Sundet, Rich

From: Charles Ronan, PhD [chuck@chemtrack.net]
Sent: Tuesday, October 08, 2002 3:40 PM
To: Rich Sundet
Subject: Addendum to Johnson Nissan Project

Addendum 10-8-02.pdf (805 KB

Rich,

We are submitting an addendum to the Johnson Nissan work plan to include installation of 3 additional on-site wells plus a GeoProbe in the area of 48th street.

We would like to meet with you very breifly on wednesday to confirm the location of the GeoProbe.

Please review the PDF file. The well locations are shown on Fig 5.

Thanks

Chuck Ronan

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October 7, 2002

Mr. Rich Sundet
555 Cordova St.
Anchorage, Ak 99501

Re: Addendum to Remediation Work Plan - Johnson Nissan Anchorage Alaska
Installation of Three Additional Wells and One GeoProbe

Mr. Sundet,

As an addendum to the Johnson Nissan remediation work plan, we are scheduled to install three additional on-site wells and one GeoProbe at the Johnson Nissan facility.

The locations of the wells are shown on Figure1. The GeoProbe will be located on the northern half of 48th street adjacent to the storm drain. The GeoProbe location shown on Figure 5 is tentative and we are asking for your input as to the exact location.

We are also attaching the project information we presented to you in our meeting last week to include most recent GRO and Benzene sample data, a summary of groundwater data, and an interim report summarizing injection and recovery flow rates and volumes.

Thank you,

Charles B. Ronan
Project Coordinator

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Johnson Nissan Project
Anchorage Alaska
Remedial Activities Interim Report
October 8, 2002

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Introduction

Remedial activities to date have included collection of groundwater data from on-site and off-site wells, injection and recovery of surfactant solution into on-site wells, and collection / laboratory analysis of representative samples from MW-1, MW-2, MW-6 and MW-8 to evaluate remediation.

Groundwater Data

The groundwater data included measurement of flow rates, volumes, and slug tests. The flow rates ranged from 1194 gpd at MW-1, 720 gpd at MW-6 and 1920 gpd at MW-8 compared to an average of 60 gpd at MW-2.

The data indicates an adequate groundwater flow at MW-1 and MW-6 for surfactant application and recovery. We are proposing additional wells in the area of MW-2 to enhance groundwater flow.

No surfactant was injected at MW-8. Approximately 40,500 gallons of elutriate was recovered from this well. See Groundwater Summary Table, Slug Test data and Injection/Recovery Table.

Surfactant Injection and Recovery Data

Surfactant injection and recovery volumes for wells, MW1, MW-2, and MW-6 are shown in the Groundwater Summary Table. A total volume of 2250 gallons was injected and a total volume of 2100 gallons was recovered. This data shows that we have more than adequate hydraulic containment at the site and that no uncontrolled migration is occurring.

Analytical Data

Sample data indicates an approximate 10-fold increase in both GRO and Benzene solubility around MW-6 compared to sample data from June 2002. There appears to be a corresponding reduction of 25-33% in MW-1 and a 500% decrease at the downgradient and off-site MW-8. MW-2 showed a significant increase in GRO/Benzene solubility, however, recovery and injection at this well is limited.

Discussion of Data

Wells with acceptable flow rates appear to be responding as predicted: a significant (1000%) increase in hydrocarbon solubilization at the contaminant source MW-6 with significant decrease (500%) in downgradient and off-site MW-8, due to upgradient removal of the source contaminant.

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Proposed Activities

Continue focus on source removal by injection and recovery of surfactant solution from upgradient on-site wells.

Installation of three additional wells and one GeoProbe, as shown on Figure 5. The additional wells will be identified as MW-13, MW-14 and MW-15. One GeoProbe will be installed, adjacent to the storm drain, on the northern half of 48TH Street to allow for sample collection and monitoring of potential contaminant migration. We will continue to monitor downgradient at wells MW-8, MW-11 and MW-12.

