FINE & MED SAND		$5.20
130	CHATTER		
132-33	FINE SAND - CLAY		
133-137	CLAY - FINE SAND		$5:3
137-140	CLAY - SAND		
140-143	CLAY - SAND		
143-147	SAND - CLAY		$6:10
147-150	SAND - LITTLE CLAY		
154	CHATTER		
150-157	COURSE & FINE SAND LITTLE CLAY		$6:40

ROCK = GRAVEL.

45 MIN TO 60 MIN DOWNTIME FOR
ROLL OFF TO ARRIVE / DUMP

ACTIVITY PRIOR TO ARRIVAL @ 07:25 AM 3

02-21-2001 DRILLING STARTS 07:45 AM @ 157' DEPTH

157' - 162 COARSE SAND / CLAY 07:57

RIG STOPS 8:01 - 8:04 @ 163' MAINT.

162-167 MED. SAND / CLAY. S 167' @ 08:16

167-172 COARSE SAND / CLAY 08:31

RIG SHUTTERS 173.5' 08:39 SMALL ROCKS

WATER ADDED TO TANK 08:46

172-177 SMALL ROCKS (<3/4") & COARSE SAND S 176' @ 8:49

RIG SHUTTERS 176.5' @ 08:51 to 177' @ 8:59

8:59 to 9:06 AM PIPE ~~BIT~~ CHANGE (20' ADDED).

177' - 178' COARSE SAND / SM. ROCK (<1/2")

WATER ADDED TO TANK 09:20 AM

179 - 181 CLAY / COARSE SAND 09:24 AM

181 - 182 MED. SAND / CLAY. 09:27

182 - 183 COARSE SAND / SM ROCK 09:36

183 - 184.5 COARSE SAND / SM. ROCK. 09:42

WATER ADDED TO TANK 09:45 to 9:55

184.5 - 187 COARSE SAND / SM ROCK S 187' @ 9:5

187 - 188 CLAY / COARSE SAND 09:59

188 - 190 CLAY / COARSE SAND

190 - 191 COARSE SAND / MED ROCK 10:06

191 - 192 COARSE SAND / FINE ROCK 10:10

192 - 194.5' COARSE SAND / CLAY 10:17

194.5' - 196 COARSE SAND 10:22

196 - 197' COARSE SAND / SM ROCK 10:28 S 196.5' @ 10:2

RIG IDLE FROM 10:25 to 12:20 TO EMPTY CONTAINER ROLLOFF

197' - 199.0' COARSE SAND / CLAY 12:28

ADDING WATER TO TANK 12:21 to

199.0 - 199.5' COARSE SAND 12:33

199.5 - 202 COARSE SAND / VERY SM ROCK (<1/4") / SOME CLAY 12:43

202 - 203' CLAY 12:47

203 - 204 COARSE SAND, SMALL ROCK (<1/2") 12:50 S 206 @ 12:

204 - 207 COARSE SAND, SMALL ROCK 12:58

207

227

247

267

26 GRAVEL > 1"

MED. GRAVEL 1/2" < 1"

FINE GRAVEL < 1/4"

207-210 FINE SAND 1:06 PM
211 CHATTER, COARSE & FINE SAND
211-217 FINE SAND, COARSE SAND 1:55
218-219 CLAY SAND
220-230 COARSE & FINE SAND 3:30
230-237 FINE & COARSE SAND & 4:20
237-246 FINE & COARSE SAND & 5:15
252- CHATTER 5:45
255- ROCKS 1/4" TO 1/2" SAND CHATTER 6:00

