PROJEC	envii CT NAME		ental mana	gate 300 Frank H 94612 Telephone: 1	. Ogawa Plaza, Suite 510 510-839-0688 BORING LOCATION	VELL NUMBER ARP-2A PAGE 1 OF 2
DATE S DRILLIN DRILLIN LOGGE NOTES	STARTED NG CONT NG METH D BY _E : _ARP-2	20 <u>7/6/10</u> TRACTO 10D <u>So</u> K 2A is 50'	0 DR WDC DR MDC Dnic north of ARP-	COMPLETED 7/6/10 CHECKED BY JWO 2. See lithology log of ARP-2 for lit	PROJECT LOCATION <u>Hendersi</u> TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING SURFACE CONDITIONS: hologic description	<u></u> HOLE SIZE _6" AT TIME OF DRILLING _24.00 ft AT END OF DRILLING
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC	20	MATE	RIAL DESCRIPTION	
			Ţ			 Cement/Benton Grout 2" Schedule 40 PVC Capped Riser Hydrated Bentonite Pellets

PROJ	envi ECT NAM	ortho	WELI 300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688 BORING LOCATION BRO JECT LOCATION	L NUMBER ARP-2A PAGE 2 OF			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	MATERIAL DESCRIPTION	WELL DIAGRAM			
- 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 - 55 - 55 - 55 - 55 - 55 - 55				2" Schedule PVC 0.020" Slotted Well Screen 2" Schedule PVC End Ca			

VERAL NORTHGATE ENV FORMATION OS 2027.02 T 23 BORING LOGS.GPJ 11/16/10

G	envi	onmer	thgate and management inc 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510	VELL NUMBER ARP-3A PAGE 1 OF 2
PROJ		E Tronox	(BORING LOCATION	
PROJ	ECT NUME	BER _ 202	27.02	PROJECT LOCATION Henderso	on, NV
DATE	STARTED) <u>7/2/10</u>	COMPLETED <u>7/2/10</u>	TOC ELEVATION	HOLE SIZE _6"
DRILL	ING CONT	RACTOR	R WDC	GROUNDWATER LEVELS:	$\overline{\Box}$ AT TIME OF DRILLING <u>26.00</u> ft
DRILL		HOD <u>Sor</u>			_ AT END OF DRILLING
NOTE	S: <u>ARP-3</u>	:r. 3A is 50' n	orth of ARP-3. See lithology log of ARP-3 for lith	nologic description.	
	ш				
DEPTH (ft)	SAMPLE TYPI NUMBER	FORMATION GRAPHIC LOG	MATEF	RIAL DESCRIPTION	WELL DIAGRAM
1					
-2 -3 -4 -5 -6 -7 -8 -9 10 -11 -12 -13 -14 15 -16 17 -18 -19 -20 -21 -22 -22					Cement/ Bentonite Grout 2" Schedule 40 PVC Riser Hydrated Bentonite Chips
23					
24					
25					
5 - ²⁰			Ψ		
28					
29					8-12 Filter Pack
30					
31					2" Schedule 40
32					Slotted Well
34					
35					

G	n envi	ort	Solution 300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	L NUMBER ARP-3A PAGE 2 OF 2
PROJI	ECT NAMI	Tronox	BORING LOCATION	
PROJI	ECT NUMI	BER _ 2027.0	PROJECT LOCATION Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
VEKAL NORTHGALE ENV _FORMATION_OS_2027.02 _23_BORING_LOGS.GPJ 117/16/10				2" Schedule 40 PVC End Cap

C	h	D	r	tł	ngate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL NUMBER ART-7B PAGE 1 OF 2
PROJ		Tro	nox	lari	nanagement, inc.	BORING LOCATION	
PROJ		ER 2	2021	7.02		PROJECT LOCATION Hend	derson, NV
DATE	STARTED	6/2	2/10		COMPLETED 6/28/10	TOC ELEVATION	HOLE SIZE _18"
DRILL	ING CONT	RACI	OR	WD	OC	_ GROUNDWATER LEVELS:	∑ AT TIME OF DRILLING <u>32.00</u> ft
DRILL	ING METH	OD _	Son	ic		AFTER DRILLING	AT END OF DRILLING
LOGO	ED BY E	<			CHECKED BY JWO	SURFACE CONDITIONS:	
NOTE	S: <u>ART-7</u> E	3 is 5'	nor	th of A	ART-7. See lithology log of ART-7 for lithol	ogy above 39'.	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	ERIAL DESCRIPTION	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 11 12 13 14 15 20 21 22 23 24 25 26 27 20 21 22 23 24 25 26 27 20 21 22 23 24 25 26 27 20 21 22 23 24 25 26 27 20 20 21 22 23 24 25 26 27 20 20 21 22 23 24 25 26 27 20 21 22 23 24 25 26 27 20 20 21 22 23 24 25 26 27 20 21 22 23 24 25 26 27 20 20 21 22 23 24 25 26 27 20 21 22 23 31 32 33 33 34 35					Σ		 Cement/ Bentonite Grou G" Schedule 40 PVC Riser Hydrated Bentonite Chips

				tt tal n	Netter Nu State St	MBER ART- PAGE 2	7B OF 2
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRA	M
- 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50	S		GW GM		WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM); light brownish gray (10YR 6/2), 60-70% angular to sub angular volcanic granules/pea gravel to 1/2", 20-30% fine to very coarse angular to sub rounded sand, 10% silt, moderately calcareous. LEAN CLAY (CL); yellowish gray (5GY 6/2), non-calcareous. Bottom of borehole at 50.0 feet bgs.	8-12 Filt Sand 6" Stainl Steel V-1 0.040" V Screen	er Pac ess Wire Vell

G	n	0	r	t	h	gate 300 Frank H. 0 94612 Telephone: 57	Ogawa Plaza, Suite 510 10-839-0688	WELL	NUMBER I-AC PAGE 1 OF 2
PRO.II		Tro	nox	ali	nana	agement, Inc.	BORING LOCATION		
PROJ		ER	2027	7.02			PROJECT LOCATION Henderson	NV	
DATE	STARTED	6/1	4/10			COMPLETED 6/15/10		HOLE	SIZE 9"
DRILL	ING CONT	RAC	TOR	WE	DC		GROUNDWATER LEVELS:		ME OF DRILLING 33.00 ft
DRILL	ING METH		Soni	ic			AFTER DRILLING _26.2 ft	- AT EN	ND OF DRILLING
LOGG	ED BY E	<				CHECKED BY JWO	SURFACE CONDITIONS:		
NOTE	S:								
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG		MAT	ERIAL DESCRIPTION	ſ	WELL DIAGRAM
_ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _ 11 _ 12 _ 13 _ 14 _ 15 _ 16 _ 17 _ 18 _ 19 _ 20		Qal	SP- SM			WELL GRADED SAND WITH SILT 75% fine to medium grain with com well graded sand, 15% granules/pea and grain coatings.	AND GRAVEL (SW-SM); reddish browr mon coarse to very coarse angular to sut a gravel to 3/4", 10% silt, moderate calich	n (5YR 5/4), o rounded le cement	Cement/ Bentonite Grout 2" Schedule 40 PVC Riser
_ 21 _ 22 _ 23 _ 24 _ 25		Qal			· · · · ·	SILTY SAND (SM); yellowish brown coarse to very coarse grain sub ang 10-25% silt, 5% angular to sub angu	(10YR 5/4), 80% fine to medium grain v ular to sub rounded moderately well sorta Jar volcanic granules, damp at 24'.	with trace ed sand,	
26	1		SM		; 	Sp(?) calcareous cement/coatings fi	rom 23-25'.	/	
27		Qal			<u> </u> <u>▼</u>	Common carcareous cement/coating	yə 110111 20-20 .		
28		Qal							
_ 29				[[SILT WITH SAND (ML); yellowish b	rown (10YR 5/4), 70% calichified silt, 30	% fine to	
30						coatings.	need ound, common canolinication and y		
31		Qal	ML						
_ 32									
_ 33									
_ 34 _ 35		имс	fML			SILT INTERBEDDED WITH SAND fine grain sand, 20-30% very fine gr 43-44' 20-30% very fine grain sand,	Y SILT (ML); yellowish brown (10YR 5/4) ain sand locally, non-calcareous. Sandy 47.5-50' 20-30% very fine grain sand.	, 10% very zones at:	2" Schedule 40

⁽Continued Next Page)

G	northgate	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688
	any ironmontal management inc	

WELL NUMBER I-AC

PAGE 2 OF 2

environmental management, inc.

PROJECT NAME Tronox

BORING LOCATION	

PROJECT NUMBER 2027.02 PROJECT LOCATION Henderson, NV SAMPLE TYPE NUMBER FORMATION GRAPHIC LOG U.S.C.S. DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM SILT INTERBEDDED WITH SANDY SILT (ML); yellowish brown (10YR 5/4), 10% very fine grain sand, 20-30% very fine grain sand locally, non-calcareous. Sandy zones at: 43-44' 20-30% very fine grain sand, 47.5-50' 20-30% very fine grain sand. (continued) PVC 0.010" 36 Slotted Well Screen 37 10-20 Filter Pack Sand 38 39 40 41 42 UMCfML 43 20-30% very fine grain sand from 43-44' bgs. 44 45 46 47 2" Schedule 40 PVC Blank 48 20-30% very fine grain sand from 47.5' to 50' bgs. Casing 49 50 2" Schedule 40 Bottom of borehole at 50.0 feet bgs. PVC End Cap GENERAL NORTHGATE ENV _FORMATION_OS 2027.02_T_23_BORING_LOGS.GPJ 11/16/10

G	envir	O I	nen	t Intal I	nanagement, inc. 300 Frank H. 0 94612 Telephone: 51	Dgawa Plaza, Suite 510	WELL	NUMB	ER I-AD PAGE 1 OF 2
		_ Iro	202	7 02		BORING LOCATION			
		6/1	<u>202</u> 5/10	<u>1.02</u>	COMPLETED 6/16/10			SIZE 9"	
DRILL				WD	C	GROUNDWATER LEVELS:	NOLL 0	NE OF DRIL	LING 33.00 ft
DRILL	ING METH	OD	Son	ic	-	AFTER DRILLING	AT EN	D OF DRIL	LING
LOGG	BED BY _E	< _			CHECKED BY JWO	SURFACE CONDITIONS:			
NOTE	S: <u>I-AD is</u>	10'r	north	n of M	180. Lithologic descriptions from M-180				
	ш	-							
DEPTH (ft)	SAMPLE TYP NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATI	ERIAL DESCRIPTION	Γ	WEL	
1					FILL; brown and dark yellowish brov	vn, sands, gravels, cement debris.			
$\begin{array}{c} & 2 \\ & 3 \\ & 4 \\ & 5 \\ & 6 \\ & 7 \\ & 8 \\ & 9 \\ & 10 \\ & 11 \\ & 12 \\ & 13 \\ & 11 \\ & 12 \\ & 13 \\ & 14 \\ & 15 \\ & 14 \\ & 15 \\ & 16 \\ & 17 \\ & 18 \\ & 19 \\ & 20 \\ & 21 \\ & 22 \\ & 23 \\ & & 23 \end{array}$			SM		SILTY SAND (SM); reddish brown (common coarse to very coarse grain to sub angular volcanic gravel to 3/4 cement t	5Y 5/4), 60-65% very fine to medium grai a sub angular to sub rounded sand, 5-10% ", 20% silt, common calcareous coatings bundant and hard from 18.5-19' and 23-24	n with 6 angular and soft		 Cement/ Bentonite Grout 6" Schedule 40 PVC Riser Hydrated Bentonite Chips
24 25 26 27 28	-		SW SM		WELL GRADED SAND WITH SILT grain sand, <10% silt to 26' then 20' gravel to 1/2" with trace to 1-2", non 28'.	(SW-SM); grayish brown (10YR 5/2), fin % silt, 10-15% volcanic angular to sub an calcareous to 26' then moderately calcar	e to coarse gular eous to		
29			ML		SILT (ML); yellowish brown (10YR 5 and nodules.	5/4), common to abundant hard to soft cal	iche zones		
30	-		sw		SAND (SW); yellowish brown (10YF	R 5/4), fine to coarse grain poorly sorted s	ub angular		
_ 31			CI	<i>\////</i>	\overline\ to sub rounded sand, 5-10% volcani \angular to sub angular gravel to 1" ir	c angular to sub angular gravel to 3/8", 6' n silty matrix at 30'.	bed of		
_ 32				Y	CLAY (CL); very pale brown (10YR	8/2), abundant caliche zones and nodules	s to 3-4".		
_ 33 _ 34			ML		SILT WITH SAND (ML); very pale b grain sand, non calcareous.	rown (10YR 7/4), coarse grain silt, 10-20	% very fine		■ 10-20 Filter Pack Sand
35									6" Schedule 40



Telephone: 510-839-0688

WELL NUMBER I-AD

	PROJECT NAME Tronox			nox		BORING LOCATION					
	PROJE		ER _2	2027	7.02	PROJECT LOCATION Henderson, NV					
	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	L DIAGRAM			
E ENV _FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10	- 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50	SA		ML		SILT (ML); very pale brown (10YR 7/4), coarse grain silt, trace very fine grain sand. Bottom of borehole at 50.0 feet bgs.		PVC 0.010" Slotted Well Screen -6" Schedule 40 PVC End Cap -Native Fill			
GENERAL NORTHGAT											

C	n	0	r	tl	ngate 300 Frank H. Oga 94612 Telephone: 510-4	wa Plaza, Suite 510	WELL NU	JMBER M-140 PAGE 1 OF 2
PROJ		E Tro	nox	lari	lanagement, mc.	BORING LOCATION		
PROJ		BER	2027	7.02		PROJECT LOCATION Henderson,	NV	
DATE	STARTE) 6/7	/10		COMPLETED _6/8/10	TOC ELEVATION	HOLE S	IZE _ 8"
DRILL		TRAC	FOR	WD	<u> </u>	GROUNDWATER LEVELS:	${ar ar ar ar ar ar ar ar ar ar $	E OF DRILLING 22.00 ft
DRILL	ING METH	HOD _	Soni	ic		AFTER DRILLING	AT EN	o of Drilling
LOGO	GED BY _E	K			CHECKED BY JWO	SURFACE CONDITIONS:		
NOTE	S:							
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATER	AL DESCRIPTION		WELL DIAGRAM
$ \begin{array}{c} - 1 \\ - 2 \\ - 3 \\ - 4 \\ - 5 \\ - 6 \\ - 7 \\ - 8 \\ - 9 \\ - 10 \\ - 11 \\ - 12 \\ - 13 \\ - 14 \\ - 15 \\ - 16 \\ - 17 \\ - 17 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ - 17 \\ - 10 \\ $	-	Qal	SM		SILTY SAND WITH GRAVEL (SM); re 7/2) where common calcareous cemen common coarse to very coarse grain su 20% granules/pea gravel to 3/4" (predo calcareous coatings and cement throug 6-8', 10-10.5', and 17-18'.	Idish brown (5YR 5/4) and pinkish gr. t/coatings, 60% very fine to medium g b angular to sub rounded poorly sorte minately 1/4-5/8"), 20% silt. Moderat hout. Common to abundant cement	ay (5YR grain with ed sand, e coatings at	- Cement Grout - 4" Schedule 40 PVC Riser
18 19 20	-	Qal	SW- SM		WELL GRADED SAND WITH SILT (S upward sequence.	V-SM); light yellowish brown (10YR 6	6/4), fining	
22		Qal	SM		SILTY SAND (SM); Light gray (10YR 7 coarse angular to sub angular sand, 5-caliche nodules, 20% silt.	/2), very fine to medium with coarse t 10% angular to sub rounded volcanic	o very gravels and	
_ 26 _ 27 _ 28		UMC	fML		SILT (ML); very pale brown (10 YR 7/4 sand/gravel grains to 1/4", moderately of), 10-20% very fine grain sand, 2-3% alcareous.	floating	
29 30 31 32	-	UMC	fML		SILT INTERBEDDED WITH SANDY S yellowish brown (10YR 6/4).	LT(ML); very pale brown (10YR 7/4)	and light	+ 10-20 Filter Pack Sand
33 34 35					Sandy silt, 20% very fine grain sand, 32 @ 33'.	2-34', 6" zone of common caliche nod	ules to 3"	4" Schedule 40 PVC 0.010" Slotted Well Screen



environmental management, inc.

300 Frank H. Ogawa Plaza, Suite 510 94612

Telephone: 510-839-0688

WELL NUMBER M-140

PRO	JECT NAME	Tro	nox		BORING LOCATION	BORING LOCATION				
PRO	JECT NUMB	ER	2027	7.02	PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM				
- 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44		имс	fML		SILT INTERBEDDED WITH SANDY SILT(ML); very pale brown (10YR 7/4) and light yellowish brown (10YR 6/4). <i>(continued)</i> Sandy silt, 20-30% very fine grain sand at 38'-39', 40'-45'.	4" Schedule 40 PVC End Cap				
45	-	<u> </u>			Bottom of borehole at 45.0 feet bqs.					
GENERAL NORTHGATE ENV_FORMATION_OS 2027.02_T_23_BORING_LOGS.GPJ 11/16/10										

G	n		r	th	194612 Telephone: 510-83	va Plaza, Suite 510 9-0688	VELL NUI	MBER M-148A PAGE 1 OF 2
PROJ		Tro	nox	tai II	Banagement, mo.	ORING LOCATION		
PROJ		ER _2	2027	7.02	P	ROJECT LOCATION Henderso	n, NV	
DATE	STARTED	6/2/	10		COMPLETED <u>6/2/10</u> T	OC ELEVATION	HOLE S	IZE _6"
DRILL	ING CONTI	RACT	OR	WDO	; G	ROUNDWATER LEVELS:	AT TIN	ie of Drilling
DRILL	ING METH	OD <u></u>	Soni	С			AT EN	D of Drilling
	ED BY <u>Ek</u>	(\ ic 10)' 02	et of M	CHECKED BY JWO S	URFACE CONDITIONS:		
	3 . <u>10-140/</u>							
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIA	L DESCRIPTION	Γ	WELL DIAGRAM
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 12 \\ 13 \\ 14 \\ 15 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 22 \\ 22 \\ $			SM SM		WELL GRADED SAND WITH SILT AND 70% very fine to medium grain with coars angular to sub rounded sand, 20% volcar 10% silt, moderate calcareous grain coat SILTY SAND (SM); reddish brown (5 YR common coarse to very coarse grain poo 20-30% silt, 1-2% gravel to 1/4", common 20-30% silt, 1-2% gravel to 1/4", common SILTY SAND WITH GRAVEL (SM); redd grain sub angular to sub rounded moderat trace to 2-3", 20% silt. Slight to moderate calcareous coatings.	 GRAVEL (SW-SM); reddish bro se to very coarse grain poorly sort hic angular to sub angular pea graings. 5/4), 70-80% very fine to mediur rly sorted sub angular to sub rour n calcareous cement and grain co ish brown (5YR 5/4), 60% very fine tely poorly sorted sand, 20% pea 	n grain with avel to 1/2", n grain with ded sand, batings.	 Cement Grout 2" Schedule 40 PVC Riser
35								Bentonite Chips

(Continued Next Page)



GENERAL NORTHGATE ENV FORMATION OS 2027.02 T 23 BORING LOGS.GPJ 11/16/10

environmental management, inc.