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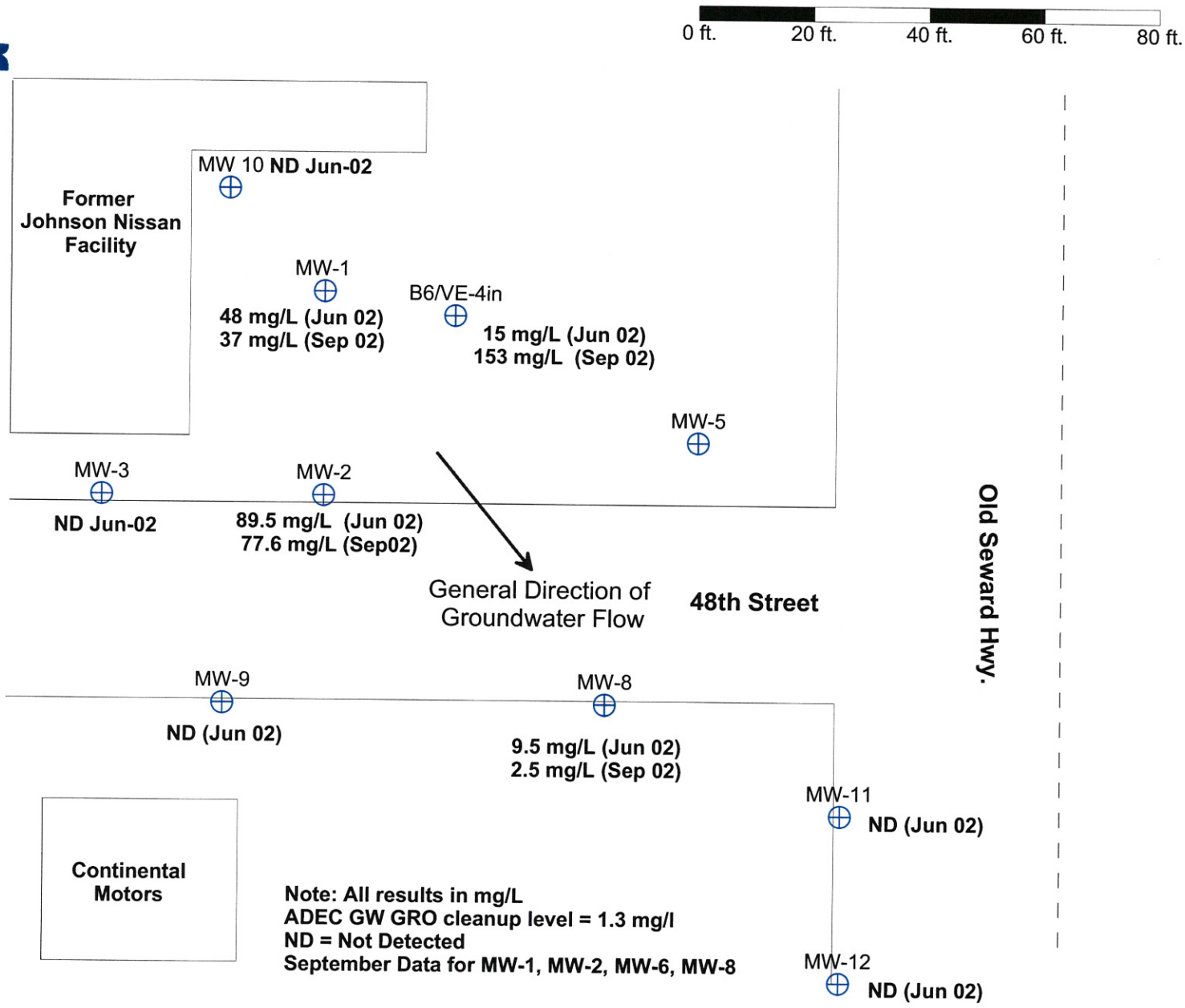

Note: All results in mg/L
ADEC GW GRO cleanup level = 1.3 mg/l
ND = Not Detected
September Data for MW-1, MW-2, MW-6, MW-8