02-22-2001 DRILLING STARTS 07:41 AM @ 257' DEPTH
257-260 CLAY
260-261 COARSE SAND, SMAL ROCKS (1/4" to 1/2"), SOME CLAY 7:53
ADDING WATER TO TANK (SUMP) 7:57
261-262 COARSE SAND, SMALL ROCKS (<1/4") 8:01
262-267 COARSE SAND / CLAY. & 266.5 @ 8:13
267-268 COARSE SAND / CLAY
268-269 CLAY 8:22
269-270 CLAY 8:24
270-272 CLAY 8:29
272-274 CLAY 8:34
274-275 COARSE SAND / SM ROCK 8:39 & 275.5 @ 8:41
RIG CHATTER @ 276.5' (EXCESSIVE)
275-276.5 COARSE SAND / SM ROCK
276.5-277 COARSE SAND / LARGE GRAVEL (>1") 8:52
8:52 to 8:59 20' PIPE ADDED . RIG CHATTER / SLOWER RPM.
WATER ADDED TO SUMP TANK 9:02 - 9:04
277-278 COARSE SAND / MED. GRAVEL. 9:05
278-279 COARSE SAND / LG. GRAVEL 9:14 AM
279-280 COARSE SAND / MED. GRAVEL 9:22
280-281 COARSE SAND / FINE GRAVEL. 9:27 AM
281-282 COARSE SAND / V. FINE GRAVEL. 9:34 AM
282-283 COARSE SAND / FINE GRAVEL 9:43

282

287
292
297

300
320
340
360

✓302
✓307
✓312
✓317
322
327

283-284'	COARSE SAND / FINE GRAVEL	9:47 AM	
284-286'	COARSE & FINE SAND / FINE GRAVEL	9:54	
286-287	COARSE SAND / FINE GRAVEL.	10:00	S 286.50 @ 9:57
287.5'	R16 SHUTTERS	10:02	
287-289	COARSE/MED. SAND / FINE TO SM. GRAVEL.	10:10	
289-290	SAME	10:19	
290-291	COARSE/MED SAND / FINE GRAVEL.	10:23	
291-292	COARSE/MED SAND / SM. GRAVEL.	10:30	
292-293	SAME	10:34	
293-294	COARSE SAND / FINE GRAVEL.	10:38	
294-297	COARSE/MED SAND / SM. GRAVEL	10:53	S 296 @ 10:46
10:53 to 11:02	20' PIPE ADDED		
297-298	COARSE SAND / MED. GRAVEL	11:16	
298-299	COARSE SAND / SM. GRAVEL.	11:21	
299-300	COARSE SAND / MED. GRAVEL	11:29	
300-301	COARSE SAND / SM. GRAVEL	11:33	
301-302	SAME	11:40	
302-303	SAME	11:49	
303-304	COARSE SAND / FINE GRAVEL	11:54 AM	
304-306	COARSE SAND / SM. GRAVEL	11:59	S 306.50 @ 12:00
306-307	SAME	12:03	
307-308	SAME		
308-309	CLAY	12:10	
309-311	MED SAND	12:15	
312-312	COARSE & MED SAND / SM. GRAVEL.	12:22	
313-314	COARSE & MED. SAND / FINE GRAVEL.	12:28	
316	CHATTER	12:41	
315-317	SAND GRAVEL	12:45	
322		1:10	
323	CHATTER	1:17	
323-324	COARSE & MED SAND / SM GRAVEL	13:29	
324.5'	CHATTER		
324-325	SAME	13:34	
325-326	SAME	13:41	

