				_										
51	A		В		C Adjus	D sted Level of	E Significance	F 0.0122	G	Н		J Adjusted Chi S	K Square Value	L 6.697
52							0 /0					,		
53							As	suming Gam	ma Distribu	tion				
54		95%	6 Approxi	mate	Gamma	UCL (use w	hen n>=50))	72.21		95% Ad	djusted Gar	nma UCL (use	e when n<50)	94.24
55														
56								Lognorma	GOF Test					
57					S	hapiro Wilk T	Fest Statistic	0.789		Sha	piro Wilk Lo	ognormal GO	F Test	
58					5% S	hapiro Wilk C	Critical Value	0.788		Data appea	ar Lognorm	al at 5% Signi	ficance Level	
59						Lilliefors 7	Fest Statistic	0.341		Li	lliefors Log	normal GOF	Test	
60					5	% Lilliefors C	Critical Value	0.362		Data appea	ar Lognorm	al at 5% Signi	ficance Level	
61							Data appear	Lognormal	at 5% Signif	icance Leve	əl			
62														
63								Lognorma	I Statistics				-	
64						Minimum of I	Logged Data	2.14				Mean o	f logged Data	3.406
65					N	Maximum of I	_ogged Data	4.025				SD o	f logged Data	0.786
66							•							
67									ormai Distrid	ution	000	Chabuahau		75.65
68					0.5%	Chobychov (02.4			90%			/5.05
69					95%	Chebyshev (92.4			97.57			115.7
70					99%	Chebyshev (101.5						
71							Nonparame	etric Distribu	tion Free UC	C Statistics				
72						Data appea	r to follow a	Discernible	Distribution a	at 5% Signif	ficance Lev	el		
73										g				
74							Nonpa	rametric Dis	tribution Fre	e UCLs				
75						95	% CLT UCL	50.37				95% Ja	ackknife UCL	53.39
77					95%	Standard Bo	otstrap UCL	49.4				95% Bo	otstrap-t UCL	50.28
78					g	5% Hall's Bo	otstrap UCL	45.42			95%	Percentile B	ootstrap UCL	49.33
79						95% BCA Bo	otstrap UCL	47.17						
80					90% Ch	ebyshev(Me	an, Sd) UCL	61.45			95% (Chebyshev(Me	ean, Sd) UCL	72.56
81				9	7.5% Ch	ebyshev(Me	an, Sd) UCL	87.99			99% (Chebyshev(Me	ean, Sd) UCL	118.3
82														
83								Suggested	UCL to Use					
84						95% Stu	dent's-t UCL	53.39						
85														
86		No	te: Sugge	estion	s regard	ling the selec	tion of a 95%	UCL are pr	ovided to hel	p the user to	o select the	most appropr	riate 95% UCL	-
87			I hese rec	comm	endatio	ns are based	upon the res	ults of the si	mulation stud	dies summa	rized in Sin	gh, Singh, and	d laci (2002)	
88				an	d Singh	and Singh (2	2003). Howev	er, simulatio	ons results wi	II not cover	all Real Wo	rid data sets.		
89						For ad	aitional insig	nt the user m	lay want to c	onsult a stat	listician.			
90			Note: For	r hiab	ly poge	tively ekowa	d data .confi	dence limite	(e.g. Char	lohncon !	ognormal	and Comme)	may not be	
91			NULE: FOI	riign		Chen's and	u uaia, conti Iobneon'o m	athode provi	(e.y., unen,	nte for poci	weby ekowy		may not be	
92				ie					ue aujusune	nts for posit	IVEIY SKEWE	iu uala sels.		
93														

	А	В	С	D	E	F	G	Н		J	K	L
1					JCL Statis	tics for Data	Sets with No	on-Detects				
2												
3		User Sele	cted Options									
4	Da	te/Time of Co		12/22/2015 10	0:37:06 AM							
5			From File	Metals.xls								
6		Ful	Il Precision	OFF								
7		Confidence		95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	<u></u>											
11	v											
12						General	Statistics					
13			Total	Number of Ob	servations	6			Numbe	r of Distinct (hservations	6
14			TOLAI		servations	0			Number	of Missing (bservations	0
15					Minimum	12			Number	or wissing c	Mean	43.5
16					Maximum	68					Median	47.5
1/					SD	23.04				Std F	rror of Mean	9 405
18				Coefficient of	f Variation	0.53				0101 2	Skewness	-0.421
19						0.00					0.000000	
20			Note: Sam	ole size is sma	ll (e.a., <1)	0). if data ar	e collected u	ising ISM ar	oproach. vou	should use		
21			guidance pr	ovided in ITRC	Tech Reg	Guide on I	SM (ITRC, 20	012) to com	pute statistic	s of interest	•	
22			For e	example, you n	nay want to	o use Cheby	/shev UCL to	estimate E	PC (ITRC, 2	2012).		
23			Chebyshev	UCL can be c	omputed u	sing the No	nparametric	and All UCL	Options of	ProUCL 5.0		
24					•	-	•					
26						Normal (GOF Test					
27			S	hapiro Wilk Tes	st Statistic	0.917			Shapiro Wi	lk GOF Test		
28			5% SI	napiro Wilk Crit	ical Value	0.788		Data appe	ear Normal a	t 5% Signific	ance Level	
29				Lilliefors Tes	st Statistic	0.169			Lilliefors	GOF Test		
30			5	% Lilliefors Crit	ical Value	0.362		Data appe	ear Normal a	t 5% Signific	ance Level	
31					Data appea	ar Normal at	t 5% Significa	ance Level				
32												
33					As	suming Nori	mal Distributi	ion				
34			95% No	ormal UCL				95%	UCLs (Adju	sted for Ske	wness)	
35				95% Stude	nt's-t UCL	62.45			95% Adjuste	d-CLT UCL	(Chen-1995)	57.24
36									95% Modifie	ed-t UCL (Jol	hnson-1978)	62.18
37												
38						Gamma	GOF Test					
39				A-D Tes	st Statistic	0.4		Ander	son-Darling	Gamma GO	F Test	
40				5% A-D Crit	ical Value	0.701	Detected	l data appea	ir Gamma Di	stributed at 5	5% Significan	ce Level
41				K-S Tes	st Statistic	0.218	_	Kolmoç	grov-Smirno	ff Gamma G	OF Test	
42				5% K-S Crit	ical Value	0.334	Detected	data appea	ir Gamma Di	stributed at 5	5% Significan	ce Level
43				Detected d	ata appear	Gamma Di	stributed at 5	% Significa	nce Level			
44						0	Ototiotio -					
45				<u> </u>			STATISTICS					1.000
46				K Thata	hat (MLE)	3.141			K :	star (blas cor		1.082
47				neta		37 60			ineta			20.07
48			N /1	F Mean /bias		37.09					as corrected)	20.10
49			IVII		conectea)	43.3			Annrovimete			10 00
50									Approximate	Square	value (0.05)	10.90