Figure 1
GRO Levels mg/L
Johnson Nissan
Jun 02 - Sep 02

GRO History

GRO Site Data June 02 - Sept 2002

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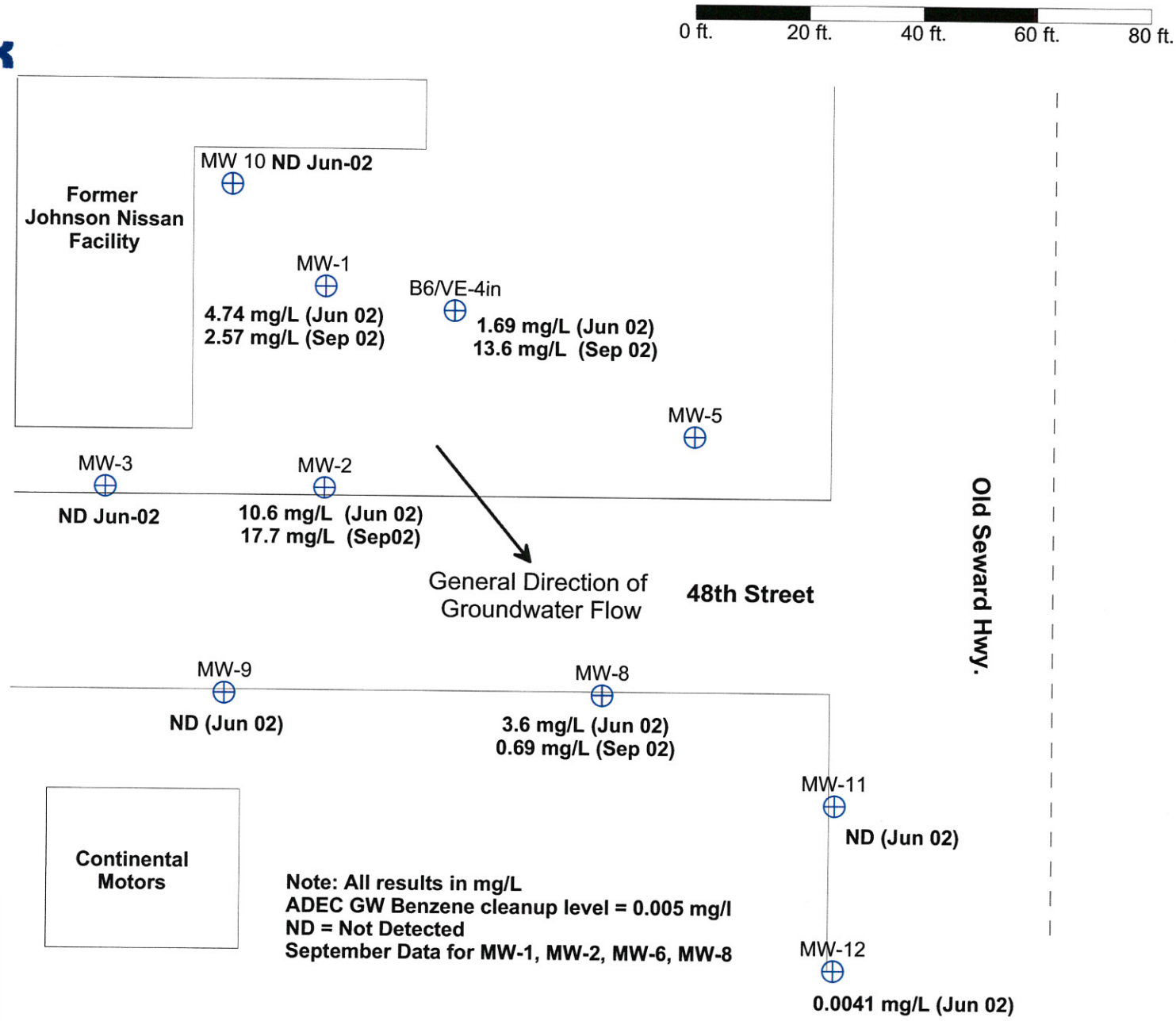
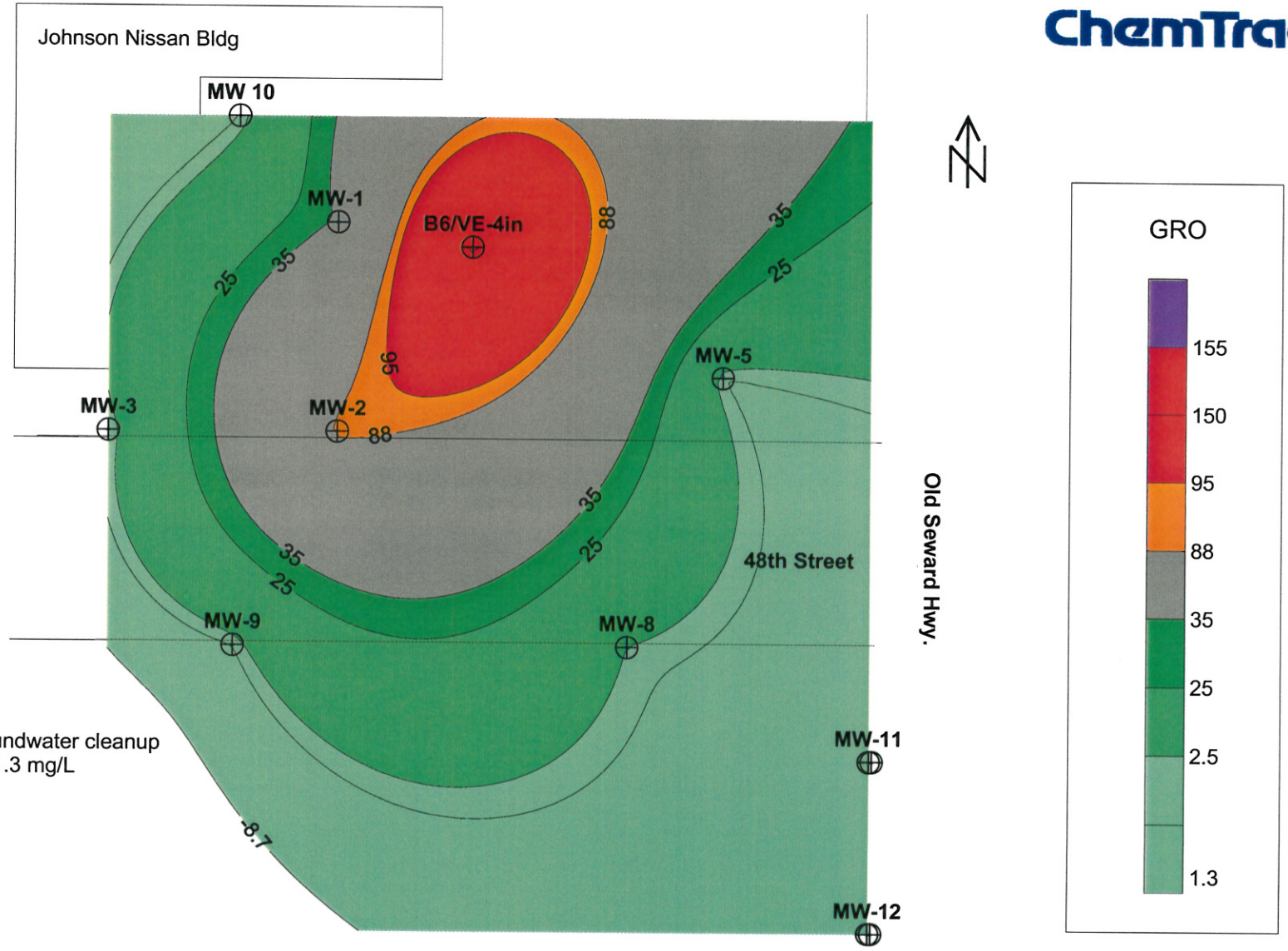