300 Frank H. Ogawa Plaza, Suite 510 94612

Telephone: 510-839-0688

WELL NUMBER M-148A

PROJECT NAME Tronox BORING LOCATION							
PROJ		R	2027	7.02	PROJECT LOCATION Henderson, NV		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM
- 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50			SM SM		SILTY SAND WITH GRAVEL (SM); reddish brown (5YR 5/4), 60% very fine to coarse grain sub angular to sub rounded moderately poorly sorted sand, 20% pea gravel to 3/4" trace to 2-3", 20% sitt. (continued) WELL GRADED SAND WITH SILT (SW-SM); reddish brown (5YR 5/4), 80% fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded moderately well sorted sand, 10% volcanic sub angular gravels to 3/8", 10% sitt. Common caliche nodules and calcareous cement (semi-hard) 42-45'. SILT (ML); very pale brown (10YR 7/4). Bottom of borehole at 50.0 feet bgs. Bottom of borehole at 50.0 feet bgs.		 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap

environmental management, inc. Telephone: 510-839-0888 PROJECT NUMBER 2027.02 PROJECT NUMBER 2027.02 PROJECT NUMBER 2027.02 COMPLETED 52210 DRILING CONTRACTOR, MYCC GROUNDAYTER LEVELS: X at two OF PRILLING 22:001 DRILING CONTRACTOR, MYCC GROUNDAYTER LEVELS: X at two OF PRILLING 22:001 DRILING CONTRACTOR, MYCC GROUNDAYTER LEVELS: X at two OF PRILLING 22:001 LOGGED BY EX CHECKED BY JWO SURFACE CONDITIONS; At two OF PRILLING 22:001 NOTES:	6	n	O	r	tl	ngate 300 Frank H. C	Ogawa Plaza, Suite 510	WELL N	JMBER M-159 PAGE 1 OF 2
PROJECT NAME Torox BORING LOCATION PROJECT NUMBER 20210 COMPLETED 52210 DATE STARTED SUDY COMPLETED 52210 DRILLING CONTRACTOR WDC GROUNDWATER LEVELS: V AT TIME OF DRILLING DORILLING METHOD Social CHECKED BY _NYO SURFACE CONDITIONS: NOTES:		envir	ronn	nen	tal i	Telephone: 51	0-839-0688		
PROJECT NUMBER 2027 02 PROJECT LOCATION Henderson, NV DATE STATED 5/22/10 COMPLETED 5/22/10 TOC ELEVATION HOLE SIZE 6' DRILLING OFFINATOR WCC GROUNDWATER LEVELIS AT TIME OF DRILLING AT END OF DRILLING NOTES OUT OF ELEVATION AT END OF DRILLING AT END OF DRILLING 1 Call Date Static OHECKED BY _ EX CHECKED BY _ MOO SURFACE CONDITIONS: 1 Date Static OHECKED BY _ MOO SURFACE CONDITIONS: 1 Date Static OUT OF ELEVATION WELL DIAGRAM 1 Date Static OUT OF ELEVATION WELL DIAGRAM 1 Date Static OUT OF ELEVATION WELL DIAGRAM 2 Date Static OUT OF ELEVATION WELL DIAGRAM 1 Date Static OUT OF ELEVATION WELL DIAGRAM 2 Date Static OUT OF ELEVATION WELL DIAGRAM <th>PROJECT</th> <th></th> <th></th> <th>nox</th> <th></th> <th></th> <th>BORING LOCATION</th> <th></th> <th></th>	PROJECT			nox			BORING LOCATION		
DATE STARTED 542210 COMPLETED 542310 TOC ELVATION HOLE SIZE 6' DRILLING CONTRACTOR WDC GROUNDWATER LEVELS: X AT TIME OF DRILLING	PROJECT		BER_	2027	7.02		PROJECT LOCATION Henders	son, NV	
DBILLING CONTRACTOR, WDC	DATE ST	ARTED	5/2	2/10		COMPLETED <u>5/23/10</u>		HOLES	IZE _6"
DeskLuks METHOD Sonc AFTER DRILLING AT END OF DRILLING LOGGED BY EK CHECKED BY_UWO SURFACE CONDITIONS:	DRILLING	G CONT	RAC	ror	WD	с	GROUNDWATER LEVELS:	$ar{bla}$ at times of the transformation of transformation of the transformation of transformation of the transformation of tr	IE OF DRILLING _29.00 ft
LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS: NOTES:	DRILLING	G METH	IOD _	Soni	ic		AFTER DRILLING	_ AT EN	D of Drilling
NOTES: Image: Second	LOGGED	BY <u>E</u>	K			CHECKED BY JWO	SURFACE CONDITIONS:		
Fig. Biology No. Provide and the set of the set	NOTES:								1
1 1 SILTY SAND WITH GRAVEL (SM) redich brown (SVR 54), 60.70% work round and sub angular to sub	DEPTH (ft)	SAMPLE IYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATI	ERIAL DESCRIPTION	ſ	WELL DIAGRAM
40	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40		Qal Qal Qal UMC	SM		SILTY SAND WITH GRAVEL (SM); coarse grain sub angular to sub rour gravel/granules to 1", locally large gr slight to moderate calcareous grain of Abundant caliche, moderate hard wi SILTY SAND (SM); very pale brown 70% very fine to fine grain with minor rounded sand, 30% silt in matrix, slig throughout. Calichified with abundant <1/4" nodu 24-25'. Gravelly sand, light gray (10YR 7/2) very fine to medium sub angular to s 20% silt, 25-25.5'. SILT INTERBEDDED WITH SANDY contains 20-30% very fine grain san 62-68'. Calichified intervals: 45-54' to 1", 62-68' common nodules to 1/4	reddish brown (5YR 5/4), 60-70% wholed sand, 10-20% volcanic angular avel to 3" @ 11-11.5' and 13-14', 20 coatings.	N9), 17-19'. e calichified, ar to sub tings wm (10YR 7/4), 	- Cement Grout Seal - 2" Schedule 40 PVC Riser

	Tronox	BORING LOCATION	
PROJECT NUME	BER <u>2027.02</u>	PROJECT LOCATION Henderson, NV	
DEPTH (ft) SAMPLE TYPE NUMBER	FORMATION U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 55 56 57 58 59 60 61 62 63 64 65 66	UMCfML	SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), sandy silt contains 20-30% very fine grain sand. Sandy intervals: 30-32', 39-45', 51-55', 58-60', 62-68'. Calichified intervals: 45-54' caliche nodules to 1/4", 56-56.5' common nodules to 1", 62-68' common nodules to 1/4". (continued)	- Hydrated Bentonite Chips
68 69 <u>70</u> 71 72 73 74	UMCfML	SILT WITH SAND (ML); very pale brown (10YR 7/4), 70-75% silt, 20% very fine grain sand, 5-10% floating volcanic sub angular to sub rounded gravels to 3/8". SILT (ML); very pale brown (10YR 7/4) to 79.5, very pale brown (10YR 8/2) 79.5-85. Trace caliche nodules to 1/2" 71-78', common to abundant caliche nodules to 1/2" 78-85'.	- 10-20 Filter Pack Sand - 2" Schedule 40 PVC 0.010" Slotted Well Screen
75 76 77 78 79 80 81	UMCfML		2" Schedule 40 PVC End Cap

G	n	O	r	tł	1gate 300 Frank H. Ogav 94612 Telephone: 510-83	va Plaza, Suite 510 39-0688	WELL N	JMBER M-160 PAGE 1 OF 2
	envir	onn	nen	tal r	nanagement, inc.			
		<u> </u>	2027	7 02	E			
		<u>5/2</u>	<u>2021</u> 3/10	.02	F			IZE 6"
				WD				IE OF DRILLING 29.00 ft
DRILL		00	Soni	_ <u></u> c	<u></u>	AFTER DRILLING		D OF DRILLING
LOGG		 	0011	<u> </u>	CHECKED BY JWO S			
NOTE	S : <u>M-160</u>	is 10'	east	t of M	159. See M-159 lithology log for lithology.			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIA	AL DESCRIPTION	L.	WELL DIAGRAM
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 33 \\ 34 \\ 33 \\ 34 \\ 34 \\ 34$			SM		SILTY SAND WITH GRAVEL (SM); redc coarse grain sub angular to sub rounded gravel/granules to 1", locally large gravel Slight to moderate calcareous grain coat SILTY SAND (SM); very pale brown (10' very fine to fine grain with minor medium sand, 30% silt in matrix, slight to modera Gravelly sand, light gray (10YR 7/2), cor very fine to medium sub angular to sub r 20% silt, 25-25.5'. SILT INTERBEDDED WITH SANDY SIL contains 20-30% very fine grain sand. S intervals: caliche nodules to 1/4", 45-50'	tish brown (5YR 5/4), 60-70% very sand, 10-20% volcanic angular to to 3" at 11-11.5' and 13-14', 20% s ings. (R 7/8), white (5Y 8/1) where calic to coarse grain sub angular to sub te calcareous grain coatings throug nonon calcareous grain coatings throug nonon calcareous nodules and coati ounded sand, 20% pea gravel/gran T (ML); very pale brown (10YR 7/4 iandy Intervals: 30-32', 39-45'. Cali	hified, 70% bified, 70% brounded ghout.	Cement Grout 2" Schedule 40 PVC Riser
35								Bentonite Chips



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WELL NUMBER M-160

PAGE 2 OF 2

	enviro	onm	nen	tal i	nanagement, inc.	elephone. 510-659-000	20		
PROJI	ECT NAME	Tro	nox			BORIN			
PROJI		ER _:	2027	7.02		PROJE		Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG		MATERIAL DES	SCRIPTION		
								((() ())	

DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC	FOG	MATERIAL DESCRIPTION	WEI	ll Diagram
- 36 - 37 - 38 - 39 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50			ML			Bottom of borehole at 50.0 feet bgs.		 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap

GENERAL NORTHGATE ENV _FORMATION_OS 2027.02_T_23_BORING_LOGS.GPJ 11/16/10

G	n	0	rt	h	gate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL NUMBER M-161 PAGE 1 OF 3				
PRO			nox	a mai	nagement, Inc.	BORING LOCATION					
PROJE	rson, NV										
DATE	STARTED	0 <u>5/22</u> RACT	2/10 OR _\		COMPLETED <u>5/22/10</u>	0 TOC ELEVATION HOLE SIZE _6" GROUNDWATER LEVELS: ✓ AT TIME OF DRILLING _2					
DRILL			Sonic				AT END OF DRILLING				
LOGG	ED BY <u>E</u>	K			CHECKED BY _JWO	_ SURFACE CONDITIONS:					
	5										
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S. GRAPHIC	FOG	ΜΑΤ	ERIAL DESCRIPTION	WELL DIAGRAM				
1					M-161 is 30' east of M-136. See M	I-136 lithology log from 0-90'.					
$ \begin{array}{c} 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 35 $				¥							



WELL NUMBER M-161 PAGE 2 OF 3

PROJECT NU					
DEPTH (ft) SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 67 68 69 70 71 72 73				M-161 is 30' east of M-136. See M-136 lithology log from 0-90'. (continued)	- Cement Grou 2" Schedule 4 PVC Riser



Telephone: 510-839-0688

WELL NUMBER M-161

PAGE 3 OF 3

PROJECT NA	PROJECT NAME Tronox		nox		BORING LOCATION	DN		
PROJECT NU	IMBE	R _2	2027	7.02	PROJECT LOCATION Henderson, NV			
DEPTH (ft) SAMPLE TYPE NUMBER		FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM	
776 76 777 78 779 80 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 97 98 97 98 97 91 92 93 94 95 97 98 97 101 102 103 104 105 106 107 108 109 110 109 110 109			SM ML CL		M-161 is 30' east of M-136. See M-136 lithology log from 0-90'. <i>(continued)</i> SILTY SAND (SM); light yellowish brown (10YR 6/4), 60% very fine grain sub angular to sub rounded sand, locally contains minor coarse sand and fine gravel, 40% silt, overall slight calcareous grain coalings. Minor medium to coarse grain sub rounded sand from 90-92'. Minor very coarse sand and gravel to 1/4" from 95-96'. SILT WITH SAND (ML); light yellowish brown (10YR 6/4), 10-20% very fine grain sand. Abundant calichification, very pale brown (10YR 8/2) mottled with very pale brown (10YR 7/4) from 100-103'. SILT (ML); dark yellowish brown (10YR 4/4). CLAY (ML); Mottled white (5Y 8/1) and very pale brown (10YR 7/4), 6" yellowish gray		 Hydrated Bentonite Chips 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap 	
E E								

PROJEC	envir CT NAME		nox	al m		gement, inc. 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688 BORING LOCATION	WELL NUMBER M-162 PAGE 1 OF 3
PROJEC DATE S DRILLII DRILLII LOGGE	CT NUMB STARTED NG CONT NG METH ED BY <u>E</u> H	ER	2027.0 1/10 `OR _\ Sonic)2 WD0	2	PROJECT LOCATION <u>Hende</u> TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING SURFACE CONDITIONS:	Image: style sty	
DEPTH DEPTH	SAMPLE TYPE NUMBER		RECOVERY %	C.S. C.S. C.S.	GRAPHIC LOG	' - 60' are from M-104	IATERIAL DESCRIPTION	WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 11 12 13 14 15 10 11 12 13 14 15 20 21 22 23 24 25 26 27 28 9 31 22 23 24 25 20 21 22 23 24 25 20 21 22 23 24 25 20 21 22 23 24 25 20 21 21 22 23 24 25 20 21 21 22 23 24 25 20 21 21 22 23 24 25 20 21 22 23 24 25 20 21 22 23 24 25 20 21 22 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 23 24 25 20 31 25 25 20 31 25 25 20 31 25 25 20 20 31 25 25 20 20 25 20 20 20 20 20 20 20 20 20 20						Ψ. ΤΟΣ IS TO CASE OF IMPTO4.		



Telephone: 510-839-0688

WELL NUMBER M-162

PROJECT NAM	E Tro	nox			BORING LOCATION		
PROJECT NUM	BER _	2027.0	02		PROJECT LOCATION Henderson, NV		
DEPTH (ft) SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WE	LL DIAGRAM
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 57 58 56 66 67 68 69 70 71 71 72 73 74	2	100	ML		M-162 is 15' east of M-104. (continued) SILT WITH SAND (ML); reddish brown (5YR 5/4) and very pale brown (10YR 7/4), 10-30% very fine grain sand, slight calcareous with minor 1/8" caliche nodules scattered throughout.		Cement Grout 2" Schedule 40 PVC Riser
ซี 75				V////		<u> </u>	4



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WELL NUMBER M-162

PAGE 3 OF 3

environmental management, inc.

	PROJ	ECT NAME	Tro	nox			BORING LOCATION		
	PROJ		ER _	2027.0)2		PROJECT LOCATION Henderson, NV		
	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM
GENERAL NORTHGATE ENV _FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10	- 76 - 77 - 78 - 79 - 80 - 81 - 82 - 83 - 84 - 83 - 87 - 88 - 90 - 91 - 92 - 93 - 91 - 92 - 93 - 94 - 95 - 97 - 98 - 97 - 98 - 97 - 98 - 97 - 100 - 101 - 102 - 103 - 104 - 105 - 108 - 109 - 110	M-162 Split Spoon #2		100			SILT (ML); yellowish brown (10YR 5/4), sandy intervals with 20-30% very fine grain sand. Abundant calichification, common nodules to 3/8" from 96.5-97'. Light yellowish brown (10YR 6/4), slight to moderate caliche nodules to 1/4" from 99-100'. Sandy silt, 10-20% very fine grain sand. Bottom of borehole at 110.0 feet bgs.		 Hydrated Bentonite Chips 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap
-									

environmental management, inc. DORNG LOCATION PROJECT NUMBER 2027.02 PROJECT LOCATION MOLE SIZE (*) PROJECT NUMBER 2027.02 COMPLETED 5/20/10 TOC ELEVATION MOLE SIZE (*) DATE STARTED 5/20/10 COMPLETED 5/20/10 TOC ELEVATION MOLE SIZE (*) DATE STARTED 5/20/10 COMPLETED 5/20/10 TOC ELEVATION MOLE SIZE (*) DORLING CONTRACTOR 1/0/CC GROUNDWATER LEVELS X at TEND OF DRILING 2 At TEND OF DRILING 2 LOGGED BY EX CHECKED BY 1/0/C SUPFACE CONTRONS: At TEND OF DRILING 2 X NOTES: Under descriptions are from M-104 for 0:-00. and for 0:-90 are from M-162 X X T Y Y Y Y Y T Y Y Y Y Y T Y Y Y Y Y T Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y <th>environmental management, inc. PROJECT NAME _Tronox PROJECT NUMBER _2027.02 PROJECT LOCATION</th> <th>I-163 E 1 OF 3</th> <th>WELL NUMBER M-'</th> <th>Dgawa Plaza, Suite 510 0-839-0688</th> <th>Jate 300 Frank H. (94612 Telephone: 51</th> <th>th</th> <th>r</th> <th>0</th> <th>n</th> <th>G</th>	environmental management, inc. PROJECT NAME _Tronox PROJECT NUMBER _2027.02 PROJECT LOCATION	I-163 E 1 OF 3	WELL NUMBER M-'	Dgawa Plaza, Suite 510 0-839-0688	Jate 300 Frank H. (94612 Telephone: 51	th	r	0	n	G
PROJECT INAME JODA BURKIN LOCATION Handemann. NV DATE STARTED 520/10 COMPLETED 520/10 COMPLETED 520/10 NO ESCURING 28.01°L DRILING CONTRACTOR WOC GROUNDWATER LEVELS: X AT TIME OF DRILING 26.01°L DRILING CONTRACTOR WOC GROUNDWATER LEVELS: X AT TIME OF DRILING 26.01°L LOGGED BY EX CHECKED BY _JVC SURFACE CONDITIONS: AT END OF DRILING 26.01°L LOGGED BY EX CHECKED BY _JVC SURFACE CONDITIONS: AT END OF DRILING 26.01°L VELL Undergic descriptions are from M-104 for 0° - 50°, and for 60° - 50° are from M-102 WELL DIAGRAM WELL DIAGRAM 1 EX Matterial DESCRIPTION WELL DIAGRAM WELL DIAGRAM 2 S S S S S 3 S S S S S 10 I S S S S 11 I S S S S 10 I S S S S	PROJECT NAME				gement, inc.	tal m	nen	onm	enviro	
Prodect Number 2021/02 COMPLETED 5/2010 Prodect Number 2021/02 Prodect Number 2021/02 DRELING CONTRACTOR WIDC GROUNDWATER LEVELS: ✓ AT TIME OF DRILING 26:00.11 LOGGED BY EX CHECKED BY _UVO SURFACE CONDITIONS; AT END OF DRILING 26:00.11 LOGGED BY EX CHECKED BY _UVO SURFACE CONDITIONS; AT END OF DRILING 26:00.11 NOTES: Libration of the CO - 60, and for 60 - 60, and for 60 - 60, and for 60 - 60.21 Well Diagram AT END OF DRILING 26:00.11 VEX Maternal Libration of the CO - 60, and for 60 - 60, and for 60 - 60.21 Well Diagram AT END OF DRILING 26:00.11 VEX Maternal Libration of the CO - 60, and for 60 - 60, and for 60 - 60.21 Well Diagram Well Diagram 1 Maternal Description Well Diagram Well Diagram Well Diagram 1 Maternal Description Well Diagram Well Diagram Well Diagram 1 Maternal Description Well Diagram Well Diagram Well Diagram 1 Maternal Description Well Diagram Well Diagram Well Diagram 1 Maternal Description Well Diagram	PROJECT NOMBER 2021/02 PROJECT LOCATION Heinderson, INV DATE STARTED 5/20/10 COMPLETED 5/20/10 TO ELEVATION HOLE SIZE 6" DRILLING CONTRACTOR WDC GROUNDWATER LEVELS: ✓ AT TIME OF DRILLING AT END OF DRILLING DRIGED BY EK CHECKED BY JWO SURFACE CONDITIONS:			BORING LOCATION		. 03	nox 2027	ED (
DRILLING CONTRACTOR WDC GROUNDWATER LEVELS: ✓ AT TIME OF DRILLING DRILLING METHOD _Sonic	DRILLING CONTRACTOR WDC GROUNDWATER LEVELS: Indet of DRILLING DRILLING METHOD Sonic AFTER DRILLING AT END OF DRILLING LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS: NOTES: Lithologic descriptions are from M-104 for 0' - 60', and for 60' - 90' are from M-162 MATERIAL DESCRIPTION WELL DIAL H H GO GO MATERIAL DESCRIPTION WELL DIAL I M-163 is 10' SE of M-104 and 10' SW of M-162. Image: Go Image: Go Image: Go 1 Image: Go Image: Go Image: Go Image: Go Image: Go Image: Go 3 Image: Go Image: Go		HOLE SIZE 6"		COMPLETED 5/20/10	.02	<u>2027</u> 0/10	<u>5/2</u>		
DRILING METHOD Scote AT END OF DRILING AT END OF DRILING OF DRILING AT END OF DRILING <	DRILLING METHOD Sonic AFTER DRILLING AT END OF DRILLING LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS:	26 00 ft	∇ at time of drilling 2	GROUNDWATER LEVELS:		WDC				DRILL
LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS: MOTES: Libidogic descriptions are from M-104 for 0° - 60°, and for 60° - 60° are from M-162	LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS: NOTES: Lithologic descriptions are from M-104 for 0' - 60', and for 60' - 90' are from M-162 H W NOTES: H W NOTES: U W NOTES: W NOTES: OIL by Signature H W NOTES: W NOTES: OIL by Signature MATERIAL DESCRIPTION WELL DIA A S S G MATERIAL DESCRIPTION WELL DIA MATERIAL DESCRIPTION WELL DIA MATERIAL DESCRIPTION WELL DIA S S S G S S G S		AT END OF DRILLING	AFTER DRILLING		<u></u> c	Soni	OD		DRILL
NOTES: Lithologic descriptions are from M-104 for 0° - 60°, and for 60° - 90° are from M-162 Lithologic descriptions are from M-104 for 0° - 60°, and for 60° - 90° are from M-162 Well DiaGRAM Lithologic descriptions Well DiaGRAM Well DiaGRAM 1 2 3 4 5 6 7 8 9 10 11 11 12 14 15 16 17 16 1 1 1 1 1 20 21 22 23 14 15 17 18 19 20 22 23 21 22 23 14 15 16 17 18 2 2 2 2 22 23 24 25 26 27 23 24 25 26 27 27 23 24 25 26 27 27 24 25 26 27 27 27 <	NOTES: Lithologic descriptions are from M-104 for 0' - 60', and for 60' - 90' are from M-162 Hard West Notes: West West<			SURFACE CONDITIONS:	CHECKED BY JWO	-		<	ED BY EK	LOGG
Had Well Diagram Well Diagram Well Diagram 1	H H H NOLE WIDO VIDE WIDO VIDE WIDO VIDE WIDO VIDE WIDO WELL DIAM 1			are from M-162	 n M-104 for 0' - 60', and for 60' - 90	tions a	scrip	gic de	S: Litholog	NOTE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 16 17 18 19 20 21 21 22 23 24 26 26 27 28 28 29 30 31 31 32 34 1	M-163 is 10' SE of M-104 and 10' SW of M-162.	GRAM	WELL DIAGF	ERIAL DESCRIPTION	MATI	GRAPHIC LOG	U.S.C.S.	FORMATION	SAMPLE TYPE NUMBER	DEPTH (ft)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{bmatrix} 2 \\ 3 \\ -4 \\ 5 \\ -6 \\ -7 \\ -8 \\ -0 \end{bmatrix} $			W of M-162.	M-163 is 10' SE of M-104 and 10' S					1
	$ \begin{array}{c} 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ $									-2 -3 -4 -5 -6 -7 -8 -9 -11 -12 -13 -14 -16 -17 -12 -13 -14 -15 -16 -17 -18 -10 -22 -23 -24 -25 -26 -27 -28 -29 -31 -32 -33 -34 -33 -33 -33 -34 -33 -33 -34 -33 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -33 -34 -35 -34 -35 -



GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10

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WELL NUMBER M-163

PAGE 2 OF 3

Hydrated Bentonite Chips

	enviro	onn	nen	tal r	nanagement, inc.		
PROJI	ECT NAME	Tro	202	7 02	BORING LOCATION		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL	. DIAGRAM
36					M-163 is 10' SE of M-104 and 10' SW of M-162. (continued)		
37							Cement Grout
38							
39							
40							- 2" Schodulo 40
41							PVC Riser
42							
43							
44							
45							
46							
47							
48							
- 49 50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60					SILT WITH SAND (ML); reddish brown (5YR 5/4) and very pale brown (10YR 7/4),		
. 01 62					10-30% very fine grain sand, slight calcareous with minor 1/8" caliche nodules scattered throughout		
63							
64							
65							
66							
67			м				
68							
69							
70							
71							
72							
73			1				

CLAY, pinkish gray (5YR 7/2), silty.



environmental management, inc.

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WELL NUMBER M-163

PAGE 3 OF 3

PROJECT NAME Tronox

BORING LOCATION	
PROJECT LOCATION	Henderson, NV

PROJ	ECT NUM	BER _	2027	7.02	PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	LL DIAGRAM			
GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			ML		M-163 is 10° SE of M-104 and 10° SW of M-162. (<i>continued</i>) SILT (ML); yellowish brown (10YR 5/4), sandy intervals with 20-30% very fine grain sand. Abundant calichification, common nodules to 3/8° from 96.5-97. Light yellowish brown (10YR 6/4), slight to moderate caliche nodules to 1/4° from 99-100. Sandy silt, 10-20% very fine grain sand. Ebotom of borehole at 90.0 feet bgs.		 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap 			

	G	enviro		r	th tal r	ngate management, inc. 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 :10-839-0688	WELL NUMBER M-164 PAGE 1 OF 2
PF	ROJE	ECT NAME	Tro	nox			BORING LOCATION	
PF	ROJE	ECT NUMB	ER _	2027	7.02		PROJECT LOCATION	son, NV
D	ATE	STARTED	5/19	9/10		COMPLETED <u>5/19/10</u>	_ TOC ELEVATION	HOLE SIZE
DF	RILL		RACT	OR	_WD	C	GROUNDWATER LEVELS:	⊥ AT TIME OF DRILLING <u>26.00</u> ft
	RILL		OD _	Soni	ic			AT END OF DRILLING
	JGG	ED BY <u>Er</u>	vic do	eorir	otione	from 0' 60' are from M 104 and for 60'	SURFACE CONDITIONS:	
DEPTH	(t)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MA	TERIAL DESCRIPTION	
	1					M-164 is 10' NE of M-104 and 10'	W of M-162. See lithology log of M-	104 for lithology
	2 3 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 9 0 1 2 3 4 5 6 7 8 9 9 0 1 2 3 4 5 5 6 7 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 4 5 5 8 9 9 0 1 2 3 3 4 5 5 8 9 9 0 1 2 3 3 4 5 5 8 9 9 0 0 1 1 2 3 3 4 5 5 9 9 0 0 1 1 2 3 3 4 5 5 9 9 0 0 1 1 2 3 3 4 5 5 9 9 0 0 1 1 2 2 3 3 4 5 5 9 9 0 0 1 1 2 2 3 3 4 5 5 9 9 0 0 1 1 2 2 3 2 4 5 5 5 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					Σ		Cement Grout
	84 85							



Telephone: 510-839-0688

WELL NUMBER M-164

PROJ	PROJECT NAME BORING LOCATION						
PROJ		ER	2027	7.02	PROJECT LOCATION Henderson, NV	1	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM
ANDELLE ENV. FORMATION OS 202702 1 23 BORING LOGS CENTIVIENO 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 56 60 1 52 57 56 60 1 52 57 56 57 56 60 1 57 57 57 57 57 57 57 57 57 57			ML		M-164 is 10' NE of M-104 and 10'NW of M-162. See lithology log of M-104 for lithology to 70'. (continued)		 Hydrated Bentonite Chips 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap
GENERALI							

G	nc)r	tł	1gate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL NUMBER M-165 PAGE 1 OF 4
		Trop	antal f	nanagement, mc.		
PROJECT		R 20)27.02		PROJECT LOCATION Hender	son. NV
DATE STA DRILLING DRILLING LOGGED I NOTES:	RTED _ CONTR/ METHO BY _EK _ithologic	5/18/ ACTC D _Sc	10 PR _WD pnic priptions	COMPLETED <u>5/19/10</u> C C CHECKED BY <u>JWO</u> for 0' - 90' are from M-132.	TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING SURFACE CONDITIONS:	HOLE SIZE _6"
DEPTH (ft) SAMPLE TYPE	NUMBER	FORMATION	GRAPHIC LOG	MAT	ERIAL DESCRIPTION	WELL DIAGRAM
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 35 \\ \end{array} $				M-165 is 10' west of M-132. See lit	thology log of M-132 for lithology fror	n 0-92'.



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inc

WELL NUMBER M-165

	2027.02	PROJECT LOCATION Henderson, NV	
DEPTH (ft) (ft) SAMPLE TYPE NUMBER FORMATION	U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 67 68 69 70 71 72 73 74		M-165 is 10' west of M-132. See lithology log of M-132 for lithology from 0-92'. (continued)	Cement Grout - 2" Schedule 4 PVC Riser



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WELL NUMBER M-165

PAGE 3 OF 4

PROJE		Tro	nox		BORING LOCATION		
PROJE		ER _:	202	7.02	PROJECT LOCATION Henderson, NV		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL	DIAGRAM
- 76 - 77 - 78 - 79 - 80 - 81 - 82 - 83 - 84 - 85 - 86 - 87 - 88 - 89 - 90 - 91 - 92 - 93					M-165 is 10' west of M-132. See lithology log of M-132 for lithology from 0-92'. (continued) SILT INTERBEDDED WITH SANDY SILT (ML); reddish brown (5YR 5/4) and very pale brown (10YR 7/4).		
94 95 96 97 98 99 100 101 102 102 103 104			ML		2' zone of common caliche nodules to 1" from 95-97'.		Hydrated Bentonite Chi
_ 105 _ 106 _ 107 _ 108 _ 109 _ 110 _ 111 _ 112 _ 113					1" semi-hard caliche layer at 105'. 6" zone with common caliche nodules to 1/2" at 107.5'.		10-20 Filter

300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	W
	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688

PROJECT	NAME	Tronox
		B 000-

BORING LOCATION	

PROJECT NUMBER	2027.02
	2027.02

PRO	JECT NUMI	BER _	202	7.02	PROJECT LOCATION Henderson, NV			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	l Diagram	
_ 116 _ 117 _ 118 _ 119 _ 120			ML		SILT INTERBEDDED WITH SANDY SILT (ML); reddish brown (5YR 5/4) and very pale brown (10YR 7/4). (<i>continued</i>) 6" zone with common caliche nodules to 1/2" at 115.5'.		PVC 0.010" Slotted Well Screen	
GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10					Bottom of borehole at 120.0 feet bgs.		- 2" Schedule 40 PVC End Cap	

PROJE	envi			th ntal n	1gate management, inc. 300 Frank H. 0 94612 Telephone: 51	Dgawa Plaza, Suite 510 0-839-0688 BORING LOCATION	WELL NU	JMBER M-166 PAGE 1 OF
PROJE		BER _	202	7.02		PROJECT LOCATION Henders	on, NV	
DATE	STARTE) <u>4/2</u>	4/10)	COMPLETED <u>4/24/10</u>		ZE _6"	
		TRAC	ror	Boai	rt Longyear	_ GROUNDWATER LEVELS:	<u>⊻</u> AT TIM	E OF DRILLING <u>26.00</u> ft
DRILLI			Son	ic			_ AT END) of drilling
LOGGE	ED BY <u>-</u> E	<u>-K</u>			CHECKED BY JWO	SURFACE CONDITIONS:		
NOTES	D		1					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION		WELL DIAGRAM
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		Qal SM		coarse sub-angular to sub-rounded s gravel to 1/2" (trace to 2"), and 20% Calcareous grain coatings and scatte	sand with 30% voicanic angular to su silt.	bangular pea	 Grout Seal 2" Dia. PVC Riser
18 19 20		Qal	SM		SILTY SAND (SM): yellowish brown minor medium to coarse grained sub calcareous coatings.	(10YR 5/4), 60% very fine to fine gra -rounded to sub-angular sand, 40%	ained with silt, some	Bentonite Sea
21 22 23					SIL I Y SAND WITH GRAVEL (SM): coarse grained with very coarse grai sub-angular pea gravel to 1/2", 20-3	Iignt brownish gray (10YR 6/2), 50% ned sub-angular sand with 20-30% v 0% silt, some calcareous grain coatin	very fine to olcanic ig.	
25		Qal	SIV		Hard caliche layer 24'-25'			
26					∇ Dark grayish brown (10YR 4/2)			10-20 Sand
27		Qal			Hard caliche layer 26'-27.5'			Filter Pack
28					SILT & SANDY SILT (ML): yery role	hrown (10YR 7/4) un to 30% very fi	ine grained	PVC Slotted
29 30 31		υмс	fML		sand locally, scattered 1/8"-1/4" calid	che nodules	ine granica	
32				$\left \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	Bottom of	borehole at 32.0 feet bgs.		<u>** • • • • • • • • • • • • • • • • • • </u>

PROJE	UMBER M-167 PAGE 1 OF										
DATE DRILLI DRILLI	STARTEI	D <u>4/2</u> TRAC HOD _	24/10 TOR Son) (<u>Boa</u> ic	rt Longyear	PROJECT LOCATION Henderson, NV COMPLETED 4/24/10 TOC ELEVATION HOLE SIZE 6" mgyear GROUNDWATER LEVELS: TIME OF DRILLING 24.50 AFTER DRILLING AT END OF DRILLING					
LOGG	ED BY <u> </u>	K			CHECKED BY JWO	SURFACE CONDITIONS:					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION		WELL DIAGRAM			
- 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 7 - 8 - 7 - 8 - 10 - 11 - 12 - 13 - 13 - 14 - 15 - 16	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 3 4 5	Qal Qal Qal SM		SiLTY SAND WITH GRAVEL (SM): coarse sub-angular to sub-rounded s gravel to 3/4", 20% silt. Some calcareous grain coatings, fev	v caliche nodules to 1/2".	nded pea	Grout Seal 2" Dia. PVC Well Riser Hydrated Bentonite Sea				
17 18 19 20 21 21 22 23		Qa	SN		SILTY SAND (SM): yellowish brown medium to coarse grained sub-angu grain coatings to 22', common calich Light gray (10YR 7/2)	(10YR 5/4),70% very fine to fine grai lar to sub-rounded sand, 30% silt, so le nodules to 2" to 24'.	ined with trace me calcareous	 ■ 10-20 Sand Filter Pack 			
24 25 26 27 28 29 30		<u>Qa</u>	SP SM	<u> </u>	☑ POORLY GRADED SAND WITH SI 5/2), 60% very fine to very coarse sa calcareous coatings and caliche nod SILT INTERBEDDED WITH SANDY calcareous throughout and scattered	LT AND GRAVEL (SP-SM): grayish t and, 30% pea gravel to 1/2", 10% silt, ules. ' SILT (ML): up to 40% very fine grain t caliche nodules to 1/4".	brown (10YR some	0.010" 2" Dia Slotted Well Screen			
			-		Bottom of	borehole at 30.0 feet bgs.					

G	n	0	r	tł	1gate 300 Frank H. 1 94612	Ogawa Plaza, Suite 510	WELL N	UMBER M-168 PAGE 1 OF 1		
PROJE	envii ECT NAME	ronn <u>Tro</u>	nen nox	tal r	nanagement, inc. Telephone: 57	10-839-0688 BORING LOCATION				
PROJECT NUMBER 2027.02 PROJECT LOCATION Henderson, NV										
DATE	STARTED	4/2	3/10		COMPLETED <u>4/23/10</u>	TOC ELEVATION	HOLE S	SIZE _ 6"		
DRILL	ING CONT	RAC	OR	Boa	t Longyear	GROUNDWATER LEVELS:	$\overline{ar{ abla}}$ at tin	IE OF DRILLING <u>25.00</u> ft		
DRILL	ING METH	iod _	Soni	с		AFTER DRILLING	_ AT EN	AT END OF DRILLING		
LOGG	ED BY _E	K			CHECKED BY JWO	_ SURFACE CONDITIONS:				
NOTE	S:									
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	МАТ	ERIAL DESCRIPTION		WELL DIAGRAM		
- 1 - 2 - 3 - 4 - 5 - 7 - 8 - 7 - 8 - 7 - 8 - 7 - 8 - 10 - 11 - 12 - 13 - 14 - 15 - 16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		SW- SM		POORLY GRADED SAND WITH S (10YR 5/4), 55% very fine to very co volcanic angular to sub-rounded pea	SILT AND GRAVEL (SW-SM): yellowis oarse sub-angular to sub-rounded sai a gravel to 3/4", trace gravel to 3", 15 d scattered caliche nodules up to 3".	sh brown nd, 30% % silt.	- Grout Seal - 2" Dia. PVC Well Riser		
_ 17 _ 18 _ 19 _ <u>20</u> _ 21		Qal	SM		SILTY SAND (SM): very pale brown sub-rounded sand, trace medium to Few calcareous grain coatings, calid	n (10YR 7/4), 70% very fine to fine su o coarse grained sand, 30% silt. che nodules to 3" from 20.5'-22'.	b-angular to			
_ 22						SM): very nale brown (10VP 7//) 50	% very fine to			
23 24 25 26		Qal	SW- SM		Very coarse sub-angular to sub-rour pea gravel to 1/2", 20% silt, calcared ↓ ↓	nded sand, 30% volcanic angular to si ous grain coatings throughout.	ub-rounded	■ 10-20 Sand Filter Pack		
_ 27 _ 28 _ 29 _ 30 _ 31 _ 32 _ 33 _ 34 _ 35		ŲМС	fML		SILT INTERBEDDED WITH SAND caliche nodules 1/2"-1" to 28.5' bgs.	Y SILT (ML): Up to 40% very fine gra	ined sand, few	0.010" 2" Dia. Slotted PVC Well Screen		

Bottom of borehole at 35.0 feet bgs.
C	n	0	r	tł	1gate 300 Frank H. C 94612 Tolophone: E1	Dgawa Plaza, Suite 510	WELL N	UMBER M-169 PAGE 1 OF 1
	envii	ronn	nen	tal r	nanagement, inc.	0-033-0000		
PROJ		E Tro	nox			_ BORING LOCATION		
PROJ		BER _	2027	7.02		_ PROJECT LOCATION _Hender	rson, NV	
DATE	STARTED) <u>4/2</u>	3/10		COMPLETED _4/23/10	TOC ELEVATION		SIZE _6"
DRILL		RAC	FOR	Boa	rt Longyear	_ GROUNDWATER LEVELS:	<u>⊻</u> AT TIN	ME OF DRILLING <u>28.00</u> ft
DRILL	ING METH	HOD _	Soni	С			AT EN	id of Drilling
LOGG	ED BY <u>E</u>	K			CHECKED BY _JWO	SURFACE CONDITIONS:		
NOTE	S:		-					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION		WELL DIAGRAM
-1 -2 -3 -4 -5 -6 -7 -8 -9 10 -11 -12 -13 -14 -15 -16 -17 -18		Qal	SW-SM		WELL GRADED SAND WITH SILT 5/2), 55% very fine to very coarse su angular to sub-rounded pea gravel to grain coatings and scattered caliche	AND GRAVEL (SW-SM): grayish b ub-angular to sub-rounded sand, 30 o 3/4", trace gravel up to 3", 15% silf nodules/thin layers up to 3".	rown (10YR % volcanic t, calcareous	Grout Seal
19 20 21 22		Qal	SM		SILTY SAND (SM): yellow (10YR 7/ calcareous grain coatings.	6), 70% very fine to fine grained sar	nd, 30% silt, few	Hydrated Bentonite Seal
23 24 25 26 27		Qal	SW- SM	 > >	WELL GRADED SAND WITH SILT 7/4), 70% very fine to medium sand sub-rounded sand, 20% volcanic sub calcareous coatings from 22'-26', ca	AND GRAVEL (SW-SM): very pale with trace coarse to very coarse sul b-angular pea gravel to 1/2", 10% si liche layers from 26'-27'.	brown (10YR b-angular to llt, with	
- 29 - 29 - 30 - 31 - 32 - 33 - 34		UMC	fML		✓ SILT (ML): very pale brown (10YR 7 Iayer from 27'-27.5'.	/4), scattered caliche nodules to 1",	hard caliche	 10-20 Sand Filter Pack 0.010" 2" Dia. Slotted Well Screen

Bottom of borehole at 35.0 feet bgs.