								-							
51	A		В	C Ac	ljust	D ed Level of	E Significance	F 0.0122	G	Н		Ac	J ljusted Chi S	K Square Value	L 8.642
52															
53							As	suming Gam	ma Distribut	tion					
54	9	95% Ap	proxin	nate Gam	ma l	JCL (use w	/hen n>=50))	79.92		95% Ac	djusted (Gamn	na UCL (use	when n<50)	101.6
55								1							
56								Lognorma	GOF Test						
57					Sh	apiro Wilk	Test Statistic	0.872		Sha	piro Wil	k Log	normal GOI	F Test	
58				5%	5 Sha	apiro Wilk (Critical Value	0.788		Data appea	ar Logno	ormal	at 5% Signif	icance Level	
59						Lilliefors	Test Statistic	0.242		Li	lliefors l	Logno	ormal GOF 1	Fest	
60					5%	Lilliefors (Critical Value	0.362		Data appea	ar Logno	ormal	at 5% Signif	icance Level	
61							Data appea	r Lognormal	at 5% Signif	icance Leve					
62															
63								Lognorma	I Statistics						
64					M	inimum of	Logged Data	2.485					Mean of	logged Data	3.605
65					Ma	aximum of	Logged Data	4.22					SD of	logged Data	0.696
66							A		me al Diatrib						
67									ormai Distrid	ution		000/ /	Chabyahay		90 7E
68				05	0/ 0	habyahay		125.3			0-	90% (7 E0/ /	Chebysnev (82.75
69				90		hobychov		99.95			97	.5%	Shebyshev (123.0
70				93	/% C	TIEDySTIEV		170.7							
71							Nonnaram	etric Distribu	tion Free LIC	Statistics					
72					r)ata annea	ar to follow a	Discernible	Distribution :	at 5% Signif	ficance	l evel			
73					-					at o /o olgini					
74							Nonpa	rametric Dis	tribution Fre	e UCLs					
75						9!	5% CLT UCL	58.97					95% Ja	ackknife UCL	62.45
70				9	5% S	tandard Bo	ootstrap UCL	57.89					95% Boo	otstrap-t UCL	60.12
78					95	% Hall's Bo	ootstrap UCL	53.93			ç	95% F	Percentile Bo	ootstrap UCL	57.17
70					9	5% BCA Bo	ootstrap UCL	56.33							
80				90%	Che	byshev(Me	an, Sd) UCL	71.71			95	% Ch	ebyshev(Me	an, Sd) UCL	84.49
81				97.5%	Che	byshev(Me	an, Sd) UCL	102.2			99	% Ch	ebyshev(Me	an, Sd) UCL	137.1
82								1							
83								Suggested	UCL to Use						
84						95% Stu	ident's-t UCL	62.45							
85								1							
86		Note: S	Sugges	stions reg	ardir	ig the selee	ction of a 95%	6 UCL are pr	ovided to hel	p the user to	select	the m	ost appropri	ate 95% UCL	
87		The	se reco	ommenda	tions	are based	l upon the res	sults of the si	mulation stud	dies summa	rized in	Singh	i, Singh, and	l laci (2002)	
88				and Sin	igh a	nd Singh (2003). Howe	ver, simulatio	ons results wi	Il not cover	all Real	World	d data sets.		
89						For ac	lditional insig	ht the user m	nay want to c	onsult a stat	istician.				
90															
91		Not	e: For	highly ne	gati	ely-skewe	d data, confi	dence limits	(e.g., Chen,	Johnson, L	ognorm	al, ar	nd Gamma)	may not be	
92				reliable	ə. C	hen's and	Johnson's m	ethods provi	de adjustme	nts for posit	vely sk	ewed	data sets.		
93															

	А	В	С	D	E	F	G	Н		J	K	L
1				ιι	JCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Sele	cted Options									
4	Dat	te/Time of Co	omputation	12/22/2015 10):37:43 AM							
5			From File	Metals.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number of	of Bootstrap (Operations	2000								
9												
10												
11	Zn											
12												
13						General	Statistics					
14			Total	Number of Obs	servations	6			Number	r of Distinct C	bservations	6
15									Number	of Missing C	bservations	0
16					Minimum	16					Mean	51.67
17					Maximum	92					Median	55
18					SD	32.18				Std. E	rror of Mean	13.14
19				Coefficient of	t Variation	0.623					Skewness	-0.0317
20												
21			Note: Sam	ple size is sma	ll (e.g., <1	0), if data ai		ising ISM ap	oproach, you	should use		
22			guidance pr			Guide on F	SM (ITRC, 20	U12) to com		S OF INTEREST.	•	
23			For e	example, you n	nay want to		/snev UCL to		PC (ITRC, 2	012).		
24			Cnebysnev	UCL can be c	computed t	Ising the No	nparametric	and All UCL	Deptions of	Prouce 5.0		
25												
26				hanira Wilk Ta	at Statistic				Shapira Wi			
27			50/ 01	napiro Wilk Tes		0.091		Data anno	Shapiro wi	t E% Signifier		
28			5% 51			0.700						
29			F			0.220		Data ann		GOF Test		
30			5		Data anno:	0.302	5% Signific					
31							signina					
32					Δο	suming Nor	mal Dietributi	ion				
33			95% No		~~~	suming Non		95%	LICI e (Adiu	sted for Ske	where)	
34			0070110	95% Stude	nt's-t UCI	78 14			95% Adjuste		Chen-1995)	73 1
35						, 0.17			95% Modifie		nson-1978)	78.11
36												
ა/ აი						Gamma	GOF Test					
30 20				A-D Tes	st Statistic	0.472		Ander	son-Darling	Gamma GO	F Test	
39				5% A-D Crit	ical Value	0.703	Detected	l data appea	ir Gamma Di	stributed at 5	% Significan	ce Level
40				K-S Tes	st Statistic	0.269		Kolmog	grov-Smirnot	ff Gamma G	OF Test	
41 12				5% K-S Crit	ical Value	0.335	Detected	l data appea	ır Gamma Di	stributed at 5	% Significand	ce Level
42 42				Detected da	ata appear	Gamma Di	stributed at 5	5% Significa	nce Level		-	
43 44								-				
45						Gamma	Statistics					
46				k	hat (MLE)	2.466			ks	star (bias cor	rected MLE)	1.344
47				Theta	hat (MLE)	20.95			Thetas	star (bias cor	rected MLE)	38.44
48				nu	hat (MLE)	29.59				nu star (bia	s corrected)	16.13
49			MI	E Mean (bias o	corrected)	51.67				MLE Sd (bia	s corrected)	44.57
50									Approximate	Chi Square	Value (0.05)	8.053
55							1					