Note: All results in mg/L
ADEC GW Benzene cleanup level = 0.005 mg/l
ND = Not Detected
September Data for MW-1, MW-2, MW-6, MW-8

Figure 2
Benzene Levels mg/L
Johnson Nissan
Jun 02 - Sep 02

Benzene History

Benzene Site Data June 02 - Sept 2002



Note: ADEC groundwater cleanup level for GRO = 1.3 mg/L

Figure 3: Statistical distribution of GRO based on Sept 16, 2002 sample data

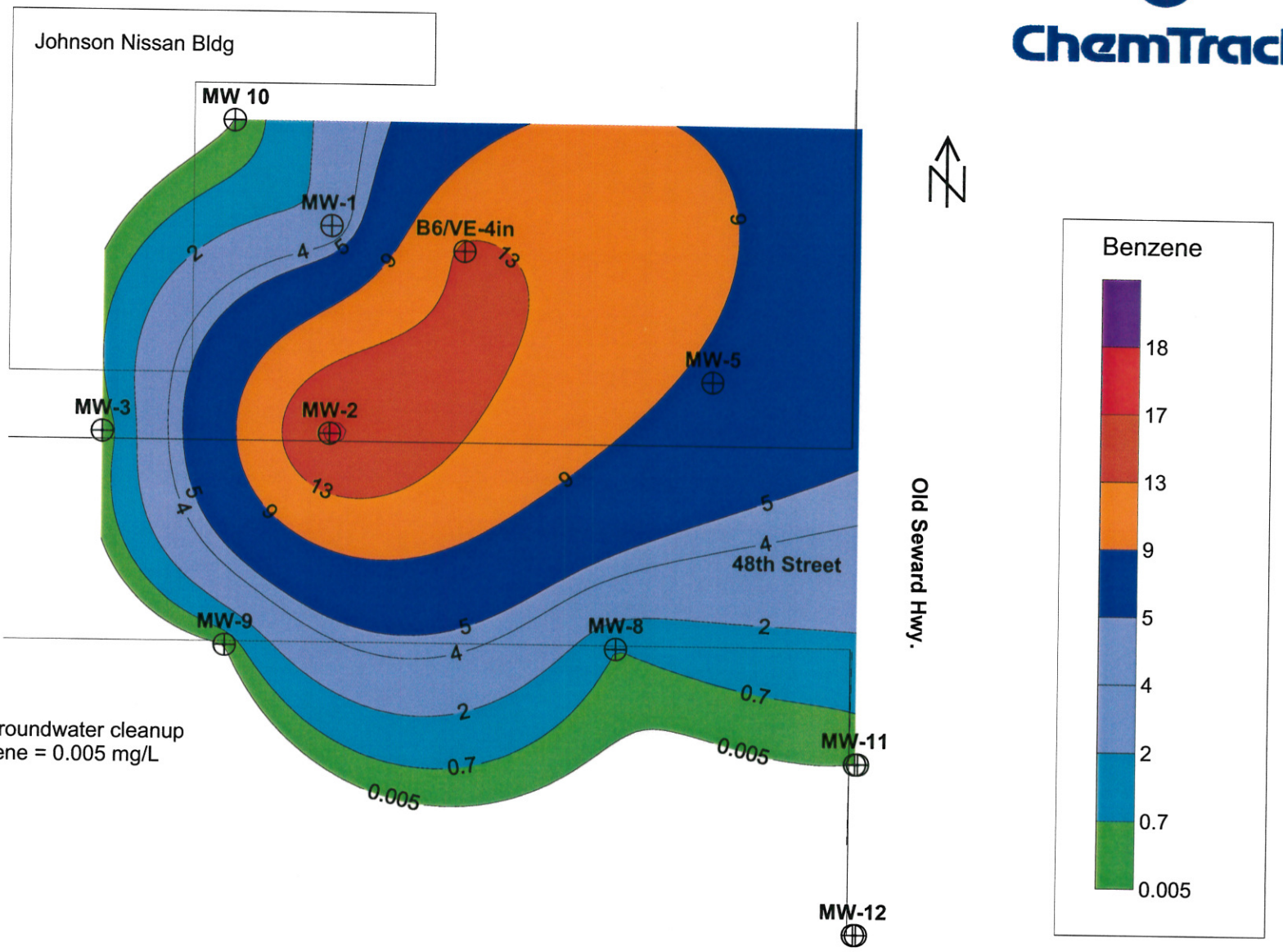


Figure 4: Statistical distribution of Benzene based on Sept 16, 2002 sample results