C	n	0	r	tł	ngate 300 Frank H. 0 94612	Ogawa Plaza, Suite 510	WELL N	UMBER M-170 PAGE 1 OF 1
	envi	ronn	nen	tal r	nanagement, inc. Telephone: 57			
PROJ			nox					
PROJ		BER _	2027	1.02		PROJECT LOCATION Henders	ion, NV	
	STARTE	0 <u>4/2</u>	<u>3/10</u>	_	COMPLETED <u>4/23/10</u>			SIZE <u>6"</u>
	ING CON	IRAC	FOR	Boa	rt Longyear	GROUNDWATER LEVELS:	⊥ AT TI	ME OF DRILLING <u>29.00</u> ft
DRILLING METHOD Sonic						AFTER DRILLING	_ AT EN	id of Drilling
	ED BY _E	K			CHECKED BY JWO	_ SURFACE CONDITIONS:		
NOTE	S:	_	1					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	МАТ	ERIAL DESCRIPTION		WELL DIAGRAM
$ \begin{array}{c} - 1 \\ - 2 \\ - 3 \\ - 4 \\ - 5 \\ - 6 \\ - 7 \\ - 8 \\ - 9 \\ - 10 \\ - 11 \\ - 12 \\ - 11 \\ - 12 \\ - 13 \\ - 14 \\ - 15 \\ - 16 \\ - 17 \\ - 18 \\ - 19 \\ \end{array} $		Qal	SW		WELL GRADED SAND WITH SILT 70% very fine to very coarse sub-an sub-angular gravel to 3/4" diameter, coatings throughout, semi-hard calio	AND GRAVEL (SW-SM): redaish or ngular to sub-rounded sand, 20% volc , trace gravel to 3", 10% silt, few calc che zones at 6'-7', 9'-10', 10.5'-12', ar	own (518 5/5), anic areous grain nd 18'-19'.	 Grout Seal 2" Dia. PVC Well Riser Hydrated
<u>20</u> 21		Qal	SP		POORLY GRADED SAND (SP): lig medium with trace coarse to very co granules to 1/3", 5% silt.	ht yellowish brown (10YR 6/4), 90% oarse sub-angular to sub-rounded sar	very fine to nd, 5%	Bentonite Seal
_ 22 _ 23		Qal	SM		SILTY SAND (SM): light brownish g sub-angular to sub-rounded sand, 2	gray (10YR 6/2), 80% very fine to very 20% silt, with scattered caliche nodule	/ coarse es to 2".	
_ 24 _ 25 _ 26 _ 27		Qal	sw		well GRADED SAND (SW): yello with trace coarse to very coarse sub sub-rounded gravels to 1/4", 5% silt	wish brown (1018 5/4), 90% very fin o-angular to sub-rounded sand, 5% vo t, abundant calcareous grain coatings	e to medium blcanic	
28						oond light grov (EV 7/0) should be	and collicity	■ 10-20 Sand Filter Pack
<u>30</u>					SILT WITH TRACE SANDY SILT (I locally up to 30% very fine grained s	NTERBEDDED) (ML): very pale brow sand, with caliche nodules from 29'-3	vn (10YR 7/4), 0'.	0.010" 2" Dia. Slotted Well
_ 32 _ 33 _ 34		υмс	fML					Screen

Bottom of borehole at 35.0 feet bgs.

PROJECT NAME Tonoc PROJECT NAME Tonoc PROJECT NAMER 2027.02 PROJECT NAMER 2027.02 PROJECT NAMER 2027.02 ORLING CONTRACTOR HOLESIZE DRILING CONTRACTOR WDC DRILING CONTRACTOR WDC DRILING CONTRACTOR WDC DRILING CONTRACTOR CHECKED BY _MYO SUPFACE CONDITIONS: ATER DRILING VICTS: Yes Yes SUPFACE Yes <t< th=""><th>G</th><th>envir</th><th>O</th><th>r</th><th>th tal n</th><th>ngate anagement, inc. 300 Frank H. C 94612 Telephone: 51</th><th>Ogawa Plaza, Suite 510 WELL I 0-839-0688</th><th>NUMBER M-171 PAGE 1 OF 2</th></t<>	G	envir	O	r	th tal n	ngate anagement, inc. 300 Frank H. C 94612 Telephone: 51	Ogawa Plaza, Suite 510 WELL I 0-839-0688	NUMBER M-171 PAGE 1 OF 2
PROJECT NUMBER 2022 202 PROJECT LOCATION Henderson. NV DATE STARTED & 07/10 COMPLETE 0/7/10 TOC ELEVATION HOLE SIZE 25 DETLING CONTRACTOR WCC GROUNDWATER LEVELS: \$2 AT TIME OF DRILLING	PROJ	ECT NAME	Tro	nox			BORING LOCATION	
DATE STATED 07/10 COMPLETED 07/10 HOE SZE C: DRILING COMTRACTOR WDC GROUNDWATER LEVELS:	PROJ	ECT NUME	BER _	2027	7.02		PROJECT LOCATION Henderson, NV	
DRILLING CONTRACTOR WDC GROUNDWATER LEVELS:	DATE	STARTED	6/7	/10		COMPLETED _6/7/10	TOC ELEVATION HOL	E SIZE _ 8"
DRILLING METHOD Sonic AFTER DRILLING ATTEND OF DRILLING ATTEND OF DRILLING	DRILL	ING CONT	RAC	OR	WDO	0	GROUNDWATER LEVELS: Σ AT	TIME OF DRILLING <u>27.00</u> ft
Locace De Y Ex CHECKED BY JWO SURFACE CONDITIONS: NOTES:	DRILL	ING METH	IOD _	Soni	с		AFTER DRILLING AT	end of Drilling
NOTES:	LOGG	ED BY E	K			CHECKED BY JWO	SURFACE CONDITIONS:	
Hard B No No Start SAND (SM): light velocities from (10YR 6/4), 80% fire to carse grams sub- grammer and the control carse to very carse grams and the control of the second seco	NOTE	S:						
1 June 1 Starty SAND WITH GRAVEL (SM): reddel hrown (5 YF 54) and yelowish boxm (10YR 54) and yelowish boxm (DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION	WELL DIAGRAM
	$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ -11 \\ 12 \\ 13 \\ -11 \\ 12 \\ -12 \\ 13 \\ -14 \\ 15 \\ -16 \\ -17 \\ -18 \\ -19 \\ 20 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ 23 \\ -21 \\ 22 \\ -21 \\ 22 \\ -21 \\ 22 \\ -21 \\ 22 \\ -21 \\ -22 \\ -23 \\ -21 \\ -22 \\ -23 \\ -21 \\ -22 \\ -23 \\ $		Qal Qal	SM SM		SILTY SAND WITH GRAVEL (SM); (10YR 5/4), 70% very fine to medium sub angular to sub rounded poorly so gravel to 3/4" (predominately 3/8-5/8 coatings and cement throughout. Common calcareous cement 7-15'. Common calcareous cement 7-15'. SILTY SAND (SM); light yellowish br angular to sub rounded sand and cal cement. SILTY SAND (SM); yellowish brown moderate to common coarse to very 10% volcanic sub angular to sub rou coatings and cement. SANDY SILT (ML); very pale brown non-calcareous.	reddish brown (5 YR 5/4) and yellowish brown n grain with common coarse to very coarse grain orted sand, 15% volcanic sub angular to angular "), 15% silt, moderate to common calcareous "), 15% silt, moderate to common calcareous over (10YR 6/4), 80% fine to coarse grain sub iche grains, 20% silt in matrix, common calcareous (10YR 5/4), 70% very fine to medium grain with coarse sub angular to sub rounded volcanic sand, nded gravel to 3/8", 20% silt, common calcareous (10YR 7/4), 20-30% very fine grain sand,	Cement Grout
	- 34							



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Telephone: 510-839-0688

WELL NUMBER M-171

PAGE 2 OF 2

PRO	JECT NAME BORING LOCATION						
PRO	JECT NUME	ER _	2027	7.02	PROJECT LOCATION _ Henderson, NV		
DEPTH (#)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	LL DIAGRAM
FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10		<u>Ф</u>	fML ML		SANDY SILT (ML); very pale brown (10YR 7/4), 20-30% very fine grain sand, non-calcareous. (continued) SILT (ML); very pale brown (10YR 7/4), non-calcareous. Bottom of borehole at 45.0 feet bgs.		PVC 0.010" Slotted Well Screen
GENERAL NORTHGATE ENV							

G	n	0	r	tł	1gate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL N	UMBER M-172 PAGE 1 OF 2
	envii ct NAM	ronn	nen	tal r	management, inc.			
			2027	7 02			son NV	
	STARTE	<u>בוא בו</u>	2/10	.02	COMPLETED 4/23/10			SIZE 6"
				Boa				ME OF DRILLING 30.00 ft
			Soni	<u></u>				ID OF DRILLING
LOGGE		юв _ :к	0011	<u> </u>	CHECKED BY JWO			
NOTES	:							
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	ERIAL DESCRIPTION		WELL DIAGRAM
- 1 - 2 - 3 - 4 - 5 - 7 - 8 - 7 - 8 - 7 - 8 - 7 - 8 - 7 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20		Qal	SP		SILTY SAND WITH GRAVEL (SM): coarse sub-angular to sub-rounded diameter (locally up to 4"), 20% silt, 21'-21.5', with calcareous grain coar	reddish brown (5YR 5/5), 50% very sand, 30% volcanic sub-angular gra gravel to 4" @ 2.5'-3', 7'-7.5', 14'-14 tings.	/ fine to very vel 10 2" 4.5', and	Grout Seal C"Dia. PVC Well Riser Hydrated Bentonite Seal
21 22 23 24 25 26 27 28 28 29		Qal	SW- SM		WELL GRADED SAND WITH SILT 60% very fine to very coarse sub-an volcanic pea gravel to 1/2", 15% silt caliche zones, (22.5-30.5 common	AND GRAVEL (SW-SM): pinkish g igular to sub-rounded sand, 25% su , common calcareous grain coatings nodules to 2", and very hard 27'-27.	ray (10YR 7/2), b-angular and locally hard 3').	■ ■ ■ ■ ■ ■ ■ ■ ■
30 - 31 - 32 - 33 - 34 35		UMC	fML		✓ SILT AND SANDY SILT (ML): very grained sand, scattered caliche node	pale brown (10YR 7/4), locally up to ules to 3/4".	30% very fine	Filter Pack 0.010" 2" Dia. Slotted Well Screen

(Continued Next Page)



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Telephone: 510-839-0688

WELL NUMBER M-172

PAGE 2 OF 2

BORING LOCATION	
	Hondoroor

PROJECT NUMBER	2027.02
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PROJ	PROJECT NUMBER _2027.02				PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM			
(H) _ 36 _ 37 _ 38	SAMPLE	FORMA	D'S'N	GRAP LOC	SILT AND SANDY SILT (ML): very pale brown (10YR 7/4), locally up to 30% very fine grained sand, scattered caliche nodules to 3/4". (continued) Bottom of borehole at 38.0 feet bgs.	WE	LL DIAGRAM			
GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/1										

G	envir	D	r	tt ntal r	ngate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL N	UMBER M-173 PAGE 1 OF 2
PROJE	ECT NAME	Tro	onox			BORING LOCATION		
PROJE	ECT NUMB	ER _	202	7.02		PROJECT LOCATION	on, NV	
DATE	STARTED	4/2	2/10)	COMPLETED _4/22/10	TOC ELEVATION	HOLE	SIZE _ 6"
DRILL	ING CONT	RAC	TOR	Boa	art Longyear	GROUNDWATER LEVELS:	<u> </u>	ME OF DRILLING _29.50 ft
DRILL	ING METH	OD _	Son	ic		AFTER DRILLING	AT EN	ND OF DRILLING
	ied by <u>ei</u> S:	K			CHECKED BY JWO	_ SURFACE CONDITIONS:		
DEPTH (ft)	MPLE TYPE NUMBER	ORMATION	U.S.C.S.	GRAPHIC LOG	MAT	TERIAL DESCRIPTION		WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	S	Qal	SP-SM		WELL GRADED SAND WITH SILT 60% very fine to very coarse sub-an sub-angular to sub-rounded pea gra grain coatings and caliche nodules Hard calichified zone 13'-14'. WELL GRADED GRAVEL WITH S 60% volcanic sub-angular gravel to sub-rounded sand, 10% silt.	TAND GRAVEL (SW-SM): reddish brown ngular to sub-rounded sand, 30% vold avel to 1/2", 10% silt, locally common (5'-6' hard calichified zone).	own (5Y 5/4), canic calcareous	Grout Seal
18 19 20		Qal	SW SM		WELL GRADED SAND WITH SILT 5/4), 60% fine to very coarse sub-a sub-angular gravel to 1", 10% silt.	FAND GRAVEL (SW-SM): yellowish to ngular to sub-rounded sand, 30% volc	brown (10YR canic	- ◄ Hydrated Bentonite Seal
21 22 23		Qal	SP		POORLY GRADED SAND (SP): ve grained sub-angular sand.	ery pale brown (10YR 7/4), 100 very	fine to fine	
24 25 26		Qal	SM		SILTY SAND WITH GRAVEL (SM) coarse sub-angular to sub-rounded minor calcareous grain coatings.): light yellowish brown (10YR 6/4), 60 sand, 20% volcanic pea gravel to 3/8')% fine to very ", 20% silt,	
_ 27 _ 28 _ 29		Qal	SM		SILTY SAND (SM): very pale brown sub-rounded sand, 30% silt, 10% v layers 28'-29.5'.	n (10YR 7/4), 60% fine to very coarse olcanic pea gravel to 1/4", abundant h	sub-angular to ard caliche	
<u>30</u> 31 32					SILT (ML): very pale brown (10YR	7/4)		 ■ 10-20 Sand ■ Filter Pack
_ 33 _ 34 _ 35		ψмс	fΜL					0.010" 2" Dia. PVC Slotted Well Screen



WELL NUMBER M-173 PAGE 2 OF 2

PROJECT	NAME	Tronox
PROJECT	NAME	Tronox

	enviro	onm	nen	tal r	nanagement, inc. Telephone: 510-839-0688		
PROJE		Tro	nox		BORING LOCATION		
PROJE		ER _2	2027	7.02	PROJECT LOCATION Henderson, NV		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	L DIAGRAM
36 37 38 39 40		UMC	fML		SILT (ML): very pale brown (10YR 7/4) <i>(continued)</i>		
					Bottom of borehole at 40.0 feet bgs.		

GENERAL NORTHGATE ENV FORMATION OS 2027.02 T 23 BORING LOGS.GPJ 11/16/10

G	envi	O ronmer	th ntal r	ngate 300 Frank H. 0 94612 Telephone: 51	Dgawa Plaza, Suite 510 0-839-0688	WELL N	DAGE 1 OF 1
PROJE		E Tronox			BORING LOCATION		
PROJE		BER _202	7.02		PROJECT LOCATION Henderso	on, NV	
DATE	STARTE) <u>4/22/10</u>)	COMPLETED _4/22/10	TOC ELEVATION	HOLE	SIZE _ 6"
DRILL	ING CON	TRACTOR	Boa	rt Longyear	GROUNDWATER LEVELS:	$ar{ abla}$ at ti	ME OF DRILLING 20.00 ft
DRILL	ING METI	HOD Son	nic		_ AFTER DRILLING	_ AT EN	ND OF DRILLING
LOGG	ED BY E	K		CHECKED BY JWO	SURFACE CONDITIONS:		
NOTE	S:						
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION		WELL DIAGRAM
_ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _ 11		Qal SW SN	0 0 <td>WELL GRADED SAND WITH SILT 60% very fine to very coarse sub-any 15% silt, common calcareous grain o</td> <td>AND GRAVEL (SW-SM): reddish bro gular to sub-rounded sand, 25% pea g coatings.</td> <td>own (5YR 5/4), gravel to 1/2",</td> <td>Grout Seal</td>	WELL GRADED SAND WITH SILT 60% very fine to very coarse sub-any 15% silt, common calcareous grain o	AND GRAVEL (SW-SM): reddish bro gular to sub-rounded sand, 25% pea g coatings.	own (5YR 5/4), gravel to 1/2",	Grout Seal
- 12 - 13 - 14 - 15 - 16 - 17 - 18		Qal GP		POORLY GRADED GRAVEL WITH 5/2), 60% volcanic sub-angular to ar coarse sub-angular to sub-rounded s coatings	SILT AND SAND (GP-GM): grayish igular gravel to 1" diameter, 30% very sand and 10% silt, common calcareou	brown (10YR / fine to very us grain	Hydrated Bentonite Seal
_ 19 _20 _21 _22		Qal SM	1	SILTY SAND (SM): light yellowish bi coarse sand, 20% silt, 10% pea grav ∑	rown (10YR 6/4), 70% fine to mediun vel to 1/4", common calichified layers	n with very	■ 10-20 Sand Filter Pack
_ 23 _ 24		Qal GP GN		POORLY GRADED GRAVEL WITH (10YR 7/4), 70% pea gravel to 3/4", common hard caliche layers 3"-5" th	SILT AND SAND (GP-GM): very pal 20% very fine to very coarse sand, 10 ick.	e brown 0% silt,	0.010" 2" Dia. PVC Slotted Well Screen
25 26 27 28 29 30		UMCfML	-	SILT AND SILT WITH SAND (ML): grained sand, scattered caliche nodu	very pale brown (10YR 7/4), locally 30 iles to 1/2".	0% very fine	
				Bottom of	borehole at 30.0 feet bgs.		- <u> </u>

G PROJEC	Concrete and the second										
PROJEC DATE ST DRILLIN DRILLIN LOGGEI	TARTEL G CONT G METH D BY _E	BER _ 0 _ 4/2 [RAC] HOD _ K	<u>202</u> 1/10 FOR Son	7.02 Boa	rt Longyear CHECKED BY JWO	_ PROJECT LOCATION <u>Henderso</u> TOC ELEVATION GROUNDWATER LEVELS: _ AFTER DRILLING SURFACE CONDITIONS:	<u>on, NV</u> HOLE \$ HOLE \$ AT TII AT EN	Size _6" Me of Drilling _21.00 ft ID of Drilling			
NOTES: HLdJQ	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATI	ERIAL DESCRIPTION		WELL DIAGRAM			
_ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _ 11 _ 12 _ 12		Qal	SM		SILTY SAND WITH GRAVEL (SM): coarse sub-angular to sub-rounded 20% silt, sparse calcareous grain co	reddish brown (5YR 5/4), 60% very f sand, 20% volcanic sub-angular pea g atings throughout.	ine to very gravel to 1/2",	Grout Seal			
- 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25		Qal	GM		SILTY GRAVEL WITH SAND (GM): gravel to 1/2" trace gravel to 2-3", 30 Silty sand (30% silt). ↓ Hard calichified zone (22.5'-25').	light brownish gray (10YR 6/2), 50% % very fine to very coarse sand, 20%	o volcanic 6 silt.	■ Bentonite Sea Bentonite Sea			
_ 26 _ 27 _ 28 _ 29 _ 30		υмс	fML		SILT AND SANDY SILT (INTERBEI 20-30% very fine grained sand, scat	DDED) (ML): very pale brown (10YR 7 tered caliche nodules to 1". borehole at 30.0 feet bgs.	7/4), locally	vveli screen			