	-	-	_	-	_										
51	A		3	C Ad	juste	D d Level of	E Significance	F 0.0122	G	Н		Ac	J ljusted Chi S	K Kalue	L 6.108
52															
53							As	suming Garr	nma Distribut	tion					
54	ę	95% Ap	proxin	nate Gam	ma U	CL (use w	/hen n>=50))	103.5		95% Ad	djusted (Gamn	na UCL (use	when n<50)	136.4
55															
56								Lognorma	GOF Test						
57					Sha	piro Wilk	Test Statistic	0.852		Sha	piro Wil	k Log	normal GOI	- Test	
58				5%	Sha	oiro Wilk (Critical Value	0.788		Data appea	ar Logno	ormal	at 5% Signif	icance Level	
59						Lilliefors	Test Statistic	0.255		Li	lliefors l	Logno	ormal GOF 1	lest	
60					5%	Lilliefors (Critical Value	0.362		Data appea	ar Logno	ormal	at 5% Signif	icance Level	
61							Data appea	r Lognormal	at 5% Signif	icance Leve					
62															
63					N 41		Leaned Date	Lognorma	I Statistics				Maan of	langed Data	2 720
64					Ma		Logged Data	2.773					SD of	logged Data	3.729
65					IVId		Loggeu Dala	4.522					30 0	loggeu Dala	0.772
66							۵۹۵	umina Loana	rmal Distrib	ution					
67							95% H-UCI					90% (Chebyshev (MVUF) UCI	102.6
68				95	% Ch	ebvshev (125.1			97	7.5% (Chebyshev (MVUE) UCL	156.4
69				99	% Ch	ebvshev (MVUE) UCL	217.8							
70															
71							Nonparam	etric Distribu	tion Free UC	L Statistics	;				
72					D	ata appea	ar to follow a	Discernible	Distribution a	at 5% Signif	icance	Level			
73															
75							Nonpa	rametric Dis	tribution Fre	e UCLs					
76						95	5% CLT UCL	73.28					95% Ja	ckknife UCL	78.14
77				95	5% St	andard Bo	ootstrap UCL	70.93					95% Boo	otstrap-t UCL	80.95
78					95%	6 Hall's Bo	ootstrap UCL	67.07			9	95% F	Percentile Bo	ootstrap UCL	71.17
79					95	% BCA Bo	ootstrap UCL	69.83							
80				90%	Cheb	yshev(Me	an, Sd) UCL	91.08			95	% Ch	ebyshev(Me	an, Sd) UCL	108.9
81				97.5%	Cheb	yshev(Me	an, Sd) UCL	133.7			99	% Ch	ebyshev(Me	an, Sd) UCL	182.4
82															
83								Suggested	UCL to Use						
84						95% Stu	dent's-t UCL	78.14		I			I		
85										_					
86		Note: S	Sugges	stions rega	arding	the selec	ction of a 95%	6 UCL are pr	ovided to hel	p the user to	select	the m	ost appropri	ate 95% UCL	
87		Thes	se reco	ommenda	tions	are based	upon the res	suits of the si	mulation stud	lies summa	rized in	Singh	i, Singh, and	i iaci (2002)	
88				and Sin	yn ar		2003). HOWe	ver, simulatio	ons results wi	II NOT COVER	all Real	vvorlo	u data sets.		
89						For ad	iuilionai Insig	ni ule user fr	iay want to c	Unsuit a stat	isucian.				
90		Not	a For	hiably po	notiv/	alv-ekowo	and ata and	dence limite		lohneon !	oanorm	nal ar	d Gamma)	may not be	
91		NUL	5.1.01	reliable		en's and	Iohnson's m	ethode provi	de adjuetme	nts for poei	velv ek	ai, ai ewed	data eete		
92				ionable	. 01						Soly SN	Sincu			
93															

APPENDIX D

Boring Logs



BORING/	WELL NUI	MBER		B7			
PROJECT	Comn	nercial Pro	perty			OWNEF	R
LOCATION	N 29	508 Roads	ide Drive,	Agoura Hills, C	A	PROJEC	T NUMBER
DATE DRI	ILLED	June 11,	2015			TOTAL	DEPTH OF HOLE 15 Feet
SURFACE	ELEVATIO	ON				DEPTH	TO WATER 8 Feet
SCREEN:	DIA.			L	ENGTH		SLOT SIZE
CASING: I	DIA.			L	ENGTH		ТҮРЕ
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL N	METHOD HSA
DRILLER	Gilber	rt –				LOG BY	Zan Louks
DEDENI		CONCE	DID		N 80		
(FEET)	WELL	CONST	PID (PPM)	SAMI	PLES	CLASS	(COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
5			2.4	B7-5 B7-10	5/7/10	SM CL	Silty SAND; dark brown, very fine grained, loose, some concrete and brick debris, no odor. Silty CLAY; brown, low plasticity, 10% fine gravel, moist, no odor.
15			<1	B7-15	13/15/18	CL	Silty CLAY; dark brown, low plasticity, dense, moist, no odor. Set temporary casing to allow for groundwater
20							accumulation. Groundwater accumulated at about 8 feet bgs. Collect groundwater sample, seal with bentonite to 5 feet. Install Soil Gas Probe SG1 at 5 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.