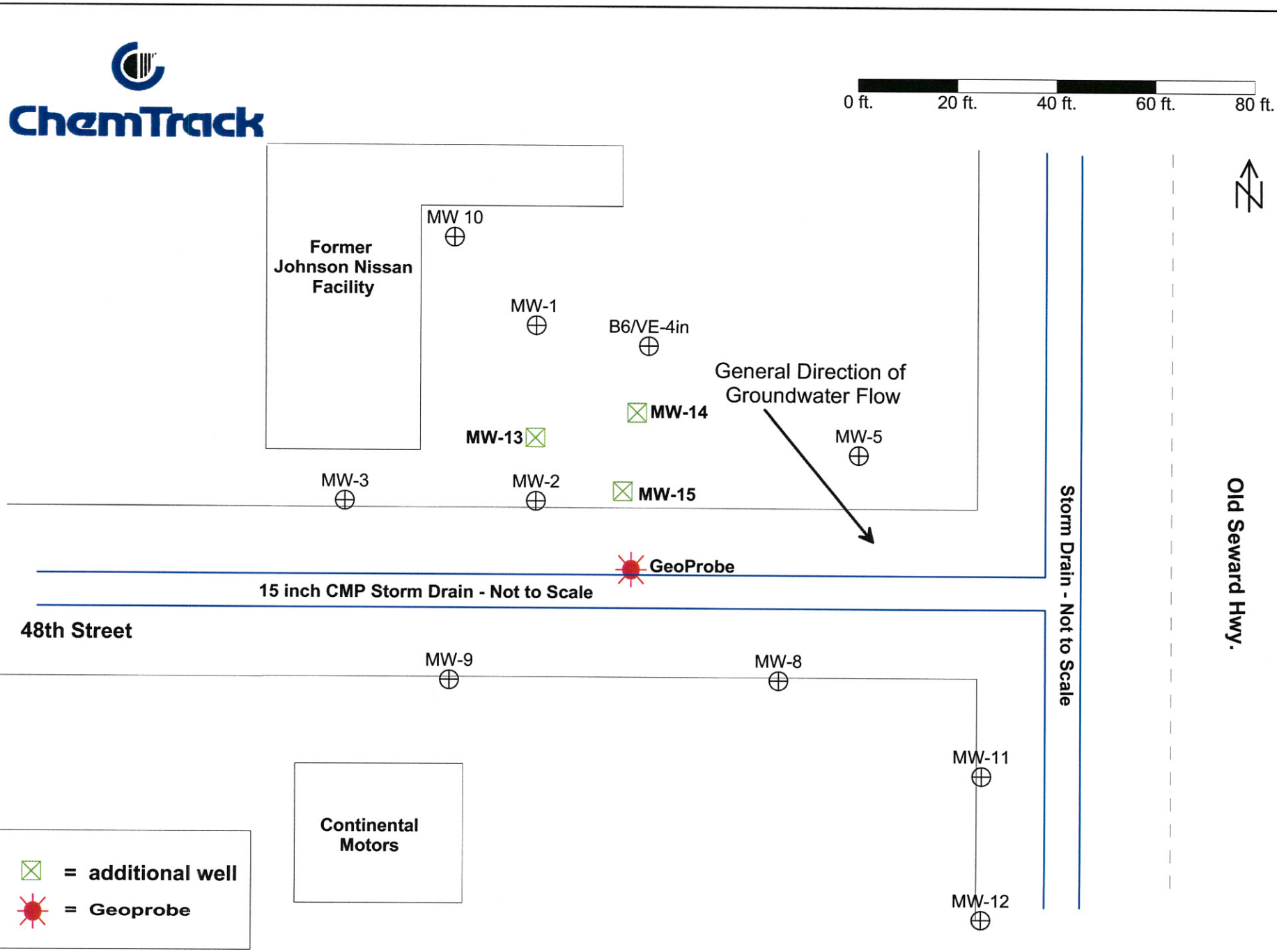


Figure 5: Approximate Locations of Additional Wells and Geoprobe

GROUND WATER SUMMARY

JOHNSON-NISSAN

WELL	ALL PPM DATE	1.3 GRO	0.005 BENZENE	.7 ETHYL BENZENE	1 TOLUENE	10 TOTAL XYLENE	30-Sep-02 INJECT H20	30-Sep-02 INJECT SURFACTANT	30-Sep-02 RECOVER	FLOW RATE GPM	FLOW RATE GAL/DAY
MW 1	17-Sep-02	36.8	2.57	0.685	5.7	5.1	20,160	1,182	8,206	0.25	360
	7-Jun-02	47.7	4.74	1.13	8.42	6.2					
	9-Aug-00	14.5	1.49	1.68	0.411	2.151					
	Dec-96	66.9	11	2.23	16.8	11.63					
	Jan-95	97.6	14.6	2.79	27.6	14.8					
MW 2	17-Sep-02	89.5	17.7	1.36	19.2	6.99		600	2,241	0.08	122
	7-Jun-02	77.6	10.6	1.44	10.8	8.00					
	9-Aug-00	57	5.27	7.88	1.46	9.69					
	Dec-96	152	25.8	4.41	36.7	21.93					
	Jan-95	156	32.8	3.4	44	17.5					
MW-6	17-Sep-02	153	13.6	2.57	28	17.6		480	10,491	0.33	480
	7-Jun-02	15	1.69	0.231	1.95	1.5					
	9-Aug-00	42.1	3.82	4.48	0.637	3.362					
	Dec-96	18.6	2.29	0.184	4	2.334					
	Jan-95	20.7	1.53	0.792	3.74	3.51					
MW 8	17-Sep-02	<2.5	0.687	<.050	<.050	<.15	0	0	40,479	1.33	1920
	7-Jun-02	9.5	3.6	0.022	0.016	0.35					
	9-Aug-00	1.19	0.503	<.02	<.02	<.02					
	Mar-96	9.89	4.91	0.1	<<.1	0.236					
	Jan-95	3.45	1.51	0.004	0.0027	0.0073					