G	Concrete and State 300 Frank H. Ogawa Plaza, Suite 510 94612 Telembarasi, 510 820 0698									UMBER M-176 PAGE 1 OF 1
PROJI	envii ECT NAM	ronn <u>Tro</u>	nen nox	tal	managen	ment, inc.	. 510 	BORING LOCATION		
PROJECT NUMBER _2027.02 PROJECT LOCATION _Henderson, NV										
DATE	STARTED) 4/2	1/10			COMPLETED 4/2	1/10		HOLE S	SIZE _6"
DRILL	ING CON	RACT	OR	Boa	art Longyear			GROUNDWATER LEVELS:		ME OF DRILLING 23.00 ft
DRILL	ING METH	HOD _	Soni	с				AFTER DRILLING	AT EN	id of Drilling
LOGG	ED BY _E	K				CHECKED BY JV	/0	SURFACE CONDITIONS:		
NOTE	S:									
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG			MATE	RIAL DESCRIPTION		WELL DIAGRAM
- 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16		Qal	GM			rounded gravel 1/4"-2" rounded sand, 20% si 5'.	om 16' 17	", 30% very fine to very coarse s soft calcareous grain coatings (@ 1.5'-2- and	 Grout Seal 2" Dia. PVC Well Riser Hydrated Bentonite Seal
01/91/11 A5/35 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10					Semi-	i-hard calichified pea (gravel (to 3	/8") from 18'-20'.		
20 5 21 5 22		Qal	SM		SILTY coars	Y SAND WITH GRAV se sub-angular to sub-	EL (SM): y	vellowish brown (10RY 5/4), 60% and, 20% pea gravel to 3/8", 209	% fine to very % silt.	
23 24 24		Qal	ML		∑ SILT I nodul	WITH SAND (ML): w les to 1".	hite (5Y 8/	1), 20% very fine grained sand,	common caliche	Filter Pack
25 26 26 27		Qal	SM		SILT) sub-a	Y SAND (SM): light bi angular to sub-rounde	rownish gra d sand, 30	ay (10YR 6/2), 70% very fine to 0% silt	medium	0.010" 2" Dia PVC Slotted Well Screen
28 29 29 20 20 20		Qal	SM		SILTY very o	Y SAND WITH GRAV coarse sub-angular to	(EL (SM): I sub-round	ight brownish gray (10YR 6/2), (led sand, 20% volcanic gravel to	60% very fine to 0 1/2", 20% silt.	
31 31 32 32					SILT J	AND SILT WITH SAM	ND (INTER	BEDDED) (ML): very pale brow che nodules to 1"	n (10YR 7/4), 20%	
33 34 34 35		UMC	fML		Calich	he zone 32.5'-33'.				

environmental management, inc. • Celeptic Evaluations of the second sec	Concrete and the second									
Product in Number 2027 02 BORING LOCATION PROJECT NUMBER 2027 02 PROLECT LONGER 2027 02 PROLECT NUMBER 2027 02 COMPLETED 4/2/1/0 DRILING CONTRACTOR Boart Longest GROUNDWATER LEVELS: X AT TIME OF DRILLING		envi	ronm	ental	management, inc.					
PHOLE: 1000BER 2007/02 PHOLE: 1000BER 1000000000000000000000000000000000000	PROJE		E <u>Tror</u>							
Initial control shares Control shares GROUNDWATTER LEVELS: X at this GP DRILLING 2320 ft DRILLING METHOD Some AFTER DRILLING AT TER DRILLING AT TER DRILLING LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS: AT TER DRILLING NTES:			BER <u>2</u> D 4/21	/10	COMPLETED 4/21/10	_ PROJECT LOCATION <u>Hendersol</u>	n, NV HOLE	SIZE 6"		
DRILING METHOD Sorie AFTER DRILING AFTER DRILING ATTEND OF DRILING LOGGED BY EK CHECKED BY JWO SURFACE CONDITIONS WEILDIAGRAM NOTES:	DRILL	ING CON		OR BO	art Longvear	GROUNDWATER LEVELS:	 □	ME OF DRILLING 23 50 ft		
LOGGED BY EX CHECKED BY JWD SURFACE CONDITIONS: TOTE:	DRILL		HOD S	Sonic		AFTER DRILLING		ND OF DRILLING		
NOTES: Unit of a state of a sta	LOGG	ED BY _E	EK		CHECKED BY _JWO	SURFACE CONDITIONS:				
H H H No No <thn< td=""><td>NOTES</td><td>S:</td><td></td><td></td><td></td><td></td><td></td><td></td></thn<>	NOTES	S:								
1 Image: Single of the second secon	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S. GRAPHIC	MAT	ERIAL DESCRIPTION		WELL DIAGRAM		
	- 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33 - 34 - 35 - 35 - 34 - 35		Qal Qal	SM SM	SILTY SAND WITH GRAVEL (SM) with 15-25% very coarse sub-angul sub-angular gravel to 2" with minor grain coatings and caliche nodules to 2" with minor grands and caliche nodules to 2" with minor	50-60% very fine grained sub-angular to nodules to 1/2", RBEDDED) (ML): very pale brown (10 lar sand, scattered caliche nodules to 1	to YR 7/4), /2".	 Grout Seal 2" PVC Well Casing Hydrated Bentonite Seal 10-20 Sand Filter Pack 0.010" 2" Dia. PVC Slotted Well Screen 		

G	Concretel management, inc. 300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688 WELL NUMBER M-178 PAGE 1 OF 2										
PROJE		Tro	nox			BORING LOCATION					
PROJE		BER _	2027	7.02		PROJECT LOCATION Henderson,	NV				
DATES	STARTED	6/6/	/10		COMPLETED <u>6/7/10</u>	TOC ELEVATION	HOLES	LE SIZE _8"			
DRILLI	NG CONT	RACI	OR	WD	C	GROUNDWATER LEVELS:	${ar ar \Sigma}$ at tin	ME OF DRILLING _27.00 ft			
DRILLI	NG METH	IOD _	Soni	с		_ AFTER DRILLING	AT EN	id of Drilling			
LOGGE	LOGGED BY <u>EK</u> NOTES:				CHECKED BY JWO	SURFACE CONDITIONS:					
DEPTH (ft)	AMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATI	ERIAL DESCRIPTION		WELL DIAGRAM			
	Ś						Γ				
$ \begin{array}{c} 1\\ 2\\ 3\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\$		Qal	SM		SILTY SAND WITH GRAVEL (SM); with common coarse to very coarse 10-20% volcanic angular to sub ang silt in matrix, moderate calcareous c Common cement, 5-14'. 6" zone with volcanic cobble to 4" at	reddish brown (5YR 5/4), 70% very fine sub angular to sub rounded poorly sorte- ular gravel to 1/2" with trace 1" diameter oatings and soft cement. 14'.	e to medium d sand, , 15-20%	Cement Grout 4" Schedule 40 PVC Riser Hydrated Bentonite Chips			
27 28 29 30 31 32		имс	fML	· · · · · ·	SILT (ML); very pale brown (10YR 7 Semi-hard calichified silt at 26-27'. Common caliche nodules to 1" at 27	/4), 10% very fine grain sand. -30'.					
_ 33 _ 34 _ 35		имс	fML		SILT WITH SAND (ML); very pale b	rown (10YR 7/4), 20-30% very fine grair	ı sand.	10-20 Filter Pack Sand			

(Continued Next Page)



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WELL NUMBER M-178

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	PROJE	CT NAME	Tro	nox		BORING LOCATION		
	PROJE		ER _2	2027	7.02	PROJECT LOCATION Henderson, NV		
	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	L DIAGRAM
T_23_BORING_LOGS.GPJ 11/16/10	$\begin{array}{c} \text{HLd} = 0 \\ \text{HLd} = 0 $	SAMPLE T NUMBEI			GRAPHI	MATERIAL DESCRIPTION SILT WITH SAND (ML); very pale brown (10YR 7/4), 20-30% very fine grain sand. SILT, Very pale brown (10YR 7/4). SILT WITH SAND (ML), Very pale brown (10YR 7/4), 20-30% very fine grain sand. Common caliche nodules to 1" at 44'-46'. Bottom of borehole at 46.0 feet bgs.		-4" Schedule 40 PVC 0.010" Slotted Well Screen -4" Schedule 40 PVC End Cap
GENERAL NORTHGATE ENV _FORMATION_OS 2027.02_T								

G	envi	WELL N	UMBER M-179 PAGE 1 OF 2							
PROJE		E Tro	onox			BORING LOCATION				
DATE STARTED _6/5/10 DRILLING CONTRACTOR _WDC DRILLING METHOD _Sonic			202 5/10 TOR Son	7.02 WD	COMPLETED <u>6/6/10</u>	PROJECT LOCATION <u>Henderse</u> TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING	<u>on, NV</u> HOLE \$ HOLE \$ AT TII AT EN	DLE SIZE _8" IT TIME OF DRILLING _35.00 ft IT END OF DRILLING		
LOGGI	ED BY <u> </u> S:	K			CHECKED BY JWO	_ SURFACE CONDITIONS:				
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	TERIAL DESCRIPTION		WELL DIAGRAM		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		Qa	I SM		SILTY SAND WITH GRAVEL (SM) medium with moderate to common angular to sub rounded sand, 10-15 20% silt, moderate to common calc Semi-hard calcareous cement at 3-	r; reddish brown (5YR 5/4), 60-70% ve coarse to very coarse grain moderately 5% angular to sub angular volcanic gra areous coatings throughout. 3.5', 8-15', and 30-32.5'. angular gravel, with pebbles to 2-3" at 2 H SILT AND SAND (GP-GM); white (5	29-30'.	Cement Grou A" Schedule 4 PVC Riser Hydrated Bentonite Chi		
_ 34 _ 35		Qa	I GP GN		angular to sub angular volcanic gra coarse sub angular to sub rounded	nules to 1/2" trace 1" to 1-1/2", 40% fil sand, 10% silt, common to abundant h	ne to very nard caliche.			

1	no	rth	aate	300 Frank H. Ogawa Plaza, Suite 510
				0/612

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WELL NUMBER M-179

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PROJECT NAME Tronox

BORING LOCATION

PROJECT NUMBER _2027.02 PROJECT LOCATION _Henderson	n, NV
HIG HIG HIG HIG HIG HIG HIG HIG	WELL DIAGRAM
36 Gal SM (313) 37 UMC/ML 38 UMC/ML 39 UMC/ML 40 SILTY SAND WITH GRAVEL (SM); yellowish brown (10YR 5/4), 60% wery medium with common causes to very cause poorly sorted sand, 20% sitt, 1 39 UMC/ML 40 SILTY SAND WITH GRAVEL (SM); yellowish brown (10YR 7/4), 1-2% floating medium to coarse grain sitt to coarse grain sitt to coarse grain sitt to coarse grain sitt to 50°, then fine grain or scattered caliche nodules to 1-1/2°. 41 SILT (ML); very pale brown (10YR 7/4), 10-20% very fine gras scattered caliche nodules to 1-1/2°. 43 SILT (ML); very pale brown (10YR 7/4), coarse grain sitt to 50°, then fine grain or scattered caliche nodules to 3/4°. 44 SILT (ML); very pale brown (10YR 7/4), coarse grain sitt to 50°, then fine grain or scattered caliche nodules to 3/4°. 46 SILT (ML); very pale brown (10YR 7/4), coarse grain sitt to 50°, then fine grain or scattered caliche nodules to 3/4°. 50 SILT (ML); very pale brown (10YR 7/4), coarse grain sitt to 50°, then fine grain or scattered caliche nodules to 3/4°. 51 SILT (ML); very pale brown (10YR 7/4), so the state scattered caliche nodules to 3/4°. 52 SILT (ML); very pale brown (10YR 7/4), so the state scattered caliche nodules to 3/4°. 53 SILT (ML); very pale brown (10YR 7/4), so the state scattered caliche nodules to 3/4°.	rain sub in sand, rain silt, rain silt, sin silt, silt, silt, silt, silt, silt, silt, silt, silt, silt, si

PROJEC	envir		ner	t l	1gate management, inc. 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688 BORING LOCATION	ELL NUMBER M-180 PAGE 1 OF
PROJEC DATE S DRILLIN DRILLIN	CT NUME STARTED NG CONT NG METH	BER	202 /10 FOR Son	7.02 WD	COMPLETED _6/5/10	PROJECT LOCATION <u>Henderson, NV</u> TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING	✓ HOLE SIZE _6" AT TIME OF DRILLING _24.00 AT END OF DRILLING
LOGGED BY <u>EK</u> NOTES:					CHECKED BY _JWO	_ SURFACE CONDITIONS:	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	МАТ	ERIAL DESCRIPTION	WELL DIAGRAM
_ 1 _ 2 _ 3 _ 4 _5		Qal			FILL; brown and dark yellowish brow	wn, sands, gravels, cement debris.	
_ 6 _ 7 _ 8 _ 9 _ 10 _ 11 _ 12 _ 13 _ 14					SILTY SAND (SM); reddish brown (common coarse to very coarse grain to sub angular volcanic gravel to 3/4 cement throughout.	(5Y 5/4), 60-65% very fine to medium grain v n sub angular to sub rounded sand, 5-10% a ", 20% silt, common calcareous coatings an	with angular nd soft Cement/ Bentonite Gi • 2" Schedule PVC Riser
13 16 17 18 19 20 21 22 23 24		Qal	SM		Varying amount of calichification, al	oundant and hard from 18.5-19' and 23-24'.	Hydrated Bentonite Cl
24 25 26 27 28		Qal	SW SM		✓ WELL GRADED SAND WITH SILT grain sand, <10% silt to 26' then 20 gravel to 1/2" with trace to 1-2", nor 28'.	⁶ (SW-SM); grayish brown (10YR 5/2), fine to % silt, 10-15% volcanic angular to sub angu a calcareous to 26' then moderately calcareo	to coarse
_ 29		Qal	ML		SILT (ML); yellowish brown (10YR and nodules.	5/4), common to abundant hard to soft calich	he zones
30 31		Qal	SW		SAND (SW); yellowish brown (10YI	R 5/4), fine to coarse grain poorly sorted sub ic angular to sub angular gravel to 3/8", 6" but a city, matrix at 201	pangular Pack Sand
_ 32 _ 33 _ 34 _ 35			fCL fML		 <u>Ariguiar to sub angular gravel to 1" I</u> <u>CLAY (CL); very pale brown (10YR</u> SILT WITH SAND (ML); very pale b grain sand, non calcareous. 	8/2), abundant caliche zones and nodules to brown (10YR 7/4), coarse grain silt, 10-20%	very fine

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				\sim	U		046

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WELL NUMBER M-180

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IECT NAME	Tropoy

PROJ	ECT NAME	Tro	nox		BORING LOCATION
PROJ	ECT NUMB	ER _	2027	7.02	PROJECT LOCATION Henderson, N
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION

	DEP' (ft)	SAMPLE NUME	FORMA	U.S.O	GRAP	MATERIAL DESCRIPTION	WEL	L DIAGRAM
	_ 36 _ 37 _ 38 _ 39 _ 40 _ 41 _ 42 _ 42		<u>имс</u> имс	fML	-	SILT (ML); very pale brown (10YR 7/4), coarse grain silt, trace very fine grain sand.		[—] 2" Schedule 40 PVC End Cap ⊷ Native Fill
GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10	_ 43					Bottom of borehole at 43.0 feet bgs.		

ntal mai 27.02 R _WDC nic	Telephone: 5 Telephone: 5 COMPLETED _6/4/10	10-839-0688 _ BORING LOCATION PROJECT LOCATION _Henderson, N		
<u>87.02</u> R <u>WDC</u> hic	COMPLETED <u>6/4/10</u>	PROJECT LOCATION Henderson, N	n /	
R <u>WDC</u>	COMPLETED <u>6/4/10</u>		V	
		GROUNDWATER LEVELS:	HOLE S AT TIN AT EN	EXE <u>6</u> " IE OF DRILLING <u>32.00</u> ft D OE DRILLING <u></u>
	CHECKED BY JWO	SURFACE CONDITIONS:		
GRAPHIC LOG	MAT	ERIAL DESCRIPTION		WELL DIAGRAM
	SILTY SAND WITH GRAVEL (SM) grain with common coarse to very c silt in matrix, 15% angular to sub ar calcareous grain coatings throughout	reddish brown (5YR 5/4), 70% fine to mea oarse grain sub angular to sub rounded sar gular volcanic gravel to 1/2". Moderate to c it. Cobbles up to 2-3" at 2.5' and 4.5'.	dium nd, 15% common	
	SILTY SAND (SM); reddish brown (medium to coarse grain sand, 25-40 moderate calcareous grain coatings Increasing grain size with common sand, 22-25'.	5YR 5/4), 65-70% very fine to fine grain w % silt in matrix, 5% fine gravel to 3/8", con	ith minor nmon to	
- -	— 6" zone of abundant caliche cement SILT (ML); light yellowish brown (10 sand, trace floating medium to coar caliche nodules to 3/8".	and grain coatings (moderately soft) at 31 IYR 6/4), 80% silt, 10% clay, 10% very fine se grain volcanic sub rounded sand, scatte	.5'. e grain red	
	Contraction of the second sec	Increasing grain size with common is and, 22-25'. Value Value	Increasing grain size with common medium to coarse grain sub angular to sub sand, 22-25. Increasing grain size with common medium to coarse grain sub angular to sub sand, 22-25.	Image: Image



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WELL NUMBER M-181

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PROJE	ECT NAME	Tro	nox		BORING LOCATION		
PROJE	PROJECT NUMBER _2027.02		7.02	PROJECT LOCATION Henderson, NV			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC	MATERIAL DESCRIPTION	WE	LL DIAGRAM
- 38 - 39 - 40 - 41 - 42 - 43 - 44 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52		имс	fML		SILT (ML); light yellowish brown (10YR 6/4), 80% silt, 10% clay, 10% very fine grain sand, trace floating medium to coarse grain volcanic sub rounded sand, scattered caliche nodules to 3/8". <i>(continued)</i> 6" zone of moderately hard caliche, clayey, very pale brown (10YR 8/2) at 38'.		- Cement Grout
_ 52 _ 53 _ 54 _ 55 _ 56 _ 57 _ 58 _ 59 _ 60 _ 61 _ 62		ψмс	fML		SILT WITH SAND (ML); light yellowish brown (10YR 6/4), 20-30% very fine grain sand, 5-10% clay, non-calcareous.		2" Schedule 40 PVC Riser
49:S907 97		имс	fML		SILT (ML); very pale brown (10YR 8/2) and light yellowish brown (10YR 6/4) mottled, very pale brown material is clayey (10-20%) and calcareous.		
RFAL NORTHGATE ENV_FORMATION_OS 2027.02 T 23 BORIN 1 1 1 1 1 23 99		UMC	fSM		SILTY SAND (SM); light yellowish brown (10YR 6/4), 60% very fine grain sand, 40% silt. 2-4% coarse and very coarse grain sand and fine sub angular to sub rounded gravel to 3/8" floating in sand/silt matrix. SILT (ML); light yellowish brown (10YR 6/4), 10% very fine grain sand, non-calcareous.		

Gnorthgate

environmental management, inc.