327
332
✓ 337
342
347
✓ 352
✓ 357
362
367
372
377

387
392
397
402

RdJ ARRIVE 07:26 AM

RAM 8:30 AM

326.5' EXCESSIVE CHATTER @ 13:55 ~~326.5' 13:53~~
326-327 COARSE SAND / FINE GRAVEL 14:01
327-328 COARSE SAND / SM. GRAVEL 14:18
328-332 COARSE SAND / FINE TO SM. GRAVEL 14:34
332-337 SAME. 14:49 ~~335' @ 14:43~~
14:49 to 14:56 20' OF PIPE ADDED
337-339.5 COARSE & MED SAND / V. FINE GRAVEL 15:07
339.5 to 342' SAME ORGANIC MATERIAL @ 342' 15:23
342'-347 COARSE SAND, SOME CLAY 15:29
347-352 SAME 15:40 ~~349' @ 15:3~~
352-354 COARSE SAND / FINE GRAVEL / GREEN CLAY 15:44
354-356 COARSE SAND / SM GRAVEL / 15:49
356-357 COARSE SAND / FINE GRAVEL 15:52 ~~356 @ 15:4~~
15:52 to 15:58 ADD 20' OF PIPE
357 RIG CHATTERS
357-361 FINE TO MED. SAND / SOME CLAY 16:12 PM
361-370 FINE TO COARSE SAND 4:48
375.5 HEAVY CHATTER 5:10
370-375.5 FINE & COARSE SAND
375.5-377 ROCKS & SAND 5:22
378 CHATTER 5:41
377-387 FINE & COARSE SAND 6:40

02-23-2001 DRILLING STARTS 07:45 AM @ 387' DEPTH
CHATTER @ 387.5'
387-389 COARSE SAND / SM. GRAVEL 07:50
CHATTER 388-390', 392'
389-392 COARSE SAND / FINE GRAVEL 8:00 AM
392-394 COARSE SAND / SM TO FINE GRAVEL 8:13 AM
CHATTER @ 395' ~~396' @ 8:20 AM~~
394-397 COARSE SAND SM TO FINE GRAVEL 8:25
08:25 to 08:34 Add. 20' PIPE 0
397-399 FINE TO COARSE SAND / SM. GRAVEL 8:53
397.5 CHATTER

400'	CHATTER & 401.5	08:55
399-402'	COARSE SAND / FINE TO SM GRAVEL	09:06 AM
402-407	COARSE SAND / FINE TO SM. GRAVEL.	9:23
411'	~~ST~~ CHATTER	@ 407' @ 9:23
407-411	COARSE SAND / V. FINE GRAVEL	9:28
411-412	COARSE SAND / SM. GRAVEL	09:34
412-414	COARSE SAND / [illegible]	[illegible]
414-417	COARSE SAND / [illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	10:21 AM	
	ADD 20' PIPE [illegible]	
417-[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	FINE SAND [illegible]	
[illegible]		
[illegible]		
[illegible]		
[illegible]	COARSE SAND	
[illegible]	MED SAND [illegible]	
[illegible]	[illegible] ADD 20' PIPE	
[illegible]	FINE TO C. SAND / SOME [illegible]	12:30
[illegible]	[illegible]	12:33
[illegible]	SAME BIT AT SLOW SPEED.	@ [illegible] 12:43
446-447	FINE TO C. SAND / V FINE GRAVEL	12:51
448	RIG SHUTTERS.	12:52
455	CHATTER	
447-457	SAND SOME SM. ROCK	2:10
458	ADD 20' BEGIN @	2:27
457-458	SAND. FINE TO COARSE	
459-460	SAND SOME CLAY	2:40
460-468	FINE SAND - SOME CLAY @466	2:55
468-477	FINE SAND, CLAY, WOOD PIECES	3:05
477	START DRILLING	3:15
477-487	FINE SAND, SOME COARSE	3:43

RAIN

487-497	FINE SAND - SOME COURSE	4:15
499-502	CLAY FINE SAND	
502-512	FINE SAND SOME COURSE	5:10
512-517	" "	5:40
517-526	" "	S 5:57
526-537	" "	S. 6:30 @ 535
TD 537	" "	6:40
BEGIN DRILLING 2-24-01 537' @ (NEW BIT)		9:30 AM
537-540	S SAME	
540-545	GRAVEL & SAND	
54[illegible]-552	FINE COURSE SAND	
552-554	~~SAND~~ CLAY - FINE [illegible]	10:00 AM
554-557	SAND	10:07
557	START [illegible] @	10:27
557-565	CLAY [illegible] COARSE, GRAVEL, SAND	10:55
565-575	" "	11,40
577	START @	11:53
575-587	CLAY	12:17
587-597	CLAY	12:40
597-600'	CLAY & SILT W/SOME C. SAND	12:53
600-602'	FINE TO COARSE SAND W/SOME C. GRAVEL	12:58
602-604.5'	C. SAND W/SOME CLAY & MED. GRAVEL.	13:05
		S 605.5 @ 13:08
604.5-607'	FINE TO COARSE SAND	13:12
607-608'	FINE TO C. SAND W/SOME FINE TO MED. GRAVEL	13:19
608-609'	SAME	13:23
609-610'	F. TO C. SAND W/F. TO SMALL GRAVEL	13:27
610-611'	F. TO C SAND	13:31
611-612'	SAME	13:35
RIG SHUTTERS SLIGHTLY @ 611.5'		
612-614'	F TO C. SAND W/ F. TO SM GRAVEL / CLAY	13:43
614-616'	SAME	S 616' @ 13:45'
616-617'	CLAY	13:48