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INJECTING AND RECOVERY LOG

JOHNSON NISSAN

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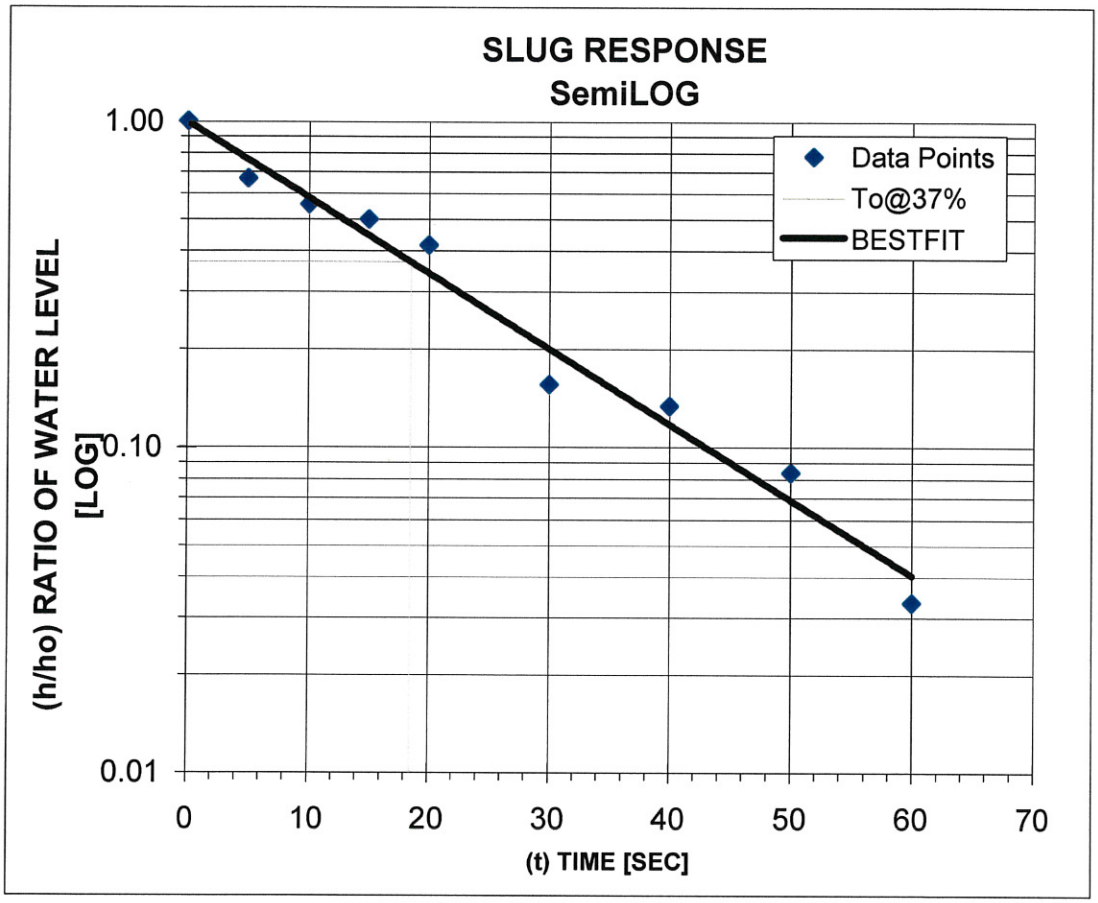
DATE		MW1 INJECT	MW1 RECOVER	TIME MIN	GPM	MW2 INJECT	MW2 RECOVER	TIME MIN	GPM	MW6 INJECT	MW6 RECOVER	TIME MIN	GPM	MW8 WATER ONLY EXTRACT	TIME MIN	GPM	MW10 INJECT
14-Aug-02	WATER	102		30	3.4												
14-Aug-02	WATER						25	60	0.42								
17-Aug-02	DRAW DOWN						108	181	0.60								
17-Aug-02	SURFACTANT					210		20	10.50								
17-Aug-02	WATER										27	68	0.40				
20-Aug-02	ELU						46	330	0.14								
21-Aug-02	ELU						24	322	0.07								
21-Aug-02	SALT/COSOLV	200		24	8.33												
22-Aug-02	ELU						74	1440	0.05								
22-Aug-02	SURFACTANT	600		73	8.22					200		19	10.53				200
23-Aug-02	SURFACTANT									200		52	3.85				
23-Aug-02	WATER													30	200	0.15	
23-Aug-02	SURFACTANT					100		48	2.08								
24-Aug-02	WATER													129	720	0.18	
26-Aug-02	ELUTRIATE						29	339	0.08					1920	5 GAL3.75	1.33	
26-Aug-02	ELU		212	333	0.64									1920			
27-Aug-02	ELU		84	414	0.20									1920			
28-Aug-02	SURFACTANT					40		GRAVITY						1920			
28-Aug-02	ELU		75	300	0.25									1920			
29-Aug-02	SURFACTANT					170								1920			
30-Aug-02	SURFACTANT					40								1920			
30-Aug-02	SURFACTANT	200												1920			
30-Aug-02	WELL WATER													1920			288
2-Sep-02	ELU						115	1440	0.08					1920			288
3-Sep-02	ELU						65							1920			288
4-Sep-02	**ELU**		334	1440	0.232						**432**	**1440**	**0.30**	1920			288
5-Sep-02	**ELU**		334	1440	0.232						**432**	**1440**	**0.300**	1920			
6-Sep-02			1194	**1,440**	**0.83**		**90**	**1,440**	**0.063**		**480**	**1,440**	**0.33**	1920			
7-Sep-02	WELL WATER	1440					**90**	**1,440**	**0.063**		**480**	**1,440**	**0.33**	1920			