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WELL NUMBER M-181

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PROJECT NAME Tronox





300 Frank H. Ogawa Plaza, Suite 510 94612

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WELL NUMBER M-181

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BORING	LOCATION	

PROJECT	NUMBER	2027.	02
			_

	PROJE	JECT NUMBER 2027.02 PROJECT LOCATION Henderson, NV							
	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM		
						silt in matrix.			
						Bottom of borehole at 120.0 feet bgs.			
6/10									
11/1									
.GPJ									
OGS									
NG_L									
ORIN									
23_B									
2									
027.0									
JS 2									
NO									
MATI									
FOR									
N									
ΞЩ									
THGA									
NOR									
RAL 1									
ENE									
G			1				1	1	

C	n	D	r	tł	ngate 300 Frank H. C	Dgawa Plaza, Suite 510	WELL N	UMBER M-182 PAGE 1 OF 3
	envir	onn	ien	tal n	Telephone: 51	0-839-0688		
PROJE		Tro	nox	larn	lanagement, me.	BORING LOCATION		
PROJE		ER :	2027	7.02		PROJECT LOCATION Henderson	. NV	
DATE	STARTED	6/4/	/10		COMPLETED 6/4/10		HOLE	SIZE 6"
DRILL	ING CONTI	RACI	OR	WD	 C	GROUNDWATER LEVELS:		ME OF DRILLING 32.00 ft
DRILL	ING METH	OD _	Soni	с		AFTER DRILLING	AT E	ND OF DRILLING
LOGG	ED BY EK	<			CHECKED BY JWO	SURFACE CONDITIONS:		
NOTE	S: <u>M-182 i</u>	is 10'	nort	h of N	I-181. Lithologic descriptions from M-181.			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION	Γ	WELL DIAGRAM
- 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13		Qal	SM		SILTY SAND WITH GRAVEL (SM); grain with common coarse to very co silt in matrix, 15% angular to sub any calcareous grain coatings throughou	reddish brown (5YR 5/4), 70% fine to r parse grain sub angular to sub rounded gular volcanic gravel to 1/2". Moderate t t. Cobbles up to 2" - 3" in upper five fer	nedium sand, 15% o common et.	
-13 -14 -15 -17 -18 -17 -18 -20 20 -21 -22 23 -24 25 -26 -27 -28 -28		Qal	SM		SILTY SAND (SM); reddish brown (medium to coarse grain sand, 25-40 moderate calcareous grain coatings.	5YR 5/4), 65-70% very fine to fine grain % silt in matrix, 5% fine gravel to 3/8", o nedium to coarse grain sub angular to s	with minor common to	
29 30 31 32 33 34 35			fML		∑ SILT (ML); light yellowish brown (10 sand, trace floating medium to coars caliche nodules to 3/8".	YR 6/4), 80% silt, 10% clay, 10% very f e grain volcanic sub rounded sand, sca	fine grain ttered	



WELL NUMBER M-182

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GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ_11/16/10

	enviro	nn	nen	tal r	nanagement, inc.
PROJE	ECT NAME	Tro	nox		BORING LOCATION
PROJE		ER _	202	7.02	PROJECT LOCATION Henderson, NV
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
_ 36 _ 37 _ 38 _ 39 _ 40					SILT (ML); light yellowish brown (10YR 6/4), 80% silt, 10% clay, 10% very fine grain sand, trace floating medium to coarse grain volcanic sub rounded sand, scattered caliche nodules to 3/8". <i>(continued)</i>

DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELI	_ DIAGRAM
36					SILT (ML); light yellowish brown (10YR 6/4), 80% silt, 10% clay, 10% very fine grain sand trace floating medium to coarse grain volcanic sub rounded sand scattered		
37					caliche nodules to 3/8". (continued)		-Cement Grout
38							
39							
40							-2" Schodulo 40
41							PVC Riser
42							
43							
44		ψмс	fML				
45							
46							
47							
48							
49							
50							
51							
52					SILT WITH SAND (ML): light vellowish brown (10YR 6/4), 20-30% very fine grain sand		
53					5-10% clay, non-calcareous.		
54							
55							
50							
58		ψмс	fML				
50							
60							
61							
62							
63				1	SILT (ML); very pale brown (10YR 8/2) and light yellowish brown (10YR 6/4) mottled,		
64	1	ψмс	fML		vory paie brown material is dayey (10-2070) and calcaleous.		
65							
66					SILTY SAND (SM); light yellowish brown (10YR 6/4), 60% very fine grain sand, 40% silt		
67							
68							
69		ψмс	fSM				
70							
71					2-4% coarse and very coarse grain sand and fine sub angular to sub rounded granvel to 3/8" floating in sand/silt matrix.		
72							
73					SILI (ML); light yellowish brown (10YR 6/4), 10% very fine grain sand, non-calcareous.		
74		ψмс	fML				-Hydrated Bentonite Chins
75							



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WELL NUMBER M-182

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PROJECT NAME Tronox	BORING LOCATION	
PROJECT NUMBER _2027.02	PROJECT LOCATION Henderson, NV	
DEPTH (ft) SAMPLE TYPE NUMBER FORMATION U.S.C.S. CRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
_ 76 _ 77 _ 78 _ 79 _ 80 _ 81	SILT (ML); light yellowish brown (10YR 6/4), 10% very fine grain sand, non-calcareous. (continued) SILTY SAND (SM); light yellowish brown (10YR 6/4), 65-70% very fine to fine grain	
_ 82 _ 83 _ 84 UMC ⁺ SM _ 85 _ 86 _ 87	sand with 2-5% floating medium to very coarse grain sand and gravel to 5/8", 20% silt in matrix, non-calcareous. Silt decreases to <5%, clean sand (fine to medium with coarse to very coarse), 1-2% gravel to 1/2". SILT (ML); light yellowish brown (10YR 6/4), 10% very fine grain sand.	2" Schedule 40 PVC 0.010" Slotted Well Screen
_ 00 UMCfML	Bottom of borehole at 90.0 feet bgs.	2" Schedule 40 PVC End Cap
3_L06S.GPJ 11/16/10		
ATE ENV_FORMATION_OS_2027.02_T_23_BORING		
GENERAL NORTHG		

G	h	0	r	th	gate 300 Frank H. C 94612	Ogawa Plaza, Suite 510	WELL N	JMBER M-186 PAGE 1 OF 4
	envi	ironn	nen	tal ma	anagement, inc. Telephone: 51	0-839-0688		
PROJ	ECT NAM	E Tro	onox			BORING LOCATION		
PROJ	ECT NUM	BER _	202	7.02		PROJECT LOCATION Henders	on, NV	
DATE	STARTE	D <u>6/1</u>	/10		COMPLETED 6/2/10	TOC ELEVATION	HOLE S	IZE _ 6"
DRILL		TRAC	TOR	WDC		GROUNDWATER LEVELS:	$ar{bar}$ at times of the transformation of transforma	IE OF DRILLING <u>38.00</u> ft
DRILL	ING MET	HOD _	Son	ic		AFTER DRILLING	AT EN	D OF DRILLING
LOGG	BED BY _E	ΞK			CHECKED BY JWO	SURFACE CONDITIONS:		
NOTE	S:							
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATE	ERIAL DESCRIPTION	Γ	WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 27 28 27 28 27 28 30 30 30 27 28 27 28 27 28 30 3		Qal	SW SM		 WELL GRADED SAND WITH SILT / 70% very fine to medium with moder sub rounded sand, 20% volcanic ang moderate calcareous grain coatings. — 6" zone of 2"-3" cobbles @10.5'. SILTY SAND (SM); reddish brown (5 common coarse to very coarse grain 1/4", 20-30% silt, common calcareou SILTY SAND WITH GRAVEL (SM); grain sub rounded to sub angular mo trace 2"-3", 20% silt. Common calcareous coatings 22'-25 elsewhere. 	AND GRAVEL (SW-SM); reddish brown ate coarse to very coarse grained sugular to sub angular pea gravel to 1/2 5YR 5/4), 70-80% very fine to medium sub angular to sub rounded sand, 10 sub angular to sub rounded sand, 20 sub angular to sub rounded sand, 20% per reddish brown (5YR 5/4), 60% very rounded sand, 20% per rounded s	own (5YR 5/4), b angular to ", 10% silt, m grain with -2% gravel to fine to coarse a gravel to 3/4" ings	
31 32 33 34 35								
					(Continu	ued Next Page)		

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WELL NUMBER M-186

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PROJECT NAME Tronox

BORING LOCATION _____ PROJECT LOCATION Henderson, NV

Particle Paricle Paricle P	PROJE	PROJECT NUMBER _2027.02			7.02	PROJECT LOCATION Henderson, NV					
36 SM SILTY SAND WITH GRAVEL (SM) reddet hown (SYR 54), 60%, wery fire to carse grain sub included be sub angluan docately poorly sorted sand, 20%, pee grave to 34* free 2* 3*, 20% sill (continued) 38 Image: SM Image: SM<	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM				
39 2 WELL GRADED SMN WITH GLT AND DGAVEL (SMY-Mix, reddeh bown (TMY 64), reddeh bown (TMY 744), reddeh	_ 36 _ 37		Qal	SM	1	SILTY SAND WITH GRAVEL (SM); reddish brown (5YR 5/4), 60% very fine to coarse grain sub rounded to sub angular moderately poorly sorted sand, 20% pea gravel to 3/4" trace 2"-3", 20% silt. <i>(continued)</i>					
42 Gail SM: 2: Common calibre nodules and calcareous cement (semi-hard) 4245'. 44 45 SILT (ML); very pale brown (10YR 7/4), 6" hard calibre @ 46'. 47 48 SILT (ML); very pale brown (10YR 7/4), 6" hard calibre @ 46'. 50 SILT (ML); very pale brown (10YR 7/4), 5% very fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded sand, 2:5% floating sub rounded gravel to 1/4", 40% silt. 51 UMCIML 52 SILT Y SAND (SM); very pale brown (10YR 7/4), 55% very fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded sand, 2:5% floating sub rounded gravel to 1/4", 40% silt. 53 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcaceous. 66 Sandy with 20-30% very fine grain sand from 63'-70'. 67 Moderate calibe nodules to 3/4" from 67'-70'. 68 Silt 70' - 75'. 71 Silt 70' - 75'. 73 Silt 70' - 75'. 74 Silt 70' - 75'.	_ 38 _ 39 <u>_ 40</u> _ 41			sw		✓ WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM); reddish brown (5YR 5/4), wet, 80% fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded moderately well sorted sand, 10% volcanic sub angular gravels to 3/8", 10% silt.					
46 SILT (ML); very pale brown (10YR 7/4), 6" hard caliche @ 46". 47 48 49 50 51 UMCIML 52 53 56 SILT Y SAND (SM); very pale brown (10YR 7/4), 55% very fine to medium grain with minor caarse to very coarse grain sub angular to sub rounded sand, 2-5% floating sub rounded gravel to 1/4", 40% sitt. 58 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-catcareous. 61 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-catcareous. 63 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-catcareous. 64 Silt 70" - 75". 66 UMC ML 70 Silt 70" - 75". 71 Silt 70" - 75".	_ 42 _ 43 _ 44 _ 45		Qai	SM		Common caliche nodules and calcareous cement (semi-hard) 42'45'.					
57 SILTY SAND (SM); very pale brown (10YR 7/4), 55% very fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded sand, 2-5% floating sub rounded gravel to 1/4", 40% silt. 59 UMC'SM 60 UMC'SM 61 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcareous. 63 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcareous. 66 Sandy with 20-30% very fine grain sand from 63'-70'. 67 Moderate caliche nodules to 3/4" from 67'-70'. 68 Moderate caliche nodules to 3/4" from 67'-70'. 70 Silt 70' - 75'. 71 Silt 70' - 75'. 73 Continued Next Page)	46 47 48 49 50 51 52 53 54 55 56		UMC	fML		SILT (ML); very pale brown (10YR 7/4), 6" hard caliche @ 46'.	Cement Grout 2" Schedule 40 PVC Riser				
64 SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcareous. 65 66 66 Sandy with 20-30% very fine grain sand from 63'-70'. 67 Moderate caliche nodules to 3/4" from 67'-70'. 69 UMCfML 70 - 71 Silt 70' - 75'. 73 Silt 70' - 75'. 74 Continued Next Page)	- 57 - 58 - 59 - 60 - 61 - 62 - 62		UMC	fSM		SILTY SAND (SM); very pale brown (10YR 7/4), 55% very fine to medium grain with minor coarse to very coarse grain sub angular to sub rounded sand, 2-5% floating sub rounded gravel to 1/4", 40% silt.					
(Continued Next Page)	63 64 65 66 67 68 69 70 71 72 73 74 74		UMC			SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcareous. Sandy with 20-30% very fine grain sand from 63'-70'. Moderate caliche nodules to 3/4" from 67'-70'. Silt 70' - 75'.					
	<u>/5</u>			<u> </u>		(Continued Next Page)					



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PROJECT NAME Tronox				<i>iu</i>		BORING LOCATION	BORING LOCATION					
PROJECT NUMBER _2027.02						PROJECT LOCATION Henderson, NV						
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC	LOG	MATERIAL DESCRIPTION	W	ELL DIAGRAM				
_ 76 _ 77 _ 78 _ 79 _ 80 _ 81 _ 82 _ 83		UMC	ĪML	-		SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), locally with very fine grain sand, 0-10% clay, non-calcareous. <i>(continued)</i> 30-40% very fine grain sand, 75' - 80'.	-					
_ 84 _ <u>85</u> _ 86 _ 87 _ 88			SW		****	20-30% very fine grain sand. WELL GRADED SAND (SW); yellowish brown (10YR 5/4), 90% fine to medium grain with coarse to very coarse grain sand, 1-2" granules to 1/4", 5-10% silt. SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), 10YR 8/2 where calcareous, locally with very fine grain sand.	-					
_ 89 _ 90 _ 91 _ 92						20-30% very fine grain sand, non calcareous, 86'-90'	-					
93 94 95				-		20-30% very fine grain 1-2% coarse to very coarse grain sand, 92' - 93'. Silt, abundant calcareous cement very pale brown (10YR 8/2), 93' - 95'.	-					
98 97 98 99 100 101 102 103 103 104 105		UMC:	fML					- Hydrated Bentonite Chips				
_ 106 _ 107 _ 108 _ 109 _ 110 _ 111			SW SM		<u> </u>	WELL GRADED SAND WITH SILT (SW-SM); yellowish brown (10YR 5/4), 75% very fine to medium grain with coarse to very coarse grain sub angular to sub rounded sand, 15% volcanic granules to 1/4" and pebbles to 1", 10% silt, common calcareous cement. SILT (ML); Very pale brown (10YR 8/2), common caliche nodules to 1".		- 10-20 Filter Pack Sand - 2" Schedule 40 PVC 0.010" Slotted Well				
_ 112 _ 113 _ 114 _ 115		имсі	fML			SILT WITH SAND (ML); light yellowish brown (10YR 6/4), 20-30% very fine grain sand.						



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PRO	IFCT	NAME	Tronox

GENERAL NORTHGATE ENV _FORMATION_OS 2027.02_T_23_BORING_LOGS.GPJ 11/16/10

		Tro	neri	larr									
PROJECT NAME PROJECT NUMBER				02	PROJECT LOCATION Henderson, NV								
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	l Diagram						
_ 116 _ 117 _ 118 _ 119 _ 120		имс	fML		SILT WITH SAND (ML); light yellowish brown (10YR 6/4), 20-30% very fine grain sand. (continued)		2" Schedule 40 PVC End Cap						
					Bottom of borehole at 120.0 feet bgs.								

Gr	10 vironn	rt	hg I manage	ate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 510-839-0688	WELL NU	JMBER M-187 PAGE 1 OF 5					
			2									
DATE START	TED <u>5/2</u>	4/10 FOR <u>V</u>		COMPLETED <u>5/25/10</u>	FROJECT LOCATIONHenderson TOC ELEVATION GROUNDWATER LEVELS:	<u>I, INV</u> HOLE S HOLE S AT TIM	IZE _6" IE OF DRILLING _40.00 ft					
DRILLING ME LOGGED BY NOTES:	ETHOD _ _EK	Sonic		CHECKED BY JWO	AFTER DRILLING SURFACE CONDITIONS:	AT ENI	At END of Drilling					
DEPTH (ft) SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S. GRAPHIC LOG	ſ	MATERIAL DESCRIPTION		WELL DIAGRAM					
_ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _ 11 _ 12 _ 13 _ 14			SM	SILTY SAND FILL (SM); gra 40% silt. SILTY GRAVEL WITH SAN sub angular gravel to 3/4", 3 from 13-13.5' and 16.5-17',	D (GM); yellowish brown (10YR 5/4), 50 0% very fine to medium grain sand, cobt moderate calcareous coatings througho	% angular to oles to 4" ut.						
_ 15 _ 16 _ 17 _ 18 _ 19 _ 20 _ 21 _ 22 _ 23 _ 24 _ 25 _ 26		-		SILTY SAND (SM); grayish minor sub angular medium t sub angular volcanic gravel t	brown (10YR 5/2), 65% very fine to fine o very coarse grain sand, 25% silt, 10% o 1/2".	grain with angular to						
27 28 29 30 31 32 33 34				Slight to common calichifica Abundant caliche and calcite	tion from 30'-32'. e veinlets, very pale brown (10YR 8/2) fro	om 32-36'.						

⁽Continued Next Page)



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PROJ	ECT NAME	Tro	nox			BORING LOCATION					
PROJ	ECT NUMB	ER _	2027.0)2		PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM				
36				SM		Abundant caliche and calcite veinlets, very pale brown (10YR 8/2) from 32-36'.					
_ 37 _ 38 _ 39						SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), Silt from 36-40'.					
40 41 42					-	∑Sandy silt, very fine grain sand with 1-2% medium to very coarse grain sub rounded sand.					
_ 43 _ 44 _ 45 _ 46											
_ 47 _ 48 _ 49 _ 50											
_ 51 _ 52 _ 53 _ 54					-	Silt, very pale brown (10YR 8/2), common calcification.					
<u>55</u> 56 ♀57				ML							
008.GPJ 11/16 59 60											
61 62 63 63 63					-	Sandy silt 20-30% very fine grain with 2-3% floating medium to coarse grain sub					
64 65 66 66					-	Silt, moderate calcareous grain coatings, caliche nodules to 1/4".					
67 FORMATIO 68											
71 72 73 73						Sandy silt, 20-30% very fine grain with 2-3% floating medium to coarse grain sub rounded sand.					
00000000000000000000000000000000000000						(Continued Next Page)					



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GENERAL NORTHGATE ENV FORMATION OS 2027.02 T 23 BORING LOGS.GPJ 11/16/10

PROJI	envir	OI onm	nenta	al n	nanag	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688 BORING LOCATION	PAGE 3 OF 5
PROJI	ECT NUMB	ER _	2027.	02		PROJECT LOCATION Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
_ 76 _ 77 _ 78 _ 79 _ 80 _ 81 _ 82 _ 83					-	SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), (continued) Sandy silt, 20-30% very fine grain sand.	- Cement Grout 2" Schedule 40 PVC Riser
_ 83 _ 84 _ <u>85</u> _ 86					-	browns (10YR 7/4 and 10YR 8/2).	-
- 87 - 88 - 89 - 90 - 91 - 92 - 93 - 93 - 94 - 95 - 96 - 97 - 98						Silt with common irregular caliche zones from 87-94'.	
99 100 101 102 103 104 105 106 107 108 109					-	Sandy silt, 20% very fine grain sand. Silt, common caliche nodules and irregular calichified zones, mottled very pale browns (10YR 7/4 and 10YR 8/2).	



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environmental management, inc.

PROJ	ECT NAME	Tro	nox			BORING LOCATION					
PROJ	ECT NUMB	ER	2027.0)2		PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	w	ell Diagram			
_ 116 _ 117 _ 118 _ 119	Split Spoon #1		100	-		SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), (continued) Sandy silt, 10-30% very fine grain sand.					
<u>120</u> 121 122 123	-										
_ 124 _ <u>125</u> _ 126	-			ML		Silt, common calichification.					
_ 127 _ 128 _ 129 _ 130	-				-	Sandy Siit, 10-20% very line grain sand. ————————————————————————————————————					
_ 132 _ 133 _ 134 _ 135	_					LEAN CLAY (CL); gravish vellowish green (5GY 6/2) to 136' then light grav (5Y 7/2), 80% clay, 20% silt.					
_ 136 01/91/11 138 139 140				CL		SILT (ML); Very pale brown (10YR 7/4).					
LOT MULTIC TO TO THE TOT TO TOT TO THE TOT TO THE TOT TO TOT TO TOT TO TOT TO TOT TO TOT TO TO	-			ML							
GENERAL NORTHGATE ENV 120 121 121 122 123 123 123 123 123 123 123	_					Common calcareous zones, very pale brown mottles from 152'-155'.		 Hydrated Bentonite Chips 			



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WELL NUMBER M-187

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environmental management, inc.