617 - 622'	CLAY W/SOME F. TO C. SAND	14:07
622 - 623	CLAY	14:12
623 - 624	CLAY	14:15
624 - 627'	CLAY W/ SOME C. SAND	14:23
627 - 629'	SAME	14:28
629 - 632'	C. SAND W/ CLAY	14:35
R16 SHAKERS SLIGHTLY @ 633'		14:39
632-633'	F. TO C. SAND W/ SOME CLAY	14:41
633-636'	F. TO C. SAND / CLAY	14:49
636-637'	SAME	14:57
		S 637 @ 14:57
637-638'	CLAY	15:12
638 - 639.5'	SILTY CLAY	15:16
639.5 - 641'	CLAYEY F. SAND	15:21
641 - 642'	CLAYEY F. SAND & CLAY	15:26
642-643'	CLAYEY V.F. SAND & CLAY	15:34
643 - 644.5'	F. TO C. SAND W/ CLAY	15:38
644.5' - 647	SAME	S 645.5 @ 15:40
647 - 648'	MED TO C. SAND	15:47
648 - 649'	SAME	15:50
649-650'	CLAYEY F. SAND	15:54
650 - 652'	V. FINE SAND / CLAY	15:58
652-654'	CLAY / F. SAND / C. SAND	16:02
654-657'	SAME 16:09	S 654.5' @ 16:03
ADD 20' OF PIPE 16:09 to 16:15.		
657-659'	CLAY W/ F. SAND	16:21
659-661'	CLAY / FINE SAND TO MED. SAND / SOME C. SAND	16:26
661-662'	M. TO C. SAND W/ SOME CLAYEY F. SAND	16:32
662-663'	SAME	16:37
663-664'	CLAYEY F. SAND / M. TO C. SAND	16:41
664-667'	SAME	16:48
	S 667' @	16:49
667-669'	CLAY / CLAYEY F. SAND / SOME COURSE SAND	16:56
669-672'	CLAY	17:02
672-673	CLAY	17:09
673-675	F. TO. C. SAND W/ SOME CLAY	17:19
675-677	F. TO. C. SAND W/ CLAYEY FINE SAND	17:26

LIGHT RAIN - continuing from OVERNIGHT

ADD 20' OF PIPE 17:26 - 17:32

677 - 678.5' F. TO C. SAND 17:41
678.5 - 680' C. SAND / V. FINE GRAVEL 17:44
680 - 681' C. SAND / V. FINE GRAVEL / CLAYEY SAND 17:49
681 - 682' CLAY 17:52
682 - 683.5' F. TO C. SAND / F. GRAVEL 17:59
683.5 - 685' SAME 18:08
RIG CHATTERS @ 685' EXCESSIVELY @ 686'
685 - 686' SAME 18:12
S' 686.5 @ 18:14
686 - 687 C. SAND / V. F. GRAVEL 18:18
687 RIG CHATTERS EXCESSIVELY
DRILLING STOPS / ENDS @ 687' 18:19