8-Sep-02	WELL WATER	1440					**90**	**1,440**	**0.063**		**480**	**1,440**	**0.33**	1920			
9-Sep-02	WELL WATER	1440					**90**	**1,440**	**0.063**		**480**	**1,440**	**0.33**	1920			
10-Sep-02	WELL WATER	1440					**180**	**1,440**	**0.125**		**480**	**1,440**	**0.33**	1920			
11-Sep-02	WELL WATER	1440					**180**	**1,440**	**0.125**		**720**	**1,440**	**0.50**	1920			
12-Sep-02	WELL WATER	1440					**180**	**1,440**	**0.125**		**720**	**1,440**	**0.50**	1920			
13-Sep-02			1194	**1,440**	**0.83**		**180**	**1,440**	**0.125**		**720**	**1,440**	**0.50**	1920			
14-Sep-02			1194	**1,440**	**0.83**		**180**	**1,440**	**0.125**		**720**	**1,440**	**0.50**	0			
15-Sep-02			1194	**1,440**	**0.83**		**180**	**1,440**	**0.125**		**720**	**1,440**	**0.50**	0			
16-Sep-02			TESTING			TESTING				TESTING				TESTING			
TOTAL		**9,742**	**5,817**			**560**	**1,925**			**400**	**6,891**				**40,479**		**1,352**
17-Sep-02			1194	1440	0.83	0	0				**720**	**1,440**	**0.50**	0			0
18-Sep-02							23	1440	0.016		**360**	**1,440**	0.25	0			0
19-Sep-02							23	1440	0.016		**360**	**1,441**	0.25	0			0
20-Sep-02	SURFACTANT	80				30	-			80				0			0
21-Sep-02	WELL WATER	2880		1440	2	10	-		-				-	0			0
22-Sep-02	WELL WATER	2880		1440	2		-		-				-	0			0
23-Sep-02	WELL WATER	2880		1440	2		-		-				-	0			0
24-Sep-02	WELL WATER	2880		1440	2				-								
TOTAL TO DATE	WELL WATER	20160	7,012				1,971				8,331				40,479		1,352
RECOVER	SURFACTANT	1,182				600				480							
25-Sep-02			1,194	1440	0.83		45	1440	0.0312		360	1,440	0.25				
26-Sep-02							45	1440	0.0312		360	1,440	0.25				
27-Sep-02							45	1440	0.0312		360	1,440	0.25				
28-Sep-02							45	1440	0.0312		360	1,440	0.25				
29-Sep-02							45	1440	0.0312		360	1,440	0.25				
30-Sep-02							45	1440	0.0312		360	1,440	0.25				
TOTAL TO DATE	SURFACTANT	1,182	8,206			600	2,241			480	10,491				40,479		1,352