PRO.	JECT NAME	Tro	nox			BORING LOCATION					
PRO.	JECT NUMBI	ER _2	2027.0	2		PROJECT LOCATION Henderson, NV					
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM			
ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10 1910 1910 1910 1910 1910 1910 1910 19	Split Spoon #2		100	ML		SILT WITH SAND (ML); gray orange, trace caliche nodules to 1/2". SILT (ML); moderate to common caliche nodules to 1/2". Clay, very pale brown (10YR 8/2), calcareous from 165.5' - 166'. Bottom of borehole at 170.0 feet bgs.		- 10-20 Filter Pack Sand - 2" Schedule 40 PVC 0.010" Slotted Well Screen - 2" Schedule 40 PVC End Cap			
GENERAL NORTHGATI											

	G	n	0	r	th	300 Frank H. Ogawa 94612	Plaza, Suite 510	WELL NU	JMBER M-188 PAGE 1 OF 4			
		envir	onm	nen	tal m	anagement, inc. Telephone: 510-839	-0688					
	PROJE	ECT NAME	Tro	nox		ВС	RING LOCATION					
	PROJE	ECT NUMB	ER	202	7.02	PR	OJECT LOCATION Hendersor	η, NV				
			HOLE S	IZE <u>6"</u>								
				E OF DRILLING 40.00 ft								
			_ الن <	3011		CHECKED BY JWO SI	REACE CONDITIONS		O OF DRILLING			
	NOTES	S: <u>M-188</u>	is 10'	sou	th of M-	187. Lithologic descriptions are from M-187.						
		ш										
	DEPTH (ft)	SAMPLE TYPI NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL	DESCRIPTION		WELL DIAGRAM			
	1					SILTY SAND FILL (SM); gray black (N2),	60% very fine to medium grain s	and, 40% silt.				
	_ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _ 11 _ 12			SM		SILTY GRAVEL WITH SAND (GM); yellov angular gravel to 3/4", 30% very fine to me and 16.5-17', moderate calcareous coating	rish brown (10YR 5/4), 50% ang dium grain sand, cobblesto 4" fro gs throughout.	ular to sub om 13-13.5'				
J 11/16/10	_ 13 _ 14 _ <u>15</u> _ 16 _ 17 _ 18			GM		SILTY SAND (SM); grayish brown (10YR sub angular medium to very coarse grain s	5/2), 65% very fine to fine grain v and, 25% silt, 10% angular to su	with minor Jb angular				
NORTHGATE ENV_FORMATION_OS 2027.02_1_23_BORING_LOGS.GPV	- 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33			SM		voicanic gravel to 1/2". Slight to common calichification from 30' - Abundant caliche and calcite veinlets, very	32'. pale brown (10YR 8/2) from 32'	- 36'.				
GENERAL	_ 34 35											

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(Continued Next Page)


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PROJE		E Tro	onox		BORING LOCATION	
PROJE		BER _	202	7.02	PROJECT LOCATION Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
76 77 78 79 80 81 82					SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), (continued) Sandy silt, 20-30% very fine grain sand.	
83 84 85 86				-	Silt with common caliche nodules to 1/2" and irregular zones, mottled very pale browns (10YR 7/4 and 10YR 8/2) from 82-85'.	
87 88 89 90 91 92 93 94 95 96 97 98				-	Silt with common irregular caliche zones from 87-94'.	
99 <u>100</u> 101 102 103				-	Sandy silt, 20% very fine grain sand from 98-100'. Silt, common caliche nodules and irregular calichified zones, mottled very pale browns (10YR 7/4 and 10YR 8/2).	
104 <u>105</u> 106 107 108 109 <u>110</u> 111 112 113 114						 Hydrated Bentonite Ch Horac Ch

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environmental management, inc.

94612 Telephone: 510-839-0688

PROJ		Tro	nox		BORING LOCATION				
PROJ	ECT NUME	BER _	2027	7.02	PROJECT LOCATION Henderson, NV				
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WE	LL DIAGRAM		
_ 116 _ 117 _ 118 _ 119 _ 120			ML		SILT INTERBEDDED WITH SANDY SILT (ML); very pale brown (10YR 7/4), (continued) Sandy silt, 10-30% very fine grain sand. Bottom of borehole at 120.0 feet bgs.		PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap		
SENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10									

C	n	D	r	tl	1gate 300 Frank H. Og 94612 Telephone: 510-	awa Plaza, Suite 510 839-0688	WELL NUI	MBER M-48A PAGE 1 OF 2
	enviro ECT NAME	onn Tra	nen	tal r	management, inc.	BORING LOCATION		
		 FR	2027	7 02		PROJECT OCATION Handared	on NV	
DATE	STARTED	6/1	<u>-321</u> 6/10		COMPLETED 6/16/10		HOLE SIZ	E 6"
DRILL			TOR	WD	<u>с</u>	GROUNDWATER LEVELS:		OF DRILLING 27.00 ft
DRILL	ING METH	OD	Soni	c	-	AFTER DRILLING	AT END	OF DRILLING
LOGO	GED BY EM	< _		-	CHECKED BY JWO	SURFACE CONDITIONS:	_	
NOTE	S: Replace	emen	it for	dama	ged/plugged and abandoned monitoring well	M-48		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATER	RIAL DESCRIPTION		
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 22 \\ 2 \\ $ 2 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\		Qal	SW- SM		WELL GRADED SAND WITH SILT AI 75% fine to coarse grain with common sand, 15% well graded granules/pea g Moderate calcareous cement and grain 10-15'.	ND GRAVEL (SW-SM); reddish bro o very coarse grain sub angular to su ravel to 3/8" (trace 3/8-3/4"), 10% s	s cement from	Cement/ Bentonite Grout 2" Schedule 40 PVC Riser
23 24 25		Qal	GM		SILTY GRAVEL WITH SAND (GM); re rounded volcanic granules/pea gravel f very coarse grain sub angular to sub re calcareous cement/coatings throughou SILTY SAND WITH GRAVEL (SM); re	eddish brown (5YR 5/4), 50% angul o 1-1/2", trace cobbles to 3", 35% v punded sand, 15% silt, moderate to it. eddish brown (5YR 5/4) to 25', light	ar to sub very fine to common gray (10YR	
26					 (1/2) to 32°. 65% very fine to medium grain with sp ∑ sub rounded sand, 20% volcanic angu , common calichified sand from 25-27', 	oradic coarse to very coarse grain s lar to sub rounded granules to 1/4", damp at 25'.	sub angular to 15% silt, /	
28		\Qal,	/ <u>\SM</u> /		7 85% very fine to fine grain with minor 1 rounded sand, 15% silt, 10-20% sand 1 Gravelly at 27, 281 grapulas to 5/8"	medium to coarse grain sub angular size calichified silt grains, calcareou	r to sub / /	Pack Sand
30	-		+-		√ Silty at 27-28'.		/-	2" Schedule 40
31					Gravelly at 24-27', granules/gravel to 3			Slotted Well
32					Calichified zone with discontinuous ha	ra caliche.	and to 38'	Screen
33					20-30% very fine grain sand to 40'.			
34		UMC	TIVIL					
35							.:	

(Continued Next Page)

()	envir	D	r nen	tal r	ngate	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	WELL N	JMBER M-48A PAGE 2 OF 2
PROJE	ECT NAME		nox			BORING LOCATION		
PROJE	ECT NUMB	ER _	2027	7.02		PROJECT LOCATION	Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM
_ 36 _ 37					SANDY SILT (ML); 20-30% very fine gr	; brownish yellow (10YR 6/6), 10-20% very rain sand to 40'. <i>(continued)</i>	fine grain sand to 38',	

		SAN N	FO		U		
	_ 36 _ 37 _ 38 _ 39 _ 40		имс	fML		SANDY SILT (ML); brownish yellow (10YR 6/6), 10-20% very fine grain sand to 38', 20-30% very fine grain sand to 40'. <i>(continued)</i>	
27.02_T_23_BORING_LOGS.GPJ 11/16/10	_ 39 _40					Bottom of borehole at 40.0 feet bgs.	2" Schedule 40 PVC End Cap
GENERAL NORTHGATE ENV _FORMATION_OS 202							

PROJE	envir			th tal r	State State <th< th=""></th<>
PROJE DATE DRILL	ECT NUMB STARTED ING CONT	<u>5/1</u> 5/1 RAC	<u>202</u> 7/10 FOR Son	7.02 	PROJECT LOCATION _Henderson, NV COMPLETED _5/17/10 TOC ELEVATION HOLE SIZE _6" C GROUNDWATER LEVELS: ∑ AT TIME OF DRILLING _25.0 AFTER DRILLING AT END OF DRILLING AT END OF DRILLING
LOGG NOTE:	ED BY <u>E</u> S:	<			CHECKED BY JWO SURFACE CONDITIONS:
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION WELL DIAGRAM
- 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13		Qal	SM		SILTY SAND (SM); reddish brown (5YR 5/4), 80% very fine to coarse grained sub rounded to sub angular sand with up to 5% pea gravel to 3/8", 15-20% silt, calcareous coatings throughout. Image: Coarse grained sub rounded sub angular sand with up to 5% pea gravel to 3/8", 15-20% silt, calcareous coatings throughout. Moderately hard calichified zone 8-8.5'. Image: Coarse grained sub rounded sand, 25-30% volcanic sub angular gravel to 1/2", 15-20% silt, slight calcareous coatings throughout.
14 15 16 17 18		Qal	SM		SILTY SAND (SM); reddish brown (5YR 5/4), 80% very fine to coarse sand, 20% silt.
20 21 22 23 23 24		Qal Qal	GW GN		WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM); reddish brown (5YR 5/4), 60% volcanic sub angular pea gravel to 1/2", 30% very fine to very coarse sub angular to sub rounded sand, 10% silt. Calcareous cemented with abundant calcareous grain coatings, white (5Y 8/1), silt up to 30%, wet at 25'.
25 26 27 28 29 30		υмс	fML		✓ SILT (ML); very pale brown (10YR 7/4), abundant calcareous grain coatings, 10-15% floating medium to coarse sub rounded sand grains. Schedule PVC 0.01(Well Screet
31 32 33 34 35		имс	fML		SILT (ML); very pale brown (10YR 7/4), minor interbedded sandy silt, trace clay.
					Bottom of borehole at 35.0 feet bgs.

G	n	0	r	tl	1gate 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510	NUMBER M-86A PAGE 1 OF 2
PRO.IF		E Tro	nen	ital I	nanagement, Inc.	BORING LOCATION	
PROJE		BER	<u>20</u> 2	7.02		PROJECT LOCATION _Henderson, NV	
DATE	STARTE) _ 5/1	7/10		COMPLETED _5/17/10	TOC ELEVATION H	OLE SIZE _6"
DRILL		[RAC]	FOR	WD	С	GROUNDWATER LEVELS: $\sum \Delta$	AT TIME OF DRILLING <u>30.00</u> ft
DRILL	ING METH	HOD _	Son	ic		_ AFTER DRILLING	At end of drilling
	ED BY <u>E</u> S:	K			CHECKED BY JWO	SURFACE CONDITIONS:	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	ERIAL DESCRIPTION	WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		Qal	SM		SILTY SAND (SM); reddish brown (coarse to very coarse angular to sub angular granules/pea gravel to 3/8", throughout. Moderately cemented calichified lay Minor large gravel to 1". Moderately cemented calichified lay Moderately cemented calichified lay	5YR 5/4), 70% very fine to medium with minor o rounded sand, 15% floating volcanic angular to 15% silt in matrix, calcareous grain coatings er at 9'-10'. er at 12'-12.5'. er at 13'-14'.	sub - Cement Grout - 2" Schedule 40 PVC Riser Pip - Hydrated Bentonite Chip
22 23 24 25 26 27 28 29 30 31 32		Qal	SM		Gravel to 25% with clasts up to 1/2" brown (10YR 8/2), 21'-23'. SILTY SAND (SM); dark reddish bro 70% very fine to fine grained with transmer of the grained with transmer of the grained with transmer of the grained sand, 30% silt, semi-hard of the grained sand, 30% silt,	, 15% silt, moderate calcareous coatings, very pa own (5YR 2.5/2) and very pale brown (10YR 8/2), ace medium to very coarse sub angular to sub caliche, wet @ 30'.	
- 32 - 33 - 34 - 35 - 36 - 37 - 38 - 39 - 40		UMC	fML				- 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen

Gnorthgate

environmental management, inc.

300 Frank H. Ogawa Plaza, Suite 510 94612

Telephone: 510-839-0688

WELL NUMBER M-86A

PAGE 2 OF 2

FILOJECT MANUL TIONOA

BORING LOCATION

PROJECT NUMBER	2027.02

|--|

	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM
	41 42 43 44			fML fML	-	SILT WITH GRAVEL (ML); yellowish brown (10YR 5/4), 70% silt, 10% very fine grain sand, 20% floating sub rounded gravel to 3/8". SILT (ML); light yellowish brown (10YR 6/4), 10-15% floating medium to coarse grain sub rounded volcanic sand, trace sub rounded volcanic gravel to 3/4", caliche nodules throughout.		
	45					Bottom of borehole at 45.0 feet bgs.		←2" Schedule 40 PVC End Cap
0L/0L/LL CHO								
Z3_BURING_LUGS.								
-1_2U2 ZUZ/.UZ_1								
DENERAL NURTHG								

G	n envi	O ronmer	tho ntal mana	gate 300 Frank H. 9 94612 Telephone: 57	Ogawa Plaza, Suite 510	ELL NUMBER PC-134A PAGE 1 OF 2
PROJ	ECT NAM	E Tronox				
PROJ		BER <u>202</u>	. <u>7.02</u>	COMPLETED 6/22/10		
					GROUNDWATER EVELS'	∇ AT TIME OF DRILLING 26.00 ft
DRILL	ING MET	HOD Sor	nic		AFTER DRILLING	AT END OF DRILLING
LOGG	BED BY E	EK		CHECKED BY JWO	SURFACE CONDITIONS:	
NOTE	S: <u>PC-13</u>	34A is 15'	north of PC-	134. See lithology log of PC=134 for	lithology	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC LOG		MATER	IAL DESCRIPTION	
-1 -2 -3 -4 -5 -6 -7 -8 -9 -11 -12 -13 -14 -15 -16 -17 -18 -16 -17 -18 -12 -13 -14 -15 -16 -17 -18 -12 -22 -23 -22 -23 -24 -25 -26 -27 -28 -29 -31 -31 -32 -33 -33 -34 -35 -3			Ψ			Cement/ Bentonite Grout 2" Schedule 40 PVC Riser

G	h	orthg	ate 300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	NUMBER PC-134A PAGE 2 OF 2
		Tronov		
PROJ		ER _2027.02	PROJECT LOCATION Henderson, NV	
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
-36 -37 -38 -39 -40 -41 -42 -43 -44 -42 -43 -44 -45 -46 -47 -48 -49 -51 -52 -53 -54 -55 -56 -57 -58 -56 -57 -58 -61 -62 -61 -62 -63 -66 -67 -68 -69 -70				 Hydrated Bentonite Chips 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap

PROJI	envi		thga tal managen	ate 300 Frank H 94612 Telephone:	I. Ogawa Plaza, Suite 510 510-839-0688 BORING LOCATION	ELL NUMBER PC-135A PAGE 1 OF 2			
DATE DRILL DRILL LOGG	STARTEI ING CON ING METI IED BY _E S: PC-13	BER _202 D _7/1/10 TRACTOR HOD _Son EK 35A is 20' r		COMPLETED _7/2/10 CHECKED BY _JWO See lithology log of PC-135 fr	PROJECT LOCATION <u>Hendersa</u> TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING SURFACE CONDITIONS: or lithologic description	HOLE SIZE _6" HOLE SIZE _6" AT TIME OF DRILLING _32.00 ft AT END OF DRILLING			
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC LOG		MATE	RIAL DESCRIPTION				
$\begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 12 \\ 22 \\ 23 \\ 22 \\ 23 \\ 22 \\ 23 \\ 22 \\ 23 \\ 22 \\ 23 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35$			Σ			 Cement/ Bentonite Grout 2" Schedule 40 PVC Riser Hydrated Bentonite Chips 			



WELL NUMBER PC-135A

PAGE 2 OF 2

PROJECT NAME Tronox

BORING LOCATION	
	Hondorsor

	PROJE		ER <u>202</u>	7.02 PROJECT LOCATION _Henderson, NV	PROJECT LOCATION _Henderson, NV						
	DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION GRAPHIC LOG	MATERIAL DESCRIPTION	WEI	LL DIAGRAM					
	- 36 - 37 - 38 - 40 - 41 - 42 - 43 - 44 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 - 54 - 55					 8-12 Filter Pack Sand 2" Schedule 40 PVC 0.020" Slotted Well Screen 2" Schedule 40 PVC End Cap Native Fill 					
GENERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10											

G	no		r	tel n		gate agement, inc. 300 Frank H. C 94612 Telephone: 51	9gawa Plaza, Suite 510 0-839-0688	WELL NU	MBER PC-141 PAGE 1 OF 2
PROJEC	CT NAME	Tro	nox		rear n	agomont, mor	BORING LOCATION		
PROJEC		ER _2	2027	.02			PROJECT LOCATION Henderson	n, NV	
DATE S	TARTED	6/17	7/10			COMPLETED <u>6/17/10</u>	TOC ELEVATION	HOLES	SIZE _ 6"
DRILLIN	IG CONTF	RACT	OR	WD	C		GROUNDWATER LEVELS:	$ar{ abla}$ at tin	IE OF DRILLING <u>25.00</u> ft
DRILLIN		DD _:	Soni	с				AT EN	id of Drilling
	<u> D BY _ EK</u>					CHECKED BY JWO	SURFACE CONDITIONS:		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG		MATE	RIAL DESCRIPTION	Ŀ	WELL DIAGRAM
$ \begin{array}{c} 1\\ 2\\ 3\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\ -\\$			SP-SM		Σ.	POORLY GRADED SAND WITH SII 5/4), 70% very fine to medium grain sand, 20% angular to sub angular vo calcareous cement/grain coatings.	T AND GRAVEL(SP-SM); reddish br with minor coarse grain sub rounded t lcanic granules/pea gravel to 1", 10%	Image: constraint of the system own (5YR o sub angular o sub angular silt, moderate	Cement/ Bentonite Grout • 2" Schedule 40 PVC Riser



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WELL NUMBER PC-141

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	PROJECT NAME Tronox			nox		BORING LOCATION					
	PROJE		ER	202	7.02	PROJECT LOCATION _ Henderson, NV					
	DEPTH (ft) SAMPLE TYPE NUMBER		FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	l Diagram			
ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10	□ 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 54 55	SAM	FOR			LEAN CLAY (CL); light greenish gray (5GY 8/1) to 35', yellowish gray to 40', common caliche nodules to 2" form 38-40'. (continued) LEAN CLAY (CL); greenish gray (5GY 7/1). 20% very fine grain sand, 20% silt. 20% silt. and light gray (10YR 7/2), sandy silt - 70% silt, 30% very fine grain sand, silty sand - 70% very fine grain sand, 30% silt. Bottom of borehole at 55.0 feet bgs.		 Hydrated Bentonite Chips 10-20 Filter Pack Sand 2" Schedule 40 PVC 0.010" Slotted Well Screen 2" Schedule 40 PVC End Cap 			
GENERAL NORTHGATE											

G	enviro		r nen	tal r	ngate 300 Frank H. C 94612 Telephone: 51	Ogawa Plaza, Suite 510 0-839-0688	MBER PC-142 PAGE 1 OF 1					
PROJ		Tro	nox	7 0 0		BORING LOCATION						
		ER _2	<u>2027</u> 7/10	<u>.02</u>	COMPLETED 6/17/10	_ PROJECT LOCATION _Henderson, NV	NZE 6"					
DRILL	ING CONTR	RACT		IE OF DRILLING 25.00 ft								
DRILL	DRILLING METHOD Sonic AFTER DRILLING AT END OF DRILLING											
LOGG	LOGGED BY _EK CHECKED BY _JWO SURFACE CONDITIONS:											
NOTE	S : <u>PC-142</u>	is 10)' we	st of	PC-141. See lithology lof of PC-141 for lithe	ologic description						
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	МАТЕ	ERIAL DESCRIPTION	WELL DIAGRAM					
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 32 \\ 31 \\ 32 \\ 31 \\ 32 \\ 32 \\ 31 \\ 32 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ 31 \\ 32 \\ 31 \\ 31 \\ $ 31 \\ 31 \\			SM		POORLY GRADED SAND WITH SII 5/4), 70% very fine to medium grain sand, 20% angular to sub angular vo calcareous ce SILTY SAND WITH GRAVEL (SM); grain with minor very coarse grain su sub rounded volcanic granules/pea g common c Bottom of	LT AND GRAVEL(SP-SM); reddish brown (5YR with minor coarse grain sub rounded to sub angular bleanic granules/pea gravel to 1", 10% silt, moderate	 Cement/ Bentonite Grout 2" Schedule 40 PVC Riser Hydrated Bentonite Chips 8-12 Filter Pack Sand 2" Schedule 40 PVC 0.020" Slotted Well Screen 2" Schedule 40 PVC 0.020" 					
					Bottom of	borehole at 32.0 feet bgs.	PVC End Cap					