BORING/	WELL NUI	MBER		B8			
PROJECT	Comn	nercial Pro	perty			OWNEF	1
LOCATIO	N 29	508 Roads	ide Drive,	Agoura Hills, C	A	PROJEC	TNUMBER
DATE DR	ILLED	June 11,	2015			TOTAL	DEPTH OF HOLE 20 Feet
SURFACE	ELEVATIO	ON				 DEPTH	TO WATER
SCREEN:	DIA.			L	ENGTH		SLOT SIZE
CASING: I	DIA.			L	ENGTH		ТҮРЕ
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL N	METHOD HSA
DRILLER	Gilber	rt –				LOG BY	Dan Louks
DEPTH (FEET)	WELL	CONST	PID (PPM)	SAMI	PLES	SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
5			1.2	B8-5		SM	Silty SAND; dark brown, very fine grained, loose, 10% fine gravel, no odor.
10			<1	B8-10	8/13/18	ML	Sandy SILT; reddish gray, very fine to fine sand, low plasticity, dense, some clay, dry, no odor.
15			<1	B8-15	10/18/26	CL	Silty CLAY; brown, low plasticity, dense, some gray staining, moist, no odor. Sampler wet, no water accumulation.
20			<1	B8-20	10/24/35	CL	Silty CLAY; brown, low plasticity, very moist, no odor. Set temporary casing to allow for groundwater accumulation. No groundwater. Seal with bentonite to 5 feet. Install Soil Gas Probe SG2 at 5 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.



BORING/	WELL NUI	MBER		B9							
PROJECT Commercial Property OWNER											
LOCATIO	N 29	508 Roads	side Drive,	Agoura Hills, C	A	PROJEC	TNUMBER				
DATE DR	ILLED	June 11,	2015			TOTAL	DEPTH OF HOLE 20 Feet				
SURFACE	ELEVATIO	ON				DEPTH	TO WATER				
SCREEN:	DIA.			L	ENGTH		SLOT SIZE				
CASING: I	DIA.			L	ENGTH		ТҮРЕ				
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL	METHOD HSA				
DRILLER	Gilber	t				LOG BY	Dan Louks				
DEPTH (FEET)	WELL	CONST	PID (PPM)	SAMI	PLES	SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)				
	PIPE	FILL		NUMBER	BLOW	(USCS)					
5			1.1	B9-5		SM	Silty SAND; brown, very fine grained, loose, 20% fine gravel, dry, no odor.				
10			<1	B9-10	10/14/18	CL	Silty CLAY; brown, low plasticity, hard, no odor.				
15			<1	B9-15	28/24/20	CL	Sandy CLAY; brown, low plasticity, dense, 25% fine to coarse gravel, dry, no odor.				
20			<1	B9-20	50/50	SM	Silty SAND; brown, very fine to fine grained, 25% fine gravel, some clay, very hard, no odor. Set temporary casing to allow for groundwater accumulation. No groundwater. Seal with bentonite to 10 feet. Install Soil Gas Probe SG3 at 10 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.				



BORING/V	WELL NUN	MBER	E	310								
PROJECT	PROJECT Commercial Property OWNER											
LOCATION	N 29	508 Roads	ide Drive, .	Agoura Hills, C	T NUMBER							
DATE DRI	LLED	June 11,	2015			TOTAL	DEPTH OF HOLE 20 Feet					
SURFACE	ELEVATIO	ON				— DEPTH	TO WATER 12 Feet					
SCREEN:	DIA.			L	ENGTH	_	SLOT SIZE					
CASING: I	DIA.			L	ENGTH		ТҮРЕ					
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL N	METHOD HSA					
DRILLER	Gilber	t –				LOG BY	Dan Louks					
DEPTH (FEET)	WELL	CONST	PID (PPM)	SAME	PLES	SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)					
(1221)	PIPE	FILL	(11.1)	NUMBER	BLOW	(USCS)						
5			<1	B10-5	18/20/29	SM	Silty SAND; brown, very fine grained, very hard, some fine gravel, dry, no odor.					
10			<1	B10-10	50/50	SM	Silty SAND; brown, very fine grained, very hard, 20% fine gravel, dry, no odor.					
15			<1	B10-15	17/22/32	SM	Silty SAND; brown, very fine grained, hard, some clay, dry, no odor.					
20			<1	B10-20	50/50	ML	 SILT; brown, low plasticity, 20% fine gravel, some sand, very hard, no odor. Set temporary casing to allow for groundwater accumulation. Groundwater accumulated at about 12 feet bgs. Collect groundwater sample, seal with bentonite to 5 feet. Install Soil Gas Probe SG4 at 5 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15. 					



BORING/	WELL NUI	MBER	I	311								
PROJECT	Comn	nercial Pro	perty			OWNE	R					
LOCATIO	N 29	508 Roads	ide Drive,	Agoura Hills, C	A	PROJEC	CT NUMBER					
DATE DR	ILLED	June 11,	2015			TOTAL	DEPTH OF HOLE 20 Feet					
SURFACE	ELEVATIO	ON	-			DEPTH	TO WATER					
SCREEN:	DIA.			L	ENGTH	SLOT SIZE						
CASING: I	DIA.			L	ENGTH		ТҮРЕ					
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL	METHOD HSA					
DRILLER	Gilber	t –				LOG BY	Z Dan Louks					
DEDTU	MALET I	CONST	DID	CAMI	DI EC		DESCRIPTION/COLL CLASSIELCATION					
(FEET)	WELL	LUNSI	(PPM)	SAMI	² LES	CLASS	(COLOR, TEXTURE, STRUCTURES)					
	PIPE	FILL		NUMBER	BLOW	(USCS)						
5												
							Silty SAND Fill.					
10												
10												
15			<1	B11-15	18/20/25	CL	Silty CLAY; light brown, low plasticity, hard, no odor.					
				- / /								
20			<1	B11-20	15/22/25	ML	Clayey, Sandy, SILT; brown, low plasticity, very hard, no odor.					
							Cattorn around a sing to allow for mound water					
							accumulation. No groundwater. Seal with bentonite to 10					
							feet. Install Soil Gas Probe SG5 at 10 feet bgs. Seal with					
							Sentemet, sample son gas on 0/15/15.					