DATE:	14-Aug-02
SITE:	Johnson Nissan
WELL ID:	MW6

TOC	[FT MSL]	**TOC ELEVATION:**	98
2r	[IN]	**CASING DIAM:**	4
2R	[IN]	**BOREHOLE DIAM.**	6
D_{WELL}	[FT]	**WELL DEPTH:**	14
L_e	[FT]	**SCREEN HEIGHT:**	10
		SCREEN SLOT:	0.02
		FILTER PACK	8-12 Silica Sand
D_{WTR}	[FT]	**INITIAL (STATIC) WATER DEPTH:**	6.6

(t) TIME [SEC]	WATER DEPTH [FT]	(h)WATER RISE [FT]	h/h_o	
0	5.70	0.90	**1.00**	h_o
5	6.00	0.60	0.67	
10	6.10	0.50	0.56	
15	6.15	0.45	0.50	
20	6.23	0.38	0.42	
30	6.46	0.14	0.16	
40	6.48	0.12	0.13	
50	6.53	0.07	0.08	
60	6.57	0.03	0.03	



Y	X	
0.37	0	
0.37	18.524	T_o from bestfit equation
0.37	18.524	T_o from bestfit equation
0.01	18.524	T_o from bestfit equation

10 =Le/R>8? Yes

$K=(r^2 Ln(L_e/R))/(2LT_o)$ Hvorslev

K=	0.00022	ft/sec
K=	**19.41**	**ft/day**
K=	0.00685	cm/sec
K=	592	cm/day