PROJECT NAME	ER _2	<u>nox</u> 2027.(8/10	2	COMPLETED 6/18/10	_ BORING LOCATION _ PROJECT LOCATION _Henderso	n, NV	SIZE	6"	
DRILLING CONT	RACT	OR _	NDC		GROUNDWATER LEVELS:	NOLE ∑ AT T AT E	ime of	DRIL	LING <u>31.00</u> fi
.ogged by <u>e</u> Notes:	ĸ			CHECKED BY JWO	SURFACE CONDITIONS:				
SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	FOG	МАТ	ERIAL DESCRIPTION			WEL	L DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34		SP- SM SW SM		POORLY GRADED SAND WITH S WELL GRADED SAND WITH SILT 70% very fine to medium grian with rounded sand, 20% angular to sub a silt, moderate calcareous cement/gr SILTY SAND WITH GRAVEL (SM) from 22-25', 60% very fine to mediu to sub rounded sand, 25% angular t 1-1/2", sp(?)-mod cobbles to 3-4" fr cement/coating from 17-22' and 25- SILTY SAND WITH GRAVEL (SM) sub rounded sand, 25% angular t sub rounded sand, 25% angular t 1-1/2", sp(?)-mod cobbles to 3-4" fr cement/coating from 17-22' and 25- SILTY SAND WITH GRAVEL (SM) medium grain with common coarse	ILT AND GRAVEL FILL (SP-SM) AND GRAVEL (SW-SM); reddish bro moderate coarse to very coarse grain angular volcanic granules/pea gravel to ain coatings throughout. Ight gray (10YR 7/2), reddish brown o m grain with common coarse to very co o sub rounded volcanic granules/pea g om 17-22, 15% silt, common calcareod 31'. Ight brownish gray (10YR 6/2), 50% to very coarse	wn (5YR 5/4), angular to sub o 3/4", 10%			 Cement/Bent Grout -2" Schedule - PVC Riser Hydrated Bentonite Pellets



74 75 300 Frank H. Ogawa Plaza, Suite 510 94612

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WELL NUMBER PC-143

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environmental management, inc. PROJECT NAME ______ Tronox **BORING LOCATION** PROJECT NUMBER 2027.02 PROJECT LOCATION _Henderson, NV SAMPLE TYPE NUMBER FORMATION GRAPHIC U.S.C.S. DEPTH (ft) LOG MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND WITH GRAVEL (SM); light brownish gray (10YR 6/2), 50% very fine to 36 medium grain with common coarse to very coarse (continued) 37 SM 38 39 40 POORLY GRADED SAND WITH SILT (SP-SM); light brownish gray (10YR 6/2), 90% 41 SP medium to coarse grain with minor very fine to fine grain and very coarse grain sub SM angular to sub rounded volcanic quartz and caliche sand, 1-2% sub angular to sub rounded volcanic granules to 1/4", 10% silt and clay. 42 43 SILTY SAND (SM); light brownish gray (10YR 6/2), 80% medium to coarse grain with SM fine and very coarse grain sub angular to sub rounded sand, 20% silt and clay, trace 44 granules to 1/4". 45 10-20 Filter WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM); light brownish gray Pack Sand 46 (10YR 6/2), 75% medium go coarse grain with minor fine and very coarse grain sub rounded to sub angular sand, 15% granules/pea gravel to 1", minor cobbles to 3", 10% 47 silt, 25% silt locally. 2" Schedule 40 48 Reddish brown (5YR 5/4), 75% fine to medium grain sand, 25% silt from 47.5-48'. **PVC Slotted** Well Screen 49 50 51 52 53 54 55 SW SM 56 57 LOGS.GPJ 11/16/10 80% fine to coarse grain sand, 20% silt from 57-65'. 58 59 60 61 BORING 62 63 ຕີ H 64 2027.02 65 2" Schedule 40 SILT (ML), light brownish gray (10YR 6/2). End Cap os 66 Μ FORMATION 67 SW WELL GRADED SAND WITH SILT (SW-SM); light gray (N&7), very fine grain guartz SM sand, 10% silt. 68 CL LEAN CLAY (CL); light greenish gray (5GY 7/1). 69 ML SANDY SILT (ML); light brownish gray (10YR 6/2), 30% very fine grain sand, moderate EN very fine grain gypsum. 70 Native Fill LEAN CLAY INTERBEDDED WITH SILT (CL-ML): light brownish gray (10YR 6/2), NORTHGATE 71 common very fine grain gypsum. 72 CL 73 ML GENERAL

		nox		100 Frank H 94612 Telephone:	I. Ogawa Plaza, Suite 510 510-839-0688 BORING I OCATION		PAGE 1 OF				
PROJECT NUM		2027.02			PROJECT LOCATION Henders	son, NV					
DATE STARTE DRILLING COM DRILLING MET	ED _7/1/	10 T OR _WI Sonic		COMPLETED 7/1/10	TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING	HOLE \$ AT TIM AT EN	Size _6" Me of Drilling _35.00 fi ND of Drilling				
NOTES:	EN				SURFACE CONDITIONS:						
UEPIN (ft) SAMPLE TYPE NUMBER	FORMATION	U.S.C.S. GRAPHIC LOG		MA	TERIAL DESCRIPTION	Г	WELL DIAGRAM				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34		SM	SILTY S to mediu 25% ang contains soft cem	AND WITH GRAVEL (SM m grain with common coa gular to sub angular volcar cobbles to 2-3"), 15% silt ent.	I); Reddish brown (5YR 5/4), 60% poo arse to very coarse grain angular to sub nic and caliche granules/pea gravel to 3 , moderate to common calcareous gra cement.	rly sorted fine o rounded sand, 3/4" (locally ain coatings and	 Cement/Bent Grout 2" Schedule 4 PVC Capped Riser Hydrated Bentonite Pellets 8-12 Filter Pa Sand 				



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WELL NUMBER PC-144

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	enviro	onm	nen	tal r	nanagement, inc.
PROJE	ECT NAME	Tro	nox		BORING LOCATION
PROJE		ER _	2027	7.02	PROJECT LOCATION Henderson, NV
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
- 36 - 37 - 38 - 39 - 40 - 41 - 42			GM		SILTY GRAVEL WTH SAND (GM); Brown (10YR 5/4), 60% volcanic angular to sub rounded granules/pea gravel to 3/8", 35% fine to coarse grain with common very coa grain sand, 15% silt, non-calcareous. LEAN CLAY (CL); Light greenish gray (5GY 8/1), non-calcareous.

DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	l Diagram
36 37 38 39 40 41 42 43 43 44 45			GM		SILTY GRAVEL WTH SAND (GM); Brown (10YR 5/4), 60% volcanic angular to sub rounded granules/pea gravel to 3/8", 35% fine to coarse grain with common very coarse grain sand, 15% silt, non-calcareous. LEAN CLAY (CL); Light greenish gray (5GY 8/1), non-calcareous.		PVC 0.020" Slotted Well Screen 2" Schedule 40 PVC End Cap ⊷Native Fill
					Bottom of borenoie at 45.0 feet bgs.		

Gn	0	r	th	300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL NU	MBER PC-145 PAGE 1 OF 2
envi PROJECT NAM	ronm E Tro	nen nox	tai m	anagement, Inc.	BORING LOCATION		
PROJECT NUM	BER _	2027	7.02		PROJECT LOCATION Henders	son, NV	
DATE STARTE	D <u>6/2</u>	3/10		COMPLETED _6/23/10	TOC ELEVATION	HOLES	SIZE _ 6"
DRILLING CON	TRACI	ror	WDC		GROUNDWATER LEVELS:	${ar ar ar ar ar ar ar ar ar ar $	ME OF DRILLING <u>26.00</u> ft
DRILLING MET	HOD _	Soni	с		AFTER DRILLING	AT EN	id of Drilling
Logged by <u>e</u> Notes:	K			CHECKED BY _JWO	_ SURFACE CONDITIONS:		
DEPTH (ft) SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	ERIAL DESCRIPTION	Г	WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 23 24 25 26 27 28 29 30 31 32 33		GM		POORLY GRADED SAND WITH S 75% very fine to medium grain with to sub rounded sand, 15% angular (with local to 2-3"), 10% silt, moderal SILTY GRAVEL WITH SAND (GM) rounded volcanic pea gravel to 1" (to coarse grain sub angular to sub rou SILTY SAND WITH GRAVEL (SM) grain with common coarse to very co angular to sub rounded volcanic gra moderate calcareous cement.	SILT AND GRAVEL (SP); Reddish bro minor to common coarse to very coa to sub rounded volcanic granules/pea ate calcareous coatings and soft cem), Reddish brown (5YR 5/4), 50% ang ocal to 2-3"), 30% fine to coarse grain inded sand, 20% silt, moderate calcan ; reddish brown (5YR 5/4), 70% fine coarse sub angular to sub rounded sa anules/pea gravel to 5/8" (with local to	yular to sub n with very reous cement.	 Cement/Bentoni Grout 2" Schedule 40 PVC Capped Riser Hydrated Bentonite Pellets 8-12 Filter Pack Sand

environmental management, inc.	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	WELL NUMBE
PROJECT NAME Tronox	BORING LOCATION	

PROJECT NUMBER _2027.02

WELL	NUMBER	PC-	145	
		PAGE	2 OF	2

PROJECT LOCATION	Henderson, NV
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DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	l Diagram
_ 36 _ 37 _ 38 _ 39 _ 40 _ 41 _ 42 _ 43 _ 44 _ 45			SM GP- GM CL		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM); Brown (10YR 5/4), 60% angular to sub rounded volcanic granules/pea gravel to 5/8" (minor to 1"), 30% very fine to medium grain with common coarse to very coarse sub angular to sub rounded sand, 10% silt, common hard calichification in layers 2-3" thick. LEAN CLAY (CL); Yellowish green (5Y 7/2). Bottom of borehole at 45.0 feet bgs.		PVC 0.020" Slotted Well Screen - 2" Schedule 40 PVC End Cap





Bottom of borehole at 35.0 feet bgs.

G	envii	O	nen	tal m	1gate management, inc. 300 Frank H. 94612 Telephone: 5	Ogawa Plaza, Suite 510 10-839-0688	WELL NU	MBER PC-148 PAGE 1 OF
PROJE		E Tro	nox			BORING LOCATION		
PROJE		BER _	2027	.02		PROJECT LOCATION Henders	on, NV	
DATE	STARTED	D <u>6/19</u>	9/10		COMPLETED <u>6/19/10</u>	TOC ELEVATION	HOLE	SIZE _9"
DRILLI	NG CONT	[RAC]	OR	WDC	<u>}</u>	GROUNDWATER LEVELS:	⊥	ME OF DRILLING <u>32.00</u> ft
DRILLI	NG METH	HOD _	Soni	с		AFTER DRILLING	_ AT EN	id of Drilling
	ED BY <u>E</u>	K			CHECKED BY JWO	_ SURFACE CONDITIONS:		
	 ш							
UEPIH (ft)	SAMPLE TYP NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MAT	ERIAL DESCRIPTION	G	WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20			SM	가는 가지가 가지 않는 것 같은 것 같	common coarse to very coarse grai angular to sub rounded volcanic gra locally), moderate calcareous ceme calcareous cement from 12.5-15', 1	n angular to sub rounded sand, 15% s n angular to sub rounded sand, 15% s nt and grain coatings throughout. Cor 5-17' contains 25-30% silt.	ilt, 10% 3" pebbles nmon-abu(?)	 Cement/Bento Grout 6" Schedule 4 PVC Capped Riser Hydrated Bentonite Pellets
21 22 23 24 25			SM		SILTY SAND WITH GRAVEL (SM) medium grain with common coarse 20% volcanic and caliche granules/ common calichification (discontinue	; yellowish brown (10YR 7/2), 65% ve to very coarse grain angular to sub ro pea gravel to 1" (locally to 3"), 15% sil us) and grain coatings (semi-hard).	ry fine to unded sand, t, moderate to	
26					LEAN CLAY INTERBEDDED WITH	I SILTY CLAY (CL); yellowish gray (5)	Y 7/2) to 32.5	
27					at $32.2'$.	, 5 TENSE OF Sandy SIL WILL 50% VELY	inie grant Sallu	
28								
29								
30			CI					
31								
32					Σ			
33								10-20 Filter
34								
								Pack Sa

(Continued Next Page)



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WELL NUMBER PC-148

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PROJECT NAME Tronox	{	BORING LOCATION	
PROJECT NUMBER _202	27.02	PROJECT LOCATION Henderson, NV	
DEPTH (ft) (ft) SAMPLE TYPE NUMBER FORMATION U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
.36 .37 .38 .39 .40 .41 .42 .43 .43 .44 .45 .46 .47 .48 .49 .40 .50	LEAN CLAY INTERE then pale greenish ye at 32.2'. (continued)	BEDDED WITH SILTY CLAY (CL); yellowish gray (5Y 7/2) to 32.5 ellow (10Y 8/2), 3" lense of sandy silt with 30% very fine grain sand dules, semi-hard. Bottom of borehole at 50.0 feet bgs.	6" Schedule 40 PVC End Cap

ROJE	envir ECT NAME		nen nox	tal n	nana	agement, inc.	BORING LOCATION			PAGE 1 OF
ROJE		BER _	2027	7.02			_ PROJECT LOCATION _Henderso	on, NV		
ATE	STARTED	6/20	0/10			COMPLETED <u>6/23/10</u>		HOLE	SIZE <u>9</u> "	
RILL	ING CONT	RACI	OR	WD	С		GROUNDWATER LEVELS:	∑ AT T	ime of Dri	LLING <u>30.00</u> ft
RILL	ING METH	IOD _	Soni	с			AFTER DRILLING	ATE	ND OF DRIL	.LING
ogg otes	ED BY <u>E</u> S:	K				CHECKED BY JWO	_ SURFACE CONDITIONS:			
(#)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG		МАТ	ERIAL DESCRIPTION		WE	LL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20			SM			SIILTY SAND (SM); Reddish brown coarse to very coarse grain angular rounded volcanic granules/pea grav coatings throughout.	n (5YR 5/4), 75% very fine to medium of to sub rounded sand, 15% silt, 10% and el to 1/2", moderate calcareous cemen	grain with ngular to sub it and grain		 Cement/Bento Grout 6" Schedule 4 PVC Capped Riser Hydrated Bentonite Pellets
22 23 24 <u>25</u>			SM		_	SILTY SAND WITH GRAVEL (SM) medium grain with common coarse 20% volcanic and caliche granules/ calcareous cement and calichification POORLY GRADED SAND WITH S to fine with medium to very coarse g	; Yellowish brown (10YR 7/2), 65% ver to very coarse grain angular to sub rou pea gravel to 1", 15% silt, moderate to on. ILT (SP); Grayish orange (10YR 7/4), grain sub angular to sub rounded sand	ry fine to unded sand, common 90% very fine , 10% silt to		
.6 .7 .8 <u>.9</u> .0 .31			SP		Ţ	40' then 20% silt to 32', 1-2% volca caliche cement and coatings, hard o	nic granules to 1/4", moderate to comr discontinuous caliche from 31.5-32'.	non soft		
32 33 34			CL		_	LEAN CLAY (CL); Moderate yellowi pale greenish yellow (10YR 8/2) to 9	ish gray (5GY 6/2) to 39' then yellowish 50'. 6" caliche zone at 36'.	h gray to 41',		 10-20 Filter Pack Sand



WELL NUMBER PC-149

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WELL DIAGRAM

PVC 0.010" Slotted Well

6" Schedule 40

PVC End Cap

Screen

PR

	enviro	onn	nen	tal r	Telephone: 510-839-0688
PROJE		Tro	nox	cor r	BORING LOCATION
PROJE		ER _	2027	7.02	PROJECT LOCATION Henderson, NV
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
- 36 - 37 - 38 - 39 - 41 - 42 - 43 - 44 - 43 - 46 - 47 - 48 - 49 - 50			CL		LEAN CLAY (CL); Moderate yellowish gray (5GY 6/2) to 39' then yellowish gray to 41', pale greenish yellow (10YR 8/2) to 50'. 6" caliche zone at 36'. <i>(continued)</i> Common caliche nodules to 1-1/2". Bottom of borehole at 50.0 feet bgs.

GENERAL NORTHGATE ENV _FORMATION_OS 2027.02_T_23_BORING_LOGS.GPJ 11/16/10

PROJE		ronm E <u>Tro</u> BER 2	nen nox 2027	L I tal r	management, inc.	BORING LOCATION	rson, NV	PAGE 1 OF 2
DATE DRILL DRILL	STARTED ING CONT ING METH ED BY _E	0 _6/29 RACT 100 _ K	9/10 OR Soni	_WD	COMPLETED _6/30/10 C CHECKED BY _JWO	TOC ELEVATION GROUNDWATER LEVELS: AFTER DRILLING SURFACE CONDITIONS:	HOLE S AT TIN AT EN	BIZE _9" IE OF DRILLING _ <u>26.00</u> ft D OF DRILLING
	SAMPLE TYPE	FORMATION	U.S.C.S.	GRAPHIC LOG	M	IATERIAL DESCRIPTION		WELL DIAGRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23			SM		Common-abu(?) soft cement.	with, recursion forowin (51% 5/4), 65% film y coarse grain angular to sub angular s and caliche granules/pea gravel to 3/4" erate to common calcareous grain coati	with local 2-3" ngs and soft	 Cement/Bento Grout 6" Schedule 4 PVC Capped Riser Hydrated Bentonite Pellets
24 25 26 27 28 29 30 31 32 33 34			SM		 ✓ Decrease in silt to 5-10%, increat 28'. SILTY SAND WITH GRAVEL (S with minor coarse to very caorse granules/pea gravel to 1/2", 5-25 (<10% silt) at 28-28.5', 29-30', 3 30-31.5', 32-34'. 	Ise in pea gravel to 25-30%, 6" layer of M); Brown (10YR 5/4), 60-75% fine to grain sand, 10-20% angular to sub rou % silt, slightly calcareous except 34-39 1.5-32', 34-39'. Silty sand (20-25% silt	3-4" cobbles at medium grain unded volcanic Y. Clean sand t) 28.5-29',	- 8-12 Filter Pa Sand - 6" Schedule 4 PVC 0.020" Slotted Well Screen

onorthgate environmental management, inc.	300 Frank H. Ogawa Plaza, Suite 510 94612 Telephone: 510-839-0688	WELL

L NUMBER PC-150 PAGE 2 OF 2

PROJECT NAME Tronox

BORING LOCATION

PROJECT LOCATION Henderson, NV

PRO	PROJECT NUMBER _2027.02			7.02	PROJECT LOCATION Henderson, NV		
DEPTH (ft)	SAMPLE TYPE NUMBER	FORMATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WEL	L DIAGRAM
_ 36 _ 37 _ 38 _ 39 _ 40 _ 41 _ 42 _ 43 _ 44			SM		SILTY SAND WITH GRAVEL (SM); Brown (10YR 5/4), 60-75% fine to medium grain with minor coarse to very caorse grain sand, 10-20% angular to sub rounded volcanic granules/pea gravel to 1/2", 5-25% silt, slightly calcareous except 34-39'. Clean sand (<10% silt) at 28-28.5', 29-30', 31.5-32', 34-39'. Silty sand (20-25% silt) 28.5-29', 30-31.5', 32-34'. (<i>continued</i>) Common 3-4" thick hard calichified sand and clean sand. - Common 3-4" thick hard calichified sand and clean sand. (<i>continued</i>) LEAN CLAY (CL); Light greenish gray (5GY 8/1), non-calcareous.		[—] 6" Schedule 40 PVC End Cap
					Bottom of borehole at 45.0 feet bgs.		
NERAL NORTHGATE ENV_FORMATION_OS_2027.02_T_23_BORING_LOGS.GPJ 11/16/10							