	IDEN		512				
Comm	nercial Pro	perty			OWNER	ł	
N 29	508 Roads	ide Drive, A	Agoura Hills, C.	A	PROJEC	T NUMBER	
ILLED	June 11,	2015			TOTAL	DEPTH OF HOLE20 Feet	
ELEVATIO	DN				DEPTH	TO WATER	
DIA.			L	ENGTH		SLOT SIZE	
DIA.			L	ENGTH		ТҮРЕ	
COMPAN	Y _	Aztech Dr	illing		DRILL I	METHOD HSA	
Gilber	ť				LOG BY	Dan Louks	
WELL	CONST	PID (PPM)	SAMF	PLES	SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	
PIPE	FILL		NUMBER	BLOW	(USCS)		
		2.4	B12-6		CL	Silty CLAY; dark gray, medium plasticity, very slight netroleum odor	
		1.2	B12-10	15/21/30	CL	Gravelly CLAY; gray/brown, low plasticity, very fine to coarse gravel, no odor.	
		0.4	B12-15	12/14/18	CL	Gravelly CLAY; dark gray, low plasticity, very fine to coarse gravel, no odor.	
						Very dense. Refusal at 17 feet – boulder.	
						Set temporary casing to allow for groundwater accumulation. No groundwater. Seal with bentonite to 15 feet. Install Soil Gas Probe SG6 at 15 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.	
	Comm N 299 ILLED ELEVATIO DIA. Gilber WELL O PIPE	Commercial Pro N 29508 Roads ILLED June 11, ELEVATION DIA. Gilbert VELL CONST PIPE FILL	Commercial Property 29508 Roadside Drive, A ILLED June 11, 2015 ELEVATION Aztech Drive, A DIA. Aztech Drive, A Gilbert Image: Astech Drive, A WELL CONST PIDP IMPE FILL VELL 2.4 Image: Astech Drive, A 1.2 Image: Astech Drive, A 0.4	N 29508 Roadside Drive, Agoura Hills, C ILLED June 11, 2015 ELEVATION DIA. COMPANY Aztech Drilling Gilbert VELL VST PIPE FILL 2.4 B12-6	N 29508 Roadside Drive, Agoura Hills, CA ILLED June 11, 2015 ELEVATION DIA. LENGTH DIA. Aztech Drilling Gilbert VELL CONST PID 75AMES PIPE FILL 010 154 1.2 B12-10 15/21/30 1.2 B12-10 15/21/30 0.4 B12-15 12/14/18	OWNER OWNER N 29508 Roadside Drive, Agoura Hills, CA PROJEC ILLED June 11, 2015 TOTAL ELEVATION DEPTH DIA LENGTH DRILLI GOMPANY Actech Drilling SOIL OLL SOIL OLL CLASS PIPE FILE CLASS Acte Drilling DAC Acte Drilling <th col<="" td=""></th>	



BORING/	WELL NUN	MBER	E	313								
PROJECT	Comn	nercial Pro	perty			OWNER						
LOCATION	N 29	508 Roads	ide Drive, .	Agoura Hills, C.	A	PROJEC	TNUMBER					
DATE DRI	LLED	June 11,	2015			TOTAL	DEPTH OF HOLE 30 Feet					
SURFACE	ELEVATIO	ON				DEPTH	TO WATER					
SCREEN:	DIA.			L	ENGTH	SLOT SIZE						
CASING: I	DIA.			L	ENGTH	ТҮРЕ						
DRILLING	COMPAN	Y	Aztech Dr	illing		DRILL	METHOD HSA					
DRILLER	Gilber	t				LOG BY	Dan Louks					
DEPTH (FEET)	WELL	CONST	PID (PPM)	SAMI	PLES	SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)					
	PIPE	FILL		NUMBER	BLOW	(USCS)						
5												
10												
15			<1	B13-15	10/15/26	CL	Gravelly, Silty CLAY; dark brown, low plasticity, 20% fine gravel. no odor.					
20			<1	B13-20	15/28/21	SM	Silty SAND; greenish-gray, very fine to fine grained, 25% fine gravel, some clay, no odor.					
25			<1	B13-25	17/25/45	CL	Silty CLAY; brown, low plasticity, very hard, moist, no odor.					
30			<1	B13-30	18/36/50	CL	Silty CLAY; dark gray, low plasticity, semi-consolidated, dry, no odor. Set temporary casing to allow for groundwater accumulation. No groundwater. Seal with bentonite to 10 feet. Install Soil Gas Probe SG7 at 10 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.					



BORING/WELL NUMBER B14 PROJECT **Commercial Property OWNER** LOCATION 29508 Roadside Drive, Agoura Hills, CA **PROJECT NUMBER** DATE DRILLED June 11, 2015 **TOTAL DEPTH OF HOLE** 20 Feet SURFACE ELEVATION **DEPTH TO WATER** SCREEN: DIA. **SLOT SIZE** LENGTH CASING: DIA. LENGTH TYPE **DRILLING COMPANY Aztech Drilling DRILL METHOD** HSA DRILLER Gilbert LOG BY Dan Louks DEPTH WELL CONST PID SAMPLES **DESCRIPTION/SOIL CLASSIFICATION** SOIL (FEET) (PPM) CLASS (COLOR, TEXTURE, STRUCTURES) PIPE FILL NUMBER **BLOW** (USCS) 5 Silty SAND Fill. 10 B14-15 11/17/21 ML Clayey, Sandy, SILT; brown, low plasticity, very hard, no 15 <1 odor. 20 B14-20 12/20/35 CL Silty CLAY; brown, low plasticity, some very fine sand, <1 hard, no odor. Set temporary casing to allow for groundwater accumulation. No groundwater. Seal with bentonite to 10 feet. Install Soil Gas Probe SG8 at 10 feet bgs. Seal with bentonite. Sample soil gas on 6/15/15.