02-25-2001 SUNDAY
DRILLING STARTS 08:09 AM @ 687'
687' RIG CHATTERS
687 - 688' F. TO C. SAND W/ GRAVEL (>3/4") 08:20 AM
688 - 689' F. TO C. SAND W/ F. GRAVEL (<1/4") 08:28
689 - 691' CLAYEY F. SAND / C. SAND 08:33
691 - 692' C. TO F. SAND 08:38
692 - 693' C. TO F. SAND / CLAYEY F. SAND 08:45
693 - 694' C. TO F. SAND / CLAYEY F. SAND / SOME CLAY 08:50
694 - 695' CLAYEY F. SAND / F. TO C. SAND / SOME CLAY 08:54
SLIGHT SHUTTER OF RIG @ 696' S 695.5' @ 08:55
695 - 696' ← SAME 08:59
696 - 697' CLAYEY F. SAND / CLAY / SOME C. SAND 09:05
RIG IDLE - ROLLOFF TRUCK STUCK OFFSITE, TILL 11:36
697 - 698 SAME 11:40
698 - 699 CLAYEY F. SAND / CLAY 11:42
699 - 700 SAME 11:43
700 - 701 C. TO F. SAND / CLAYEY F. SAND. 11:46
701 - 702 SAME 11:51
702 - 703 F. TO C. SAND, SOME CLAYEY F. SAND & CLAY 12:01
703 - 704 SAME 12:03
704 - 705 SAME 12:07

RAIN
THEN SUNSHINE

705 - 706	F. TO C. SAND CLAYEY F. SAND ~~CLAY~~ & CLAY	12:09
706-707	F. TO C. SAND SOME CLAYEY F. SAND	12:13
707-708	CLAYEY F. SAND, SOME CLAY	12:17
708-709	F. TO C. SAND / SOME CLAYEY F. SAND	12:21
709-710	SAME	12:23
710-711	SAME	12:26
711-712	CLAYEY F. SAND & CLAY	12:31
712-714	F. TO C. SAND, SOME CLAYEY F. SAND	12:35
714-715	CLAYEY F. SAND	12:38
715-716	SAME	12:41
716-717	SAME	12:49
717	@	12:56
717-737	SAND SOME GRAVEL	2:35
737	@	2:40
737-752	SAND, SILTY CLAY, SOME GRAVEL	3:40
752-754	~~CLAY~~ CLAY - SAND	
754-757	SAND	4:00
757	@	4:10
757-767	~COARSE & FINE SAND, SILT	4:40
767-771	" "	
771-773	CLAY, SAND	
773-777	SAND, FINE SAND	5:05
777-780	" "	
780-787	SILTY CLAY, ~~SOME SAND~~	6:05

02-26-2001

~~787~~ - 797' START PER BRUCE @ 8:17

797-802	~~SILTY F. SAND/CLAY~~ F. SANDY CLAY / CLAY / SOME C. SAND.	8:28
802-803	F. SANDY CLAY	8:32
803-805	SILTY CLAY	8:39
805-806	SILTY CLAY / F. TO C. SAND	8:46

R16 SHUTTERS @ 08:46½ (SLOWER RPM)

S 806 S C 8:51

806 - 807' 8:52

807 - 808' F. TO C. SAND / SOME F. SANDY CLAY

808 - 810' C. TO F. SAND / SM. GRAVEL 8:59

810 - 811' SAME R16 SHUTTERS 811.5' 9:04

811 - 812' C. TO F. SAND / SM GRAV. / SOME 9:09
CLAYEY F. SAND

812 - 813' SAME 9:14

813 - 815' F. TO C. SAND / F. TO SM. GRAV. 9:20

815 - 817' SAME 9:24

ADD 20' OF PIPE 09:24 TO 10:04 AM

817' - 818' F. TO C. SAND / F. SANDY CLAY. 10:11

818 - 819' F. TO C. SAND / F. GRAVEL. 10:15

819 - 820' SAME 10:19

820 - 821' F. TO C. SAND / SM. GRAVEL. 10:22

821 - 822' SAME 10:27

822 - 823' C. TO F. SAND / F. TO SM GRAVEL 10:33

R16 SHUTTERS @ 823'