APPENDIX E

Johnson & Ettinger Model Results Residential Scenario

Department of Toxic Substances Control Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

Scenario: Residential Chemical: 1,2,4-Trimethylbenzene

> RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Reset to Defaults YES

Risk-Based Groundwater

Concentration

Noncancer HQ = 1 (µg/L)

(hg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer Cancer Risk (alpha) (C_{building}) Risk Hazard = 10⁻⁶

Soil Gas Conc.

(C_{source}) (µg/m³)

(hg/m³)

(unitless)

Results Summary

ENTER	Initial	groundwater	conc.,	C _w	
ENTER		Chemical	CAS No.	(numbers only,	

Chemical	1,2,4-Trimethylbenzene
(hg/L)	8.10E+00
no dashes)	95636

ENTER	Average soil/	groundwater	temperature,	Ts	(c)
ENTER		SCS	soil type	directly above	water table
ENTER	Denth	below grade	to water table,	Lwt	(cm)
ENTER Denth	below grade to hottom	of enclosed	space floor,	Ļ	(15 or 200 cm)

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ENTER Average vapor flow rate into bidg. (Leave blank to calculate) Q₅₀₄ (L/m)

(used to type (used to type soil vapor permeability) (cm ²	oor scs scs cokup soil	Vadose zone soil dry bulk density, P _b ^V (g/cm ³)	Vadose zone soil total porosity, n ^v (unitless)	Vadose soil wate poros θw [\] (cm ^⁴ /c
	ē			

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	THQ	AT_{c}	AT _{NC}	ED	EF	ET	ACH
	raiallieters	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residentia	1.0E-06	-	70	26	26	350	24	0.5
		Used to calcul	ate risk-based					(NEM)	(NEM)
		groundwater	concentration.						

-

END

DATENTER Page 1 of 1

Department of Toxic Substances Control Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

E RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in " YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Reset to Defaults

	×	
•	YES	-

				Chemical	
ENTER	Initial groundwater	conc.,	Cw	(hg/L)	
ENTER	Chemical	CAS No.	(numbers only,	no dashes)	

5.10E+00

108678

ENTER	Average	soil	groundwater	temperature,	Ts	(c)
ENTER			SCS	soil type	directly above	water table
ENTER		Depth	below grade	to water table,	L _{WT}	(cm)
ENTER	Depth below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)

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ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q _{sol}	
--	--

		띪	e zone	ter-filled	osity,	>,	/cm³)	103
		Ä	Vados	soil wa:	porc	Ð	cm ْ	0
		ENTER	Vadose zone	soil total	porosity,	^c	(unitless)	0.387
		ENTER	Vadose zone	soil dry	bulk density,	ρv	(g/cm ³)	1.62
		ENTER	Vadose zone	SCS	eoil type	Lookup Soil		SL
	ENTER	User-defined	vandose zone	soil vapor	permeability,	k	(cm ²)	
					OR			
	ENTER	Vadose zone	SCS	soil type	(used to estimate	soil vapor	permeability)	SL
MORE	•							

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	T	тно	ATc	AT _{NC}	ED	, HI	ET	ACH
	raialitetets	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residentia	1.0E-06	+	70	26	26	350	24	0.5
		Used to calcu	ate risk-based					(NEW)	(NEM)
		groundwater	concentration.						

.

END

Scenario: Residential Chemical: 1,3,5-Trimethylbenzene

	Results	Summarv			Risk-Based (Groundwater
		,			Concer	Itration
Soil Gas Conc.	Attenuation Factor	Indoor Air Conc.	Cancer	Noncancer	Cancer Risk	Noncancer
(C _{source})	(alpha)	(C _{building})	Risk	Hazard	= 10 ⁶	HQ = 1
(пд/ш ³)	(unitless)	(hg/m³)			(hg/L)	(hg/L)
1.10E+03	6.0F-05	6.5F-02	NA	1.8F-03	ΝA	NA

MESSAGE: Risk and/or HQ (or risk-based groundwater concentration) is based on route-to-route extrapolation. MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

Department of Toxic Substances Control Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

Scenario: Residential Chemical: Benzene

> RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in " YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Reset to Defaults

Х	
YES	

Risk-Based Groundwater

Concentration

Noncancer HQ = 1 (µg/L)

(hg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer Cancer Risk (alpha) (C_{buelding}) Risk Hazard = 10⁻⁶

(hg/m³)

(unitless)

Soil Gas Conc. (C_{source}) (µg/m³)

Results Summary

ENTER	Initial	groundwater	conc.,	č
ENTER		Chemical	CAS No.	umbere only

		Chemical	Benzene	
conc.,	C _W	(hg/L)	9.80E+00	
CAS No.	(numbers only,	no dashes)	71432	

Benzene	MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.	ENTER ENTER
9.80E+00		ENTER
432		HER K

ENTER		Average	soil/	groundwater	temperature,	Ts	(°C)	
ENTER				SCS	soil type	directly above	water table	
ENTER			Depth	below grade	to water table,	Lwt	(cm)	
ENTER	Depth	below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)	

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ENTER	Vadose zone User-defi	SCS vandose z	soil type soil vap	(used to estimate OR permeab	soil vapor kv	permeability) (cm ²)	0
	red ENTER	one Vadose zone	or SCS	lity, soil type	Lookup Soil		J
	ENTER	Vadose zone	soil dry	bulk density,	P _P ^	(g/cm ³)	1 6.7
	ENTER	Vadose zone	soil total	porosity,	^c	(unitless)	0 387
	ENTER	Vadose zone	soil water-fillec	porosity,	θω	(cm³/cm³)	0 103

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	тна	ATc	AT _{NC}	ED		ET	ACH
	raialitetets	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residentia	1.0E-06	-	70	26	26	350	24	0.5
		Used to calcu	ate risk-based					(NEW)	(NEW)
		groundwater	concentration.						