823 - 824 SAME W/ MED. GRAVEL., SOME COARSE GRAVEL. 10:37

824 - 825 C. TO F. SAND / SM GRAV. 10:44

825 - 827 C. TO F. SAND / FINE TO W COARSE GRAVEL S 10:50 @ 827'

827 - 828' SAME 10:54

R16 SHUTTERS @ 828'

828 - 829' F. TO CO GRAVEL C. TO F SAND 10:58

R16 SHUTTERS @ 829'

834 CHATTER 11:25

829 - 837 F. TO C. GRAVEL SAND 11:40

837 C 11:50

830 - 831 C. SAND / FINE TO SM GRAV 12:02

831 - 832 C. TO F. SAND / FINE GRAVEL. 1207

832 - 833 C. TO F. SAND / SM. GRAV. R16 SHUTTERS @ 833 12:11

833 - 834 C. TO F SAND / FINE TO C. GRAVEL / SOME 12:18
CLAYEY F. SAND.

R16 CHATTERS EXCESSIVELY @ 834.5'

RIG CONTINUES TO SHUTTER

20
×3
60

20
×20
400

20
×8
160

960' of pipe – 40 footers
60
1020' TOTAL (APPROX.)

COULD NOT ACCURATELY DETERMINE TYPE OF CUTTINGS DUE TO CLAY/MUD THAT FILLED DRILL HOLE OVERNITE

834-835 C. TO MED. SAND / FINE TO MED GRAVEL 12:25
835-836 C. SAND / FINE TO SM. GRAVEL 12:30
836-837 C. SAND TO F. SAND / FINE TO MED GRAV. 12:35
12:38 - RIG PROBLEM (NOISE @ TURNTABLE)
AIRLINE BROKE @ KELLY - LIKELY DOWN FOR THE REST OF THE DAY

02-27-2001

ALL PIPE REMOVED LAST NIGHT, PER BRUCE
BIT CHANGED THIS AM (7:30AM)
AIR-LINE STILL NEEDS REPAIR
RIGGING UP: 3 HEAVY STICKS DROPPED IN FIRST
THEN 40 FOOTERS. QTY=40 (TOTAL) = 800'
5½ lengths or 220' on the trailer

837-840 CLAY
840-841 C. SAND / CLAY 12:50
STOP DRILLING DUE TO LIGHTNING

853-854 C. SAND / SM. GRAV 1300
Add 20' PIPE 13:05 - 13:20 S
855-860' CLAY W/ SOME CLAYEY F. SAND 13:38
860-861' CLAY 13:42
861-865' CLAY S 865' 1346
866 RIG SHUTTERS
866-870 CLAY, SOME CLAYEY F. SAND / C. SAND 13:52
870-872 C. SAND / C. GRAVEL 13:54
872-875 C. SAND / MED. GRAV. S 875 13:56
Add 20' PIPE
875-880 C. SAND / MED TO C. GRAV 14:20
RIG SHUTTERS @ 877.5, 879, 880.5'
880-885 C. SAND / MED. GRAV S 885 14:33 14:33
885-887 C. SAND / SM. GRAV 14:49
887-889 SAME

889 - 890.5 C. SAND / MED TO C. GRAV 14:57
890.5 - 893 CLAY / SOME C. SAND ~~894.5~~ 15:03
893 - 895 SAME 15:06
15:08
ADD 20' PIPE 15:08 TO 15:15
895 - 900' CLAYEY F. SAND / C. SAND 15:23
900 - 905' CLAY ~~905'~~ @ 15:30 15:30
905 - 910' CLAY / SOME C. SAND 15:37
910 - 911 SAME 15:40
R16 SHUTTERS @ 911' ~~914.5~~ @ 15:45
911 - 915 CLAY 15:47
915 - 937 SILTY CLAY 5:00
END OF DRILLING