Last Update: December 2014 DTSC Human and Ecological Risk Office

END

DATENTER Page 1 of 1

Vapor Intrusion Screening Model - Groundwater

Department of Toxic Substances Control

DTSC Modification December 2014

Reset to Defaults

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box) YES

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER	Initial	groundwater	conc.,	C _W
ENTER		Chemical	CAS No.	(numbers only,

Chemical	Ethylbenzene
(Hg/L)	6.20E+00
no dashes)	100414

ENTER	Average	soil/	groundwater	temperature,	Ts	(°C)
ENTER			SCS	soil type	directly above	water table
ENTER		Depth	below grade	to water table,	L _{WT}	(cm)
ENTER Depth	below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)

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ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{sol} (L/m)

NTER ose zone SCS vi type	NTER ENTER See zone Vadose zone SCS soil dry vit type butk density, Pb ^V (g/cm [*])
	ENTER Vadose zone soil dry bulk density, p ^b (g/cm ³)
ENTER Vadose zone soil total porosity, n ^v (unitless)	

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	THQ	AT_{c}	AT _{NC}	ED	ΕĿ	ET	ACH
	rarameters	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residentia	1.0E-06	+	70	26	26	350	24	0.5
		Used to calcu	ate risk-based					(NEM)	(NEW)
		groundwater	concentration.						

Last Update: December 2014 DTSC Human and Ecological Risk Office

END

Scenario: Residential Chemical: Ethylbenzene **Risk-Based Groundwater**

Concentration

Noncancer HQ = 1 (µg/L)

Cancer Risk = 10⁻⁶ (μg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer (alpha) (C_{tuttrim}) Risk Under

> Soil Gas Conc. (C_{source}) (µg/m³)

(hg/m³)

(unitless)

Results Summary

Vapor Intrusion Screening Model - Groundwater

Department of Toxic Substances Control

DTSC Modification December 2014

Reset to Defaults

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box) YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Х	
YES	

Risk-Based Groundwater

Scenario: Residential Chemical: m-Xylene Concentration

Noncancer HQ = 1 (µg/L)

Cancer Risk = 10⁻⁶ (µg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer (alpha) (Counting) Risk Hazard

Soil Gas Conc. (C_{source}) (µg/m³)

(hg/m³)

(unitless)

Results Summary

				Chem	
					m-Xylene
ENTER	Initial groundwater	conc.,	ů. C	(hg/L)	4.40E+01
ENTER	Chemical	CAS No.	(numbers only,	no dashes)	108383

g

ENTER	Average	groundwater	temperature,	Ts	(c)
ENTER		scs	soil type	directly above	water table
ENTER	4000	below grade	to water table,	L _{WT}	(cm)
	below grade	of enclosed	space floor,	Ļ	(15 or 200 cm)

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$\begin{array}{c} \textbf{ENTER} \\ \text{Average vapor} \\ \text{flow rate into bldg.} \\ (Leave blank to calculate) \\ Q_{ool} \\ (L/m) \end{array}$	5
--	---

	ENTE	Vadose 2	SCS	soil type	(used to es	soil vap	permeat	ō
	œ	zone		De la companya	timate OR	bor	ility)	
	ENTER	User-defined	vandose zone	soil vapor	permeability,	ĸ	(cm ²)	
		ENTER	Vadose zone	SCS	eoil type	Lookup Snil		U
		ENTER	Vadose zone	soil dry	bulk density,	P _P <	(g/cm ³)	1 6.7
		ENTER	Vadose zone	soil total	porosity,	^c	(unitless)	0 387
		ENTER	Vadose zone	soil water-filled	porosity,	θ	(cm³/cm³)	0 103

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	THQ	AT_{c}	AT _{NC}	ED	EF	ET	ACH
	raiaiiieteis	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residential	1.0E-06	-	70	26	26	350	24	0.5
		Used to calcul	late risk-based					(NEM)	(NEM)
		groundwater	concentration.						

END

Vapor Intrusion Screening Model - Groundwater

Department of Toxic Substances Control

DTSC Modification December 2014

Reset to Defaults

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box) YES

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

Risk-Based Groundwater

Scenario: Residential Chemical: o-Xylene Concentration

Noncancer HQ = 1 (µg/L)

(hg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer Cancer Risk (alpha) (C_{buelding}) Risk Hazard = 10⁻⁶

Soil Gas Conc. (C_{source}) (µg/m³) 2.42E+03

(hg/m³)

(unitless)

Results Summary

ENTER	Initial	groundwater	conc.,	Cw
ENTER		Chemical	CAS No.	(numbers only,

Chemical	o-Xviene
сw (нg/L)	1.80E+01
(numbers only, no dashes)	95476

ENTER	Average	soil/	groundwater	temperature,	Чs	(°C)
ENTER			SCS	soil type	directly above	water table
ENTER		Depth	below grade	to water table,	Lwt	(cm)
ENTER Depth	below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)
_						

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		ENTER ENTER	Vadose zone Vadose zo	soil dry soil tota	bulk density, porosity	P _b ^v	(unitless) (unitless	1.62 0.387
		ENTER	Vadose zone	SCS	coil type	Lookup Soil		SL
	ENTER	User-defined	vandose zone	soil vapor	permeability,	ĸ	(cm ²)	
					S			
	ENTER	Vadose zone	SCS	soil type	(used to estimate	soil vapor	permeability)	SL
¢RE								

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	THQ	AT_{c}	AT _{NC}	ED	EF	ET	ACH
	raiallieleis	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Residential	1.0E-06	-	70	26	26	350	24	0.5
		Used to calcu	ate risk-based					(NEW)	(NEM)
		groundwater	concentration.						

END

DATENTER Page 1 of 1

Department of Toxic Substances Control Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

E RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in " YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Reset to Defaults YES

ENTER	Initial	groundwater	conc.,	C _W	(hg/L)
ENTER		Chemical	CAS No.	(numbers only,	no dashes)

Chemical	p-Xylene	
(Hg/L)	4.40E+01	
no dashes)	106423	

ENTER		Average	soil/	groundwater	temperature,	Ts	(°C)	
ENTER				SCS	soil type	directly above	water table	
ENTER			Depth	below grade	to water table,	Lwt	(cm)	
ENTER	Depth	below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)	

MORE

ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{col}

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	ENTE	Vadose 2	SCS	soil type	(used to es	soil vap	permeat	ō
	œ	zone		De la companya	timate OR	bor	ility)	
	ENTER	User-defined	vandose zone	soil vapor	permeability,	ĸ	(cm ²)	
		ENTER	Vadose zone	SCS	eoil type	Lookup Snil		U
		ENTER	Vadose zone	soil dry	bulk density,	P _P <	(g/cm ³)	1 6.7
		ENTER	Vadose zone	soil total	porosity,	^c	(unitless)	0 387
		ENTER	Vadose zone	soil water-filled	porosity,	θ	(cm³/cm³)	0 103

	MORE								
	•	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	THQ	AT_{C}	AT _{NC}	ED	EF	ET	ACH
	raiailleteis	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
					-				
NEW=>	Residentia	1.0E-06	+	70	26	26	350	24	0.5
		Used to calcu	late risk-based					(NEM)	(NEW)
		groundwater	concentration.						

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END

Scenario: Residential Chemical: p-Xylene

	Results S	summary			Risk-Based (Concer	Groundwater ntration
Soil Gas Conc.	Attenuation Factor	Indoor Air Conc.	Cancer	Noncancer	Cancer Risk	Noncancer
(C _{source})	(alpha)	(C _{building})	Risk	Hazard	= 10 ⁶	HQ = 1
(hg/m³)	(unitless)	(hg/m³)			(hg/L)	(hg/L)
7.94E+03	6.8E-05	5.4E-01	NA	5.2E-03	NA	NA

Vapor Intrusion Screening Model - Groundwater

Department of Toxic Substances Control

DTSC Modification December 2014

Reset to Defaults

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box) YES

OR CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

х	
YES	

Risk-Based Groundwater

Scenario: Residential Chemical: Toluene Concentration

Noncancer HQ = 1 (µg/L)

(hg/L)

Attenuation Factor Indoor Air Conc. Cancer Noncancer Cancer Risk (alpha) (C_{buelding}) Risk Hazard = 10⁻⁶

Soil Gas Conc. (C_{source}) (µg/m³) 1 045±04

(hg/m³)

(unitless)

Results Summary

				Chemical	
					Toluene
ENTER Initial	groundwater	conc.,	C.	(hg/L)	5.70E+01
ENTER	Chemical	CAS No.	(numbers only,	no dashes)	108883

ENTER	Average	soil/	groundwater	temperature,	Тs	(°C)
ENTER			SCS	soil type	directly above	water table
ENTER		Depth	below grade	to water table,	L _{WT}	(cm)
ENTER	Depth below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)

MORE

244

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VTER ENTER ENTEI see zone Vadose zone Vadose zone vadose zone Vadose zone Vadose zone soil total soil total soil water- andry soil total soil water- pb n 0, w cm ^b n 0, w (cm ^b) (unitless) (cm ^b /cm ^b
--

AORE								
→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
T.	Target	Target hazard	Averaging	Averaging				
	risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
	carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
up Receptor	TR	THQ	AT_{c}	AT _{NC}	ED	EF	ET	ACH
alameters	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
sidentia	1.0E-06	-	70	26	26	350	24	0.5
	Used to calcul	ate risk-based					(NEM)	(NEW)
	groundwater	concentration.						
sidential	1.0E-06 Used to calcul groundwater i	1 1 ate risk-based concentration.	70		26	26 26	26 26 350	26 26 350 24 (NEW)

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END

APPENDIX F

Johnson & Ettinger Model Results Commercial Scenario

USEPA GW-SCREEN Version 3.0, 04/2003

Vapor Intrusion Screening Model - Groundwater

Department of Toxic Substances Control

DTSC Modification December 2014

Reset to Defaults

DATA ENTRY SHEET CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box) В YES

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

Х	
YES	

Risk-Based Groundwater

Scenario: Commercial Chemical: 1,2,4-Trimethylbenzene

Concentration

Noncancer HQ = 1 (hg/L)

Cancer Risk = 10⁻⁶ (hg/L)

Cancer Noncancer Hazard

Risk

(µg/m³)

(unitless)

Attenuation Factor Indoor Air Conc. (alpha) (Cbutatino)

Soil Gas Conc. (C_{source}) (m/gh)) MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

Results Summary

			Chemical	
ENTER Initial	groundwater	conc., C _W	(hg/L)	
ENTER	Chemical	UAS NO. (numbers only,	no dashes)	

8.10E+00

95636

groundwat	SCS	below grade	of enclosed
soil/		Depth	to bottom
Average			below grade
			Depth
ENTER	ENTER	ENTER	ENTER

MORE

Average	soil/	groundwater	temperature,	Ts	(°C)	17
		SCS	soil type	directly above	water table	SL
	Depth	below grade	to water table,	L _{WT}	(cm)	244
below grade	to bottom	of enclosed	space floor,	Ļ	(15 or 200 cm)	15

ENTER Average vapor flow rate into bldg. Leave blank to calculate) Q _{sol} (L/m)	5
--	---

e Vadose zone Vadose zone Vadose zone Vadose zone Vadose zone Vadose zone Vadose va Vadose vadose

	MORE								
	→	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
		Target	Target hazard	Averaging	Averaging				
		risk for	quotient for	time for	time for	Exposure	Exposure	Exposure	Air Exchange
		carcinogens,	noncarcinogens,	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate
	Lookup Receptor	TR	тна	AT_{c}	AT _{NC}	ED	H	ET	ACH
	raiallieleis	(unitless)	(unitless)	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Commercial	1.0E-06	-	70	25	25	250	∞	-
		Used to calcu	ate risk-based					(NEM)	(NEM)
		groundwater	concentration.						

END

DATENTER Page 1 of 1